

Bobcat



Brush Rabbit



Bushtit



California Buckwheat



California Harvester Ant



California Sagebrush



Coyote



Chamise



Brush Rabbit (*Sylvilagus bachmani*)

A small rabbit. Reddish-brown, mottled with black in summer; paler, but still mottled, in winter. Short legs, small tail, short, dark ears.

Diet: California buckwheat, seeds, young plant growth, and grasses.

Predators: Red diamond rattlesnake, hawks, and coyotes.

Interesting fact: Look for a maze of runways in the brush and small pellet-like scat.

CONSUMER

Bobcat (*Lynx rufus*)

Yellowish-brown coat with dark spotting. Short, stubby tail. Ears have tufts of hair. Males are larger than females.

Diet: Big-eared Woodrat and other small rodents, birds, fish, insects, carrion (dead animals), and sometimes larger animals.

Predators: Foxes, owls, and adult male bobcats prey on young.

Interesting fact: Bobcat tracks will not have claw marks because their claws are retractable (pull inside).

CONSUMER

California Buckwheat (*Eriogonum fasciculatum*)

Low-spreading shrub with large clumps of white flowers that develop into brown-colored seed heads during the summer. The small, narrow, leathery leaves are in bundles along the stems.

Edibles: Nectar, seeds, pollen.

Consumers: Brush rabbits, butterflies, lizards, and small birds.

Interesting fact: Native Americans used it for food. Have you heard of “buckwheat pancakes”?

PRODUCER

Bushtit (*Psaltriparus minimus*)

Small bird that is gray above with a light underside. Small bill and relatively long tail.

Diet: Spittlebugs and other insects.

Predators: Hawks and other birds.

Interesting fact: Often harvests insects from plants while it is hanging upside down.

CONSUMER

California Sagebrush (*Artemisia californica*)

Shrub with a woody base and soft, gray-green, needle-like leaves that grow in clusters along the stem. The leaves have a very distinctive fragrance.

Edibles: Leaves and seeds.

Consumers: Spittlebugs and other insects, deer, small mammals, and birds.

Interesting fact: Native Americans used the plant to treat colds and stomach disorders.

PRODUCER

California Harvester Ant (*Pogonomyrmex californicus*)

Less than 1 inch long, colors are mostly black, brown, or reddish. They live in colonies in underground tunnels or in galleries in dead wood.

Diet: Mission manzanita berries, other berries, and leaves.

Predators: Western fence lizards and other reptiles, birds, spiders, and Argentine ants.

Interesting fact: Ants have a complex social structure with special jobs for each ant. Some ants are gardeners growing small, underground fungi farms.

CONSUMER

Chamise (*Adenostoma fasciculatum*)

An evergreen shrub with dry-looking stick-like branches. The leaves are small with a pointed tip and sprout in clusters from the branches. The leaves are shiny with flammable oils, especially in warmer weather. The branches end in bunches of white tubular flowers with five petals.

Edibles: Young leaves, bark.

Consumers: Mule deer, woodrats.

Interesting fact: A member of the Rose family.

PRODUCER

Coyote (*Canis latrans*)

Dog-like animals with brownish-gray fur, triangular ears, and a black-tipped tail. Usually carry their tails straight down.

Diet: Western fence lizard and other reptiles, small mammals, insects, birds, grasses, berries, carrion (dead animals).

Predators: Mountain lions, wolves, humans.

Interesting fact: Scat is often found on trails with twisted ends. Look for fur or berries.

CONSUMER

Earthworm



Fungi



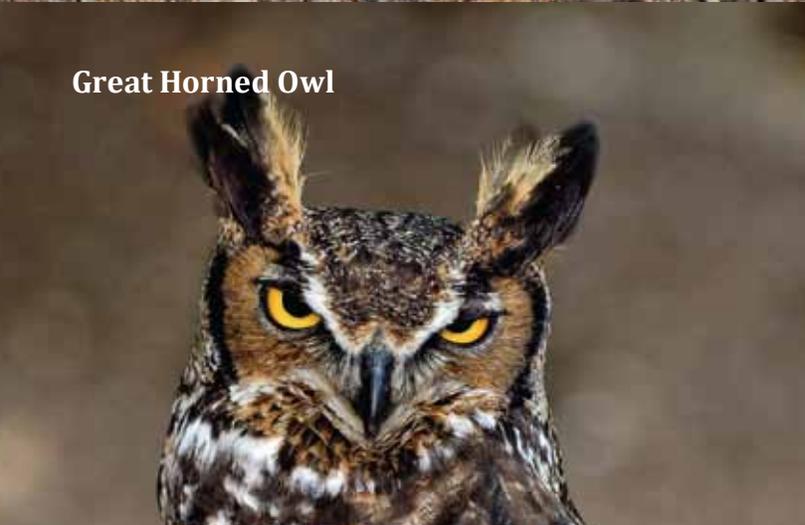
Gopher Snake



Big-eared Woodrat



Great Horned Owl



Greater Roadrunner



Mission Manzanita



Mountain Lion



Fungi (*Agaricus species*)

A fleshy cap with gills on the underside. The spores are chocolate-brown. They have a stem that holds the cap above the ground.

Diet: Dead plant and animal material.

Predators: Humans, insects, and other plant eating animals.

Interesting fact: Fungi are more closely related to animals than to plants.

DECOMPOSER

Earthworm

Long, segmented body that tapers on both ends.

Diet: Roots, decaying plant material, bacteria.

Predators: Birds.

Interesting fact: Earthworm droppings are important nutrients for soil and healthy habitats.

DECOMPOSER

Big-eared Woodrat (*Neotoma macrotis*)

Brown above, grayer on face. Grayish to whitish underside. Feet and ankles dark with white toes and claws. The tail has sparse hairs and is nearly half the total length of the rat's body.

Diet: Scrub Oak and other trees and seeds.

Predators: Bobcat, snake, fox, and coyote.

Interesting fact: Builds large nests out of sticks, twigs, leaves, and other objects. The nest has multiple entries and even rooms for eating and sleeping.

CONSUMER

Gopher Snake (*Pituophis catenifer*)

Large, heavy snake with a yellow or cream background color and black or reddish-brown blotches on its back and sides. A dark stripe runs across its small head.

Diet: Toads, lizards, small birds and mammals, and other snakes.

Predators: Greater roadrunner, other large birds, and mammals.

Interesting fact: When threatened, it hisses loudly and vibrates its tail. This reaction causes them to be mistaken for rattlesnakes.

CONSUMER

Greater Roadrunner (*Geococcyx californianus*)

Bigger than a crow. A long-legged, long-tailed, streaked, gray-brown ground bird with a bushy crest. Bright yellow eyes.

Diet: Gopher snake, scorpions, insects, rodents, and other birds.

Predators: Hawks, raccoons, and some snakes.

Interesting fact: They prefer to walk or run and can reach speeds of 17 mph.

CONSUMER

Great Horned Owl (*Bubo virginianus*)

A large, dark brown and gray owl. White throat with patchy underside. Large widely-spaced ear tufts and yellow eyes.

Diet: Western scrub jay and other birds, mammals, reptiles, fish and insects.

Predators: Eggs and young are eaten by foxes and coyotes.

Interesting fact: Their neck can turn 270 degrees in order to see in other directions.

CONSUMER

Mountain Lion (*Felis concolor*)

A large, pale brown to golden cat. Underbelly is lighter than top coat. Long, dark-tipped tail. Ears are short and rounded with dark backs. Long legs with large feet.

Diet: Mule deer, birds, fish, coyotes, bobcats, and other mammals.

Predators: Killed by hunters, diseases, and starvation.

Interesting fact: Keep deer herds healthy by preying on the weak individuals.

CONSUMER

Mission Manzanita (*Xylococcus bicolor*)

A shrub with a single trunk and a roughly-rounded crown. Leaves are oblong, glossy dark green on the top and very light-colored with a velvety texture on the underside. Leaf edges curl under as they age. Bark is smooth and a red-gray color. Fruit is glossy dark red with little flesh.

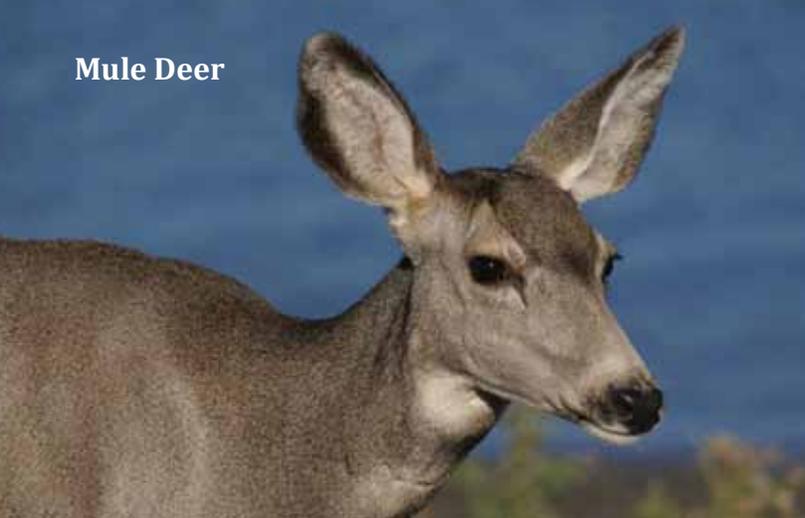
Edibles: Berries, nectar, and leaves.

Consumers: Harvester ants, birds, bears, coyotes.

Interesting fact: The name *Xylococcus* comes from the Greek word for "wood berry."

PRODUCER

Mule Deer



Orb Weaver Spider



Red Diamond Rattlesnake



Red-tailed Hawk



Western Scrub-Jay



Coast Scrub Oak



Western Spadefoot Toad



Spittlebug



Orb Weaver Spider (*Argiope species*)

Spiders that spin a web in a circle (orb). Female spiders are much larger than males, growing almost an inch and a half long.

Diet: Small insects.

Predators: Hawks, birds, wasps, Western fence lizards, and small rodents.

Interesting fact: Look for the unique zigzag pattern in their web.

CONSUMER

Mule Deer (*Odocoileus hemionus*)

Large ears and stocky body with long sturdy legs. Coat is reddish-brown or yellowish-brown on top. Underbelly fur is cream to tan.

Diet: Chamise, young leaves, grasses and fruit.

Predators: Mountain lions, bobcats and coyotes.

Interesting fact: The mule deer has large ears that move independently and almost constantly, like a mule.

CONSUMER

Red-tailed Hawk (*Buteo jamaicensis*)

A large, stocky hawk with whitish chest and rust-colored tail. Young are dull, streaked, and lack rust-colored tail of adult.

Diet: Red diamond rattlesnake, other reptiles, small birds, and small mammals.

Predators: Eggs and young hawks are eaten by large birds and raccoons.

Interesting fact: It soars over open areas in search of prey and perches in trees or light posts watching for the slightest movement in the grass below.

CONSUMER

Red Diamond Rattlesnake (*Crotalus ruber*)

Stoutly built. Tan to brick-red, with diamond-shaped blotches down the back. Blotches are usually light-edged but may be indistinct. Black and white rings encircle tail.

Diet: Brush rabbits and other small mammals, birds and reptiles.

Predators: Red-tailed Hawks, large birds, and snakes.

Interesting fact: The longest ever recorded measured over 5 feet, but most are 2 to 3 feet long.

CONSUMER

Coast Scrub Oak (*Quercus dumosa*)

Spirally arranged, serrated (toothed) leaves. Leaves are thick, waxy, and dark green all year long. The fruit is a nut called an acorn, borne in a cup-like structure. Each acorn contains one seed.

Edibles: Acorns, branches and leaves.

Consumers: Big-eared woodrats, most mammals and birds.

Interesting fact: Called white oaks for their scaly, whitish bark brightened by sunlight.

PRODUCER

Western Scrub-Jay (*Aphelocoma californica*)

Head, wings, and tail blue. Back is dull brown, underside is light gray. Grayish face mask.

Diet: Toyon berries and other seeds, acorns, eggs, nestlings, reptiles, and insects.

Predators: Great-horned owl, other large birds, and snakes.

Interesting fact: The jays bury many more acorns than they eat and help restore oak forests that have been destroyed by fire or drought.

CONSUMER

Spittlebug (*Aphrophora species*)

Small to medium-sized jumping insects, 1/8-1/2 inch (4-13 mm) long, that hop about like tiny frogs on plants and shrubs, where they feed.

Diet: CA Sagebrush, wild grasses, berries.

Predators: Bushtit and other birds.

Interesting fact: Spittlebug nymphs (young) cover themselves with masses of bubbly, wet spittle. Each frothy mass contains 1 or more tiny nymphs, hiding them from predators as they suck plant juices.

CONSUMER

Western Spadefoot Toad (*Spea hammondi*)

A stout-bodied toad with a glossy black, spade-shaped wedge on each hind foot. Color varies from green, brown, cream or gray, often with 4 light stripes and dark blotches on the back. Tubercles (warts) have red spots on the tips.

Diet: Earthworms, and other invertebrates and small insects.

Predators: Gopher snake, birds, coyotes and other mammals.

Interesting fact: The spade shaped feet are used to dig in the soil.

CONSUMER

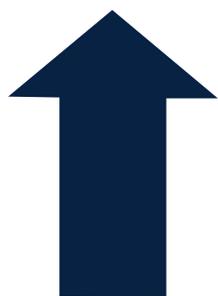
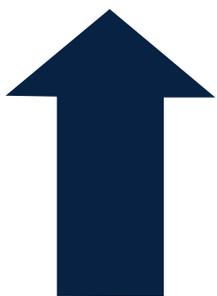
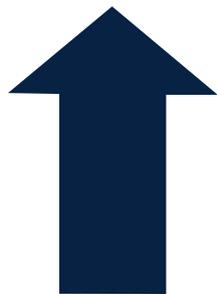
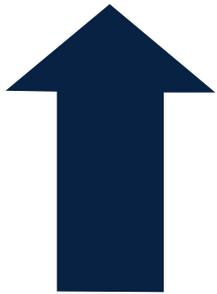
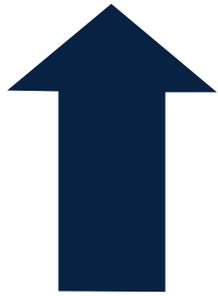
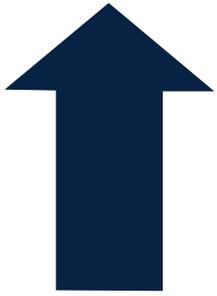
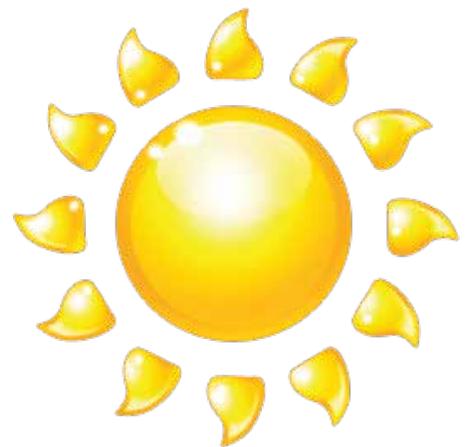
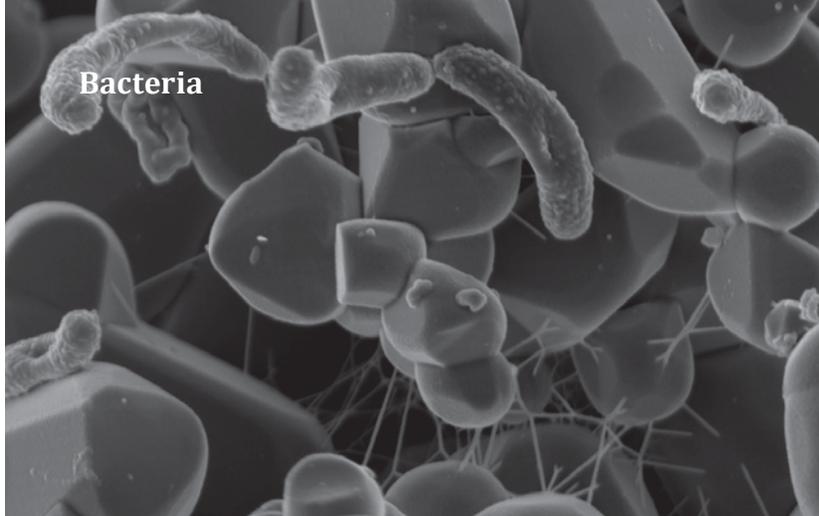
Toyon



Western Fence Lizard



Bacteria



Toyon (*Heteromeles arbutifolia*)

Has a rounded to irregular top. Its leaves are evergreen, alternate and sharply-toothed. In the early summer it produces small white flowers in dense clusters. Small bright red, berry-like fruit is produced in large quantities.

Edibles: Leaves and berries.

Consumers: Western scrub jays, other birds, and coyotes.

Interesting fact: Sometimes called Christmas berry because the fruit is produced in the fall through winter.

PRODUCER

Western Fence Lizard (*Sceloporus occidentalis*)

Spiny scales. Brownish or black with blotches or wavy crossbars down the back. Underside of legs is yellowish-orange. Blue patches on belly.

Diet: Harvester ants, and other insects and spiders.

Predators: Coyote, snakes, birds.

Interesting fact: Also called 'blue-belly.' Males have a blue patch on their throat.

CONSUMER

Bacteria

Microscopic single-celled organisms that contribute to decomposition in shrubland environments.

Diet: Dead plant and animal material.

Predators: Everything.

Interesting fact: A teaspoon of soil contains billions of bacteria.

DECOMPOSER

SPECIES IDENTIFICATION CARDS

For Exploring San Diego's Shrubland Habitats.

Instructions:

Cut all three sheets into eight cards.

Cut each of the "arrow" cards in half.

These eight "arrow" cards show energy flow in the food chain. Follow instructions in Lesson 3: Shrubland Food Chains.

