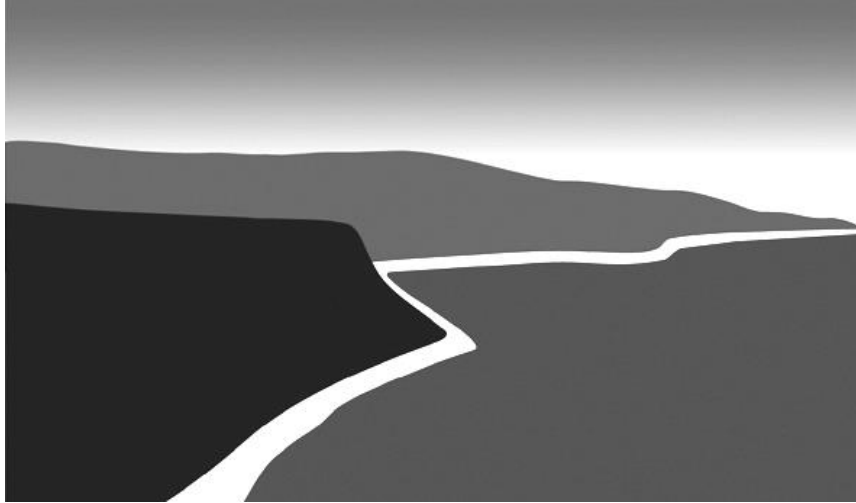
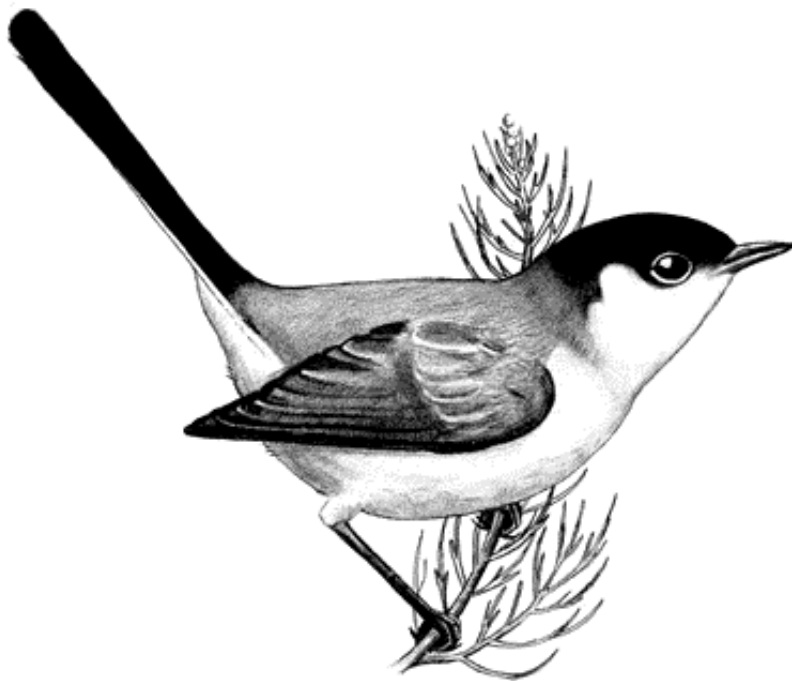


PALOS VERDES PENINSULA
LAND CONSERVANCY



Nature Handbook
For
3rd GRADE NATURALISTS



PALOS VERDES PENINSULA NATURE NOTEBOOK

For Third Grade Naturalists



The Kenneth T. and Eileen L.

NORRIS
FOUNDATION



National Charity League, Inc.
Mothers AND Daughters SERVING COMMUNITIES Together



PROVIDENCE
Little Company of Mary

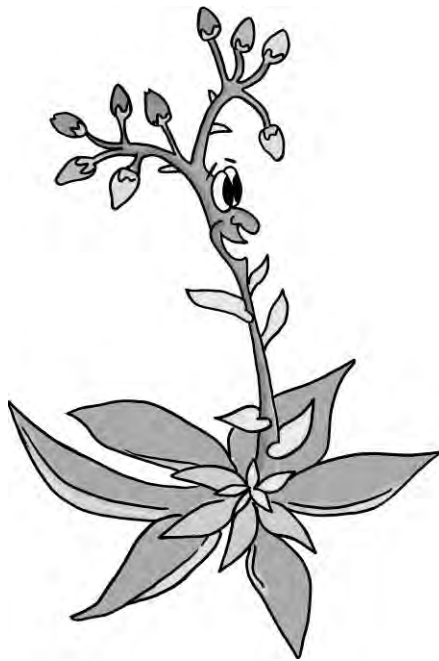


**THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA**

The Third Grade Naturalist Program and Nature Handbook are made possible by generous grants from the Kenneth T. and Eileen L. Norris Foundation, Providence Little Company of Mary, National Charity League, Metropolitan Water District of Southern California, Palos Verdes Peninsula PTAs, Palos Verdes Peninsula School District, California State Habitat Conservation Fund for Wildlife Area Activities, and the supporters of the Palos Verdes Peninsula Land Conservancy. With the sustained support of these organizations, the program now annually serves 23 schools and over 1600 students in the South Bay area.

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Introduction & Acknowledgements

The Palos Verdes Peninsula Land Conservancy is very pleased to provide this *Palos Verdes Peninsula Nature Handbook for Third Grade Naturalists* to help students learn about the natural open space on this unique Peninsula. This program has been connecting 3rd grade students with natural open space since 1995.

Several fine Palos Verdes Peninsula philanthropic organizations have provided support throughout the years. The Third Grade Naturalist Program and Nature Handbook are made possible by generous grants from the Kenneth T. and Eileen L. Norris Foundation, Providence Little Company of Mary, National Charity League, Metropolitan Water District of Southern California, Palos Verdes Peninsula PTAs, Palos Verdes Peninsula School District, and the supporters of the Palos Verdes Peninsula Land Conservancy. With the sustained support of these organizations, the program now annually serves 23 schools and over 1600 students in the South Bay area.

The success of this program is due to the consistent efforts of the Conservancy Education Program team, and above all to the amazing classroom docents from the Palos Verdes Peninsula Land Conservancy. They are dedicated, flexible and use good humor to take each challenge in stride. Thank you all!



The handbook was purposely formatted to facilitate a free-flowing introduction into the various subjects, providing the classroom docents with the flexibility to mix sections as artifact availability and scheduling dictate. The 5-week program is a combination of 4 weekly classroom sessions (45 minutes to 1 hour each) and a field trip on the fifth and final session. The docents teach from the handbook and bring in exhibits of native artifacts, native plant cuttings, animal pelts and other hands-on opportunities relating to each section of the handbook. Please note the worksheet questions which cover the subjects discussed in the handbook and the field trip.

The field trip is a local nature hike utilizing parent volunteers at learning stations along the route. The parent volunteers are trained to explain various elements of the nature trail's geology, cultural history, native plants and non-native plants to the children. The route is an area of native habitat located within walking distance of the school site. As the children walk the trail, they are introduced to the Peninsula's ecology in its natural setting. The Conservancy welcomes the assistance of parents on the walk. By leading a group of students or staffing a learning station, parents can share their student's experience and learn something new as well

Whether walking through a vast nature preserve or along bench drains near schools, nature peeks through and softly calls on all of us to explore and learn.

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About the Conservancy



The mission of the Palos Verdes Peninsula Land Conservancy is "preserving land and restoring habitat for the education and enjoyment of all."



Since it was founded in 1988, the Palos Verdes Peninsula Land Conservancy has successfully preserved 1,600 acres of open space on the Palos Verdes Peninsula. The Conservancy's goal is to preserve natural open space where visitors may enjoy peaceful solitude, where children and adults can learn about the natural environment, and where native plants and animals can thrive.

Welcome Naturalists!

Welcome to the Palos Verdes Peninsula Land Conservancy 3rd Grade Naturalist Program! A **naturalist** is someone who studies nature. During this program we are going to have a lot of fun learning about nature in school, then we are going to go on a field trip to explore nature directly. We will also learn about how important nature is and how we can all work together to **conserve** it!

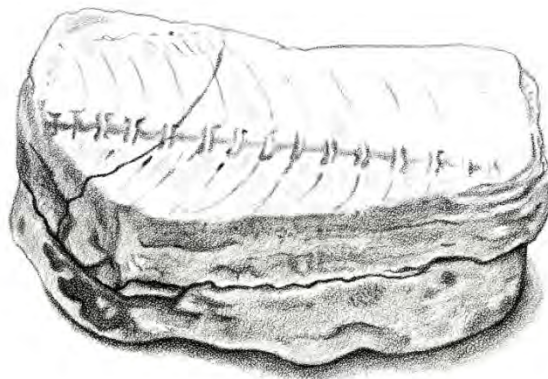


Conserve – To protect something from harm or destruction.

Naturalist – A person who studies nature.

The Palos Verdes Peninsula Changes Over Time

When learning about nature, it is important to think about the past, the present and the future. Many things have changed over time on the Palos Verdes Peninsula. Sometimes being a naturalist is a little like being a detective, we can make observations that give us clues about what happened in the past. The fossil of a fish's backbone in the picture below was found in a dry hillside with the fossils of many other ocean animals. What might this tell us about how the environment has changed over time?



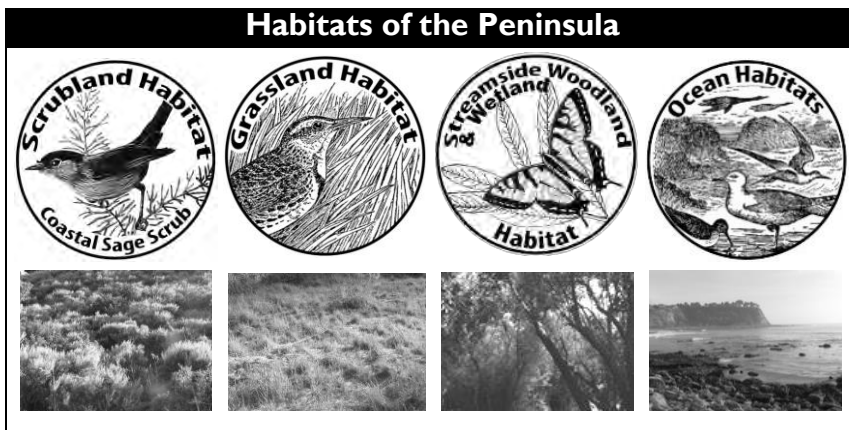
Life on the Peninsula in the Past

The Palos Verdes Peninsula was once completely covered by the ocean! The peninsula didn't rise out of the ocean until about a million years ago and is still rising about one foot every thousand years.

As recently as 500 years ago, things looked very different on the peninsula. You could have walked from where you are now all the way to the beach without crossing a fence or stepping on pavement. There were no roads, no cars and your school wasn't here. But that doesn't mean that nothing was here. Close your eyes and imagine deer wandering across the grasslands, hawks soaring over the scrublands, a grizzly bear eating berries in a woodland and a group of children playing on the beach. We can learn a lot about nature by studying what it was like in the past.



People have been living on the peninsula for as long as 8,000 years. The most recent Native Americans to live in Palos Verdes are members of the Tongva tribe who spoke a Shoshone language. The Tongva were excellent naturalists, relying on their knowledge of local plants and wildlife to find the resources they needed. The Tongva did not use a written language, but their superb knowledge of their environment was passed down from one generation to the next through storytelling and teaching.



Natural resources were plentiful in the different **habitats** around the peninsula. During the summers, the Tongva camped along the **ocean** and found abundant food hunting for fish, seals, sea otters, and abalone using their

canoes. During the cold, rainy season, they moved back to base camps on higher ground in the **scrublands** and hunted deer, rabbits and squirrels which provided a good source of food. The Tongva used bones and abalone shells to make tools like needles and fish hooks and animal pelts to make clothing and blankets.

Plants were very important to the Tongva. The Tongva knew where to look and the right time of year to gather seeds, greens and fruit, and where to dig for roots that were good to eat. They knew to visit the **woodlands** to harvest black walnuts, elderberries and Catalina cherries to eat and the **grasslands** to dig for bulbs. The Tongva healers knew to visit **scrublands** to find various plants like sagebrush that could be used to cure illness or relieve pain.



Large trees did not grow in this part of California, so the Tongva built houses with frames made of willow poles. The willow frames were covered with bundled cattail and tule reeds which were harvested from the **wetlands** for

construction. The weather on the Peninsula is mild and these comfortable homes kept out the summer sun and winter rain.

The Tongva of Palos Verdes traded with people from other villages in the Los Angeles Basin, the San Gabriel Mountains, on islands such as Catalina and with other native people from as far away as Arizona. From villages inland, they received deerskin, acorns and seeds in exchange for otter skins, fish and shell money. From Catalina, they received soapstone that they used to make most



Mission San Gabriel

of their cooking pots and dishes. In return, they traded rabbit skins, seeds and other resources needed on the island.

In the late 1700's, two hundred years after the first European explorers came, Spaniards began to settle permanently in California. As they moved in with their cattle and horses, the native plants and animals that the Tongva had relied on for food and medicine started to disappear. Over time more and more people from all over the world moved to the area and soon cities began to grow.

In the Present

Today over 10 million people live in Los Angeles County. They have come to the area from all over the world for its rich natural resources, industry and great weather. This has caused many changes to the natural **ecosystems**. As naturalists we will study the plants and animals that still live in this area and the natural habitats that they depend on for survival. The Palos Verdes Peninsula Land Conservancy is working hard to conserve these natural habitats to make sure that wildlife continues to have a home on the peninsula.

In the Future

Looking into the future we all need to think about how the decisions that we make will impact our **natural resources**. Consider how you can contribute to your community by helping to protect nature.

Ecosystem - Living and nonliving things that interact to provide the basic needs of the organisms that live there.

Habitat – The place where an organism lives and meets its needs.

Natural Resource – Materials, such as water, minerals, energy and soil that people use from nature and natural systems.

Changes in Time Activity Page

1. Match each natural resource with how it has been used by the Tongva and which habitat it is found in.

HABITAT

NATURAL RESOURCE

USES



Willow

Abalone

Sagebrush

Cattails

Elderberry

Toyon

Catalina Cherry

Black Walnut

Cottontail Rabbit

Mule Fat

musical instruments

clothing & jewelry

medicine

food

tools

trade

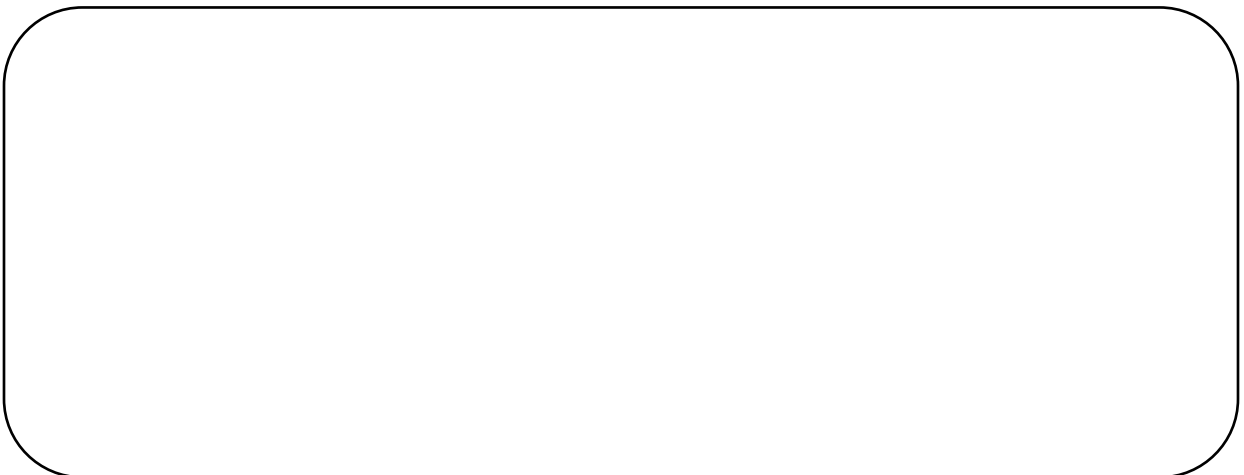
games

shampoo

dye or paint

construction

2. Draw a scene of what your schoolyard might have looked like 500 years ago.



Turn the page for question #3 →

3. As a naturalist, what can you do to help protect nature in your community?

Plants of Palos Verdes

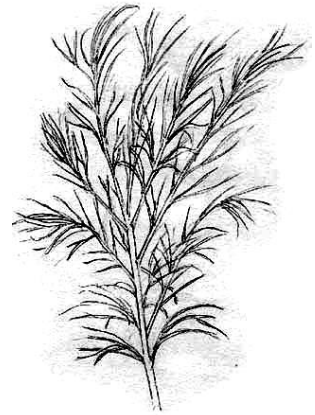
A very special community of plants grows in this part of Southern California. It is called the **Coastal Sage Scrub** plant community. These plants are well adapted to the climate and soil of Southern California. Coastal Sage Scrub plants can survive many months in the summer and fall with hardly any rain. Some of them adapt to dry periods by rolling up their leaves, growing smaller leaves or dropping their leaves completely. Other plants produce fragrant oils that reduce evaporation of water and also keep animals from eating them.

These plants are also well adapted to survive occasional wildfires. Some have seeds that will sprout after a fire. Some have deep root systems to grow back after a fire. Some just don't catch fire very easily.

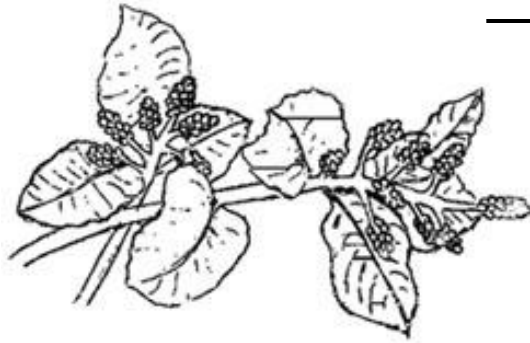
Native Plants

The plants of the Coastal Sage Scrub plant community are **native** to the Palos Verdes Peninsula, which means that they belong here. The animals that live here have adapted to the food, shelter, and habitat that they provide. Look for these typical Coastal Sage Scrub plants all over the hills and canyons of the peninsula and other parts of Southern California—maybe near where you live!

_____ **Sagebrush** has a strong sage smell and gray-green feathery looking leaves. Native Americans and Spaniards used sagebrush to make tea. Gold rush miners may have placed sagebrush on their beds to drive away fleas. One nickname for sagebrush is “cowboy cologne,” because it smells so good and the smell rubs off on passersby. Sagebrush is a dominant plant in the Coastal Sage Scrub plant community. The California gnatcatcher, an endangered bird, makes its nest in the branches of the sagebrush plant.



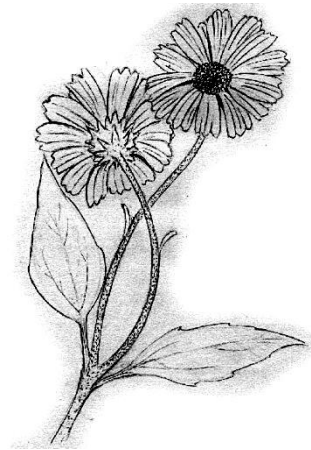
_____ **Purple Sage** and _____ **Black Sage** are not related to sagebrush but have a similar smell because they have the same fragrant oil in their leaves. Bees, butterflies and hummingbirds love sage. (Have you ever tasted sage honey?) Native Americans used sage leaves for flavoring their cooking. Purple sage has grayish leaves, and black sage has darker green leaves. If you feel the stem you will notice a four-sided, square shape.



_____ The **Lemonade Berry** stays dark green year round, making olive green patches on the hillsides. Its small pink flowers develop into orange-red berries with a sticky, sour coating, which Native Americans used to make a refreshing summertime lemonade-like drink.

_____ **Prickly Pear Cactus** has large rounded paddles covered with sharp spines. The flowers are yellow and the fruit is red. Both the pads and fruit are edible (once you remove all the spines). Cactus wrens build their nests among the prickly pear. Can you think why they would do this?

_____ The **California Bush Sunflower** has yellow daisy-like flowers. It appears brown and dead during the dry months but springs back to life with the arrival of rain.



_____ **Wild Cucumber**, also called Manroot, is a vine that grows from a huge root. Most parts of the vine are very bitter and are not good to eat. The Tongva placed crushed seeds in pools and streams to stupefy fish and make them easier to scoop up in nets. The large underground root of the wild cucumber makes it well adapted to grow back after a fire. The seedpod looks like a green tennis ball covered with spikes. The Tongva made necklaces from the brown/black or reddish seeds about the size of marbles that are found inside the pods.



_____ **Toyon** has bright red berries in the wintertime. It is sometimes called Christmas Berry or California Holly. Hollywood got its name from this plant, which covered the Hollywood Hills early on. Native Americans toasted or boiled the sweet/spicy berries and ate them.

Non-native Plants

Many plants that we see growing in Palos Verdes today did not exist here originally. They often arrived with settlers who moved here from different parts of the world. We call these types of plants non-native, because they originally came from somewhere else. Many non-native plants that have successfully adapted to Palos Verdes came from places with climates similar to our own, such as the Mediterranean Sea. Some of these non-native plants are invasive, which means they take over and choke out the native plants. Some native animals, such as the Palos Verdes Blue Butterfly, are only adapted to make use of the native plants, and so they lose their habitat when non-natives invade.

You can see these commonly found non-native plants at an open space in Palos Verdes near your home or school:

The large leaves of the **Castor Bean** look like they have “fingers”. The seeds are *extremely* poisonous. The poison in the castor bean seed is called ricin and is 12,000 times as powerful as rattlesnake venom. The seeds (with the poison removed) are used to make castor oil. Ask your parents or grandparents if they ever had to take castor oil when they were children. The Castor Bean is invasive and has taken over large areas of our Coastal Sage Scrub habitat.



Fennel is a tall, feathery, green plant originally from the Mediterranean. It has a strong scent like black licorice, and most parts of the plant are edible. The Spanish spread fennel on the Mission floors to make a sweet smell when the feet of the people coming into church trampled it. Fennel is also very invasive and chokes out the native Coastal Sage Scrub plant community.

The Spanish missionaries are believed to have introduced **Mustard** to California. They were said to have sprinkled mustard seed along El Camino Real (King’s Highway), the path from mission to mission. They did this so that when the mustard grew and the yellow flowers bloomed in the spring,

it would make the path easier to find (like the yellow-brick road). The seeds of this plant are used to make the mustard for your hot dog, and the leaves are eaten as mustard greens. Today, you can see yellow mustard flowers smothering the hillsides of Palos Verdes in the spring.



The Spanish brought **Tree Tobacco** from South America.

The plant can be found growing in the Coastal Sage Scrub community, but it does not take over areas where it grows. The leaves are very poisonous to humans if eaten. The tube-shaped, yellow flowers of tree tobacco attract hummingbirds; the nicotine in the nectar keeps the birds coming back for more. The hummingbird gets nectar to eat and pollinates the tree tobacco at the same time.

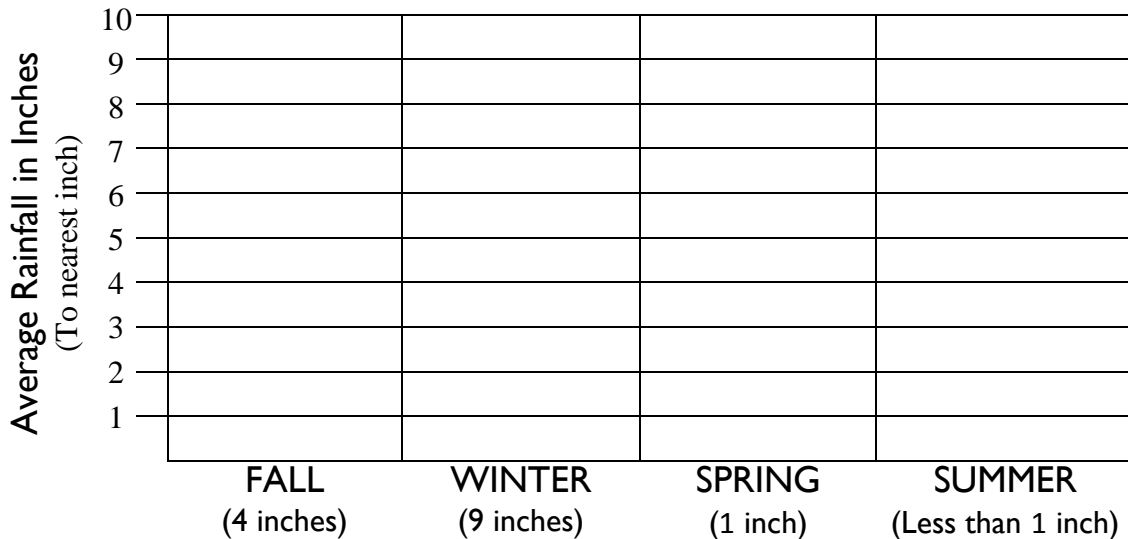
Wild Oats and Wild Barley are grasses that arrived here during the days of the Spanish Ranchos. The Spanish used the land for grazing

cattle, and the cattle needed a lot of grass to eat. Grazing cattle quickly destroyed most of the native grasses. Wild oats and wild barley were introduced as substitutes. These annual grasses were better able to withstand the grazing animals because they re-seeded themselves quickly, while the native perennial grasses did not.

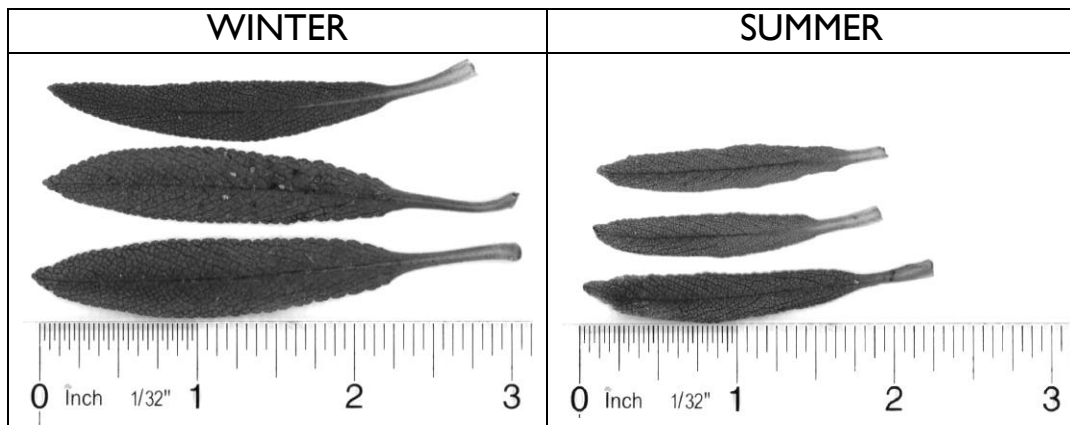
The **Tumbleweed** is said to have come to the American Midwest in the mattresses of Russian immigrants and then slowly rolled its way west to California. These plants are green and bushy in the spring, but turn brown during the dry, hot summer. When the Santa Ana winds come in the fall, the dried bushes break off at the base and “tumble”, spreading their seeds, which will sprout with the spring rains.

Plants Activity Page

- The plants that grow here are plants that can survive in habitats where there is very little rain. Fill in the bar graph below to show how much rain typically falls here in each season.



- The leaves pictured below were collected from the same kind of plant during different seasons. Use evidence from the graph above to write one possible explanation of how the environment might influence the plant's growth.



- What type of leaves are pictured above. Hint: The leaves have a strong smell and are dark green. The flowers are loved by bees, butterflies and Hummingbirds. (Circle One)

Purple Sage Black Sage Toyon Wild Cucumber Lemonade Berry

Insects

The world has more than one million kinds of insects. More insects live on Earth than any other kind of animal.

The mouthparts of an insect have adapted to work best for the type of food the insects eat:

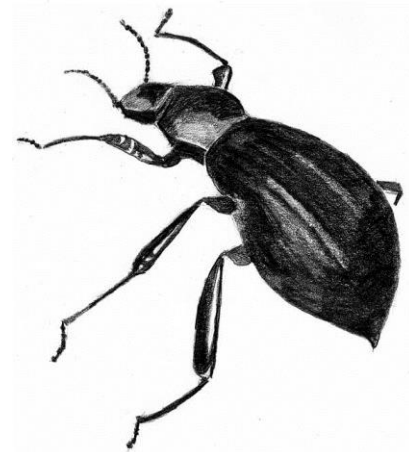
- Some insects have strong jaws that bite sideways like a pair of pliers.
- Some insects have mouthparts like a sponge for soaking up liquids.
- Butterflies have long feeding tubes that uncurl like a party whistle and drink up nectar like a straw.

We all know about common insects such as ants, bees, ladybugs and grasshoppers. Let's look at a few kinds of insects you might not know as well. You may have seen these insects living nearby but may not have known what they were.

Have you ever seen any of these insects?

Darkling Beetle

These shiny black beetles cannot fly. They crawl along the ground. When disturbed they will stand on their heads and point their rear ends into the air. Some say that when they get in this position they will make a bad smell. That's why some people call them "stink bugs".



Spittle Bug

Have you ever seen a plant with a frothy white foam that looks like soapsuds? This foam comes from the Spittle Bug. The Spittle Bug sucks plant juices and lets out spittle from its rear end. The spittle mixes with air to cover the bug in sudsy bubbles. These bubbles protect the soft body of the Spittle Bug and keep it from drying out. The Spittle Bug is a hopping insect and rarely flies.



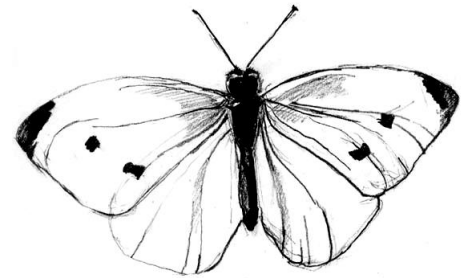


Harlequin Bug

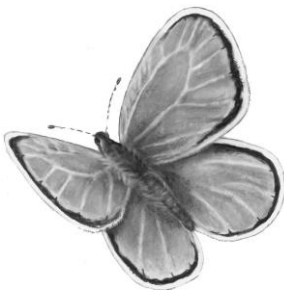
The colorful little Harlequin Bug has black and orange/red markings. It sucks the juices of plants. In Palos Verdes, it especially likes the mustard and bladderpod plants.

Cabbage Butterfly

Have you ever seen a little white butterfly go fluttering by? It was probably the Cabbage Butterfly. This common butterfly came from Europe. In Palos Verdes, the caterpillar eats mustard and wild radish which were also brought here from Europe. Cabbage farmers do not like this butterfly because it eats their crops.



Palos Verdes Blue Butterfly



Although you may have seen other blue butterflies, the Palos Verdes blue butterfly is one you probably have not seen. It lives only on the Palos Verdes Peninsula, but from 1983 until 1994 (for 11 years) no one saw it. Scientists thought it had become extinct. Fortunately in 1994, a few of these butterflies were spotted again by scientists.



The PV blue caterpillar only eats 2 kinds of native plants, rattlepod and deerweed. There is not as much rattlepod or deerweed growing here as there used to be so it is difficult for the mother butterfly to find the plants that she needs to lay her eggs on. After hatching from the egg, the caterpillars grow strong eating the plants. Next the caterpillar searches for a safe place to hide in the ground to make a chrysalis. It will stay protected inside its chrysalis through the dry season, only emerging as a butterfly after the rain causes the plants to grow again.

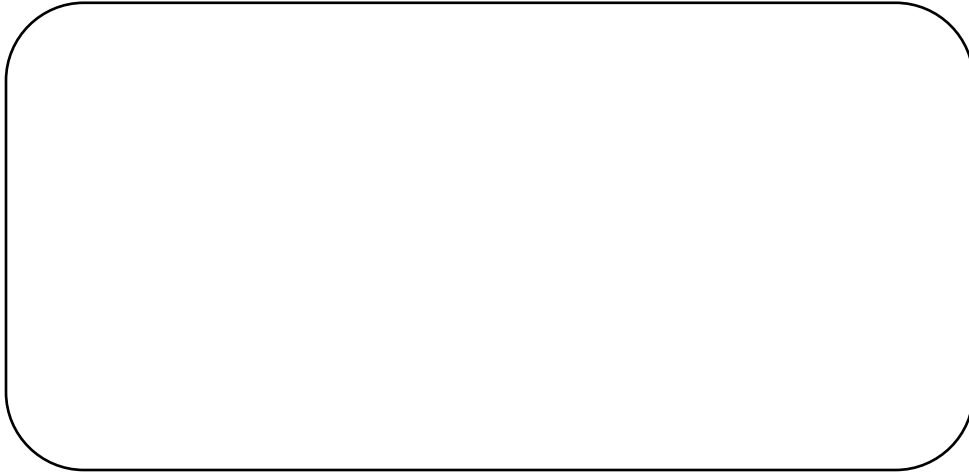


If the Palos Verdes blue butterfly does not have the habitat that it needs to survive then it will go extinct. PVPLC works hard to grow these plants and restore the habitat so this butterfly can survive.



Chrysalis – The shell that a caterpillar makes for protection while it changes into a butterfly.



Insects Activity Page

1. Use what you learned about the Palos Verdes Blue Butterfly on Page 21 to draw a diagram of its life cycle.



2. The Palos Verdes Blue Butterfly stays hidden in the ground for most of the year in a chrysalis. How might this help it to survive in its habitat?
3. Compare the life cycles of the Palos Verdes Blue Butterfly and the Cabbage White Butterfly. Consider how each butterfly relies on the habitat to survive during its life cycle. List one similarity and one difference between them.

Life Cycles		
	Cabbage White Butterfly 	Palos Verdes Blue Butterfly 
Similarity		
Difference		

4. People have changed local habitats by changing the plants that grow here. Which butterfly may not be able to survive the changes that people have made to the local habitat? (circle one)  
5. How can we restore the habitat so that the Palos Verdes Blue Butterfly is better able to survive?

Birds

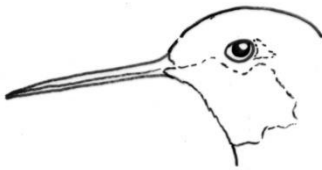
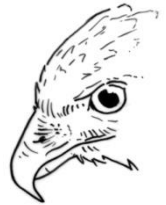
The world has about 9,000 different kinds of birds. All birds have certain things in common. They all have feathers. They all lay eggs. All birds are warm-blooded, which means they regulate their own body temperature (as we do). Birds have beaks but have no teeth.

Different kinds of birds will have very different looking beaks, feet, eyes, wings, and tails. These parts of the bird are specialized to work best for the place where the bird lives and the type of food it eats. Let's look at some examples:

Beaks

Meat-eating beaks are hooked,
sharp and pointed.

This is a hawk's beak.



Nectar-eating beaks are long and
thin and the birds have a long tongue.

This is a hummingbird's beak.

Seed-eating beaks can be broad,
strong and in the shape of a cone.

This is a finch's beak.



Insect-eating beaks are often slender and
tweezer-like with a sharp tip.

This is a warbler's beak.

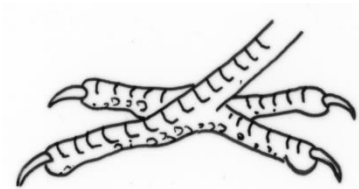


Feet



Perching feet have four long toes for holding onto branches for long periods of time. This is a warbler's foot.

Grasping feet. Birds of prey have powerful claws called **talons** for catching live food. This is a hawk's foot.



Climbing feet have two long toes in front and two in back for a good grip on tree trunks. This is a woodpecker's foot.

Eyes

Eyes of Predators. Hunting birds such as eagles and hawks have eyes facing forward on their heads to search for prey.



Eyes of Prey. Birds that are hunted have eyes on the sides of their heads to look all around for predators.

Wings and Tails

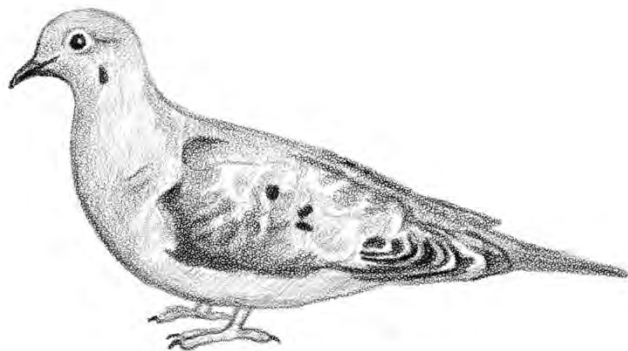
The type of flying done by a bird determines the shape of its wings and tail. Some birds do a lot of soaring in open spaces. They will have long wings and a broad tail. Some birds need to fly shorter distances or make sharp turns in brush. These birds will have shorter, rounded wings and a longer, thinner tail.

Local Birds

Now that we have learned about many characteristics of birds, let's take a look at some birds you may see living around you.

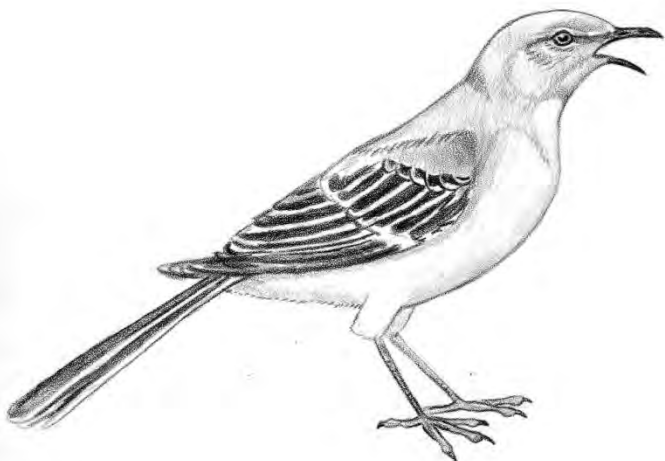
Mourning Dove

If you think you hear an owl calling in the morning, you are probably listening to a Mourning Dove. It has a call similar to an owl's but owls would be asleep in the daytime. The Mourning Dove has a small head, rounded body and pointed tail. You will hear a whistling sound from its wings when it takes off in flight. Mourning doves eat seeds.



Mockingbird

Mockingbirds copy the songs of other birds, as well as many other sounds. They will sing all night when they are nesting. They are mostly gray in color, but watch for a flash of white on each wing when they fly. They mainly eat insects.



Scrub Jay

Although the Scrub Jay has a blue head, wings and tail, it is not a Blue Jay or a Bluebird. It eats seeds, grains, berries, fruit and the eggs and young of other birds.



Raven and Crow

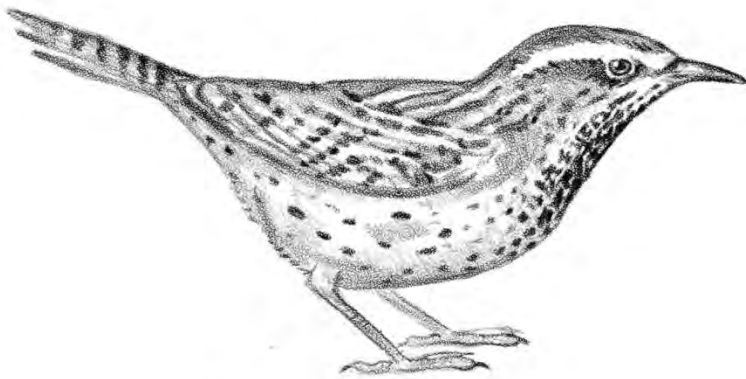
Both the raven and the crow have a glossy black coloring. Many people find them difficult to tell apart. The raven is larger than the crow and has a wedge shaped tail for soaring. Ravens and crows are not picky eaters. They will eat anything edible. Both ravens and crows are very intelligent. Crows often fly in large flocks which work together to get food and chase away predators. Ravens may join flocks when they are young but tend to travel in pairs when they are adults.



Raven



Crow



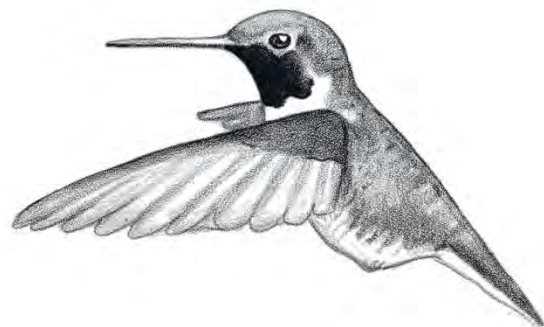
Cactus Wren

The Cactus Wren moves easily among the thorns of the Prickly Pear cactus. A pair of Cactus Wrens will build several nests, one for eggs and the others for decoys or just for sitting in. They eat mostly insects, but they also eat cactus fruit and other berries and seeds along with an occasional lizard. As coastal sage

scrub habitat has become rarer, so has the cactus wren. PVPLC works hard to protect and restore the cactus patches that this bird depends on for survival.

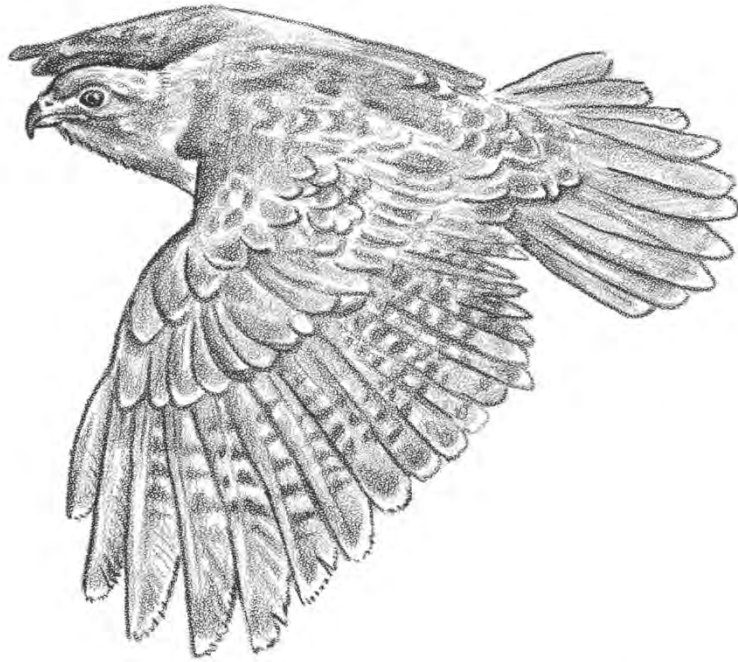
Hummingbird

Hummingbirds have long pointed bills for feeding on the nectar of flowers, but they will also eat some insects and spiders. Hummingbirds beat their wings very fast, about 90 times per second. This allows them to hover in front of a flower. Hummingbirds can also fly backwards and upside down, something very few other birds can do.



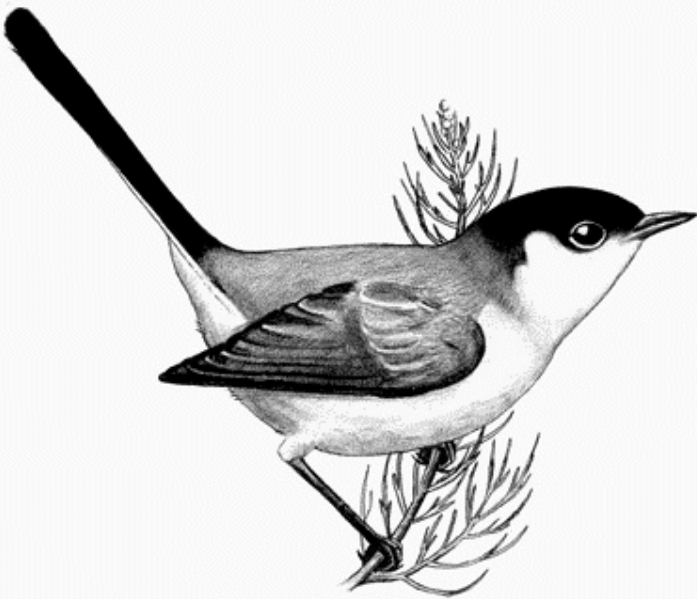
Red Tailed Hawk

This hawk hunts for rodents, snakes, rabbits and insects while soaring high overhead. It builds a large nest two or three feet across high in a tree or on a cliff face.



California Gnatcatcher

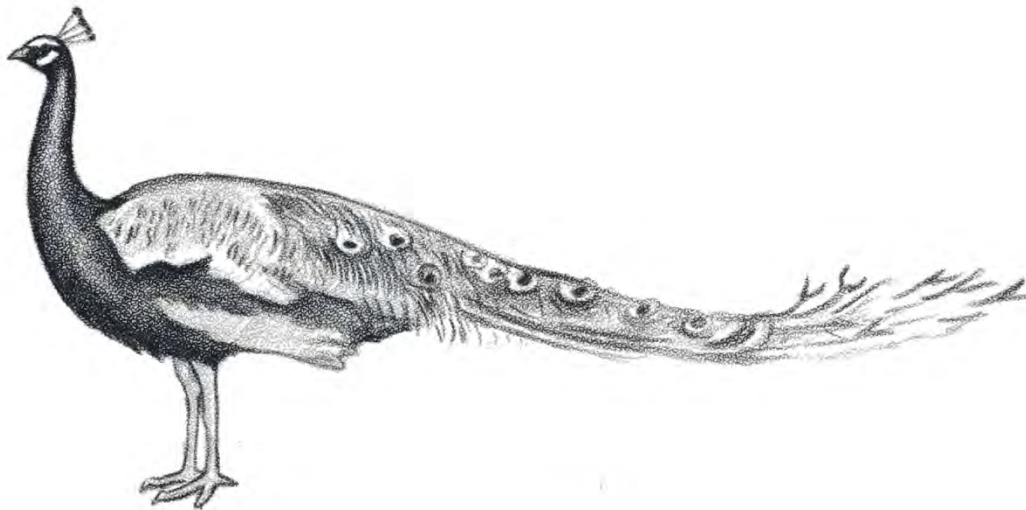
The California Gnatcatcher is a threatened species that relies on coastal sage scrub habitat to survive. It is very small and camouflages in the gray sagebrush where it hunts for insects. Despite its small size, it is curious and may hop bravely out to the edge of a branch to look at you. It is very important that we all do our part to protect coastal sage scrub habitat so this special bird continues to survive.





Great Horned Owl

The Great Horned Owl has large, forward-facing eyes for keen eyesight and very good hearing for hunting at night. It is the largest owl in North America. Owls eat rodents, insects, other birds, mammals such as gophers and squirrels, and snakes. They consume every bit of their prey and regurgitate (throw up) the inedible parts (bones, skin, fur) in pellets.



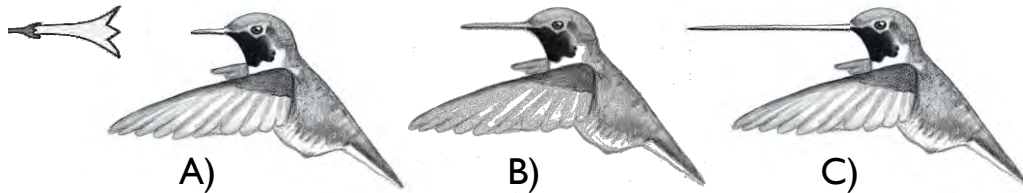
Peacock

In 1924, Frank Vanderlip, owner of most of Palos Verdes, complained that things were too quiet. His friend, "Lucky" Baldwin, sent six peacocks to live here, and peacocks have been in Palos Verdes ever since. The beautiful train of the male peacock contains 100 to 150 feathers, which are four to five feet long. Although attractive and colorful, many people find peacocks disruptive. They have a very loud call and cause damage to gardens.

Birds Activity Page

1. How can traveling in a group (flock) help crows to survive?

2. Individual birds of the same species can have differences. Imagine a habitat where many flowers have nectar stored at the end of tubes that are the size shown in the picture below. Which of these hummingbirds do you think would have an advantage in surviving? Explain.



3. Draw a line to match each bird with its description.



- Threatened species that relies on coastal sage scrub habitat to survive.



- Has large eyes and good hearing to hunt at night.



- Relies on finding cactus patches to build its nest and raise its young



- Flies during the day but sings at night when it is nesting.



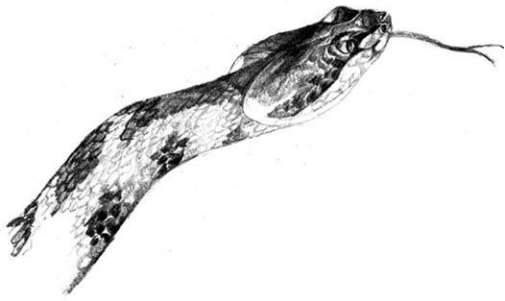
- Builds a large nest two or three feet across high in a tree or on a cliff face.

Reptiles

What do we know about reptiles? Scales cover a reptile's skin instead of hair or feathers. Its body temperature depends on the surrounding air temperature. Reptiles must move between sunlight and shade to keep a comfortable body temperature. We call this being "cold-blooded".

What kind of reptiles do we find nearby?

Pacific Rattlesnake



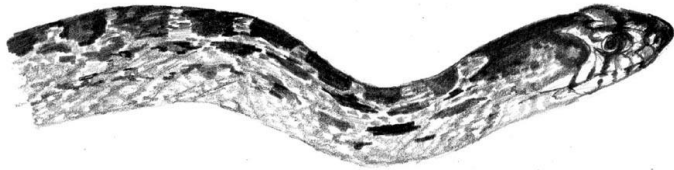
There are more than 30 different kinds of rattlesnakes. The kind we find in Palos Verdes is the Pacific Rattlesnake, which grows to about three to four feet long. You will recognize the rattlesnake by its triangular head, narrow neck and the rattles on its tail. The rattler has two special pits on the sides of its head which sense body heat to help it detect the location of its next meal. When the rattler strikes, venom (poison) from glands inside the cheeks flows through the fangs and into the victim. The fangs fold back inside the mouth when not in use. This venom can be deadly to humans. As the snake grows, it sheds its skin and adds another rattle to its tail. This happens one to four times a year. Rattlesnakes are **ovoviviparous**, which means that they produce eggs that hatch inside the mother's body, and then the young are born alive.

King Snake

The King Snake's body has alternating rings of dark (brown or black) and light (yellow or white) color. It grows two to three feet long, with a rounded head and pointed tail. The King Snake eats rodents, lizards, birds and other snakes, including rattlesnakes. The venom of the rattlesnake does not affect the King Snake. King snakes lay eggs.



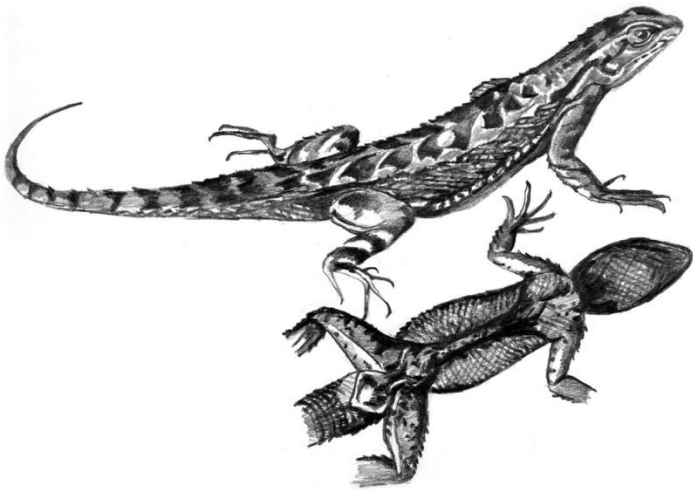
Gopher Snake



The Gopher Snake has the same coloring as the rattlesnake – brown with darker blotches. It will sometimes even imitate a rattlesnake by coiling and vibrating its tail. Unlike the rattlesnake the

gopher snake lays eggs. The gopher snake grows three to four feet long, with a rounded head and pointed tail. It eats rodents, birds and lizards. All of the snakes we have talked about play an important part in keeping the number of rodents under control.

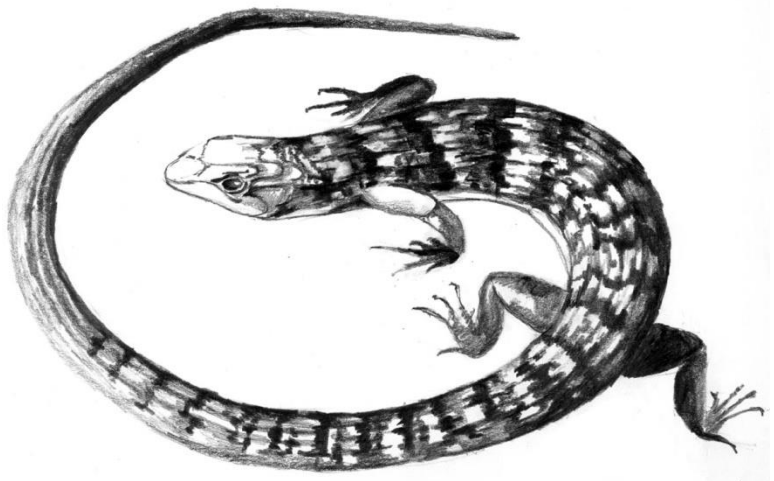
Fence Lizard



Most of the lizards you see will be Fence Lizards, the most common lizard in this area. This lizard has a gray body with blue patches on the throat and belly. It has good eyesight, which helps it catch the insects, spiders and snails it eats. You may sometimes see it doing “push ups” to warn others away from its territory. If caught by the tail, the tail detaches so the lizard can escape. The tail will never fully grow back. Fence lizards lay eggs.

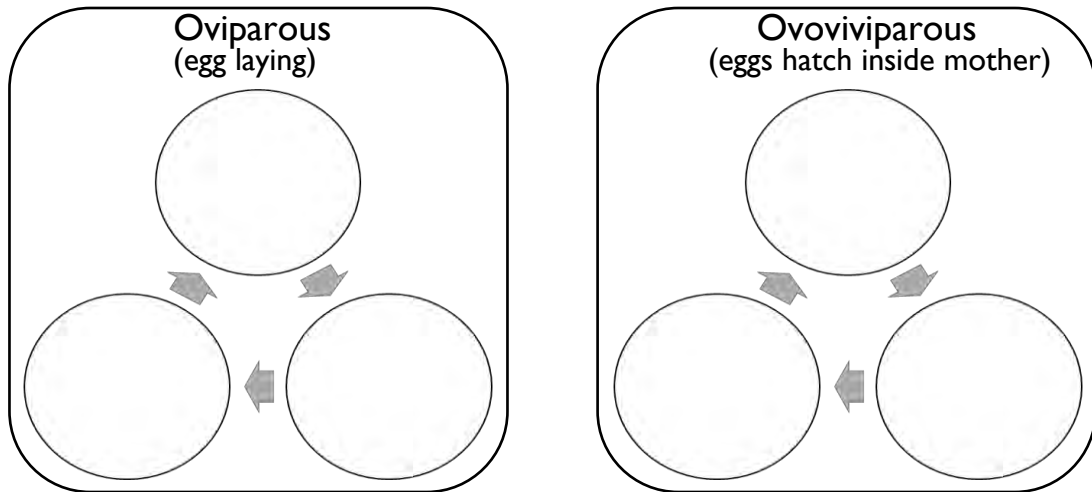
Alligator Lizard

Occasionally you may see the larger Alligator Lizard. You will know this lizard by the snakelike way it moves. Even though it has legs, its body wiggles back and forth like a snake as it runs. This lizard also can detach its tail if caught. Alligator lizards lay eggs.

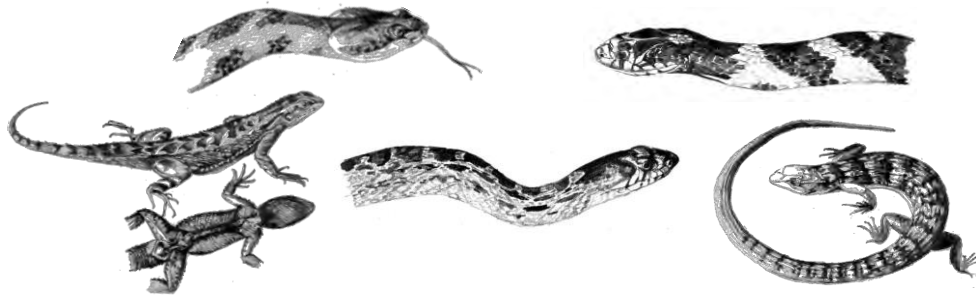


Reptiles Activity Page

1. Different reptiles have different life cycles but most reptiles are **oviparous** which means that they lay eggs. In this section you also learned about **ovoviviparous** reptiles which produce eggs that hatch inside the mother's body, and then the young are born alive. Draw a diagram showing 3 stages of each type of life cycle below.



2. Circle any ovoviviparous reptiles shown below.



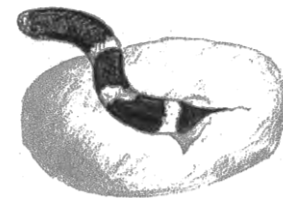
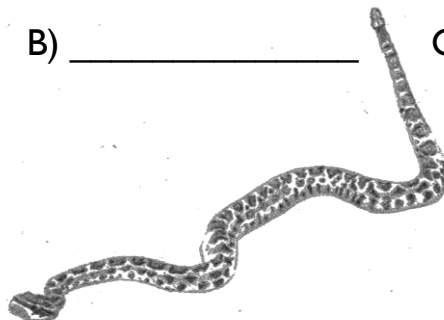
3. How might having an ovoviviparous life cycle help the young of an animal to survive?

4. Young reptiles have many characteristics similar to their parents. Use these similarities to identify the 3 young snakes below.

A) _____ B) _____ C) _____



Nature Handbook



Mammals



Mammals have hair and their babies drink milk. Mammals also regulate their own body temperature. This ability is called being warm-blooded.

Mammals such as mountain lions, grizzly bears, wolves and mule deer used to live on the Palos Verdes Peninsula. As more and more people moved here these animals were no longer able to survive here.

Mammals that live on the Peninsula today have adapted to living near people. You won't see them very often though, because they will avoid you if they can. Many are **nocturnal**, which means they are active at night and asleep during the day. If you know what to search for you can find clues an animal has left behind. Look for scat (that's what we call animal poop), tracks (animal footprints), holes in the ground and fur or feathers.

Some mammals are **carnivores**  or meat eaters .

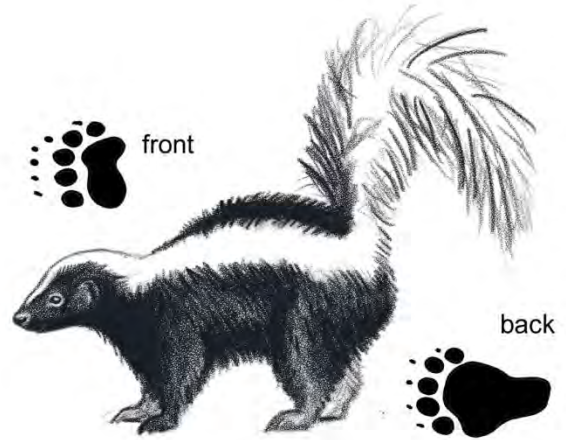
Some are **herbivores**  or plant eaters .

Many are **omnivores** that eat both plants  and meat .

Here are some mammals that live on the Palos Verdes Peninsula:

—— Striped Skunk

Everyone knows about the skunk's smelly reputation. The skunk wears its distinctive black and white coloring to stand out to other animals, and it boldly wanders where it pleases. Other animals will stay out of its way. Can you guess why? If a skunk feels threatened, it will first stamp its front feet as a warning before turning and raising its tail to spray. The skunk's bad odor comes from glands under its tail. Skunks are nocturnal and omnivorous. The skunk finds grubs, insects and beetles a tasty treat.



—— Opossum

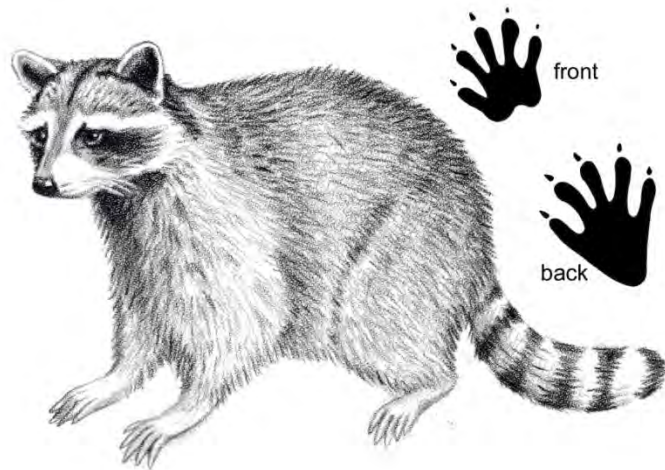
The opossum is the only **marsupial** in North America. This means that after the young are born they live for a while in a pouch, like kangaroos. As the babies get bigger they come out of the pouch and ride on the mother's back. Have you heard the expression "playing possum"? When in danger the opossum will lie down and stay very still, almost like it is dead. This is called "playing possum". Opossums are nocturnal and omnivorous. They have a prehensile tail that can wrap around and grab onto things – almost like an extra arm. Opossums are not native to California and were brought here from the east in the 1920s.



Raccoon

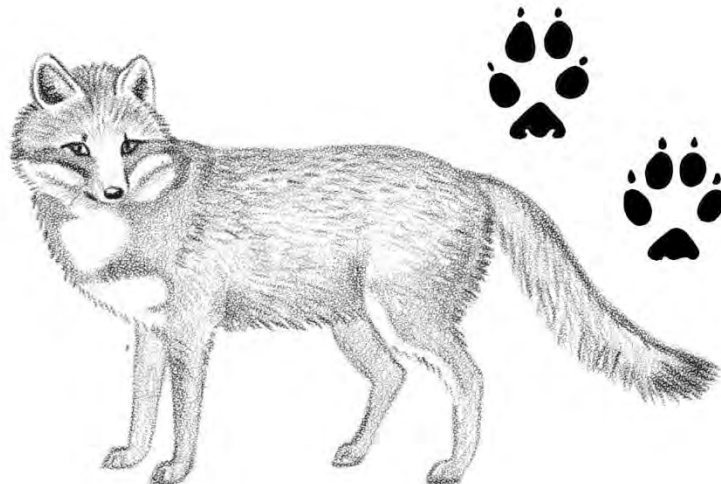
The raccoon has a black mask around his eyes and a tail that is black and gray striped. The raccoon uses this tail for fat storage and for balancing. Raccoons are good climbers and fierce fighters. They are nocturnal and omnivorous. A raccoon's skin becomes very sensitive when wet.

This may be why the raccoon likes to live near water and wash its food before eating.



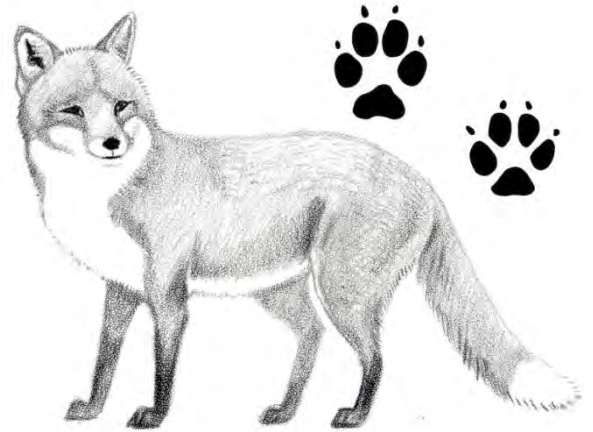
Gray Fox

The omnivorous gray fox eats small mammals, birds, insects, berries and seeds. The gray fox has a black tip on the end of its tail. The sharp curving claws of the gray fox make it the only fox that can climb trees. It is shy and is mostly nocturnal, although it will also hunt in the daytime.

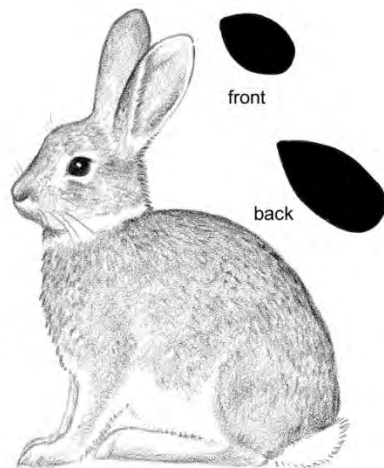


Red Fox

The omnivorous red fox loves to eat small mammals, birds, insects, fruit, and seeds. In urban areas this fox will also scavenge through the garbage. The red fox usually has a white tip on the end of its tail. Not locally native, the red fox was brought to Southern California for fox hunting and it was also valued for its fur. In Palos Verdes, the bolder red fox has taken much of the gray fox habitat. It is mostly nocturnal.



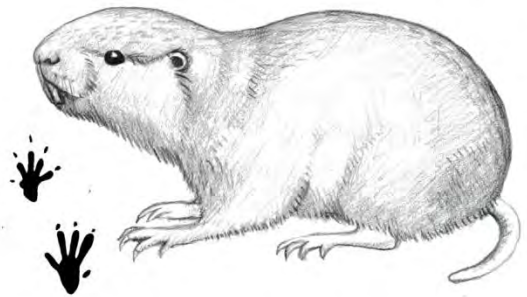
Cottontail Rabbit



Many types of carnivores hunt the rabbit. It can run in a zigzag pattern to try to escape predators, or it can stay very still to blend in with its surroundings. Rabbits have eyes on the sides of their heads to see all around and they have long ears that can twist to hear from all directions. They also have lots of babies several times a year to replace the number of rabbits that get eaten. Rabbits are herbivores.

Pocket Gopher

The gopher lives mostly underground and has claws for digging and long front teeth for chewing up roots. The herbivorous gopher will sometimes pull a plant down into the ground from below. The gopher uses pouches in its cheeks for carrying food back to the safety of its underground tunnels. A full-grown gopher can have a tunnel system 2,000 feet long! It cannot always turn around in its narrow tunnel so it sometimes goes backwards, feeling its way with its sensitive tail. Gophers are active day and night.



Marine Mammals

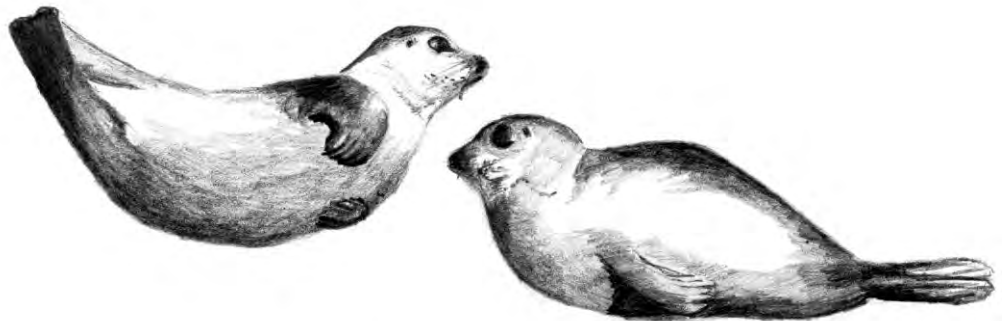
Marine mammals are mammals that spend all or most of their lives in the water. Most marine mammals are either Cetaceans (whales, dolphins and porpoises) or Pinnipeds (true seals, sea lions and walruses).

Pinnipeds (Seals, Sea Lions and Walruses)

The streamlined bodies of Pinnipeds are adapted to life in the water, but they do come on land to mate, give birth and nurse. Their collective breeding grounds are called rookeries. Pinnipeds are carnivores and eat fish, shrimp, octopus and other sea creatures.

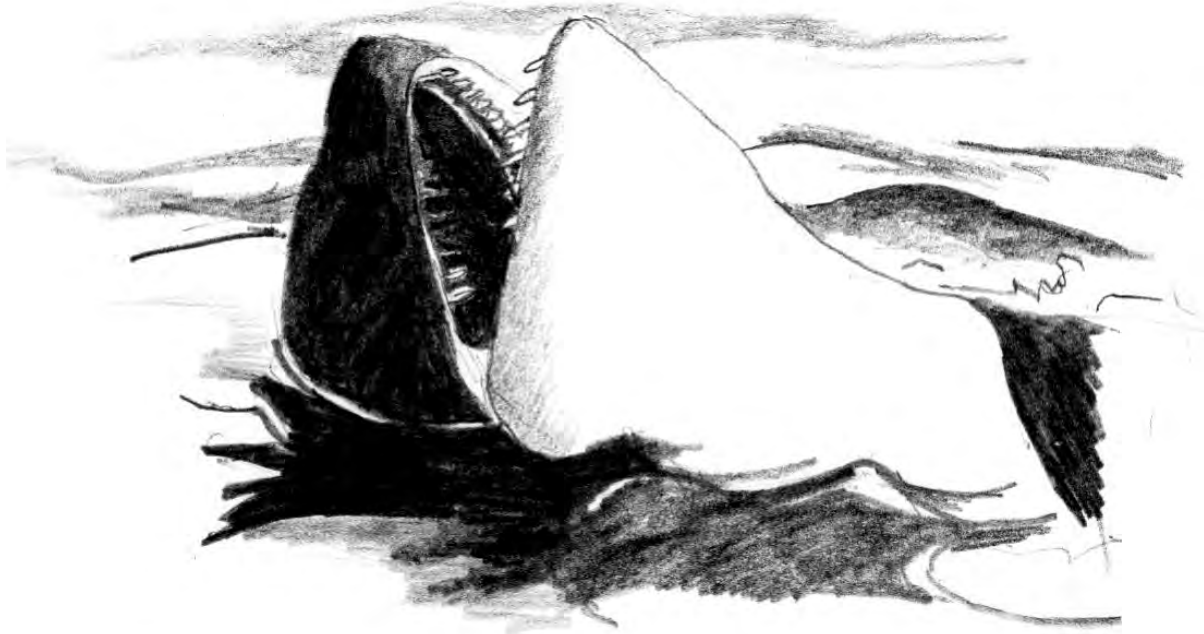
An example of a true seal that can be seen in our

waters is the Harbor Seal. Like all true seals, it has no outer ear flaps and its hind legs cannot be folded forward. It propels itself in the water with its hind flippers while holding its front flippers tightly to the body. When on land it can only crawl. Males and females are the same size (5 ft).



An example of a sea lion in our waters is the California Sea Lion. It has outer ear flaps and its hind legs can be folded forward to be used as walking feet on land. In the water it propels itself with its front flippers, using the hind flippers as rudders to steer. Males are much larger than females (8ft, 6ft).

Cetaceans (Whales, Dolphins and Porpoises)



The bodies of cetaceans are perfectly adapted for life in the water. They never come on land and unlike Pinnipeds, they even mate, give birth and nurse in the water. Their bodies are even more streamlined than the ones of Pinnipeds and they have additional adaptations for survival in the ocean such as:

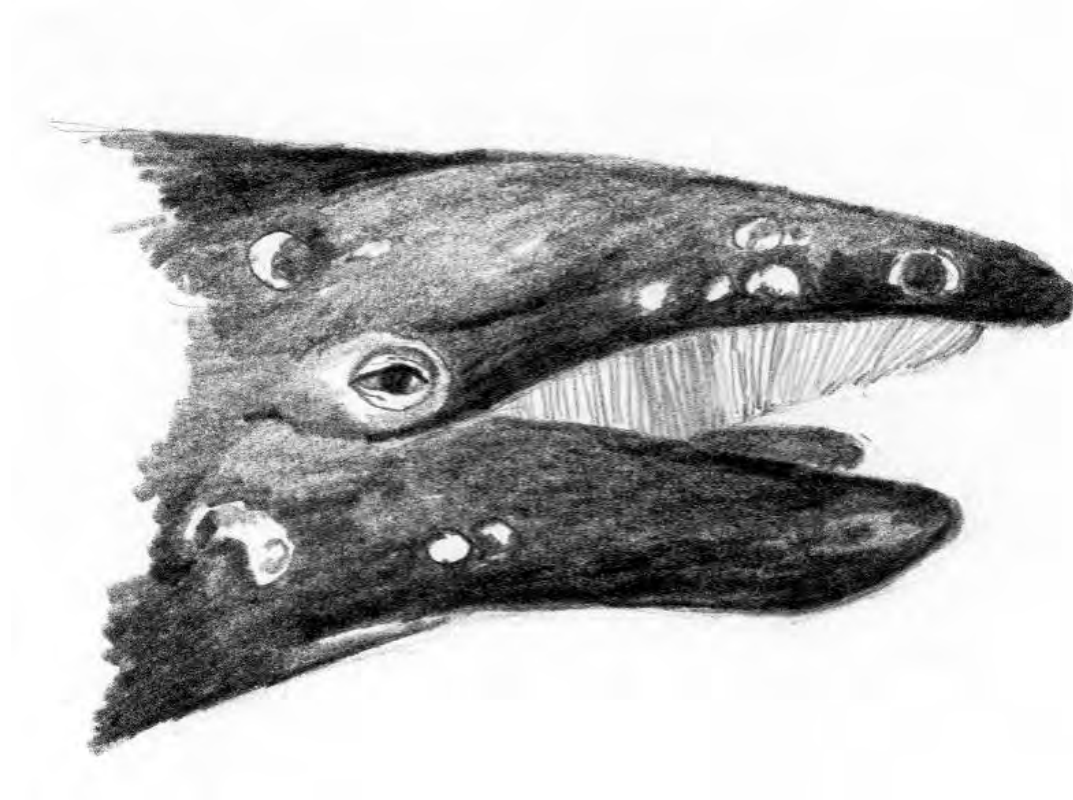
- powerful horizontal tailfins (flukes) to propel the body
- loss of hind legs to avoid drag
- loss of hair to avoid drag
- nostrils on top of head as blow hole(s) to breathe easier on the surface
- blubber as insulation and energy source
- very high fat content of milk (53%) so calves can grow rapidly
- ability to saturate body with oxygen to stay under water for a long time

Cetaceans basically fall into two groups: Toothed Whales and Baleen Whales (see size comparison chart in back).

Toothed Whales have teeth either on their lower or on both jaws. They typically eat fish, squid and small marine mammals. They use echolocation to find their prey under water. Toothed whales have one blow hole on top of their head.

Examples of toothed whales in our waters are Sperm Whales, Orcas (Killer Whales) and all the dolphins.

Baleen Whales have baleen plates (made out of keratin) in their upper jaws and no teeth anywhere in their mouths. They typically eat large amounts of small food such as plankton, krill, shrimp, fish and in some cases squid. They gulp huge amounts of water loaded with food and filter it out through the baleen plates.

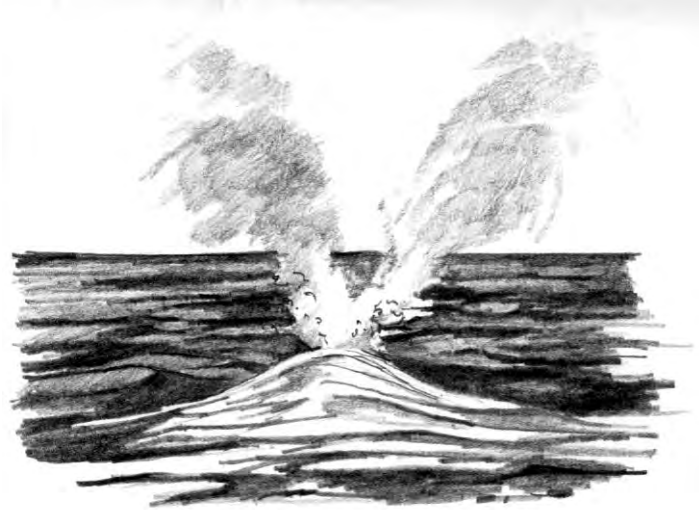


Baleen whales have two blow holes on top of their head.

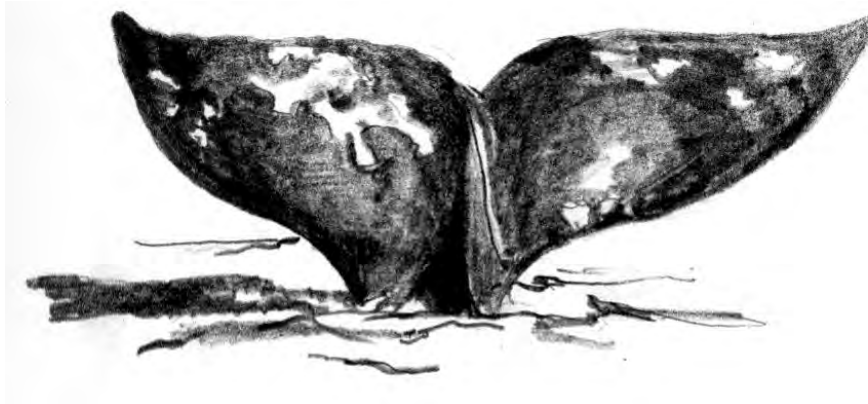
Whales and Pinnipeds in US waters are protected by the Marine Mammal Protection Act of the United States (1972). It is also illegal to bring or sell marine mammal products in the United States.

How to look for whales

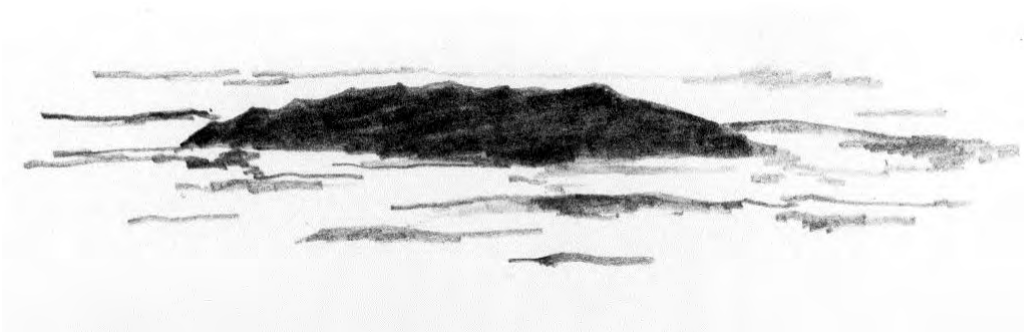
Blow



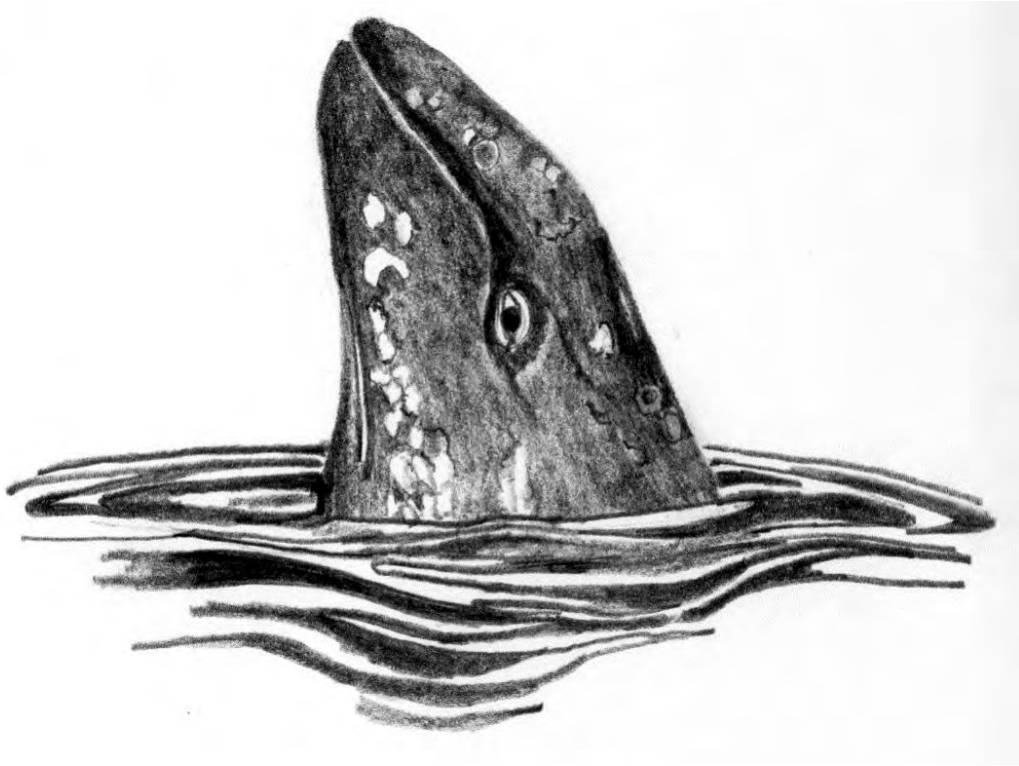
Fluke



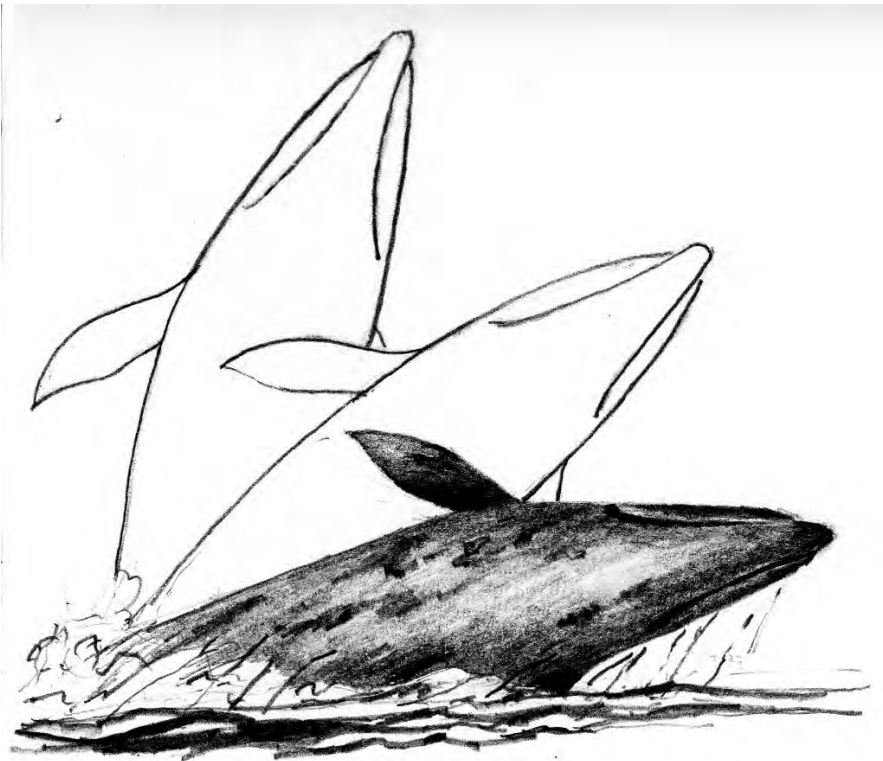
Back



Spyhop



Breach



Mammals Activity Page

1. As more people have moved to the peninsula and changed the local habitats, some mammals have been able to survive while others have not been able to survive here at all. Circle the mammals below that are no-longer able to survive here on the peninsula now that their habitats have changed.

Raccoon

Grizzly Bear

Cottontail Rabbit

Mule Deer

Gray Fox

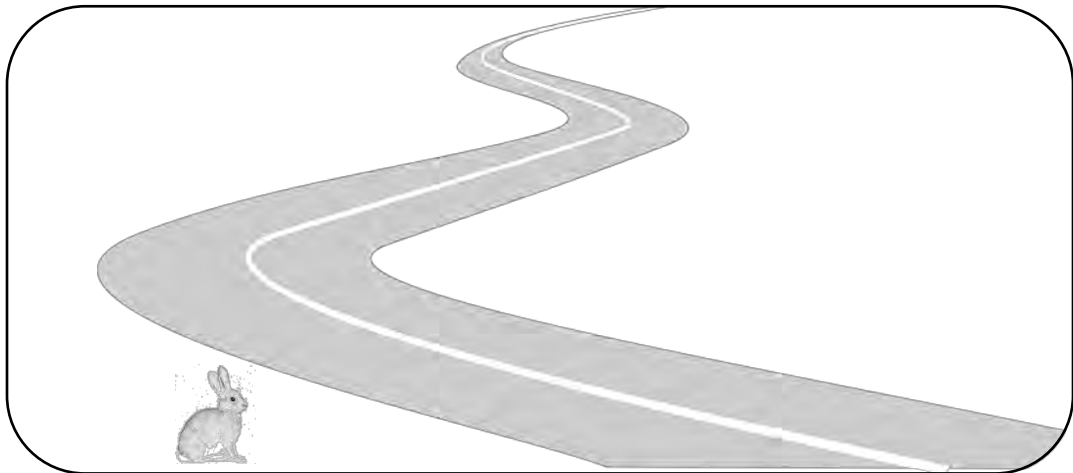
Mountain Lion

Striped Skunk

Wolf

Pocket Gopher

2. Many mammals can travel over large spaces in search of food and shelter. One challenge that mammals face is that their habitat has been broken up in to smaller pieces by buildings and roads. In the model below design a way to help our local mammals cross the road more safely.



3. How well would the solution that you invented in question #2 work for the different kinds of mammals that live here locally? Using what you have learned about local mammals, list which mammal you think it will work best for and which one it might not work as well for. In a sentence about each, explain why.

Stay Involved!

Graduating from the 3rd Grade Naturalist Program is just the beginning. Now that you are an official Student Naturalist there are many opportunities for you to get involved in protecting nature in your community. Every month the Conservancy holds nature walks, volunteer events and other activities that you and your family are invited to join. Check out our website to see all the exciting ways you can stay involved.

WWW.PVPLC.ORG

Come pick up your official Student Naturalist Patch!

As a graduate of the Naturalist Program you have earned your official Student Naturalist Patch. Come by either of our nature centers during open hours to claim your free patch. Show the staff at the nature center the coupon below, or just let them know which school you are from and they will present you with your patch!

COUPON - Free Student Naturalist Patch

Pick your Naturalist Patch up any time during open hours at either of the 2 nature centers listed below. Just show the staff this page in your book or let them know that you are a graduate of the program!

White Point Nature Center

White Point Nature Center is located at 1600 W. Paseo del Mar, San Pedro, CA 90731 on the north side of Paseo del Mar off of Western Avenue. The Nature Center is open from 10am to 4pm on Wednesday, Saturday, and Sunday.
310-561-0917



George F Canyon Nature Center

George F Canyon is located at 27305 Palos Verdes Drive East, Rolling Hills Estates CA 90274 at the southwest corner of Palos Verdes Drive East and Palos Verdes Drive North. The Nature Center is open Friday 1pm - 4pm, Saturday and Sunday 10am - 4pm.
310-547-0862