

NATURE GUIDE

HIGH TRAILS OUTDOOR SCIENCE SCHOOL

AMPHIBIANS	
BIRDS	
INVERTEBRATES / FBIS	
MAMMALS	
PLANTS	
REPTILES / FISH	
ROCKS	




ROCKS

GRANITE

Description: Igneous rock. Speckled pink, white, gray, and black with large interlocking crystals.

GRANITE MINERAL COMPOSITION:
Same as **Gneiss** (See previous page)



QUARTZITE

Description: Metamorphic rock, originally sandstone. Pure form is usually white to gray, with visible interlocking crystals. Often occurs in various shades of pink and red due to varying inclusions of iron oxide. Other colors are due to impurities of minor amounts of other minerals.

QUARTZITE MINERAL COMPOSITION:
Dominantly **Quartz** (See previous page)



MARBLE

Description: Metamorphic rock resulting from regional or contact meta-morphism of sedimentary carbonate rocks, such as limestone or dolostone. Pure white marble is the result of metamorphism of pure limestone. The characteristic swirls and veins of marble varieties are due to various mineral impurities such as clay, silt, sand, iron oxides or chert.

MARBLE MINERAL COMPOSITION:
Calcite: Color- white or gray, with other colors depending on impurities. Cleavage- trigonal-rhombohedral. Hardness- 3

Argonite: Color- white, cream, to mother of pearl. Cleavage- trigonal-rhombohedral. Hardness- 3-4

Dolomite: Color- white, gray or pink. Cleavage- trigonal-rhombohedral. Hardness- 3.5-4





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ROCKS

GEOLOGIC HISTORY OF THE SAN BERNARDINO RANGE

The oldest rock found in the Barton Flats area is Precambrian gneiss, which is older than 540 million years. The granite found on site is from the Mesozoic, aging 240-65 million years old. The mountains (transverse ranges) were formed 27-18 million years ago when the Pacific Plate collided with the North American Plate.

GNEISS



Description: Metamorphic rock. Wavy layers comprised of pink, black, and white minerals. Individual crystals are often visible. Metamorphosed granite.

GNEISS MINERAL COMPOSITION:

Quartz: Color- clear quartz is the most common color in our area, followed by white or cloudy (milky quartz). Cleavage- absent; breaks conchoidally (like glass). Hardness- 7

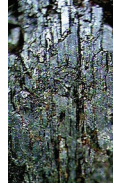
Plagioclase (Potassium) Feldspar: Color- usually light cream to a salmon pink. Cleavage- forms prisms with angles averaging 60 and 30 degrees. Hardness- 6

Orthoclase (Sodium) Feldspar: Color- usually white or gray. Cleavage- forms prisms with angles averaging 60 and 30 degrees. Hardness- 6-6.5

Biotite Mica: Color- black to coppery brown. Cleavage- two parallel planes, forming thin sheets or flakes. Hardness- 2.5

Muscovite Mica: Color- pearly to silvery white. Cleavage- forms thin sheets or flakes. Hardness: 2.5

Amphibole: Color- black to dark green. Cleavage- forms prisms with angles at 124 and 56 degrees. Hardness- 6-6.5 Other- Crystals appear as needles in rocks.



SAGEBRUSH LIZARD (*Sceloporus graciosus*)



Description: Male striped brown and grayish white above; throat and belly blue with irregular white line down middle; reddish-orange spot on sides. Female has faint or no blue below. Skin has small spiny scales.

Size: 6"

Reproduction/Shelter: Clutch of 2–7 eggs are laid a about an inch deep in nests dug by the female. Nests located near the base of shrubs in loose soil. Laid June–July, hatch July–August.

Diet: Small arthropods, especially ants and beetles. A wide variety of other insects, as well as spiders, ticks, mites, and scorpions.

WESTERN RATTLESNAKE (*Crotalus viridis*)



Description: Large, dark brown blotches on back edged with narrow whitish or yellow lines; wide head, top solid brown. Often hibernates in large numbers in rock crevices on south-facing slopes. **Size:** Length 24–60"

Reproduction/Shelter: Females may give birth to a live brood near the hibernation dens; young born complete with fangs and venom. They rarely rattle, but when they do tail vibrations are very fast, twitching 20–100 times per second, depending on the temperature (warm snakes rattle faster than cool ones); new rattle segments are added every time the snake sheds its skin.

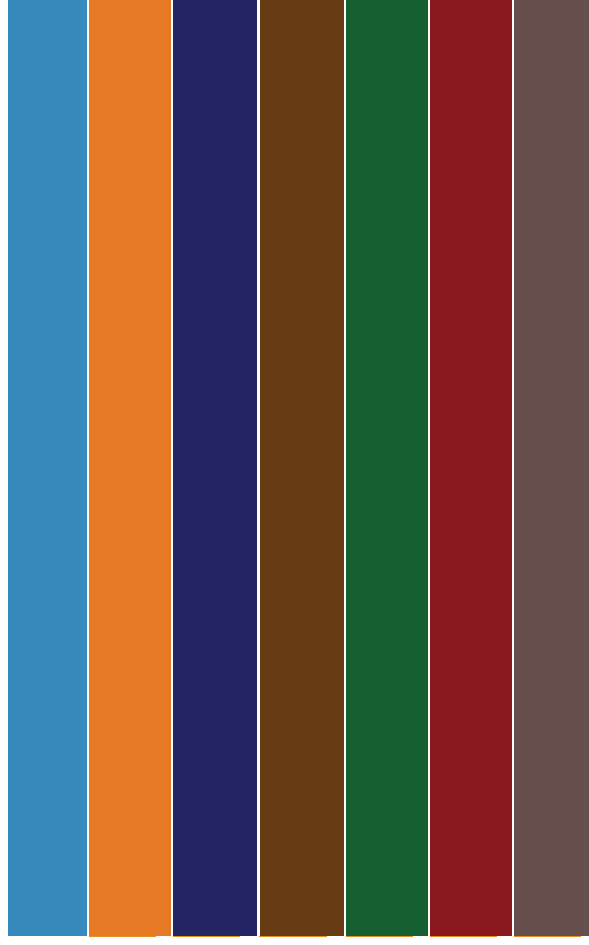
Diet: Inject venom to immobilize prey; feed on small mammals, ground nesting birds, reptiles, and amphibians.

WESTERN SKINK (*Eumeces skiltonianus*)



Description: Body scales smooth, shiny; small head; head scales large. Adult brown above, with wide brown buff and blackish stripes from face to base of tail; tail gray-brown. Younger ones have brilliant blue tails that become progressively duller as they age. Males develop reddish-orange coloration on the chin and sides of the head during the breeding season. Diurnal. **Size:** 8"

Reproduction/ Shelter: Mate May–June; clutch of 2–6 eggs laid in burrows or under rocks, June–July; Hatch July–August. Females tend eggs.



REPTILES AND FISH



ENSATINA (Ensatina eschscholtzi)

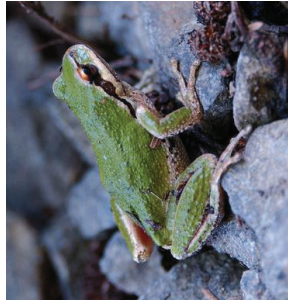


Description: Plain brown or blackish above, whitish or yellowish below, with fine black dots; sometimes lighter mottling on back color. Base of limbs often light-colored. Male's tail often longer than body; female's shorter. If grabbed by a predator the tail will break off allowing it to escape, and will then grow back. **Size:** 5"

Reproduction/Shelter: Cluster of eggs laid underground, brooded by female.

Diet: Mites, spiders, sowbugs, beetles, slugs and snails.

PACIFIC TREEFROG (Hyla regilla)



Description: Skin rough; varies greatly from green to light tan to black, often with dark spots. Black stripe through eye and usually a dark triangle between the eyes. Large toe pads. Male has gray throat. **Size:** 1"

Reproduction/Shelter: Females lay small clusters of eggs, attaching them to bits of vegetation in quiet, shallow water. Egg clusters are irregular in shape and contain 10-70 eggs. Embryos develop rapidly, hatching 2-3 weeks after the eggs are laid, and the tadpoles metamorphose in approximately 2 months.

Diet: Insects

MOUNTAIN YELLOW-LEGGED FROG (Rana muscosa)



Description: Brown with black or dark-brown spots or lichenlike markings. Dorsolateral ridges present, but may be indistinct. No dark mask. Eardrum smooth. Belly yellow to pale orange. Toes fully webbed, and toe tips dark. Male has swollen thumbs. **Size:** 3"

Reproduction/Shelter: Breeding begins as soon as lakes and meadows are snow and ice free, usually from May through August.

The pigmented eggs form in globular masses of 1 to 2 inches in diameter and are attached to vegetation or to the bank itself.

Diet: Larvae eat organic debris, plant tissue, algae and small organisms. Metamorphosed frogs are insectivorous.



RAINBOW TROUT (Oncorhynchus mykiss)



Description: Spots prominent, red band on sides. Mouth white; no teeth on back of tongue. 8-12 anal fin rays; adipose fin present, usually with black edge. **Size:** 18-22"

Reproduction/Shelter: Spawning takes place from late March-July. The female prepares a redd (nest) in shallow gravel riffles or a clearwater stream and lay 200-8,000 eggs to be fertilized by a male. Hatching takes place from a few weeks to as much as four months later. Then the hatchlings assemble in groups seeking shelter along the stream margins/protected lakeshore. They remain for the first 2-3 years then move into the larger water of lakes and streams.

Diet: Fish, salmon carcasses, eggs, and small mammals.

REDEAR SUNFISH (Lepomis microlophus)



Description: Back olive, with brown speckles; sides greenish yellow, brassy reflections and dark speckles; belly yellowish orange; dark olive spots on sides of head; black spot on ear flap, with broad bright reddish-orange border posteriorly. Mouth reaches eye. Pectoral fin long, pointed, extending to near middle of anal fin base. **Size:** 6-8"

Reproduction/Shelter: Spawn in late May; Males build nest, usually in colonies near submerged vegetation. Nests are constructed by males whom also guard and fan the nest during incubation. Females lay an average of 20,000 eggs. They hatch in 6-10 days, and the fry remain in the nest guarded by the male.

Diet: Snails are a major food item in adults.

RINGNECK SNAKE (Diadophis punctatus modestus San Bernardino subspecies)



Description: Small, dark head; neck has ring of belly color; olive, blue-gray, or blackish above; underside reddish orange or yellow with heavy black dots. When threatened, red-bellied forms tightly coil the tail and elevate it to display brightly colored underside. **Size:** Length 24"

Reproduction/Shelter: Mates in spring or fall. Clutches of 1-10 elongate white or yellowish eggs, 1" long, are laid June to July in communal nesting sites.

Diet: Partially constricts prey, which includes earthworms, slugs, small salamanders, lizards, and newborn snakes.



AMPHIBIANS

REPTILES AND FISH

CALIFORNIA MOUNTAIN KING SNAKE (Lampropeltis zonata panvirubra)



Description: Shiny scales; body banded with wide red, narrow white and black rings; head black; white collar. Non-venomous and diurnal, but often mistaken as a dangerous snake because it is a mimic of the coral snake. When attacked, will roll into a ball with its head in the center, and smear attacker with musk and feces. **Size:** Length 33"

Reproduction/Shelter: Lays 3 to 13 eggs in June and July

Diet: Suffocates prey like a constrictor; is immune to venomous snakes; eats lizards, other snakes (rattlesnakes, copperheads, and coral snakes), birds, birds eggs, and small mammals.

GOPHER SNAKE (Pituophis melanoleucus)

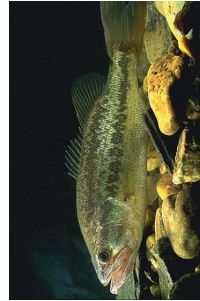


Description: Scales smooth. Buffy or gray above, with rounded dark brown or reddish blotches, sometimes fused into stripes; white to yellowish below; head pale yellow with blackish band from eye to eye; tail banded. **Size:** 4'

Reproduction/Shelter: Males vigorously defend their territories against all competing males. Six weeks after mating, females lay a clutch of eggs with 2 to 24 eggs. Hatchlings emerge fully developed within 10 weeks, and are large enough to eat small mice.

Diet: Constricts rodents, rabbits, and birds.

LARGEMOUTH BASS (Micropterus salmoides)



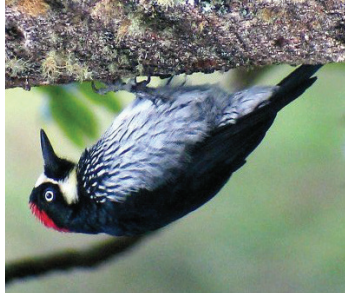
Description: Moderately deep, robust; back olive to dark green, mottled; sides greenish yellow with dark midlateral stripe; head greenish gold. Mouth large, extends beyond posterior edge of eye. **Size:** 14–18"

Reproduction/Shelter: Nest in quiet water usually in 1–3 feet, in any substrate other than soft mud. Male will fan away silt to clean a circular area to serve as the nest. Female will lay anywhere between 1,000–25,000 per nest. Then the male chases female away and then guards the nest and chases away enemies. Males continuously fan the eggs to aerate them and to prevent silt from settling on them.

Diet: Minnows, insects, frogs, mice, ducklings, crayfish.

BIRDS

ACORN WOODPECKER (Melanerpes formicivorus)



Description: Red crown; light eyes; black chin, white rump, and small, white wing patches. **Size:** Length 9" Wingspan 17.5"

Reproduction/Shelter: 4–5 white eggs laid in a tree cavity lined with fresh wood chips. Nest holes may be used repeatedly for several seasons. Nest in colonies, with all members of colony sharing in excavating hole for nest.

Diet: Insects, sap, oak catkins, fruit, and flower nectar. Acorns are critical for winter survival and are stored in holes drilled into a tree called a granary. A granary tree may have 50,000 holes!

AMERICAN ROBIN (Turdus migratorius)



Description: Found at High Trails in the winter. Large bird with orange breast, grayish back, and bright yellow bill. They are often one of the first birds to sing in the morning. **Size:** Length 10" Wingspan 17"

Reproduction/Shelter: Cup-shaped nest built by the female; Outer foundation made of long coarse grass, twigs, paper, and feathers woven together; Lined with mud, smeared with female's breast feathers and fine grass and soft material for cushion. 3–5 eggs laid and raise 2–3 broods.

Diet: Berries and other fruits, earthworms, grubs, and caterpillars

BAND-TAILED PIGEON (Columba fasciata)



Description: Dark gray above; pale gray terminal band on tail. Head and underparts purplish plum, whitening toward extreme lower belly. Adults have narrow white semi-collar on nape. Yellow bill tipped with black; yellow legs. **Size:** Length 14.5" Wingspan 24"

Reproduction/Shelter: Nest is a flat saucer of loosely intertwined twigs, placed on a sturdy tree limb. 1–2 eggs

Diet: Seeds, fruit, acorns, pine nuts, and flowers.



REPTILES AND FISH



BROWN CREEPER (Certhia americana)



Description: Tiny with long, thin tail and thin curved bill; mottled brownish plumage. Most often detected by its soft, lisp-like call as it works its way up a tree trunk, probing the bark for insects, always moving in an upward direction, circling tree trunks in spirals, then dropping down to the base of the next tree. When threatened by a potential predator, will freeze with outspread wings and remain motionless for several minutes. At such times they can be nearly invisible.

Size: Length 5.25" Wingspan 7.75"

Reproduction/Shelter: Foundation of nest made of twigs and bark and is built behind a loosened bark scale. On top of the foundation a cup of finer bark shreds, grasses, and mosses is built by the female. Females lay 5-6 eggs and incubate them for 2 weeks.

Diet: Exclusively insectivorous in summer; winter eat spiders and their eggs, occasional use of vegetable food such as acorns, beechnuts, corn, or seeds.

COOPER'S HAWK (Accipiter cooperii)



Description: Solid gray upperparts, barred with reddish-brown; long tails are barred gray and black, rounded at the ends, with a white band at the tips; Red eyes. Females are up to one third larger than males, one of the largest sexual dimorphism size differences of any hawk.

Size: Length 16.5" Wingspan 31"

Reproduction/Shelter: Courtship is lengthy and the male may feed the female for up to a month before she begins to lay eggs. They nest in a tree, 25-50 feet off the ground with both sexes helping build the stick nest lined with pieces of bark. Female incubates 3-5 eggs for 30-33 days. Male brings food and incubates the eggs when the female leaves the nest to eat.

Diet: Medium-sized birds such as robins and jays; small mammals such as squirrels and mice.

SUGAR PINE (Pinus lambertiana)



Description: Very tall tree with a straight trunk unbranched for a long span and open, conical crown of long, nearly horizontal branches, bearing giant cones near the ends; becoming flat-topped. Needles- evergreen, 5 in bundle twisted, slender, stiff, sharp-pointed; blue-green, with white lines on all surfaces. Bark- brown or gray; furrowed into irregular scaly ridges; gray and smooth on branches. Cones- 11-18" long; cylindrical, shiny light brown; hanging down on long stalk near ends of upper branches; cone-scales thick, rounded, ending in blunt point, spreading widely; seeds large, long-winged, edible.

Size: Height: 100-160' Diameter: 3-6'

WESTERN JUNIPER (Juniperus)



Description: Dense, pyramidal tree or low shrub. Leaves- tiny, scale-like, gray-green, in whorls of 3. Cones- tiny, berry-like, blue-black, resinous. Bark- reddish brown, shreddy.

Size: Height 30'

WESTERN RED CEDAR (Thuja plicata)



Description: Trunk base flared and buttressed; Branches- droop. Leaves- tiny, scale-like, in opposite pairs; cover flat twigs. Cones- 1/2" oval, in upright clusters. Bark- gray to reddish, fibrous.

Size: Height 130' Diameter 10'

WHITE FIR (Abies concolor)



Description: Branches- short, horizontal. Needles- 2", silvery blue-green with white lines, flat, up-curved. Cones- 4", cylindrical, greenish or purple; upright; on highest branches. Bark- gray, furrowed.

Size: Height 130' Diameter 4'

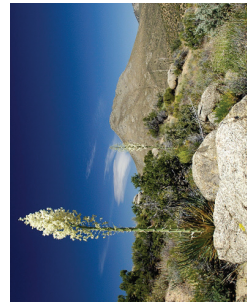
PLANTS

BIRDS



OUR LORD'S CANDLE

(*Yucca whipplei*)



Description: Several thousand white or cream flowers, often tinged with purple, in a long massive cluster on a stout stalk growing from a dense basal rosette of gray-green, rigid, spine-tipped leaves. Flowers- Petal-like segments 6, each 1–1.5" long, forming a bell.

Size: 4–11"

PONDEROSA PINE

(*Pinus ponderosa*)



Description: Needles- 8", yellowish in bundles of 3 in tufts at branch tips. Cones- 5", egg-shaped, reddish scales have out-curved prickle. Bark- yellow-brown, thick, scaly plates.

Size: Height 130' Diameter 4'

SAN BERNARDINO RUBBER RABBITBRUSH

(*Chrysothamnus*)



Description: Densely leafy and has stems and young twigs covered with a white to gray felty hairs. Leaves- alternate, are usually green, from 1/16" to 1/8" wide, and from 3/4" to 2" long. Heads- in terminal clusters and smooth to hairy. Flowers- all disk-shaped.

Size: Height 20"–5'

SINGLELEAF PINYON

(*Pinus monophylla*)



Description: Spreading, rounded crown with many low horizontal branches; often shrubby. Needles- 1", gray-green, stiff, sharp, often curved. Cones- 2", nearly round. Bark- gray, furrowed, scaly.

Size: Height 30'

BIRDS

COMMON RAVEN

(*Corvus corax*)



Description: Glossy black feathers, thick and slightly curved bill, long tail is wedge-shaped in flight. One of the most widespread, naturally occurring birds worldwide and the largest passerine bird in North America. **Size:** Length 24" Wingspan 53"

Reproduction/Shelter: Remain paired all year, perhaps for life. Nests are 2–4' in size, made of twigs and branches, and lined with grasses, moss, and fur. Females lay 3–7 eggs from mid-February to late May, during which time the male feeds her.

Diet: Opportunistic omnivores and scavenge much of their diet from carrion. They also eat rodents, eggs, nestlings, and grain.

DARK-EYED JUNCO

(*Junco hyemalis*)



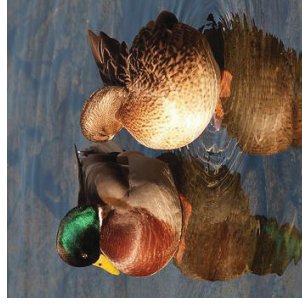
Description: Oregon Race, only found at High Trails in the winter. Dark, dull-gray hood with brown back and sides and white belly. Outer tail feathers white, while rest of tail is gray-black. **Size:** Length 6.25" Wingspan 9.25"

Reproduction/Shelter: 3–6 eggs concentrated at the larger end, in a deep, compact nest of rootlets, shreds of bark, twigs, and mosses, lined with grasses and hair, placed on or near the ground, protected by a rock ledge, a mud bank, tufts of weeds, or a fallen log.

Diet: Seeds of grasses and weeds and insects.

MALLARD

(*Anas platyrhynchos*)



Description: Large and heavy with orange legs; Male has a green head, white neck ring, chestnut breast, and grayish body. Female mottled brown with white tail. The ancestor of nearly all domestic duck breeds. **Size:** Length 23" Wingspan 35"

Reproduction/Shelter: Pairing takes place in the fall, but courtship can be seen all winter. Nest is a depression scraped in ground, lined with vegetation and down from female's breast with 1–13 eggs per clutch.

Diet: Feed by "dabbling" and upending, or they tip their bodies into water, bill first, to forage for food. Their diet is 90% vegetarian, consisting mainly of seeds of grasses, sedges, pondweeds and other aquatic vegetation. Snails, insects and small fish sometimes are taken.



GREAT HORNED OWL (Bubo virginianus)



Description: Large and bulky; dark brown with black spots above; underparts pale brown with heavy, dark brown bars; upper chest has dark streaks; dark stout ear tufts; yellow eyes, reddish brown facial disks, and dark bill. The only animal that regularly eats skunks.

Size: Length 22" Wingspan 44"

Reproduction/Shelter: Courtship begins late January or early February. Mating rituals include singing love songs between the female and male. After mating they use the abandoned nest of another bird, usually a hawk or crow.

Eggs usually number 2-3. Raises one family each year, with the male and the female both incubating the eggs, which hatch in approximately 4 weeks. Known to be a very protective parent, guarding the young until they mature fully and can leave the family at approximately 1-2 months.

Diet: Small mammals, such as rabbits, woodchucks, mice, rats, squirrels, and skunks. Birds such as ducks, game birds, quails, and occasionally geese or turkeys. Owls eat their prey whole and regurgitate the bones, fur, and feathers, in pellets.

MOUNTAIN BLUEBIRD (Sialia currucoides)



Description: Winters down the mountain. Male pure sky-blue above, paler blue below; white abdomen; female similar, but duller and grayer. **Size:** Length 7.25" Wingspan 14.5"

Reproduction/Shelter: Nest constructed of grass, weed stems, pine needles, twigs, rootlets, bark, and, sometimes, wool, hair, or feathers in any natural cavity; one egg per day is laid until 5-6 laid. Males very attentive to females during the nest-building period and spend most of their energy guarding their mates.

Diet: Insects, including beetles, weevils, ants, wasps, cicadas, flies, grasshoppers, katydids, and crickets. Unlike their eastern or western relatives, they rarely eat seeds or berries and they often hover while foraging.

BIRDS

HONEY MESQUITE (Prosopis glandulosa)



Description: Spiny, thicket-forming shrub or small tree with short trunk, crooked branches. Leaves- 8", bipinnately compound, each axis with 7-17 pairs of tiny oblong leaves. Fruit- bumpy, brown, 8" pods.

Size: Height 15'

INKENSE CEDAR (Calocedrus decurrens)



Description: Dense crown. Leaves- tiny, scale-like in whorls of 4; 1" Cones- oblong with 6 scales; Bark- reddish brown, deeply furrowed.

Size: Height 90' Diameter 5'

INDIAN PAINTBRUSH (Castilleja coccinea)



Description: Flowers hidden in axils of scarlet-tipped, fan-shaped bracts and arranged in a dense spike. Flowers- about 1" long, greenish yellow, tubular; corolla with a long, 2-lobed upper lip arching over a shorter, 3-lobed lower lip. Leaves- Those at base 1-3" long, in a rosette, elliptical, untoothed; those on stem stalkless, divided into narrow segments.

Size: Height 1-2'

JEFFREY PINE (Pinus jeffreyi)



Description: Needles- 8", blue-green, stiff, in bundles of three. Cones- 8", egg-shaped; scales end in sharp, in-curved prickle. Bark- purplish or reddish brown, furrowed. Bark and twigs lemon or vanilla scented. One of the heaviest seeds found among pines; its seeds can be carried and cached by the yellow pine chipmunk, thus it is commonly a mammal-dispersed pine.

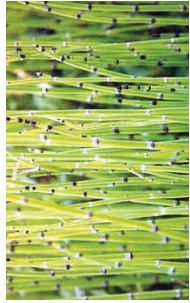
Size: Height 130' Diameter 4'

PLANTS



COMMON HORSETAIL

(*Equisetum arvense*)



Description: Dense clusters of jointed, hollow, green stalks with many whorls of narrow, jointed branches. Fertile stalks pale brown, unbranched, each topped by 1" spore cone. Found near water.

Size: 24"

COMMON MANZANITA

(*Arctostaphylos manzanita*)



Description: Large shrub or small tree with rounded crown, twisted trunk and branches. Leaves- 1.66", elliptical, thick, evergreen. Bark- dark reddish brown, smooth. Flowers- 1/3", white or pink, jug-shaped in drooping clusters at branch tips. Fruit- 1/4", reddish brown, berry-like, look like tiny apples.

Size: 20'

COULTER PINE

(*Pinus coulteri*)



Description: Straight-trunked tree with rows of nearly horizontal branches formed annually, an open, thin, irregular crown, and very large, heavy cones. Needles- evergreen; 3 in bundle. Bark- dark gray, thick, deeply furrowed into scaly ridges, becoming slightly shaggy; blackish-gray, very rough, divided into rectangular plates on branches. Cones- 8-12" long; egg-shaped, bent down on very stout stalk, very heavy, slightly shiny yellow-brown, resinous; cone-scales very long, thick, sharply keeled, with spine flattened and curved forward.

Size: 40-70'

CURL-LEAF MOUNTAIN MAHOGANY

(*Cercocarpus*)



Description: Rounded crown; Branches- twisted. Leaves-1", lanceolate with rolled edges, aromatic, evergreen. Bark- reddish, furrowed. Flowers- 1/8", yellowish, funnel-shaped; bloom April-June. Fruit- 1/4" seed-like, with long, white, hairy tails. Source of winter protection for mule deer. Wood used as a fuel source and smoking meats by Native Americans. Leaves used as a laxative, and inner bark for lung problems. Red dye made from bark.

Size: 20'

BIRDS

MOUNTAIN CHICKADEE

(*Poecile gambeli*)



Description: Small, short billed birds; back, wings, belly, and tail gray; cap and throat black; cheek and sides of neck white; white eyeline. **Size:** Length 5.25" Wingspan 8.5"

Reproduction/Shelter: Nest cup is molded in fur and; unincubated eggs are covered with fur plug while the female is not in the nest.

Diet: Consists mainly of insects and other invertebrates, berries and seeds. Hides seeds and occasionally insects under bark, in pine needle clusters, and in ground.

MOUNTAIN QUAIL

(*Oreortyx pictus*)



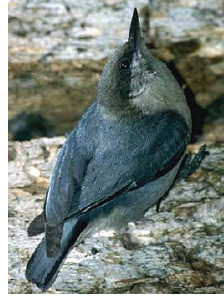
Description: Long straight, black head plume; brown above, with gray head, neck, and breast; chestnut throat; chestnut flanks with bold white bars; female similar, but duller. Largest quail in the U.S. and more often heard than seen because they prefer areas of dense cover on the ground. **Size:** Length 1.1" Wingspan 16"

Reproduction/Shelter: 8-12 light reddish eggs in a depression lined with dry grass and leaves, hidden among protective rocks, logs, or thick vegetation.

Diet: Buds, acorns, flowers, fruits, and seeds of shrubs and trees.

PYGMY NUTHATCH

(*Sitta pygmaea*)



Description: Blue-gray above, pale, buffy below; brown crown and dark brown eyeline, white throat and disproportionately large bill. **Size:** Length 4.25" Wingspan 7.75"

Reproduction/Shelter: Nests in holes in trees; will use nest box. Nest cup of bark shreds, moss, grass, fur, feathers, and other soft material.

Diet: Winter diets consists of insects and mostly pine seeds. Summer diets mainly insects and spiders.

PLANTS



RED-BREADED NUTHATCH (Sitta Canadensis)



Description: Male has blue-gray upperparts, pale rust-colored underparts, black crown, line through eye, and white eyebrow. Female similar, with gray crown.
Size: Length 4.5" Wingspan 8.5"

Reproduction/Shelter: Excavate a nesting place in a dead stub or limb of pine; also use deserted woodpecker holes; smear pitch of coniferous trees with their bill around the entrance to the nest cavity, but unknown why. Nest materials include grasses, rootlets, mosses, shreds of bark and plant fibers; 6 eggs laid in April and May.

Diet: Seeds of pines, spruces, firs and other conifer trees; pry open the pine cone scales with their bills to extract the seeds. In the spring and summer, feeds on beetles, wasps, caterpillars, insect eggs, crane flies, and moths of spruce budworm.

RED-TAILED HAWK (Buteo jamaicensis)



Description: Large, stocky. Typical light-phase birds have whitish breast and rust-colored tail. Young birds duller, more streaked, lacking rust-colored tail of adult; This species quite variable in color, especially in West, where blackish individuals occur; these usually retain rusty tail. The raspy cry of the Red-tailed Hawk is used in movies to represent any eagle or hawk anywhere in the world. **Size:** Length 19" Wingspan 49"

Reproduction/Shelter: Nest in a tree or cliff. Lay 2 or 3 eggs (can be 1-5). Both parents incubate eggs, which lasts 30-35 days.

Diet: Rodents, birds, snakes, lizards, and some insects.

STELLER'S JAY (Cyanocitta stelleri)



Description: Overall sooty black color with paler blue belly and rump; the only western jay with a crest. Very vocal and noisy. **Size:** Length 11.5" Wingspan 19"

Reproduction/Shelter: 3-5 spotted greenish eggs in a neat twiggy bowl lined with small roots and fibers, well hidden in a conifer.

Diet: wide variety of foods, including small vertebrates and arthropods, seeds, berries, nuts, and especially acorns and pine seeds; commonly take the eggs and nestlings of small birds; have attacked and eaten adult birds.



BIG SAGEBRUSH (Artemisia tridentata)



Description: Rounded, gnarled shrub. Leaves- 1", fuzzy, gray-green, spicy-aromatic, narrowly oblanceolate, with 3-lobed tip. Stems- brown, shreddy. Flowers- tiny, drab yellow, in loose spikes. Bloom September-October. Commonly used by Native Americans.

The wood was burned for fuel or used in construction of dwellings. The leaves and the seeds were eaten. The leaves, which contain camphor, were also used medicinally for coughs, colds, headaches, stomach aches, fevers and to relieve pain during child birthing.

Size: 6'

CALIFORNIA BLACK OAK (Quercus kelloggii)



Description: Broad, rounded crown. Leaves- 6" elliptical, with 5-7 deep blunt lobes; turn brown and stay on tree. Bark- pale gray, furrowed. Seeds-acorns 1" oval, thin, deep cap. Often used as a granary tree for acorn woodpeckers.

Size: 65'

CALIFORNIA SCRUB OAK (Quercus dumosa)



Description: Thicket-forming shrub or tree with rounded crown. Leaves- 1", thick, stiff, shiny above, fuzzy-whitish below, oblong, 3-9-lobed, usually spiny-toothed, evergreen. Bark- gray, scaly. Seeds- acorns 1", egg-shaped; cap thick, bowl-shaped.

Size: 8'

CALIFORNIA VERBA SANTA (Eriodictyon californicum)



Description: A weedy-looking, branching, evergreen shrub with resinous, aromatic leaves. Flowers- 1/2," bluish or white, trumpet-shaped, at tops of stems; bloom April-July. Leaves- 6" long, lanceolate, toothed, wavy, woolly below. Fruit- tiny capsule containing 2-8 seeds.

Size: 2-8'

PLANTS

BIRDS

SOUTHERN FLYING SQUIRREL (*Glaucomys volans*)

Description: Upper body grayish to brownish, underparts creamy white; eyes surrounded by black ring, and black border extends along the edge of the gliding membrane.
Size: Length 9–10"



Reproduction/Shelter: Have two periods of breeding activity; February–March, May–July. Females can produce two litters per year but only under favorable conditions. Litter size of 3–4.

Diet: Acorns and hickory nuts; various seeds, fruits, berries, mushrooms, buds, flower blossoms and tree bark. Occasionally insects, bird eggs and nestlings, small nestling mammals, carrion, and adult shrews and mice.

WESTERN PIPISTELLE (*Pipistrellus hesperus*)

Description: Pale yellow or grayish to reddish brown above. Belly whitish. Wings, interfemoral membrane, ears, nose, and feet blackish. Usually the first bat to appear in the evening. The smallest bat in the U.S. **Size:** Length 3"



Reproduction/Shelter: Two young born in June in small maternity colony (about 12 occupants).

Diet: Small flies, moths, beetles, bugs, wasps, ants, leafhoppers.

WESTERN GRAY SQUIRREL (*Sciurus griseus*)

Description: Gray with numerous white-tipped hairs above; belly white. Backs of ears reddish brown. Long, bushy tail with bands of gray, white, and black, especially below.
Size: Length 22"



Reproduction/Shelter: Breeding takes place once a year in the late spring, with 3–5 young per litter. Younger females generally have smaller litters than older females.

Diet: Pinecones, acorns, and other nuts, and some fungi, berries, and insects.



SPOTTED TOWHEE (*Pipilo maculatus*)



Description: Male head, chest, rump, and tail black; back and wings black with white spots; sides rufous, midbelly white. Female brown replaces black of male. Both of have red eyes and outer corners of tail feathers white. Found on ground in mountain manzanita thickets and scrub oaks. **Size:** Length 8.5" Wingspan 10.5"

Reproduction/Shelter: Nest is a scratched depression, rim of cup flush with ground surface; of leaves, grass, bark, twigs, rootlets, lined with fine grass, hair. Female selects site and lays 3–4 eggs.

Diet: Forages for insects and seeds in leaf litter. During breeding season eats mainly insects or other arthropods high in protein; rest of the year eats mostly seeds and berries and acorns (in the winter).

WESTERN BLUEBIRD (*Sialia mexicana*)



Description: Winters down the mountain. Males have deep blue upperparts and throat; rusty coloration on upper back; breast and flanks chestnut, belly and undertail coverts grayish white. Females look similar, but less colorful: brownish gray above; breast and flanks tinged with chestnut; throat pale gray, and prominent white eye ring is evident.
Size: Length 7" Wingspan 13.5"

Reproduction/Shelter: Two broods are produced each season; the second clutch of eggs is started as soon as the first brood has fledged. After the second brood fledges, both families form a single flock and stay together until migration.

Diet: Feed primarily from perches, dropping to the ground to feed on grasshoppers, caterpillars, beetles, bugs, and spiders. Insects make up about 80 percent of their diet; the rest is fruits such as juniper and mistletoe berries eaten during winter.

BIRDS

MAMMALS



WESTERN Tanager

(*Piranga ludoviciana*)



Description: Migrates through High Trails in spring. Adult male has brilliant red head, bright yellow body, with black back, wings, and tail. Two wing bars; smaller uppermost bar yellow, lower one white. Female is yellow-green above, yellow below; wing bars similar to male's.

Size: Length 7.25" Wingspan 11.5"

Reproduction/Shelter: Nest a flimsy, shallow open cup of twigs, grasses, bark strips, and rootlets, lined with grass, hair, or fine plant fibers. Placed in trees on top of branch well out from trunk.

Diet: Late spring and early summer feeds on insects, often from the high canopy. Later feeds on berries and other small fruits.

WHITE-BREASTED NUTHATCH

(*Sitta carolinensis*)



Description: Blue-gray above, white underparts and face, black crown. Usually seen creeping on tree trunks, head downward.

Size: Length 5.75" Wingspan 11"

Reproduction/Shelter: Form monogamous pairs that remain together year-round from the time of courtship and establishment of a territory until one of the pair dies or disappears.

Diet: Probe crevices along tree trunks and limbs for smaller seeds and insects. They store seeds in loose bark or crevices.

YELLOW-RUMPED WARBLER

(*Dendroica coronata*)



Description: Breeding male dull bluish above, streaked with black; breast and flanks blackish. Rump, crown, and small area at sides of breast yellow. Females, fall males, and young are streaked gray-brown but always have yellow rump and white spots in tail. **Size:** Length 5.5" Wingspan 9.25"

Reproduction/Shelter: Nest an open cup of twigs, pine needles, and grasses interwoven with rootlets, hair, mosses, and lichens, lined with finer hair and feathers. Placed on horizontal branch of conifer.

Diet: Insects and some fruit, especially bayberries in winter.

BIRDS

MOUNTAIN COTTONTAIL

(*Sylvilagus nuttalli*)



Description: Pale grayish brown above, white below; Ears medium length, black tipped. Primarily crepuscular. **Size:** Length 15"

Reproduction/Shelter: Mate Feb–Jul; Females construct small, fur-lined nests, 2–5 litters a year, 3–8 young each.

Diet: Feeds on grasses and other herbaceous and woody vegetation, including sagebrush and juniper.

MOUNTAIN LION

(*Felis concolor*)



Description: Tawny reddish or grayish above, whitish below; fairly small head; dark spot at base of whiskers; black on back of ears. Mainly nocturnal, solitary and require a territory of 2–24 square miles. **Size:** Height 30" Length 8'

Reproduction/Shelter: Begin breeding at 3 years of age and may breed at any season, with peaks in April and May. A litter of 1–6 kittens is born (82–98 days after mating) in a den located in a hollow log or crevice in a rock ledge.

Diet: Deer, rabbits, large rodents, and birds.

MULE DEER

(*Odocoileus hemionus*)



Description: Reddish brown in summer, light gray-brown in winter; white muzzle and eye ring contrast with black nose and eyes; ears large; in summer bucks develop antlers. Active day and night. **Size:** Height 3'4" Length 7'

Reproduction/Shelter: Courtship and mating occur within a group with the dominant male mating the females in October–January; 1–2 young born in June–August.

Diet: Have a multi-part stomach (ruminant) which aids in the digestion of plants consumed; browse on fresh green leaves, twigs, grasses, herbs, weeds, blackberries, raspberries, vines, grapes, mistletoe, mushrooms, ferns, and cactus fruit.

MAMMALS



GOLDEN-MANTLED GROUND SQUIRREL (*Spermophilus lateralis*)



Description: Back gray, brownish, or buff. Head and shoulders coppery red, forming golden mantle. Belly whitish. One white stripe bordered by black stripes on each side; no face stripes. Hibernates October–May. **Size:** Length 11"

Reproduction/Shelter: Breeding takes place after emerging from hibernation. Gestation lasts about one month, and 2–8 young are born in late spring.

Diet: Seeds, nuts (especially piñon), and fruits; green vegetation and insects; Large quantities of subterranean fungi, which it locates by smell and digs out. Coniferous seeds constitute one third of the diet in fall.

LITTLE BROWN MYOTIS (*Myotis lucifugus*)



Description: Variable shades of glossy brown above, with tips of hairs burnished brown; buff below. Hairs on toes project beyond ends of toes. Active in summer, hibernates in winter. **Size:** Length 3" Wingspan 9"

Reproduction/Shelter: Breeding occurs during the fall. Sperm is stored and remains viable in the uterus of the female throughout the winter. In the spring, the bats come out of hibernation and fertilization occurs. One young is born between May–July.

Diet: Insectivores; gnats, beetles, crane flies, wasps and moths. If feeding success rates are low, may enter torpor in order to slow its rate of metabolism.

LONG-TAILED WEASEL (*Mustela frenata*)



Description: Long-bodied, short-legged. Brown above; white to deep yellow below. Tail long, often equal to head and body length; brown with black tip. Feet brownish. White on face. **Size:** Length 15"

Reproduction/Shelter: Male matures during its second summer, the female at 3–4 months of age. Young disperse at 7–8weeks.

Diet: Mice and voles, rabbits, chipmunks, shrews, rats, birds, poultry, insects and earthworms. When hunting, it follows a zigzag pattern, moving from burrow to burrow. When attacking, rushes in toward the prey, grabs the victim at the base of the skull, and curls its body around it while grasping it with its forelimbs. Eats the head and thorax first, and caches the portion not eaten.



AMERICAN WOLF LICHEN (*Letharia columbiana*)



Description: Conspicuous, brilliant chartreuse, branching tufts with tiny black dots. Fruiting bodies brown, with sunburst of chartreuse rays around edges. Found mainly on conifers. **Size:** Width 3"

BROWN RECLUSE SPIDER (*Loxosceles reclusa*)



Description: Cephalothorax orange-yellow with dark violin pattern. Bases of legs orange-yellow, rest of legs grayish to dark brown. Abdomen grayish to dark brown with no obvious pattern. Their venom is especially toxic to humans. **Size:** Length 3/8", Width 3/16"

Reproduction/Shelter: Female lays about 50 eggs in May–July, encased in a sac 2/3" diameter. Emerge from the egg sac in about 1 month. Takes an average of 1 year to reach the adult stage.

Diet: Small insects.

COMMON WATER STRIDER (*Gerris remigis*)



Description: Body black, long, slender. Middle and hindlegs long, slender, spider-like. Winged or wingless. Skates over water using surface tension. **Size:** 5/8"

Reproduction/Shelter: Pond skaters mate on the surface of the water, the male uses his short front legs to grip onto the female. They lay their eggs on land.

Diet: Mosquito larvae and small insects.

CONVERGENT LADY BEETLE (*Hippodamia convergens*)



Description: Oval, convex above. Black with white border and two converging white stripes. Elytra (underwings) are red or orange with thirteen black spots; sometimes spots are enlarged to form three transverse bands. **Size:** 1/4"

Reproduction/Shelter: Female may lay up to 500 eggs during a lifespan of a few months; clusters of 5–30 eggs are attached on leaves and twigs. Larvae feed, then pupate attached by the back end to some support.

Diet: Aphids and other small insects.



INVERTEBRATES AND FBIS

MAMMALS

CUMBERLAND ROCKSHIELD

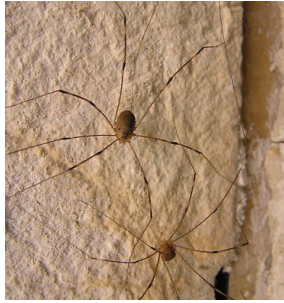
(*Xanthoparmelia cumberlandia*)



Description: Round, yellowish to greenish patched of crowded lobes, with scattered, tiny, black dots. Center often has large, brown, cupped to nearly flat fruiting bodies. Underside tan to brown. Found on rocks.
Size: Width 4"

DADDY LONG-LEGS

(*Leiobunum* species)



Description: Long thin legs. Yellowish to greenish brown with blackish stripe along midline above and on each side. Legs pale to dark. Also called Harvestman. **Size:** Length 1/4–3/8"

Reproduction/Shelter: Female uses slender ovipositor to insert eggs individually as far as possible into soil, where they overwinter, hatching in spring.

Diet: Minute insects, mites, and plant juices.

DAMSELFLY

(*Argia* species)



Description: Nymph has a long, slender body with three, paddle-shaped tail-like gills to breath underwater. Adults have smaller, narrower bodies and finer features than dragonflies and rest with wings folded back.
Size: 1–2"

Reproduction/Shelter: Incomplete metamorphosis. Complete a life cycle every 1–2 years. Mate over shallow water, while flying. Female lays eggs just under the water on some vegetation. Eggs hatch as small, predacious nymphs that live in the water, growing through several molts. Eventually the nymph crawls onto some shoreline vegetation and molts one last time, turning into an adult.

Diet: Aquatic insects.

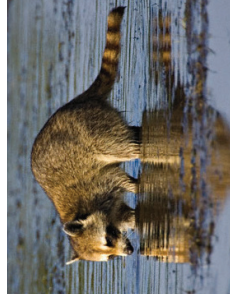


INVERTEBRATES AND FBIS

MAMMALS

COMMON RACCOON

(*Procyon lotor*)



Description: Gray-brown or orange-brown above, with much black; grayish below. Face has black mask outlined in white. Tail bushy, with 4–6 alternating black and brown or brownish-gray rings. Nocturnal. **Size:** Length 32"

Reproduction/Shelter: Four young born in April or May in a den.

Diet: Grapes, nuts, berries, pawpaw, and black cherry; grubs, grasshoppers, and crickets; voles, deer mice, fish, squirrels, and other small mammals; and bird eggs and nestlings. If water is conveniently close, appears to wash its food. The objective, however, is not to clean the food but to knead and tear at it, feeling for inedible matter that should be discarded. This is done with food found in the water.

COYOTE

(*Canis latrans*)



Description: Coat long, coarse; grizzled gray, buffy, and black. Muzzle long, narrow, brownish; ears rufous. Tail bushy, black tipped. Crepuscular. **Size:** Height 25" Length 4'

Reproduction/Shelter: Courtship lasts for approximately 2–3 months with mating occurring within this time. Once the female chooses a partner, the mates may remain paired for a number of years, but not

necessarily for life. Gestation lasts from 60–63 days and litter size ranges from 1–19 pups; the average is 6. Pups are fed regurgitated food by both parents. Male pups disperse from the dens between months 6–9, while the females usually stay with the parents and form the basis of the pack. Adult size reached between 9–12 months and sexual maturity reached by 12 months.

Diet: 90 percent of diet is mammalian such as squirrels, rabbits, and mice; occasionally eat birds, snakes, and insects. They prefer fresh meat, but consume large amounts of carrion.

DEER MOUSE

(*Peromyscus maniculatus*)



Description: Brown (adult) or gray (juvenile) above, white below. Ears round, medium size. Feet white. Tail dark above, white below. In most habitats, outnumbered by other rodents.
Size: Length 7"

Reproduction/Shelter: Have litters containing 1–11 young; litter size increases with each birth until the 5th or 6th litter and then decreases.

Diet: Insects, invertebrates, seeds, fruits, flowers, nuts, and other plant products. Sometimes eat their own feces (coprophagy). Cache food in secret granaries during the autumn months.



BIG BROWN BAT (Eptesicus fuscus)



Description: Dark brown above, pale brown below. Wings and tail membranes furless. Face and ears broad, black. Active spring and fall; hibernates in winter. **Size:** Length 4.5" Wingspan 12"

Reproduction/Shelter: Mate right before they go into hibernation, but the female does not become pregnant until the spring, in the beginning of April. Gives birth to one or two pups. Female big brown bats form maternity colonies to rear young, with size varying from 5-700 bats. Males of the species roost alone or in small groups.

Diet: Beetles, wasps, ants, plant hoppers, and leafhoppers. Rarely eats flies or moths.

CALIFORNIA GROUND SQUIRREL (Spermophilus beecheyi)



Description: Brownish, with prominent buff flecks; whitish wash from sides of neck across shoulders and forelegs to haunches, enclosing a dark brown or black, forward-pointing V pattern on upper back. Rather bushy tail; brownish gray above and below, edged with white. Diurnal; hibernates from Nov-Feb. **Size:** Length 18"

Reproduction/Shelter: Live in colonies, but tend not to socialize. Mating season is in the early spring. Female will usually birth 5-8 babies.

Diet: Primarily feeds on plant material, including leaves, stems, flowers, bulbs, roots, seeds, fruits, and berries; it often damages grain, fruit, and nut crops. Occasionally eats insects and small vertebrates.

COMMON PORCUPINE (Erethizon dorsatum)



Description: Large, chunky body, short legs. Long guard hairs on front half of yellowish body. Quills on rump and tail. Feet have unique soles with small, pebbly-textured fleshy knobs and long, curved claws. **Size:** Length 33"

Reproduction/Shelter: Mates in October and November; Prior to mating, male squirrels high-pressure jets of urine over female. After gestation of nearly 7 months one young is born in May or June with short, soft quills; harden in half an hour.

Diet: Leaves, twigs and acorns in spring; in winter, eats cambium.



DENTATE STINK BEETLE (Eleodes dentipes)



Description: Body smooth; back end long, tapered, black. Wing covers fused. Flightless; commonly seen walking slowly. When disturbed, sprays disagreeable scent. **Size:** 1.5"

Reproduction/Shelter: Female lays her eggs in the soil.

Diet: Scavenge on rotting wood. Sometimes stored foods, rugs, clothing, skins, insect collections, and dried plants.

DRAGONFLY (Anisoptera species)



Description: Nymph looks stocky and stubby, with a wide, thick abdomen. In its abdomen is a special gill chamber. Adult has a plumper appearing abdomen than a damselfly and when resting, holds its wings straight out from its body in the same position as in flight. Among the oldest living creatures on this planet; 300 million years old. **Size:** 1-3"

Reproduction/Shelter: Incomplete metamorphosis. Eggs laid in or near water and hatch in less than a month. Nymph will grow rapidly feeding on small aquatic organisms. Depending on the species it can take several weeks to years for the nymphs to mature. As the nymphs mature the wing pads elongate and adult colors become visible through the skin.

Diet: Insects

EUROPEAN EARWIG (Forficula auricularia)



Description: Body reddish brown to almost black. Antennae, legs, and elytra yellow. Underside yellowish brown. Forceps reddish brown; male's curved, female's almost straight and parallel. Short wings do not cover abdomen. California has introduced a parasitic tachinid fly from Europe to control populations. **Size:** 5/8"

Reproduction/Shelter: Female lays 50-90 shiny white eggs in the ground in the fall. They do not die, but hibernate, and in the spring attend the larvae in their early stages.

Diet: Vegetables, orchard fruits, garden flowers, garbage, as well as mites and insect larvae and pupae.



INVERTEBRATES AND FBIS

MAMMALS

FIELD CRICKET (*Gryllus pennsylvanicus*)



Description: Black to dark reddish brown. Black antennae longer than body.

Size: 0.75–1.25"

Reproduction/Shelter: Female inserts eggs singly deep into the soil. Eggs overwinter and hatch in spring.

Diet: Seeds and seedlings, small fruits, and when available, dying and dead insects.

JEFFREY PINE BEETLE (*Dendroctonus jeffreyi* Hopkins)



Description: Stout, cylindrical black colored when mature. One of the larger species of pine beetles. **Size:** Length 5/16"

Reproduction/Shelter: Attack middle of tree by boring into the trunk through the outer bark and penetrates the bark. Once it reaches the junction of bark and wood, it constructs an egg gallery by boring diagonally upward across the grain of the wood for 2 or 3 inches, then vertically parallel to the grain for an additional 2 to 4 feet. Each egg gallery is made by a single pair of beetles. Eggs require 1–3 weeks to incubate. When hatched, the larvae tunnel through the inner bark, away from the egg gallery, across the grain of the wood. The length of the larval period varies considerably, because the insect may overwinter in the larval stage. When the larvae become full grown, they construct cells at the ends of their galleries, where they pupate. The pupae mature in ten days and then transform to adults.

Diet: Phloem and inner bark of Jeffrey pine tree.

JERUSALEM CRICKET (*Stenopelmatus fuscus*)



Description: Humpbacked; very long antennae; shiny amber-brown with darker brown crossbands on abdomen, wingless. Head large with wide space between small compound eyes and jaws, legs short. Called Potato Bug. Nocturnal. **Size:** 1"

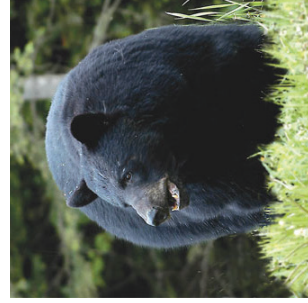
Reproduction/Shelter: Female prepares depression in soil for masses of oval white eggs. Nymphs and adults are extremely slow-moving. Adults are particularly slow during spring mating season. Female often devours male after mating. One generation a year.

Diet: Other insects, plant roots, decaying vegetation, and potato tubers.



INVERTEBRATES AND FBIS

BLACK BEAR (*Ursus americanus*)



Description: Cinnamon brown to dark black, long hair; often has white patch on chest; round head, long muzzle, and short, rounded ears. Mainly nocturnal, but often out during the day. **Size:** Height 3'4" Length 5'

Reproduction/Shelter: Females reach sexual maturity from 2–9 years and have cubs every other year after maturing. Males reach sexual maturity at 3–4 years. Mating season June to mid July with births occurring in January and February, commonly while the female is hibernating; number of young per litter is usually 2–3.

Diet: Mostly vegetation, including twigs, buds, leaves, nuts, roots, fruit, corn, berries, and newly sprouted plants; rips open bee trees to feast on honey, honeycombs, bees, and larvae, and tears apart rotting logs for grubs, beetles, crickets, and ants; also eats fish and small to medium-size mammals.

BOBCAT (*Lynx rufus*)



Description: Orange-brown in summer, pale grayish in winter; black spots and bars on long legs and rear; underparts and inside of legs white; face wide, flat; black lines radiate onto facial ruff. Mostly nocturnal. **Size:** Height 20" Length 33"

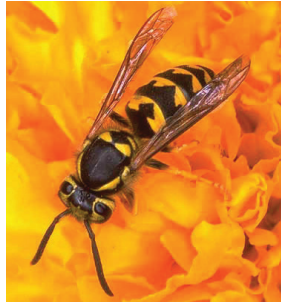
Reproduction/Shelter: Mating peaks in February, but can last from early January–June with litters arriving in late April or early May after a gestation period of 50–70 days. Litter sizes average 2–3 kittens and are weaned at about two months, but most remain with their mother until fall or the next spring. Some females are sexually mature and mate when they are one year of age.

Diet: Rabbits, squirrels, birds, and rodents like mice, voles, and rats; gorge themselves when food is plentiful and may not feed again for several days.

MAMMALS



WESTERN YELLOW JACKET (Vespula pennsylvanica)



Description: Body stout, slightly wider than head. Abdomen narrow where attached to thorax with short "waist." First antennal segment yellow, second and subsequent segments black. Head, thorax, and abdomen black and yellow or white. Wings smoky. **Size:** 5/8"

Reproduction/Shelter: In spring mated female constructs small nest and daily brings food to larvae until first brood matures and females serve as workers, extending nest and tending young. In late summer males develop from unfertilized eggs and mate. When cold weather begins, all die except mated females, which overwinter among litter and in soil.

Diet: Adult eats nectar. Larva feeds on insects pre-chewed by adults.

WOODLAND CICADA (Platyedra species)



Description: Body slender, black or bronzy. Legs and body markings red, orange, or yellow. Wings clear, much longer than body. Has no sound producing organs; clicks with wings. **Size:** 1"

Reproduction/Shelter: Incomplete metamorphosis; After mating, the females use specially modified ovipositors to cut short slits in the twigs of the trees they are in and lay their eggs in the slits. Nymphs hatch and burrow up to 6 feet into the soil. Stay in soil from 2–17 years depending on the species. Nymphs continue to grow and molt until they are ready to become adults, when they tunnel to surface and crawl up on the side of the nearest object. The skin splits down the middle of their back and they emerge to inflate and dry their wings. This is done at night.

Diet: Suck juices from trees and shrubs.

MAYFLY (Hexagenia species)



Description: Nymphs have 4–9 pairs of leaf-like or bristle-like gills along the side of the abdomen; 3 long filaments at rear of abdomen and antennae are short and bristle-like. Adults have a brown to gray-green body, 2–3 long tail filaments. Wings clear, held at 45 degree angle. **Size:** 3/8"

Reproduction/Shelter: Males form swarms and females fly into the swarm to mate. Mating occurs almost immediately and usually in flight. Females fly upstream before laying eggs, then dance over the water and fly down to deposit their eggs. Eggs come into contact with the water then stick to pebbles and stones; Both sexes die after mating. Eggs hatch and larvae swim away as nymphs, molting until the adult stage has been reached.

Diet: Plant materials like fine detritus and algae and other insects once grown.

MOUNTAIN PINE BEETLE (Dendroctonus ponderosae Hopkins)

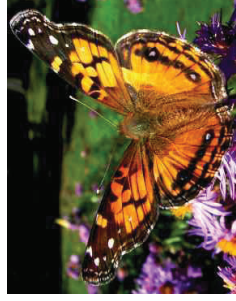


Description: Mature adults are black. Make an obvious pitch tube on the bark surface at the site of attack. Pitch tubes are masses of reddish, amorphous resin mixed with bark and wood borings. **Size:** Length 3/16"

Reproduction/Shelter: Attack the lower trunk of the tree and takes one year to complete its life cycle. Same life cycle as other pine beetles.

Diet: Phloem and inner bark of lodgepole, ponderosa, sugar, and western white pines.

PAINTED LADY BUTTERFLY (Vanessa cardui)



Description: Orange above, with black markings; forewings have black tip with white spots, bar; hindwings have row of small, blue, black-rimmed spots. Below, forewings rose with black, white, and olive markings; hindwings have olive-brown network with small blue eyespots. Most widespread butterfly in the world and mass migrates from Mexico. **Size:** 2 1/8"

Reproduction/Shelter: Females lay eggs singly on the tops of host plant leaves. Caterpillars live in silk nests and eat leaves.

Diet: Caterpillars eat thistles, hollyhocks and hundreds of other plants; adults nectar from thistles, buttonbush, milkweed, and several other flowering plants.

INVERTEBRATES AND FBIS

INVERTEBRATES AND FBIS



RED MOUND ANTS (Formica species)



Description: Head, thorax, rusty red; abdomen, legs blackish brown. Builds dome-like nest mound. Strong stinger, will swarm out and attach when disturbed. **Size:** 1/2"

Reproduction/Shelter: Nests are often constructed close to small trees and shrubs. Entranceways are littered with pine needles, leaf fragments, and bits of stems. Queen tends first brood, then female workers care for the eggs and young, feeding the queen regurgitated food.

Diet: Honeydew from aphids, nectar from flowers, and other insects.

SUN SPIDER (Eremobates species)



Description: Light beige to orange colored legs and head, with a grey abdomen and maroon pair of chelicerae (pinchers). Also has long pedipalps, which act as sense organs similar to insects' antennae and give the appearance of the two extra legs in front. Although not true spiders common names include Camel Spider and Wind Scorpion. They are nonvenomous, but do pack a very serious bite. **Size:** 1-2"

Reproduction/Shelter: Individuals are usually solitary and come together to mate. Male uses his pedipalps to transfer seminal fluid to the female, who buries between 50 and 200 eggs in the ground. Female stays with the young feeding and caring for them until they are mature enough to hunt and defend themselves. Commonly seek shade, are mainly nocturnal and very fast moving.

Diet: Ticks, mites, termites, darkling beetles and other small arthropods

WATER BOATMEN (Arctocorixa and Corixa species)



Description: Body oval, flat; dark brown with fine light cross-banding. Head small, flat. Filter-like forelegs used for feeding, middle legs used for grasping; oar-like hindlegs for swimming. **Size:** 3/8"

Reproduction/Shelter: Oval eggs are cemented to underwater supports, sometimes forming a dense crust. They hatch in 7-15 days.

Diet: Algae and minute aquatic organisms. Some are predaceous and feed on mosquito larvae and other small aquatic animals.



WESTERN TIGER SWALLOWTAIL (Papilio rutulus)



Description: Above and below, lemon-yellow with black tiger-stripes across wings and black yellow-spotted margins. One or two orange spots and several blue spots near black tail on hindwing; blue continuous all around outer margin of hindwing below. Yellow spots along outer black margin of forewing below run together into band; uppermost spot on border of hindwing above and below is yellow. **Size:** 3"

Reproduction/Shelter: Females lay eggs singly on surface of host plant leaves.

Diet: Caterpillar eats cottonwood, aspen, and willow leaves; adult feeds on nectar from thistles, abelia, California buckeye, zinnia, and yerba santa.

WESTERN PINE BEETLE (Dendroctonus brevicornis LeConte)



Description: Adults are stout, cylindrical, dark, reddish-brown to black. When the female beetles successfully attack a tree, they release minute amounts of behavioral chemicals into the air (pheromones) that attract males and other females to the tree, causing a mass attack that tends to overcome the tree's natural resistance. Attacking adult beetles carry spores of a blue-staining fungus in special pouch-like structures in their heads called mycangia. As they chew through the bark, the spores of this wilt-causing fungus dislodge and begin to germinate. In trees attacked in early or midsummer, it takes only a few weeks for the fungus to invade and block the conductive vessels of the inner bark and sapwood.

Size: 1/8-1/4"

Reproduction/Shelter: Pass through the egg, larval, pupal, and adult stages during a life cycle that varies in length from about 2 months in warm weather to 10 months in cool weather. All stages are completed beneath or in the bark of infested trees, except for a brief period when the adults fly to find new trees to attack.

Diet: Phloem and inner bark of Ponderosa and Coulter pine trees.

INVERTEBRATES AND FBIS

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