

# **Native Plant/Native People Tour**

# 1 What was it like to live in an Indian village?

(Use this stop to get children to think about what skills and knowledge they would need to live in a Kumeyaay village. Give the children some appreciation for how smart these people were in dealing with their environment. Try to make it interactive by asking lots of questions that they can answer. And if they can't answer all of them maybe they will try to figure them out later.)

The Kumeyaay lived in areas such as this for many years without the modern conveniences that we are used to. The plants that you see here are very similar to the ones that were here when the Kumeyaay lived here. Imagine living here many years ago, before McDonalds or other restaurants, or grocery stores, or even refrigerators. Would you know which plants you could eat? Lemonade Berry (*Rhus integrifolia*) has a sour but tasty fruit with a lemon-like flavor, which was made into a drink by both native peoples and settlers. Sucking on the berries will help quench your thirst on long walks. What if you had a headache or stomach ache? There are no drug stores for medicine or even band-aids. California Buckwheat (*Eriogonum fasciculatum*) has flowers used by the native peoples to make a tea to aid digestion and as a cure for headache, abdominal pain (colic) and diarrhea in infants.

Remember, everything you eat, wear, and use has to come from what you see around you. These people were very smart about using the plants and animals around them to survive. So what would you be doing if you lived here?

- 1 bringing water to the campsite How do you heat water in a basket?
- 2 gathering food—acorns, seeds, berries (like--lemonade berry)
- 3 storing and protecting the food from animals trying to steal it
- 4 preparing the food to eat
- 5 gathering firewood and tending the fire How would you start a fire without matches?
- 6 making arrows or nets and traps for hunting How do you make an arrow?
- 7 tanning animal skins and sewing them What is your needle and thread?
- 8 making baskets and ropes or weaving mats
- 9 tending young children
- 10 even playing some games--tag etc. What toys could you make?

## 2 Pond

What is a riparian habitat? The riparian woodland is a habitat for many plants that require water near the soil surface for survival; it is also home for wildlife, especially birds and other animals (like people), which must have fresh water. Riparian woodlands played an important role for the Kumeyaay as a place to hunt game and collect fresh water, and as an excellent location for temporary settlements, or villages. In San Diego County such riparian habitats occur in mountain canyons, along creek beds, and in coastal river valleys where they once covered vast areas of land. Much of this riparian habitat in the coastal river valleys, however, is diminishing rapidly as people use the land for farming, housing, and roadways and commerce.

The branches of Arroyo Willow (*Salix lasiolepis*) were used to weave baskets for gathering and storing acorns. The trees were also used to build shelters, and the roots were made into bows. Willow is an excellent internal remedy for pain, inflammation and fevers. It can also be used in an external wash for sores. The active ingredient is salicin. Salicylic acid is closely related to aspirin.

Baskets were also made from pine needles, deer grass, juncos, etc. These baskets were designed for many purposes, including food collection, storage, and preparation, ceremonies, gifts, and hats. The crafters (mostly women) enjoyed considerable prestige if they produced quality products. Artistry as well as usefulness was an important factor. Look for plants you might be able to use for baskets or building materials.

Christmas Berry or Toyon (*Heteromeles arbutifolia*) The Kumeyaay ate the red berries and the Spanish and American settlers used them for making cider. However, birds and animals also like the berries so it was a scramble to see who would get to the ripe berries first and get to harvest them.

Remember that the native peoples had to compete with birds and other animals for eating seeds and berries.

Dudleya (*Dudleya lanceolata*) sometimes called hens and chickens because small new plants cluster around the larger plant. Leaves are edible and the root was boiled to treat asthma.

### 3 Kumeyaay Home site

This area shows you some examples of the building structures the Kumeyaay used. Allow the children to look inside the ewaa (ask the children to say whaah) then explain to them how it was used. By the way, the dome shaped structure was made with the help of a member of the Kumeyaay tribe and school children. Willow trees and reeds were used in construction. The ewaa can be built in different sizes and shapes. They were used mainly for the storage of tools and food, and on wet or cold nights for sleeping. A small fire (emphasis on SMALL) could be used for warmth in larger shelters. Fire pits for cooking were always outdoors. Why? (Safety) Ramada structure was used as a shaded gathering area--a work area for basket making, making tools, weaving rope, sewing, preparing food, etc. The grinding stone is called an ehmuu (ask the children to say eh-moo). Explain that acorns were one of the main foods for the Kumeyaay. Acorns contain bitter tannin that must be removed before you can eat them. So the acorns are ground up on the ehmuu. Then the acorn meal is put in a tightly woven basket and fresh water drained through the basket to flush out the tannins but leaving the acorn meal, which can then be roasted or boiled into a mush for eating. Point out the Coast Live Oak (*Quercus agrifolia*) down in the home site area. By the way, the Kumeyaay preferred the taste of acorns from the Black Oak (*Quercus kelloggi*) trees found in the mountains, but they would use acorns from other oak trees.

## 4 Firescape

Point out the chamise (*Adenostoma fasciculatum*) commonly called greasewood because oils in the plant make it burn very hot and quickly. It was used for firewood, to make shelters and arrow shafts and as medicine against infection. Chamise and a number of other native plants are not recommended for planting around our homes because they fuel a fire. As we have been shown recently that has disastrous effects.

We live in a Mediterranean climate with cool, wet winters and warm, dry summers. Our native plants have adapted to seasonal dry weather. Notice how small the leaves are and some are light colored to reflect the sun. Have you noticed that if you wear a white or light colored shirt you seem cooler than if you were wearing a black or dark colored shirt when you are out in the sun? It's because the white shirt reflects the light and heat; and black absorbs the light and heat of the sun. So light colored leaves help keep the plant cool.

Some leaves also have seem fuzzy or hairy which also cuts down on water loss. And some plants don't seem to have any leaves like the cacti. Cacti and other succulents have thick leaves or stems that store water and cut down on water loss. Other plants lose their leaves during the dry season to cut down on water loss. Then they leaf out after the rains come.

Native plants have all kinds of strategies to help them survive in a hostile environment. Notice that plants don't usually grow very tall and that there are bare spaces between plants. The competition for water makes them space themselves. Some of these plants (*Salvia* and *Artemisia*) produce oils that give off a scent as well make the leaves bitter tasting so that animals do not like to eat them. The animals know which plants to avoid eating because they can smell them. And some plants like cacti have thorns, needles, spikes, and etc. to help protect them from predators.

In this firescape we have used native plants that are not especially dangerous in a fire. We have also included plants from other Mediterranean climates around the world (the Mediterranean coast, the western coast of Chile, the southern coast of South Africa, and the southwestern coast of Australia), which are drought-tolerant and fire resistant. Please remember that any plant will burn, but some plants burn very slowly or reluctantly.

## 5 Woodrat Midden

Woodrats, also known as —packrats,<sup>1</sup> are about the size of an ordinary house rat. They are seldom seen during the day, being nocturnal. This is probably an abandoned house of a woodrat. A waste midden has accumulated from years of former occupation (in other words it is the dumpsite for the woodrat). Woodrats, rabbits, and other game were regarded as a favorite meat in the traditional Kumeyaay diet. These animals were pounded prior to cooking in order to pulverize the bones. Calcium from the crushed bone is believed to be an important source for calcium (to build strong bones and teeth) because they did not have milk products.

For hunting animals, the Kumeyaay made arrow shafts from chamise and tied on stone points and feathers with sinew or rope. Hunters would rub sage onto their skin—do you know why? Let the children smell sage. Most animals have a great sense of smell and humans have a unique scent that animals have learned to fear. Rabbits, deer, etc. could smell the hunter and run away before the hunter could get close enough to kill them. Using sage on their skin helped hunters to mask their human odor and the animals did not fear the scent of sage. The Kumeyaay also used sage to flavor food. Plants were also the source for medicine. The Kuseyaay (kwee-see-eye) is the healer, who learned to prepare and use plants in medicine. Their knowledge was passed down through the generations by teaching younger people how to harvest, prepare and use plants fresh or dried to treat problems. Usually the plants were brewed into a tea for the patient to drink, or made into a poultice to spread on a wound. Healing and spiritual beliefs worked together for the Kumeyaay. Their traditional medical practices included singing and dancing to call forth healing powers from guardian spirit beings. But even surgery was among the kuseyaay's skills.

## **Burn site**

In 1999 we had a controlled burn of this area. The Encinitas Fire Department was here to supervise the burn; however, the speed and heat of the fire of such a small burn area was astonishing. After the burn this area was only charred remains. Notice now how similar the burn area (to the right of the path) and the unburned area (to the left) seem. Plants in the coastal sage scrub are adapted to fire; however, fires started naturally by lightening occur far less frequently than our man-made fires. Surprisingly, the area was burned to rejuvenate the area. A fire can actually increase the plant diversity. Fire does not necessarily destroy all the plants; many survive below the ground so that they send up shoots when the winter rains come.

Some of these plants have seeds that need fire. The tough outer seed coating protects the living core but this coating must be weakened—by fire—to allow the seed to sprout and start a new plant. Annual plants such as wildflowers (some of these are also thought of as weeds) are waiting in the soil maybe for years for an opportunity like this to sprout. When the rains start many new plants begin emerging. Fire is devastating for the plants and animals but given some time life begins anew.

The Kumeyaay used Yucca fibers for making sandals, nets, ropes, etc. People ate the flowers and fruits. By the way, plants and animals have interesting relationships. Some yuccas attract a moth at night by the scent of their flowers. The moth helps the plant by pollinating the plant and allowing seed to develop, and the plant helps the moth by feeding the moth's larva with some of the seed. Then the moth larva climbs down the stem and lives in the soil. The adult moths emerge when the yuccas in their area are in bloom so the cycle can repeat. The moth and the yucca need the other to produce the next generation.

## 6 Endangered Coastal Sage Scrub

Coastal Sage Scrub describes a unique plant community found along the Pacific coast of Southern California. The landscape is dominated dwarf shrubs and trees including: Chamise (*Adenostoma fasciculatum*), Manzanita (*Arctostaphylos* spp.) California Sagebrush (*Artemisia californica*), Coyote Brush (*Baccharis* spp.), Bush Sunflower (*Encelia californica*), Toyon (*Heteromeles arbutifolia*), Prickly Pear Cactus (*Opuntia* spp.), Lemonade Berry (*Rhus integrifolia*), Sage (*Salvia* spp.) and Oak (*Quercus* spp.). The city of Encinitas gets its name from the Spanish word for small oaks.

Over 70% of Southern California's coastal sage scrub has disappeared. Look at all the homes and development beyond the garden. Human expansion, alien weed introduction, fire suppression, pollution from introduced animals and urban sprawl threatens what remains. Quail Botanical Gardens is named for the California Quail, which make their home in the coastal sage scrub. We have the plants for food, and shelter that these birds need, but foreign predators, house cats from surrounding homes, have made our quail disappear. Quail are especially vulnerable to cats because these birds would rather run around on the ground than fly and they make their nests on the ground.

Southern California's rapidly diminishing coastal sage scrub includes many rare and threatened plant species. Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) and Encinitas Baccharis (*Baccharis vanessae*) are a couple of the many plants endangered by urban expansion. Coastal sage scrub plays a role in preventing soil erosion, providing a critical habitat of endangered plants and animals, providing us with drought-tolerant plants suitable for our region, and contributing to the planet's overall biological diversity.

You are familiar with endangered animals like the panda. What does it mean to be an endangered animal? (There are so few animals left that when these few die there may not be any more of them—they become extinct). Just as there are endangered animals there are also endangered plants. Quail Botanical Gardens does for plants what a zoo does for animals. We help to protect plants from extinction. You can come here to see and learn about plants from all over the world, some of them are rare and unusual.



## 7 Opuntia and Torrey Pine

The Indian Fig (*Opuntia ficus-indica*) was brought to California by the first Spanish missionaries from Mexico. The fruit, called —tuna, are still used to make jams jellies and candy. The pads are scraped to remove the spines and eaten fresh or cooked as a vegetable. Some native people used the spines for tattooing. Notice the white stuff that looks like a fungi living on the plant.

These are cochineal bugs that live on the sap of this plant. Native people used these tiny insects to make a red dye, which became very important during the 18<sup>th</sup> Century. Natural plant dyes usually give a dull or drab color so brighter colors were unusual, highly desired and expensive. Great Britain showed its power and wealth by dressing its army in bright red coats derived from the red dye of the cochineal insect. American colonists even referred to the British army as —Red Coats during the American Revolution.

The Torrey Pine (*Pinus torreyana*) The Kumeyaay ate the large seeds dry or roasted. The resin was used medicinally for head colds and sore throats, as a dressing for wounds, and to alleviate muscular soreness. The needles were woven into baskets.