

Stevens Creek Site Guide

3rd edition



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EVs Philosophy and Mission

Philosophy

The Environmental Volunteers believes all children deserve to learn about the natural world through personal exploration, so they can become responsible stewards of the Earth. At the Environmental Volunteers we believe that what children appreciate and love, they will protect.

Mission & Goals

Our Mission: To promote understanding of and responsibility for the environment through hands-on science education.

Our Vision: That all children will learn about and be inspired by the natural world so that they become responsible stewards of the Earth.

We achieve this by:

- Providing hands-on science education
- Encouraging awareness of the interrelationships between people and nature
- Fostering an attitude of stewardship for the environment
- Providing knowledge and skills to children so they can make informed decisions about the environment

Stevens Creek Site Guide Objective

This guide provides EVs a detailed outline to guide a field trip at Stevens Creek Park. EVs are welcome to also bring their individual knowledge and passions to their hike. For example, some EVs are avid birders, while others are passionate about plants, and still others know the geology. In addition, nature is always changing and so this guide cannot tell you what kinds of tracks or scat you will find or where certain animals will be each time. It can only provide hints for where these things are most likely to be found.

Foothills Ecology Program Overview

This hike is a follow up field trip for our Foothills Ecology program. Every class that comes on this trip will have already had a visit from the EVs in their classroom with related hands on learning stations.

California is often known for its earthquakes, and all of that movement has created the amazing foothills that surround the Bay Area. Each set of hills is unique; some covered with majestic redwoods, some with mixed woodland forests, and others with golden grasslands.

Students will learn about the variety of habitats that can be found in the California foothills from grasslands to redwood forests. They will learn about all of the animals that live in these environments and how they interact with each other, including the banana slug, the dusky-footed woodrat and the acorn woodpecker.

Environmental Volunteers Program Overview

The Environmental Volunteers offers a variety of fun and educational learning programs to support environmental education in schools and in the community. Each of our programs supports the organization's mission and philosophy. In addition, we have outlined 6 principals of sustainability that are incorporated throughout our programs, and all of our school programs support teachers by aligning with the California State Educational Standards.

Principles of Sustainability

Sustainability is:

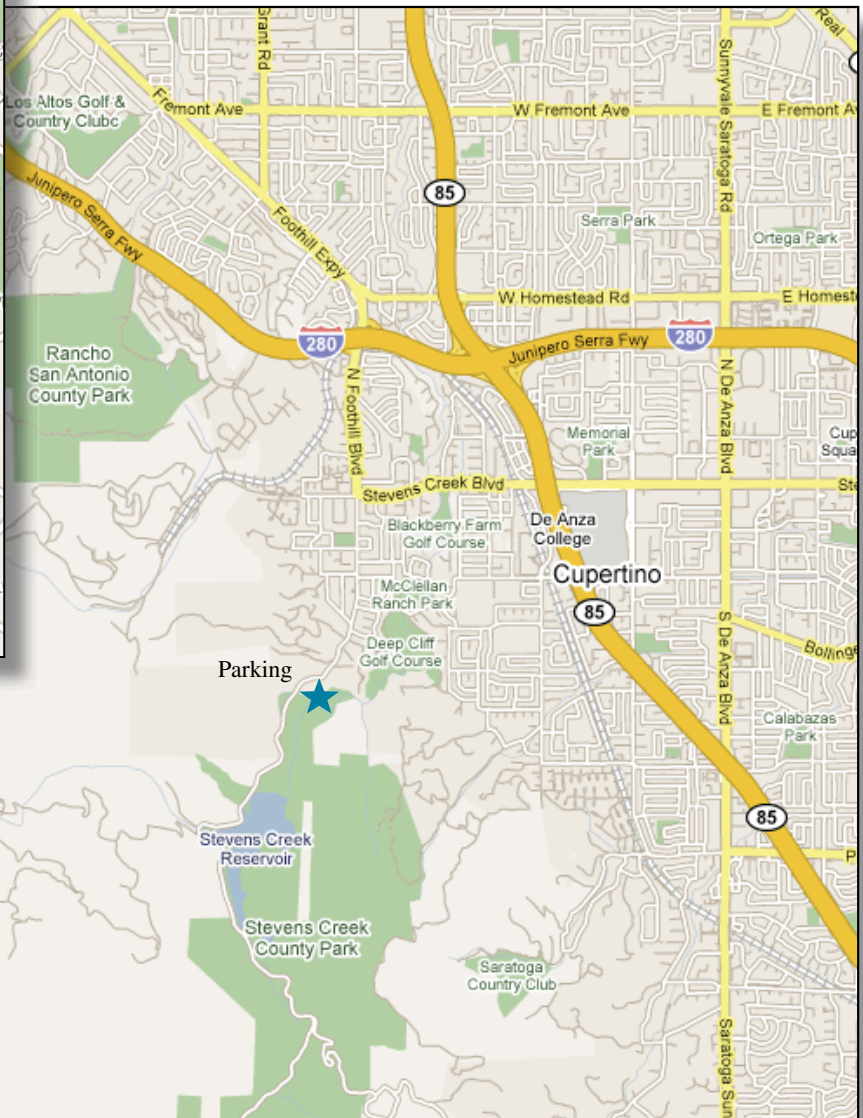
- A. **Preserving** our environment from our backyards and schoolyards, to our native habitats like forests and grasslands.
 - We teach our students to show respect for the land. We stay on hiking trails, pick up litter, and appreciate open spaces.
- B. **Restoring** our environment, wherever possible, from human impact, and assisting with the recovery of the species that live there.
 - We teach our students to respect habitats and the wildlife they support, and to understand the benefit of restoration projects and nature's ability to restore itself.
- C. **Practicing** responsible use of our planet's resources in sustainable and appropriate ways, leaving them in good shape for future generations.
 - We teach our students about the full cost of the choices we make in our lives, what resources we use to build our homes, grow our food, and support our daily lifestyles.
- D. **Conserving** the resources of our planet, to "walk lightly" upon the Earth.
 - We teach our students the importance of and techniques for using fewer resources, and to use our resources more efficiently.
- E. **Understanding** the beauty of our planet, the elegance of natural systems, and the interconnectedness of all its parts.
 - We teach our students the structure and function of the world around them, which creates the foundation for understanding the complexities of sustainable living.
- F. **Possible!** If we empower ourselves to make change, our efforts will make a difference.
 - We teach our students that California is a leader in sustainability reforms such as energy conservation and extensive recycling programs. As Californians, we are role models to our friends, our neighbors, our countrymen, and our planet.



Environmental Volunteers

Stevens Creek Park Foothill Ecology Field Trip

11401 Stevens Canyon Road
Cupertino, CA 95041



Directions:

From 280: Take the Foothill Expressway exit SOUTH past Stevens Creek Blvd. Foothill Expressway becomes Stevens Canyon Road. The park is approximately 1.2 miles from the Stevens Creek Blvd intersection.

Look for the Stevens Creek Park sign and turn left, then left again, into the Chestnut Picnic area

PREPARING FOR YOUR TRIP

WHAT THE STAFF DOES:

The School Programs Manager will call the park and confirm your visit.

WHAT **ANY** EV ON THE TRIP DOES:

One EV stops at the materials room and picks up a field trip backpack.

Backpacks have a set of laminated signs that should be placed on the dash of everyone's car/bus. The signs allows you to park for free. Be sure to get the signs back from everyone at the end – especially the ones that were given to the school vehicles.

WHAT EACH EV ON THE TRIP DOES:

Each EV should prepare his/her own field trip pack. This includes:

- Yellow laminated emergency procedure card
- Water bottle
- Materials for any trail activities you may want to use. (This will be unique for each person. See a list of ideas on page 13)

See map on opposite page.

BEFORE STARTING YOUR HIKE

WHEN THE BUS ARRIVES

The lead will greet the teacher and help coordinate pairing a group with their EV. Bathrooms are out on the trail, so you can go ahead and get started when you get your group. (Open bathrooms are at stops 8, 9, and sometimes 5.)

ORIENTING YOUR GROUP

Always start your trip by introducing yourself and setting up your expectations with your group.

Brief your adult chaperone

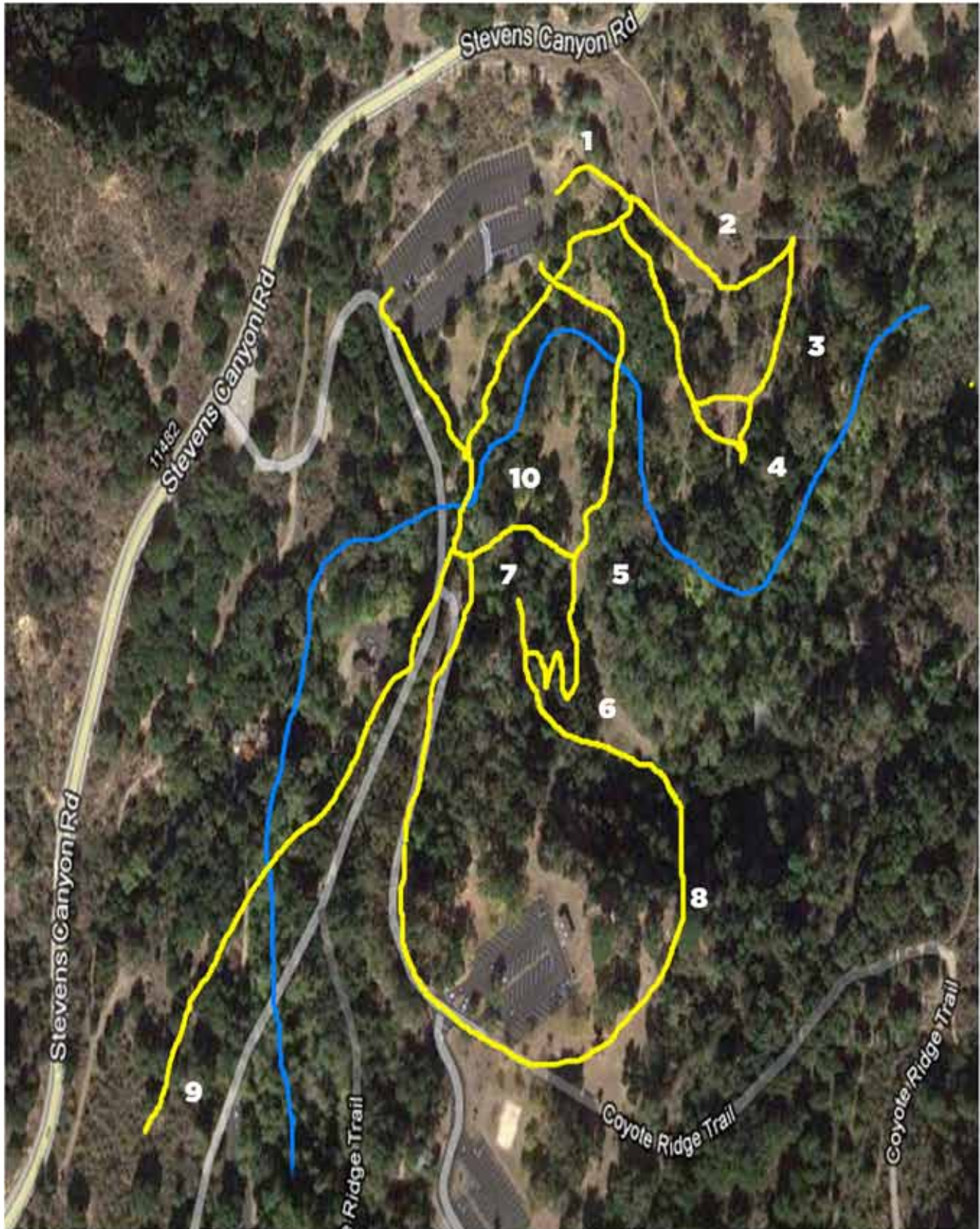
- Thank you for coming. Your help is needed to make these field trips fun and safe. I hope you will enjoy yourself, too.
- When we walk down the trail, I will take the lead to show everyone where we are going. I need you to take up the rear to make sure we don't have any stragglers.
- Today is a fun day for students. You are welcome to ask questions, but please let students ask their questions first. (Don't be afraid to remind the parent of this point if they start taking over.)



Steven's Creek Park

Permitted Trail Use

Trails for EV Use
Creek



Brief your students

- We are going to have fun exploring this beautiful habitat.
- When walking down the trail, stay behind me because I know where we are going.
- What will the animals do if we rush down the trails running and screaming? They will run away. So we are going to stay on the trails and be quiet so we can see the most wildlife possible.
- We are going to see a lot of things on this trip, but we will also hear, smell, and touch this environment. We will also be returning everything to exactly where we found it (unless it is litter) because something in this environment can use it.
- Pick a name for your group. (Give students some guidelines, such as picking a color and an animal – e.g., The Purple Banana Slugs.)

The map has 10 marked sites. This guide describes what can be found in each general area. It is not required to visit the sites in order. Nor is it necessary to visit every one of them. Choose your route to keep yourself spread out from the other EVs and take your group's interests and abilities into account.

For example, if you want to **avoid a major hill climb**, a possible route would be Stops 1, 9, 6, 4, 3 (going up and down via the trail directly connecting Stops 1 and 3 rather than past Stop 2).

See map on opposite page.

STOP 1: PARKING LOT

Guiding questions:

What do you notice that makes you wonder? (maybe the two kinds of bark on the trees)

What evidence do you see that an animal was here? (maybe rows of holes in the side of the tree, or piles of dirt in the grassy areas)

Features to highlight at this stop:



Walnut trees—note the thicker trunk at the base

Walnut Trees

The parking lot is in a former walnut orchard. The trees are California black walnuts, which produce a somewhat small and bitter nut. Black walnut rootstock is well adapted to the dry California summers. Grafted onto these rootstocks is English walnut, which produces the large flavorful nut we buy in the grocery store. The bark of the two trees is different in color and texture, the California walnut is dark and rough, the English walnut is lighter and smooth.

The leaves are also distinctly different. Most of the trees have only English walnut branches and therefore only English walnut leaves. There is one tree near the trail heading to Stop 4 that has both English and California walnut branches and it has both types of leaves.

This area was originally a vineyard, but between the 1890s and 1920s the vines were replaced with walnut trees.



Sapsucker holes

Sapsucker Holes

Many of the trees have been visited by sapsucker woodpeckers. They punch the holes, which fill with sap, and then they come back and eat the sap. Bugs are also attracted to the sap, so they get a yummy meal. Because the sap is everywhere in the tree, the birds make their holes in convenient rows.

Follow up questions:

How will we know if we see this plant again?

How will this site be different if we come at a different time of year?

STOP 2: TRAIL UP TO UPPER MEADOW

Guiding questions:

How does climbing this hill affect the things we find up here? (It will be drier, and fewer trees also make it warmer.)

How was this hill formed? (erosion caused by the stream)

Features to highlight at this stop:

Coyote Bush

These bushes are special because they have male and female plants. When not in bloom they are very hard to tell apart. The male has small yellow flowers similar to baby's breath. The female has white flowers, about a centimeter long. At first these flowers are narrow but later in the season they frizz out. Some describe it as a bad perm, which can help you remember which is male and which is female. The male and female plants are usually near each other.



Coyote bush - female flowers

So why is it called Coyote Bush? There are different ideas. One is that the frizzy female flowers are also supposed to look like a coyote caught his fur on a branch. Another is that the bush is highly adaptable like the coyote. This plant can be found in a wide variety of places, but it does particularly well in hot, dry habitats like the chaparral.

Eucalyptus

As you turn the corner to head down to Stop 3, there are a couple of eucalyptus trees. Ask students what they notice about these trees. Point out the shedding oily bark. The pile of bark on the ground can easily catch on fire during a wildfire. The oil also keeps the fire going. The leaves are about the same shape as bay leaves but are larger and are often eaten by critters. Bay leaves are often pristine. Eucalyptus has a nice smell.



Eucalyptus tree

The eucalyptus is invasive. It was brought from Australia to California (which has a similar climate) because it is a hardwood that grows very quickly. People wanted to use it for building, but the wood requires significant treatment to prevent cracking and rot. In particular, it was hoped it could be used for railroad ties, but the wood could not hold a railroad spike well and, over time, the ties would twist. By the time people learned that the eucalyptus had limited uses, the trees were already well established.

Follow up questions:

Have you see this plant or animal before?

What animals might like to use this plant? How so?

STOP 3: GRASSLAND



Grassland

Guiding questions:

What kind of animal might live in this area? (something that likes open spaces)

Why do we call an area like this a grassland? (habitats are often named for a predominant plant)

Features to highlight at this stop:

Birds

From the middle of the field, you can usually see some different bird species flying around the tops of the trees. It could be any number of species. Have students make observations about the birds. How big are they? Are they singing? How are they interacting with each other – are they trying to get another bird to leave? These are the kinds of things birders study to help them identify a bird. These birds are usually at a distance where color or beak shape is harder to spot – but if you can see these features, it is good to note as well. Woodpeckers are common here.



Turkey Tails on a log

Rolling a Log

There are many logs in the field that can be good hiding places for lots of cool things. When rolling a log, **always roll it towards you!** That way anything like a snake is able to flee away from you, rather than feeling trapped between you and the log.

Some things you may see include:

Slender salamanders – a few inches long and very slender with tiny legs. These amphibians are safe to pick up and let the kids touch or hold. Be sure to have them wet their hands first as salamanders need to remain moist.

Insects of all varieties – count how many species you can see. Do you see any insects that are in different life stages (larvae)?

Mushrooms – on all sides of the logs. The portion we see is the fruiting body (the part that sends out the spores to make more mushrooms). Most of the organism is underground or in the body of the log. Commonly seen are Turkey Tails. These will be on the sides of the logs. They are fan-shaped and have a striped coloration that makes them look like turkey tails.

Holes

There are many holes around this area. Ask students who they think made the holes, and why they think that. *Why* is important because it gets students to think more deeply about their observations.



2 holes - left is likely an insect and right is likely a rodent

This area most commonly has insect and rodent holes. Things that indicate the difference include size and the amount of dirt around the hole. Sometimes students will suggest a snake made a hole. Ask, how do they think the snake dug the hole? Some students may suggest the snake used its fangs. You can point out that their fangs are too fragile for digging. Lead students to realize that snakes only use the holes others have made.

Follow up questions:

What do you think this area will look like in 50-100 years?

How will this site be different if we come at night?

STOP 4: RIPARIAN



Riparian Area

Guiding questions:

How is this habitat different from other areas we have seen today? (cooler, more water, different plants)

What do you see, smell, or hear?

Features to highlight at this stop:

The creek

What park are we at today? (Stevens Creek Park). Well, this is Stevens Creek. The water level will change throughout the year, but there is always some water here. Across the creek, because of erosion, a tree's root system is exposed.

Trees

Notice how big the leaves are on these trees. Why is that? In this case it is because these trees have access to lots of water. In other habitats, plants need some kind of adaptation to get through the California summers. Why? How are our summers different from other parts of the country? (In particular, what DON'T we have? We don't get rain.) Trees need lots of water to drop their leaves every year and grow new ones. The trees here are sycamore, maple, and cottonwood.

Buckeye

The buckeye can be found away from riparian areas, but on this trail our best example is here by the creek. It is adapted to the dry season by leafing out as early as January and then dropping its leaves in June. The leaves are compound (meaning they have multiple smaller leaflets in each leaf) and have five leaflets arranged like fingers on your hand. The seed is large and looks like a buck's eye. It falls and rolls away from the tree. At certain times of the year you can find one that has sent out the initial root. The Ohlone used the seeds as a backup to acorn mush. Buckeyes need a lot of leaching and don't taste as good as acorns.

Follow up questions:

What would happen if the stream dried up?

Water is easy to find in a riparian area. What might be hard to find? (space, light, etc.)

STOP 5: CHESTNUT PICNIC AREA

Guiding questions:

What do you see, smell, and hear? How is it different from the sights, smells, and sounds of another place?

What do you notice that makes you wonder? (Maybe the chestnut seedpods, or gopher mounds)

Features to highlight at this stop:

This stop has bathrooms, although they are rarely open.



Snowberries

Snowberries

These are only present for part of the year, usually fall and winter. However snowberries are distinctive and will likely prompt the question, "What is that?" The snow white berries do not taste good to humans and could make us sick; however birds love them and often eat them in the winter when other food is scarce.



Gopher mounds

Gopher Holes

The mounds of dirt found throughout the picnic area are gopher holes. Remind students not to stomp on the dirt mounds, as these are the gophers' homes. We know these are from gophers because the holes are covered up. Moles don't bother covering their holes and California ground squirrels tend to excavate around their holes so they are almost funnel shaped.

Chestnuts

In the picnic area there is an abundance of VERY prickly seedpods. These are from American chestnut trees. The American chestnut is native to the east coast and suffered a major blight that almost led to its extinction. However, the Jesuits from Santa Clara University planted this grove when they owned the land. Presumably, because of the separation of this grove from the eastern population, these trees were unaffected by the blight. They may be the only grove of this kind west of the Mississippi.



Chestnuts

Let students feel the prickly spines (carefully as they are surprisingly sharp) and compare that to the fuzzy interior of the seed pods. Why would a plant make such a prickly cover for its seeds? It is likely to protect them from predators eating them.

Follow up questions:

Imagine a large group using this picnic area. What animals would this group see?

What animals might only be seen when it is quiet in the area?

STOP 6: SWITCHBACK TRAIL

Guiding questions:

Why might something choose to live on a steep hill like this?

How do plants have to adapt so they can stay on the hill? (need to be able to hang on)

Features to highlight at this stop:

This is a very steep hill. Halfway up rest at the big tree. This can be an opportunity to do a quiet activity such as having students close their eyes and count how many different nature sounds they hear.



Turret Spider turret

Turret Spiders

Along the exposed slope you can usually find the turrets of Turret Spiders. Turrets can range in size, but can reach as much as 3/4 inch in diameter. The spiders are usually not seen but will hide in their burrows at the base of the turret.

The turret is how this spider spins its "web." They typically hunt by waiting for vibrations of their prey (insects) walking by their burrow and jump out to grab it.

Female spiders will spend their entire lives (up to 16 years) in and around their burrow. Males will travel once when they are 8- or 9-years old to find a mate and then they will die.

Miner's Lettuce

During the rainy season, the side of the hill is covered with Miner's Lettuce. This plant got its name during the gold rush when the miners often ate it to stave off scurvy. It is very high in vitamin C. When things dry out, there will be no sign of the plant.

Follow up questions:

Why would animals like to hang out in this area?

How might other hillsides be the same or different from this one?

STOP 7: LOOKOUT POINT

Guiding questions:

What can you see from this new perspective?



Lookout view

Features to highlight at this stop:

The main reason to stop here is to get a breather after climbing the switchback trail. The change in perspective can also be good for the kids and gives them a sense of accomplishment.

Look for the Digger Pines and their very large pine cones.

The hill off to the right is the back of Linda Vista Park in Cupertino. It is a former sand/gravel quarry. The hillside just climbed (the switchback trail) is probably eroded by the stream below and the flat field of Villa Maria is an old floodplain.

Follow up questions:

Are there any animals (or plants) that would like a high perspective?

STOP 8: VILLA MARIA

Guiding questions:

How is this area different from other areas we have visited? (More human influence – picnic tables, parking lot, etc.)

Features to highlight at this stop:

This stop has bathrooms.



California bay laurel

California Bay Laurel

Near the parking lot, but before the bathrooms, there is a large tree. This is a bay tree. There are many other bays on this trail, but this one is by far the most impressive. It is large enough that you can allow students to climb on it. Establish some constraints for safety, such as no one's feet can go above the adults' eyes.

The California bay laurel is native and related to the Mediterranean bay tree, which provides the bay leaves we buy in the grocery store. The California bay can also be used in cooking, but it is even more potent. We don't eat the leaves, we just let their flavor leach into the soups and sauces we make. Thus, sometimes we call this the spaghetti sauce tree.

Crumple up a leaf and let students smell it. Why would a tree make such a potent smell? In this case it is a warning. If animals like insects and deer eat it, they will end up with an upset stomach. When they smell these leaves, they leave them alone. As a result the leaves are often in pristine condition. The Ohlone used bay leaves to keep bugs away and to clear their sinuses.

During the fall, you can find the nuts. Break one open and show students how similar they are to another familiar California tree – the avocado.



*Granary tree—
close up*

Granary Tree

On the other side of the bathrooms, there is a tall pine tree. Have students look at the trunk and tell you if they see something unusual. The trunk is covered in holes, many of which are filled with an acorn. This is a granary tree of an Acorn Woodpecker family.

The birds need to work together in order to maintain the granary. They need to drill the holes, collect the acorns, defend them from intruders like squirrels and jays, raise their young, etc. Oak trees only produce acorns for part of the year, so the woodpeckers have to collect enough to last all year. During the year, the acorns dry and shrink making them loose in the holes and easier for others to steal. So the woodpeckers will check the acorns regularly and move them to a smaller hole as needed.

Follow up questions:

How will the presence of people in this area change it?

STOP 9: BAY PICNIC AREA, RIPARIAN WOODLAND

Guiding questions:

Can you find all of the species, or evidence of a species, of a complete food chain?

What plants, animals, or evidence of animals do you recognize?

Features to highlight at this stop:

This stop has bathrooms.

The creek

This is another place where you can reach the creek. This is Stevens Creek that gives the park its name. The water level will change through the year, but there is always some water here. Look along the banks and see if you can see signs of erosion due to the flowing water. See Stop 4 for more details.

Banana Slugs

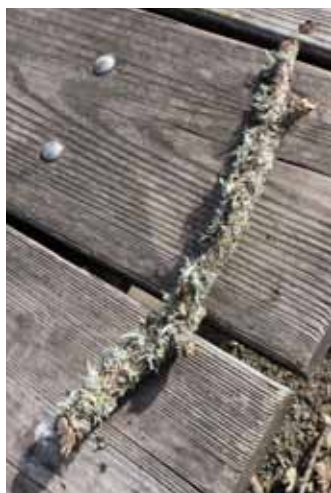
The moist area around the creek is one possible place you may be able to find a banana slug. If you find one, you can either, put it on a piece of clear plastic, or wet your hands and just hold it on your hand. Ask students to make observations about what they see. Students can wet their hands and touch or even hold the slug. Wetting your hands is important because the banana slug's skin must stay moist.



Banana slug

Banana Slugs are decomposers, eating things like leaf litter, which breaks it down and returns it to the soil. The bright yellow color is a warning to animals that they don't want to eat it. They are so slimy they will get stuck in an animal's mouth. Raccoons have learned to roll the slugs in dirt first to prevent this.

Banana Slugs have two sets of tentacles, the longer pair can sense light and dark and the lower pair sense chemicals or "smells." The front half of the slug is covered by the mantle. This is a remnant of the shells of their relatives, snails and mollusks. They have a breathing hole on one side of their body and they have as many as 27,000 teeth in their tiny little mouths.



Life on a stick

Life on a Stick

Find a stick covered in lichen and moss. Have students count how many different species they can see on the stick. What starts as 1 or 2 usually becomes half a dozen or more. Most of what you find will be moss, lichen, or fungi (and bugs!). While there are many species of lichen and moss that they can be hard to tell apart, in general moss will be moist, dark green, and look "leafy" or plant-like (they are a plant after all). Lichen will be a variety of colors, have a drier appearance, and have a variety of structures.

Follow up questions:

Why can't other people build houses in this area? (the residence you pass is someone that was here before this became a park)

STOP 10: ROAD AND ALTERNATIVE RIPARIAN

Guiding questions:

How is this habitat different from other areas we have seen today? (cooler, more water, different plants)

What do you see, smell, or hear?

Features to highlight at this stop:



Bridge over Stevens Creek

From Villa Maria there is a road back to the lower parking lot where you began. On the way, look for deer trails. Also, have the kids pick up an object that has fallen to the ground that will float. At the bottom of the hill there's a bridge over Stevens Creek. Have the kids drop their objects. Whoever has the object that makes it over the little dam first wins the race.

At the bottom of the hill before the bridge is a trail that will lead you back to the Chestnut Picnic area. After the bridge is a trail down to the side of the creek will repeat what is done at stop 4 or stop 9.

The creek

What park are we at today? (Stevens Creek Park.) Well, this is Stevens Creek. The water level will change throughout the year, but there is always some water here.



Erosion in the riparian

Trees

Notice how big the leaves are on these trees. Why is that? In this case it is because these trees have access to lots of water. In other habitats, plants adapt to get through the California summers. Why? How are our summers different from other parts of the country? (In particular, what DON'T we have? We don't get rain.) Trees need lots of water to drop their leaves every year and grow new ones. The trees here are sycamore, maple, and cottonwood.

Follow up questions:

What would happen if the stream dried up?

Water is easy to find in a riparian area. What might be hard to find? (space, light, etc.)

HISTORY OF STEVENS CREEK PARK

Stevens Creek and the Stevens Creek Reservoir are named for Captain Elisha Stephens. The difference in spelling was probably an error made by a cartographer or clerk, so Stevens became the spelling of record.

Captain Stephens lived in the area of present day Blackberry Farm (near Stevens Creek Blvd.) from 1848 to 1864. He had been the leader of the first wagon train to cross the Sierra Nevada into California in 1844. His wagon train traveled through what is now Donner Pass two years before the famous Donner-Reed crossing, and he reportedly built the cabin later used as winter shelter by several of the Donner party.

In 1848, he purchased 160 acres bordering the creek and called it Blackberry Farm. He farmed there, growing grapes, fruit trees, and blackberries. He was well known in the area for killing and eating rattlesnakes. In 1859, he purchased additional land in the area. By 1864 he sold all of his property because the area was getting too crowded and too “citified” for him. He retreated to a small ranch in what is now Bakersfield, died at age 83, and is buried there.



Historic water tank

Santa Clara College eventually purchased the land, naming it Villa Maria. They planted olive trees and vineyards and used the profits to help fund the college. The land was also occasionally used as a religious retreat for local Catholic men as well as a quarantine area for people suffering from smallpox or influenza outbreaks.

In the 1890s a parasitic microbe destroying vineyards in the area. Although no evidence exists that this microbe caused damage to the Villa Maria vines, many of the vines were replaced with orchards around this time. In 1920, the 18th Amendment was enacted starting the prohibition era. By the time prohibition was lifted in 1933, Villa Maria was no longer economically valuable to the school.

In 1945 the land was sold to Ray Byron who had plans to subdivide the property. When he was unable to get the necessary permits he sold most of the land to Kaiser Cement Corporation. The hills comprising the wall of the Stevens Creek canyon on the west side of the reservoir contain a huge limestone deposit known as the Permanente Limestone Deposit. The limestone there is quarried to make cement.

The last 120 acres that Santa Clara College owned changed hands many times before becoming a part of Santa Clara County and eventually Stevens Creek Park.

Today, Stevens Creek County Park encompasses 1,042 acres, and Upper Stevens Creek Park is 1,095 acres. Included are the 93-acre reservoir, wooded riparian corridors, and tributaries. Stevens Creek is surrounded by the Permanente watershed. Healthy watersheds are covered with a variety of vegetation that prevents erosion. Many different species of animals depend on the watershed for food and shelter.

Rainfall over the Permanente watershed soaks into the ground and runs off into the creek and the reservoir; some water will end up in San Francisco Bay. Water soaking into the ground recharges the aquifer that all of the people and many other organisms in our area depend upon to live.

TRAIL ACTIVITIES

RUN!

This activity is great for managing an energetic group, although there isn't a specific educational purpose. In an open area (Villa Maria is a good spot), point out an object some distance away, a rock, a tree, a picnic table, etc. Tell the students to run to it, run around it, and run back to you. This will expend some excess energy and help the group focus on you better.

Jays and Juncos

Give each student a paper cup “nest.” Pick one of your students to be the jay and the rest to be juncos. The jay must close their eyes while the juncos go off to build nests (hide their paper cups). The juncos then come back to the EV standing near the jay, get some food (1 small dried bean) and take it back to the nest. After some time, the jay is allowed to open his/her eyes and search for food. The juncos continue to go back and forth collecting food. When the jay finds a nest with food in it, they dump the beans into their own “nest” cup. After some more time, have the juncos go collect their nests and come back to the group. Explain that all birds need food to raise their young. Juncos need 3 beans for each young. Jays need 5 beans. Discuss strategies for hiding and protecting nests, and strategies for finding nests.



Western Scrub Jay

Which One is Mine?

Choose any kind of natural object: rocks, acorns, leaves, etc. Have each student find one of that object on the ground. Find one for yourself as well. At Stevens Creek, the seed pods from the eucalyptus trees work very well.



Eucalyptus seeds

Each student must look closely at their object and get to know it. They should familiarize themselves with every little detail. You do the same with yours. When they feel they know their object, collect them in your hand with yours. Turn around and mix them up. Now ask students to see if they can find their object again. When they select an object, ask how they know it is theirs.

The goal is after everyone has taken their object, for yours to be the only one left. The main message is that everything in nature is unique even if at first an object seems the same.

A NOTE ON CLASSIFICATION SYSTEMS

Ecologists use a classification system to help organize what they know about different species and how species are similar or different. You may be familiar with the seven levels of classification: kingdom, phylum, class, order, family, genus, and species. This is important for professional ecologists who are studying how organisms are related. The classification system also leads to the Latin name. Every scientist in the world uses the same Latin name, which helps with communication about each organism.

However, our goal on the field trip is to engage students and inspire them to appreciate and love the plants and animals they are learning about. (See the philosophy and vision on page iv) Consider two approaches to teaching about the same tree.

- This is *Umbellularia californica* of the family *Lauraceae*. This is the same family as *Persea americana*.

Versus

- This is the “Spaghetti Sauce tree.” It has wonderfully smelly leaves that we use in cooking things like spaghetti sauce. The smell is a warning to animals to not eat the leaves. It is in the same family as the avocado and we call it the California Bay Laurel.

Which version is the most interesting and memorable? Which is more likely to inspire a student to grow up loving their environment and wanting to protect it as an ecologist, an environmental lawyer, or maybe just an environmentally conscious citizen? The EV does not specifically teach Latin names or formal classifications. We teach common names (California Bay Laurel), nicknames (“Spaghetti Sauce Tree”), and general groupings (evergreen tree, member of the avocado family).

GLOSSARY

Adaptation:

A behavior or physical characteristic that helps a species to survive in its environment.

Carnivore:

A species that eats meat.

Chaparral Community:

An ecological community with little available water and comprised mostly of shrubby plants.

Climate:

Typical weather trends over time such as mild winters, dry summers.

Competition:

One individual prevents another from using a resource, such as food, mates, territory, or nesting sites.

Consumer:

A species that must find or hunt for food.

Cooperation:

Two or more individuals working together for mutual benefit.

Decomposer:

Any organism that helps to break down dead material to return its components to the environment.

Duff:

Layer of plant litter found under trees in forest communities.

Ecology:

The study of the interactions of organisms between each other and their surroundings.

Environment:

All surroundings both living and non-living.

Erosion:

The process of wind and water breaking down rocks and landforms.

Extinction:

When all individuals of a species have died.

Grafting:

A process of connecting one part of a plant onto another so they grow as one organism.

Grassland Community:

An ecological community dominated by grass species.

Habitat:

Place where an organism lives.

Herbivore:

A species that eats plants.

Invasive:

A non-native species that becomes well established in a community to the detriment of the native species.

Invertebrates:

Animal species that do not possess a backbone.

Lichen:

An organism made up of an algae and a fungus growing in a mutualistic relationship.

Mixed Woodland Community:

An ecological community dominated by a variety of tree species.

Native:

A species indigenous to a particular community.

Niche:

The role of a species within their environment.

Non-native:

A species not originally belonging to a particular community.

Omnivore:

A species that eats both plants and meat.

Organism:

An individual of any living species.

Parasitism:

An intimate relationship between two species where one species benefits and the other is harmed.

Predation:

A relationship where one organism kills and eats another organism.

Predator:

The individual that kills and eats another organism.

Producer:

A species that is able to manufacture its own food.

Prey:

The individual that is killed and eaten by another organism.

Relationship:

The way in which two organisms interact with each other.

Resources:

Anything that an organism needs in order to successfully grow and reproduce.

Riparian Community:

An ecological community growing near, or on the bank of a waterway.

Scavenger:

A type of decomposer that forages for dead material and digests it similarly to a carnivore.

Species:

A group of organisms that share a unique group of common characteristics. In most cases individuals within the group are capable of mating.

Succession:

The natural process by which one ecological community transforms into another.

Topography:

The configuration of a surface, including its natural and man-made features.

Watershed:

All of the land that drains its water into the same body of water.

Weather:

The status of conditions such as temperature, precipitation, wind, etc. at a given time.

SUGGESTED FIELD GUIDES

This guide intentionally does not have extensive information about the species found in the foothills environment. Information about particular species that are important for a particular learning station is found in the write up for that station. Beyond that there are a number of excellent field guides published covering the whole range of species. These guide provide far more depth and quality of information than can be reasonably produced within this guide. The National Audubon Society and Peterson Field Guides are two reputable publishers. In particular, here are some guide books we recommend.

- The Sibley Guide to Birds by David Allen Sibley
- The Audubon Society Field Guide to North American Trees: Western Region
- National Audubon Society Pocket Guide: Familiar Animal Tracks of North America
- Peterson Field Guides: Western Reptiles and Amphibians
- The Audubon Society Nature Guides: Western Forests

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