

CHAPARRAL PLANT AND ANIMAL COMMUNITIES



Cold Creek
Docent's Program

UCLA Stunt Ranch Reserve
Santa Monica Mountains
Calabasas, California

THE CALIFORNIA NATIVE PLANT SOCIETY

PLANT COMMUNITIES OF THE SANTA MONICA MOUNTAINS

WHAT IS A PLANT COMMUNITY?

A plant community is commonly defined as an assemblage of interacting plant species living in a physical habitat, which is characterized by the presence of one or more dominant species. The boundaries between the different communities are not always sharp, but often you can see transition zones in between.

WHY IS THE PRESERVATION OF PLANT COMMUNITIES IMPORTANT?

While there is a state and federal list of endangered and threatened plant and animal species that gives these species a special protection to assure their survival into the next century, there is no official protection for plant communities.

However, a species-only approach to protection will disregard all the more common species until they become rare enough to be listed, and only thereafter receive special protection. On the other hand, there are several plant communities in California that do not include rare species, but have become rare in their typical assemblage.

A local example in the California Walnut Forest, a subunit of the Southern Oak Woodland. This once common community of the greater Los Angeles area is found on hillsides from Ventura County to western cismontane San Bernardino County, as well as in the Santa Ana Mountains of Orange County. Due to habitat loss through development, it is now rare within that range and little is known about this forest type.

WHAT ARE THE MAIN PLANT COMMUNITIES OF THE SANTA MONICA MOUNTAINS?

In the Santa Monica Mountains, the main communities are chaparral, coastal sage scrub, southern oak woodland, valley grassland, riparian woodland, intermittent streambed, lake and pond, freshwater marsh, coastal strand and coastal salt marsh. Additionally, there are two marine communities: surfweed and marine meadow. Descriptions of the five main plant communities of the Santa Monica Mountains follow:

CHAPARRAL

The name of this plant community is derived from the Spanish work 'chaparral', which means little oak, referring to the scrub oak, *Quercus dumosa*.

Chaparral is comprised of hard-leaved, evergreen scrubs which grow 2 to 4 meters tall with deep roots. An understory layer does not or rarely exists. However, there is often an accumulation of dried leaf litter.

The chaparral community occurs on dry, rocky, gravelly slopes with little soil or fairly heavy soils.

Fire plays an important role in the cycle of the chaparral. The community is fire adapted mainly by the ability of the shrubs to resprout from stumps, and by seed generation after a fire. The first spring after a burn, there is often an overwhelmingly high density of annual and bulbous wildflowers.

Characteristic shrub species of the chaparral are:

- Chamise (*Adenostema fasciculata*)
- Toyon (*Heteromeles arbutifolia*)
- California Lilac species (*Ceanothus* spp.)
- Coffeeberry (*Rhamnus ilicifolia*)

- Scrub Oak (*Quercus dumosa*)
- Manzanita (*Arctostaphylos glauca*, *A. glandulosa*)
- Sugar Bush (*Rhus ovata*)
- Prickly Phlox (*Leptodactylon californicum*)

COASTAL SAGE SCRUB

Coastal Sage Scrub grows on even drier substrates and usually in lower elevations than chaparral and is found on all kinds of slope ranges and aspects, although it occurs more extensively on steep south-facing slopes.

It is composed of subligneous, soft-leaved, aromatic shrubs, .5 to 2 meters tall. Plants in this community usually go dormant in the summer and fall and many avoid the drought by dropping their leaves or reducing the leaf surface by curling them up or by reproducing smaller leaves for this time of year. A few species are even able to store water in their succulent stems or leaves.

This community is not as dense or rigid as the chaparral. Bare ground between the shrubs is typical. This community is also fire adapted, primarily through seed germination after fires.

Characteristic species of the coastal sage scrub community are:

- California Sagescrub (*Artemisia californica*)
- White Sage (*Salvia apiana*)
- Purple Sage (*Salvia leucophylla*)
- Black Sage (*Salvia mellifera*)
- Laurel Sumac (*Rhus laurina*)
- Deerweed (*Lotus scoparius*)
- Bush Monkeyflower (*Diplacus longiflorus*)
- Buckwheats (*Eriogonum cinereum*, *Eriogonum fasciculatum*)
- Our Lord's Candle (*Yucca whipplei*)
- Golden Yarrow (*Eriophyllum confertiflorum*)
- Prickly Pear (*Opuntia littoralis*)
- Sunflowers (*Encelia californica*, *Vernonia carpesioides*)

OAK WOODLAND

This community grows on sites with more favorable moisture and microclimatic conditions. It is therefore best developed on north-facing slopes and in shaded ravines in heavy clay soils.

The woody vegetation is taller than 5 meters and the tree cover greater than 30% over a grassland understory.

Characteristic species are:

- Coast Live Oak (*Quercus agrifolia*)
- Valley Oak (*Q. lobata*)
- California Bay (*Umbellularia californica*)
- California Black Walnut (*Juglans californica*)
- Toyon (*Heteromeles arbutifolia*)
- Mexican Elderberry (*Sambucus mexicana*)
- Woodfern (*Dryopteris arguta*)

RIPARIAN WOODLAND

This community can be found at the bottom of canyons and valley where there is a perennial or seasonal stream. It also occurs along the margins of some man-made lakes and reservoirs.

Areas which are generally flooded during the winter and spring are characterized by:

- Mule Fat (*Baccharis salicifolius*)
- Poplars (*Populus fremontii* and *P. trichocarpa*)
- Willows (*Salix* spp.)
- Alder (*Alnus rhombifolia*)

The areas above the highwater level are dominated by trees such as:

- Sycamore (*Platanus racemosa*)
- Bigleaf Maple (*Acer macrophyllum*)
- Willows (*Salix* spp.)
- Poplars (same as above)
- California Bay (*Umbellularia californica*)

VALLEY GRASSLAND

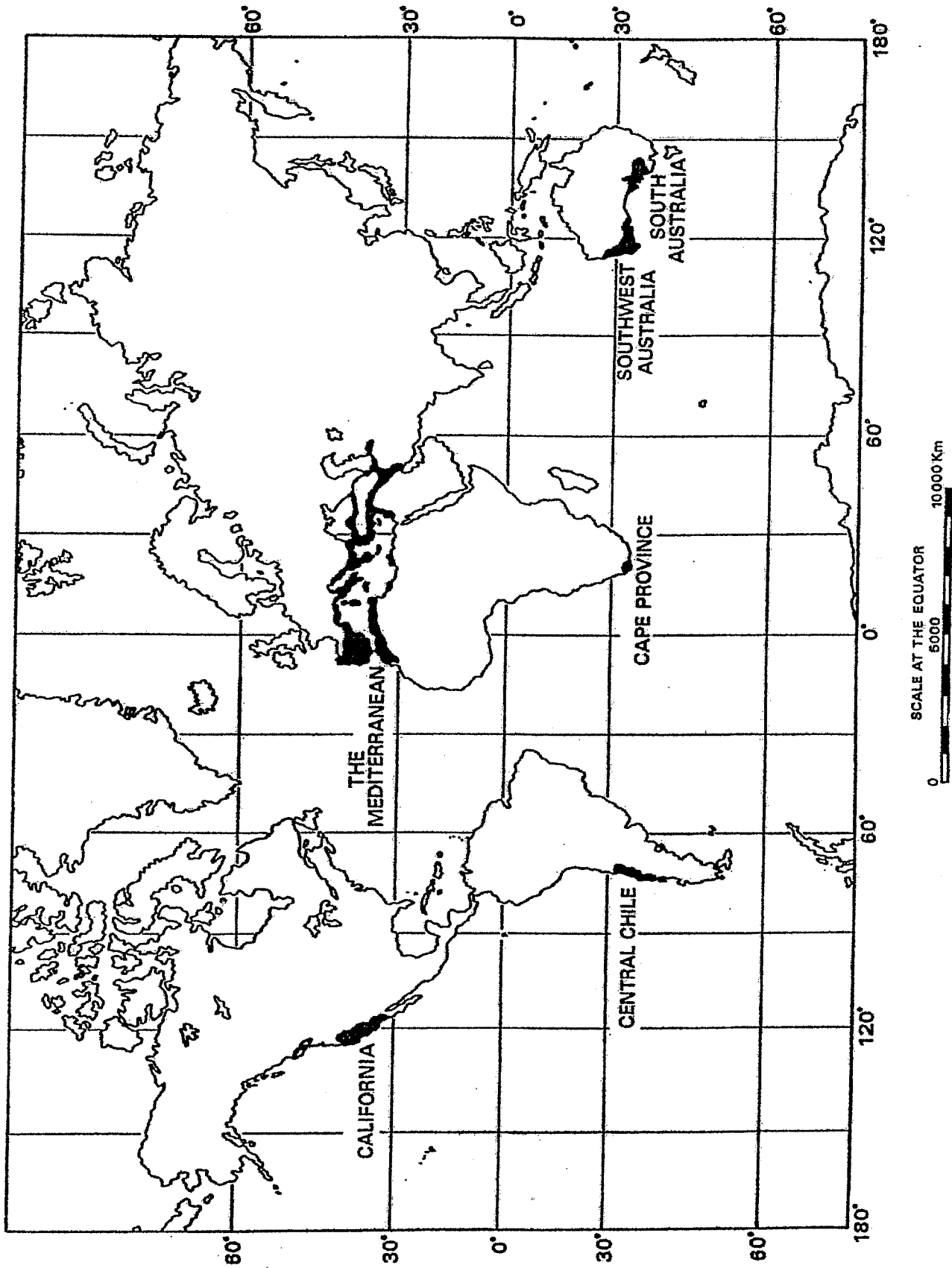
Grassland can be developed on fairly steep slopes or flats and it is often dotted by oak trees. Much of its area is hotter and drier than the coast facing slopes.

Valley Grassland is the driest habitat of the five mentioned plant communities and it occurs over clay soil that has a colloidal reaction which prevents moisture from filtering into the ground.

The grasslands of our area have been greatly altered due to grazing and other impacts and our native bunchgrasses have been widely replaced by invasive, annual European grasses. Even so, grassland is a valuable, threatened habitat, since already 99% of California's native grassland has been destroyed. This habitat usually also provides great wildflower displays.

Characteristic grass species are:

- Black Mustard (*Brassica nigra*/non-native)
- Blue Dicks (*Dichelostema pulchellum*)
- Tarweed (*Hemizonia fasciculata*)
- Baby Blue-eyes (*Nemophila menziesii*)
- Mariposa Lily (*Calochortus catalinaea*)
- Blue-eyed Grass (*Sisyrinchium bellum*)
- Owl's Clover (*Orthocarpus purpurascens*)
- Lupines (*Lupinus* ssp.)



World-wide Distribution of Chaparral
(Mediterranean-type Climate)

THE SIGNIFICANCE OF THE CALIFORNIA CLIMACTIC REGION AND THE COLD CREEK/STUNT RANCH AREA OF THE SANTA MONICA MOUNTAINS

“California represents one of only five small regions of the world that possess a mediterranean climate, which is characterized by mild, wet, winters and dry summers. The other locations are in central Chile, the Mediterranean Basin of southern Europe and northern Africa, the Cape Region of South Africa, and South western and South Australia. These regions with this highly unusual climate account for only a tiny portion of the world’s land area and occur only on the western margins of continental landmasses between about 30 and 40 degrees latitude. Subtropical high-pressure centers shield these areas from summer storms. Millennia of evolution in the five Mediterranean climate regions have produced a remarkable and globally significant degree of diversity among both plants and animals All five regions are included in a select group of 25 regions around the world designated as key ecological hot spots because of the size and uniqueness of their biota.

The California floristic province, representing one of these important ecological hot spots is defined not only by a Mediterranean climate but also by unique plant relationships. It covers the great majority of the state, excluding only the southwestern desert regions and the Great Basin to the east of the Sierra Nevada and Cascade Range. The region extends beyond our state northward into the Klamath Mountains of southwestern Oregon and southward into northwestern Baja California.”*

In a closer, more local look at California’s mediterranean climate, the Cold Creek area, reveals a vegetatively rich and geologically complex basin-and-bowl like area, one of the “crown jewels” of the Santa Monica Mountains. A perennial stream, Cold Creek, descends from Saddle Peak, which at an elevation of 2,805 feet is the Cold Creek area’s highest peak. Containing moist, shady north-facing slopes as well as hot dry facing slopes, the area is home to over 220 native plant species and 149 indigenous animal species, excluding insect species. The area contains remnant plant species from the cold/wet Pleistocene such as Red Shank, (*Adenostoma sparsifolium*), Horse’s Tail, *Equisetum laevigatum*), and species from a xerothermic (hot, dry) period such as Beavertail Cactus (*Oportunia basilaris*) and Verity’s Dudleya (*Dudleya cymosa*). Indeed, a study by UCLA describes the Cold Creek area as “perhaps the best preserved and most biologically diverse watershed area within the Santa Monica Mountains.”

Cold Creek area annual rainfall averages about 26 inches, mostly between the months of November and March. Therefore, the rapid biodegrading of dead material is hindered by the low precipitation rate. However, here as in all five of the world’s mediterranean climate regions, fire plays a major role in the recycling dead or post mature vegetation. In southern California, the fall ‘Santa Ana’ winds sweep from the deserts northeast of the L.A. basin and blow toward the ocean. These winds feed and magnify naturally started fires or human-involved fires. The most recent fires in the Cold Creek area occurred in Sept. 1970 and November 1993. Naturally started fires tend to burn in a mosaic pattern from which plant and animal recovery is easily achieved. If fires occur more often than 20-25 years, plant and animal habitat diversity can be greatly reduced, affecting the quality of habitat negatively. California’s hardy and enduring landscape in post fire recovery mode is relatively rapid, but habitats need time to come to full maturity.

Student visitors of all ages to the Cold Creek area will be looking at specific ways at how the vegetation has adapted to the extremes of a hot dry summer followed by a cold wet winter. Leaf adaptations (such as thick, leathery, fuzzy, tiny, waxy, aromatic, reflective), plant competition, succession, and mutualism, as well as animal interactions and other experiences will fascinate the observer. Here in Cold Creek one will experience five basic plant & animal community habitats: riparian streamside, grasslands, coastal sage scrub, chaparral and oak woodland. It doesn’t take long to become aware of a new perspective of beauty where color, texture, light, shape and landscape endurance create admiration, intense interest and awe of how our natural world works.

*Quoted with permission from Introduction to the Plant Life of Southern California by Philip W. Rundel and Robert Gustafson; University of California Press, 2005.

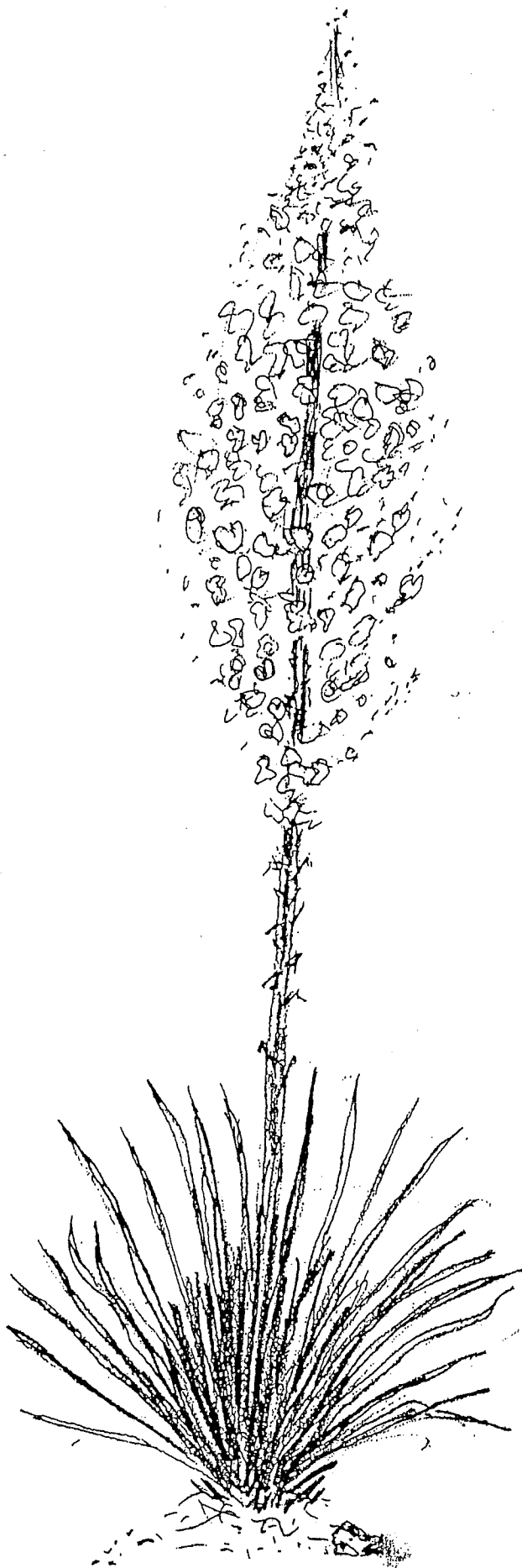


Figure 112. Yucca Moth, adult in yucca bloom.

This moth is well known to students of ecology for the part it plays in the pollination of the yucca plant. The only yucca occurring in our area is the Common Yucca or Quixote Plant (*Yucca whipplei*), the species with a large basal cluster of sharp tipped, narrow leaves from the center of which grows a tall flower stalk, and which is a conspicuous member of the coastal sage plant association.

In the early spring the Yucca Moth is attracted to the flowers of this plant. Females lay their eggs in the ovary of the flower where the seeds will later develop. The caterpillars, upon emerging from these eggs, feed on some of the seeds of each pod. The remaining seeds mature normally, the flower having been carefully pollinated by the female at the time of her egg-laying visit. The females even have mouth part structures especially modified to facilitate the gathering and transport of pollen. This moth-yucca relationship constitutes a case of symbiosis wherein both species benefit by way of their complementary needs. Furthermore, the relationship is obligatory, the plant being unable, or rarely able, to pollinate itself by other means.

The moths are small (wing span $\frac{3}{4}$ - $\frac{7}{8}$ inch) with elongate, pure white fore wings and apical black markings. They may be attracted commonly on spring nights to lights in the proximity of flowering yuccas. The larvae burrow into the soil at the base of the plant to pupate.



Yucca

Growing

So tall

Like candles,

With a flower

For light.

We twist your little stems

Into strings of thread;

We knot your strong stems

Into rope.

We weave your fibers

Into mats and baskets;

We pound your roots

For soap to make us clean.

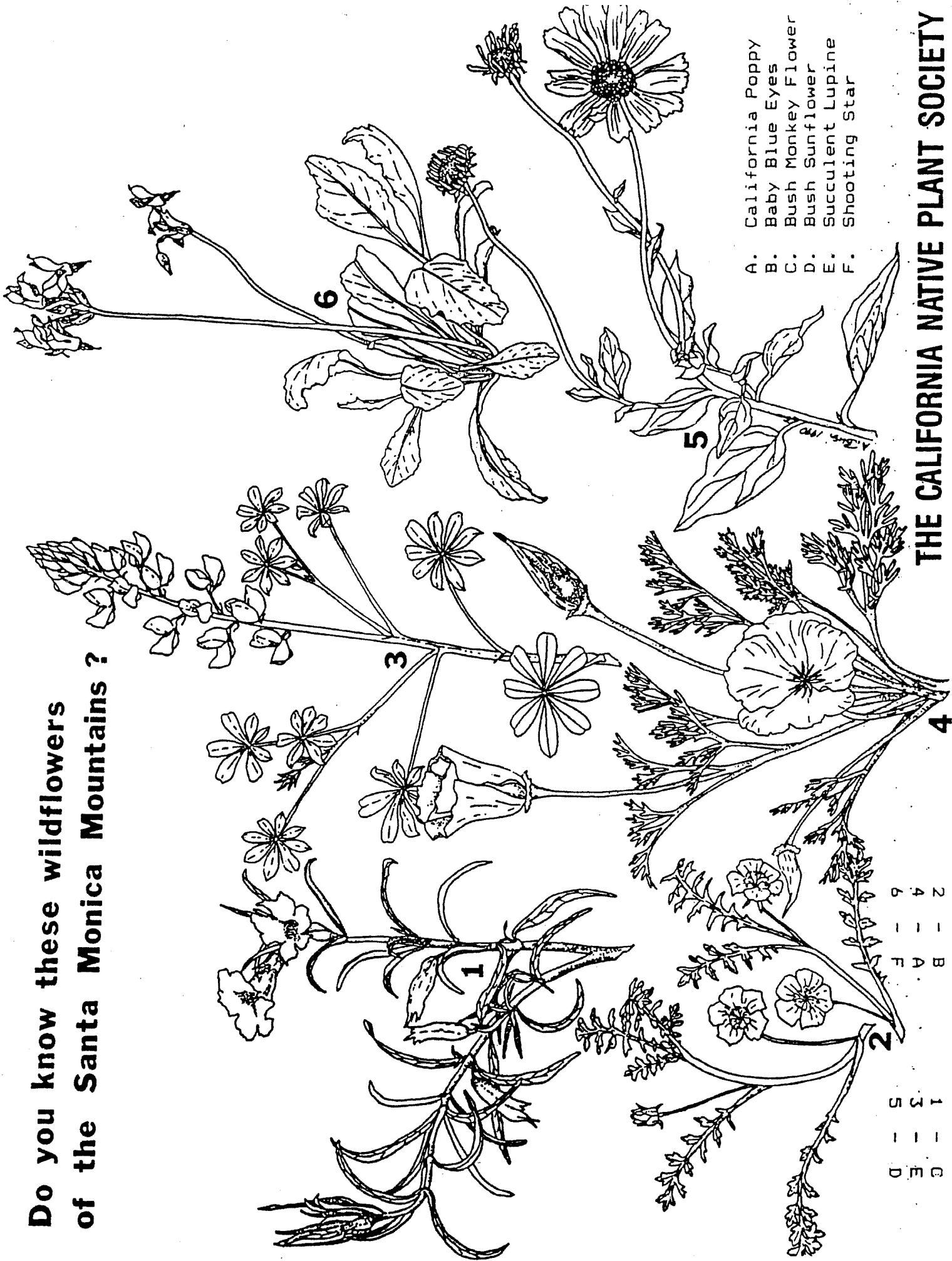
Yucca

Tall white yucca,

You make my heart sing.

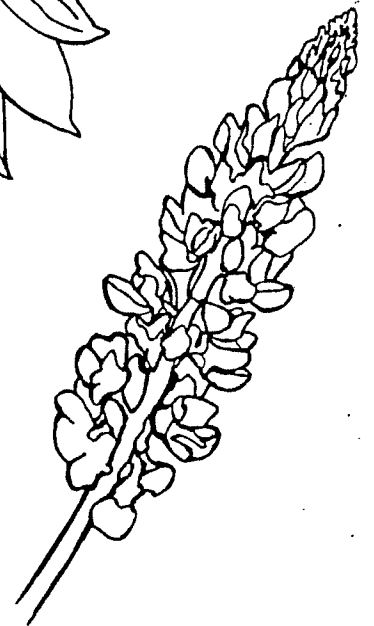
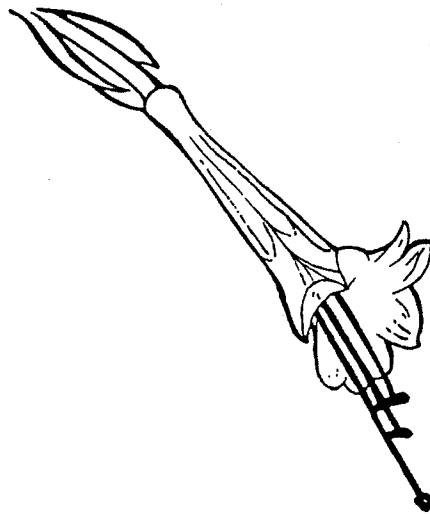
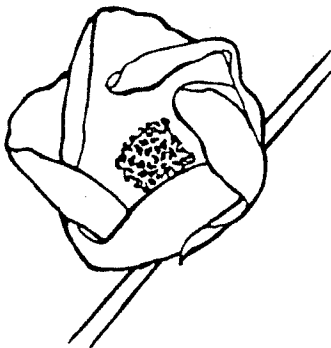
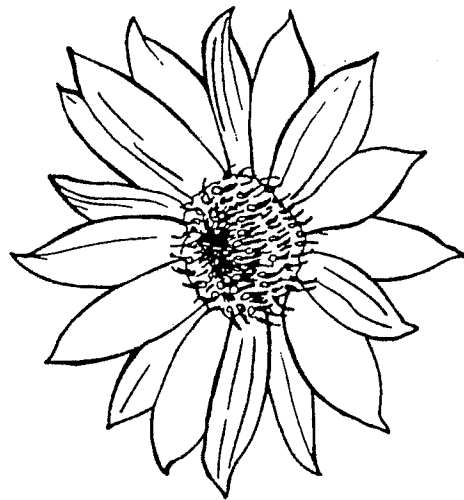
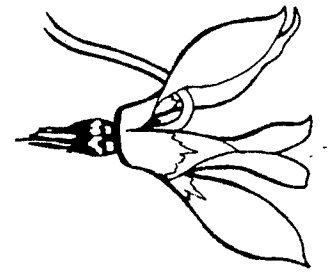
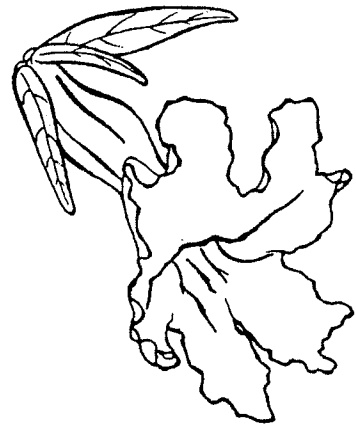
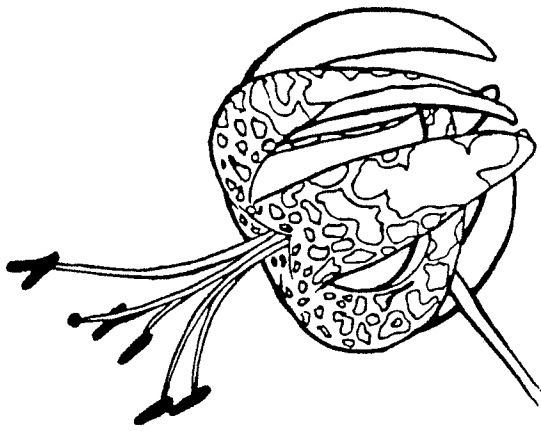
Ann Nolan Clarke

**Do you know these wildflowers
of the Santa Monica Mountains ?**



- A. California Poppy
- B. Baby Blue Eyes
- C. Bush Monkey Flower
- D. Bush Sunflower
- E. Succulent Lupine
- F. Shooting Star

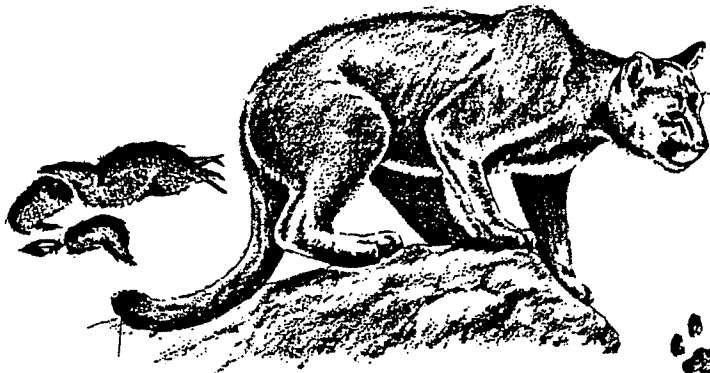
1 - C
2 - B
3 - E
4 - A
5 - F
6 - D



CALIFORNIA NATIVE PLANT SOCIETY
LOS ANGELES/SANTA MONICA MOUNTAINS CHAPTER

WILDLIFE IN THE MOUNTAINS

MOUNTAIN LION, Cougar, Puma *Felis Concolor*

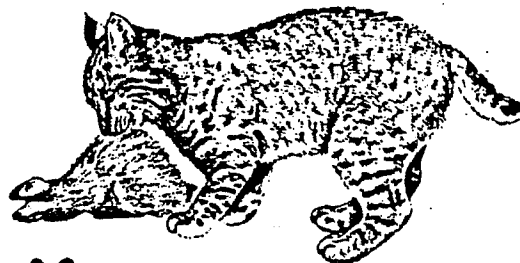


- Yellowish, grayish, reddish-tawny in color
- Strongly territorial
- Range up to 25 miles
- Diet consists of large animals such as deer, and smaller animals such as coyotes, rabbits, raccoons, birds
- Main enemy is man

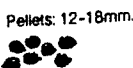


BOBCAT *Felis rufus*

- Gray-brown to reddish color
- Eartuffs used like antenna to aid hearing
- Range usually 2 miles but can be more
- Diet: rabbits, mice, squirrels, woodrats, small weak deer
- Often killed by poison bait intended for coyotes



MULE DEER *Odocoileus hemionus*



- Coat varies: yellow-brown, sooty-gray, blue-gray
- Antlers are branches; shed during winter, grown again in early spring, are covered with velvet until late summer
- Active most hours except mid-day
- Diet: clover, alfalfa, acorns, many shrubs
- Enemies: lions, bobcats, coyotes, domestic dogs, people and cars

COYOTE *Canis latrans*

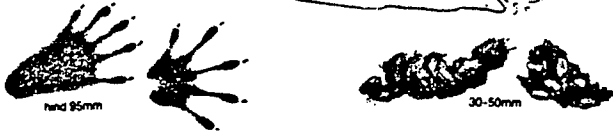
- Color and size varies: generally brownish-grayish
- Vocal at night: yaps, long howl, short yaps
- Dens along river banks, well-drained sides of canyons
- Chiefly nocturnal but can be active at any time
- Omnivorous but prefers small rodents, rabbits, squirrels
- Scat (droppings) are gray with some seeds but mostly fur, bones, insect parts, feathers, etc...also grass which helps remove tapeworms



RACCOON *Procyon lotor*



- Color: salt-and-pepper
- Dens in hollow trees, logs, rock crevices or ground
- Playful, curious, good swimmer, nocturnal
- Diet varied: fruits, nuts, grains, insects, frogs, fish
- Washing food enhances sense of touch in toes, help raccoon discern non-edible matter
- Chief enemies: dogs, hunters, autos



OPOSSUM *Didelphis marsupialis*

- Scruffy, gray body with prehensile tail
- Feigns death when threatened
- Nests in hollow trees, logs, culverts, brush piles
- Only pouched mammal in US
- 1-14 embryos crawl out of womb...all could fit in a teaspoon
- Diet: fruits, vegetables, nuts, insects, eggs
- Lifespan about seven years



BRUSH RABBIT *Sylvilagus backmani*



- Occupies chaparral and thick brush
- Range 1/4 to 1 acre
- Least active in middle of day
- Basks in morning sun
- Feeds on vegetation at any time
- Enemies: coyotes, eagles, hawks, barn owls, large snakes

SPOTTED SKUNK *Spilogale gracilis*

- Boldly marked with pom-pom like tail
- Stands on front feet with back and tail arched over head as defense warning
- May roam over 160 acres
- Diet: mice, birds, eggs, insects, some vegetable matter
- Enemies: Cars, great horned owls, bobcat



POCKET GOPHER *Thomomys bottae*



- Has large, external, fur-lined cheek pouches for carrying food
- Burrowing area may cover 2,000 sq. ft.
- Active day and night
- Diet: roots, tubers, greens
- Enemies: snakes, owls, hawks, coyotes, foxes

CALIFORNIA GROUND SQUIRREL *Citellus beecheyi*



- Brownish body with buff-white flecks
- Lives in short grass in open areas, rocky outcrops, fields, pastures, sparsely wooded hillsides
- Can be seen scampering from burrows during the day
- Home range less than 150 yards
- Diet: seeds, acorns, roots
- Major enemy is rattlesnake
- Fleas can carry bubonic plague

DUSKY-FOOTED WOODRAT *Neotoma Fuscipes*

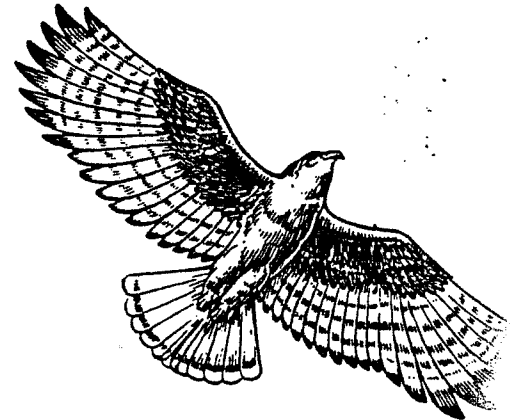
- Gray-tawny color
- Builds bulky nests of twigs at bases of trees, shrubs, in rock crevices, in cactus
- "Packrat", nocturnal, territorial
- Feeds on green plants, nuts, seeds, fruit, fungi
- Enemies include owls, foxes, coyotes, bobcats and large snakes
- Often builds a second "escape nest" in tree branches near ground nest.



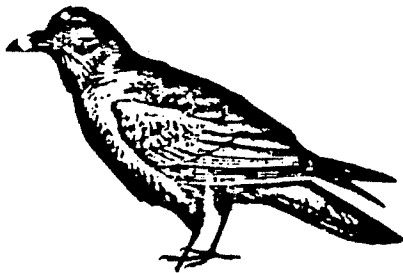
BIRDS LIKELY TO BE SPOTTED

Red-tailed hawk *Buteo jamaicensis*

- Chunky, tail is reddish above; pale tinted with rusty color below
- Large wing span can be 4 to 4 1/2 feet
- Diet includes rabbits, small mammals, birds, snakes
- Often seen soaring in wide circles in search of prey



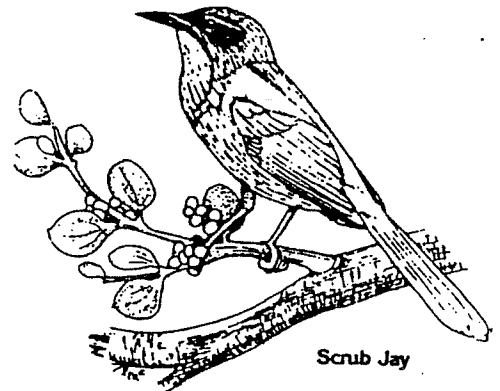
Raven *Corvus Corax*



- Wedge-shaped tail, larger than crow
- Hawklike in flight, alternate flapping and gliding
- Often solitary
- Eats almost anything edible

Scrub Jay *Aphelocoma coerulescens*

- Crestless jay; head, wings, tail are blue
- Back pale brownish; white throat with necklace
- Found throughout the area in oaks, chaparral, brush
- Eats almost anything



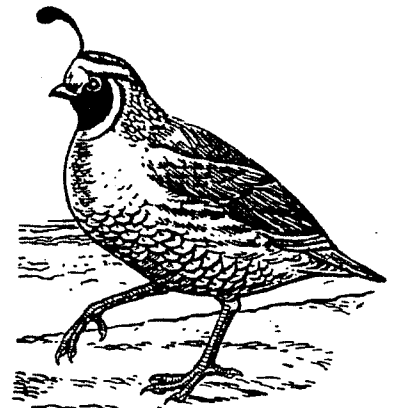
Anna's hummingbird *Calypte anna*



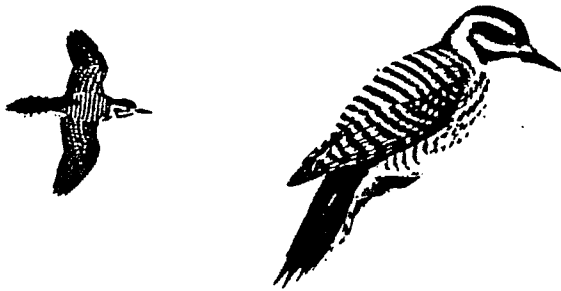
- Red crown and red throat
- Female is larger, darker green above
- Rare ability to fly backward
- Feeds primarily on nectar of red, tube-shaped flowers which only hummingbird can pollinate

California quail *Lophortyx californicus*

- Small, plumbish, chicken-like bird
- Short, black plume curves forward from crown
- Found in broken chaparral, woodland edges, coastal shrub which offer cover
- At night they sleep on the ground in a close ring with heads facing outward to be ready for flight



Ladderback woodpecker *Picoides scalaris*



- Black and white "Zebra-backed"
- Special jaw suspension absorbs shock of pecking
- Chisels nesting cavities in trees, cracks nuts and proclaims territorial rights by punching resonant branches

Wrentit *Chamaea fasciata*

- "Voice of the Chaparral"
- More likely to be seen than heard
- Small brown bird with staccato call
- Feeds on insects and berries in dense brush
- Sings the year round



LAST BUT NOT LEAST

Pacific Tree Frog



- Small frog with black eye strips
- Able to lighten or darken color
- Sticky toepads permit him to climb up from the ground
- Stays close to water even though it lives on land

Fence Lizard



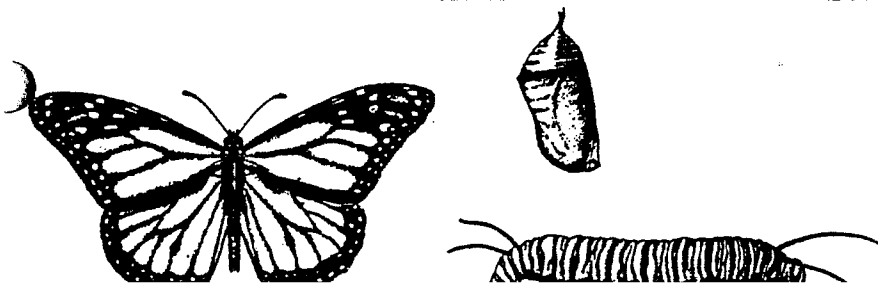
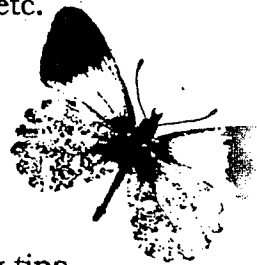
- Dormant during cooler temperatures hiding under rocks, bark of trees or under dead vegetation
- Males are strongly territorial and will do "push-ups" to warn other males
- Feeds on flies, mosquitoes, worms etc.
- Scat is long, mousy

Monarch butterfly

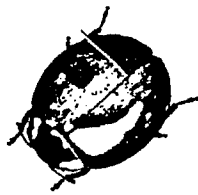
- Orange, rust, brown/black color
- Migratory - arrives in Santa Monicas in Sept and stays until Feb/March when it flies north and east
- Feeds on milkweed which makes them distasteful to birds

Sara's Orangetip butterfly

- Somewhat variable in color
- Female has black or dark gray wing tips
- Delicate greenish marbling on underside of hind wing
- The caterpillar is pale bluish or grayish green and resembles seed pods of garlic mustard on which it feeds



Ladybird beetle



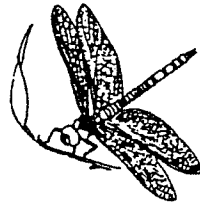
- Adults and larvae both feed on aphids and scale insects making them beneficial to plants
- During the late summer and fall, the adults congregate in mountain canyons and other cool, protected places where they hibernate until spring

Stink beetle



- Smooth, shiny, generally black, 1" long
- Adults are general feeders
- Often found on ground but also may be found under stones and loose tree bark
- Adults may emit a weak, disagreeable odor
- When an adult is interrupted, it stands on its head and points its rear end in the air

Dragon fly



- Extremely agile and strong aeronaut
- Adult feeds largely on small flying insects
- Often seen long distances from ponds, lakes, and streams in which they breed

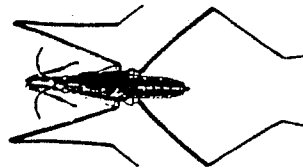
Damsel fly



- Less aggressive than cousin dragon fly
- Most are 1-2" with clear wings
- Picks up insects floating on the surface of the water
- Predominant color is intense blue

Water strider

- Able to 'skate' over surface of water
- Dense, water-resistant hairs covering ends of legs trap tiny air bubbles that help keep them afloat
- Sometimes called water spiders because of spider-like legs which extend out from the body and support it



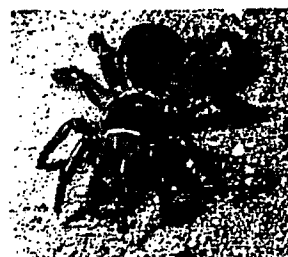
Bee fly

- Furry bee-like body with nectar-feeding habit
- Bold pattern of dark splotches and spots on wings
- Feeds on nectar of flowers with a long, slender, rigid beak



Trap door spider

- Shiny, slow-walking spider
- Feeds on ground dwelling insects
- Builds nest in ground burrow
- Lid opens like a 'trap door' which is held shut by fangs of the spider
- Nest is well-camouflaged by its dirt construction and grass around it



A FEW SNAKES LIVE HERE

Common Kingsnake *Lampropeltis getulus*

- Brown and cream colored alternating bands
- Feeds on lizards, frogs, bird's eggs, small mammals, other snakes
- Immune to venom of rattler



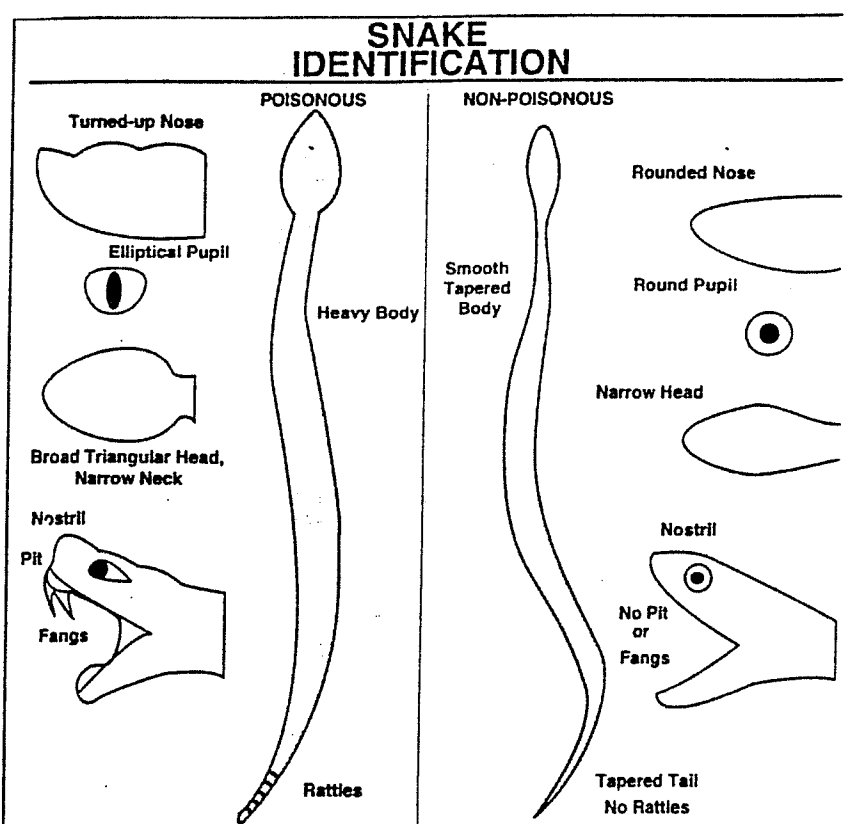
Gopher Snake *Pituophis melanoleucus*



- Slips easily into burrows during day
- Feeds on small rodents, especially gophers
- Several mice can be caught in a "squeeze"
- Victims are pressed to the side of a burrow and are suffocated when they attempt to escape

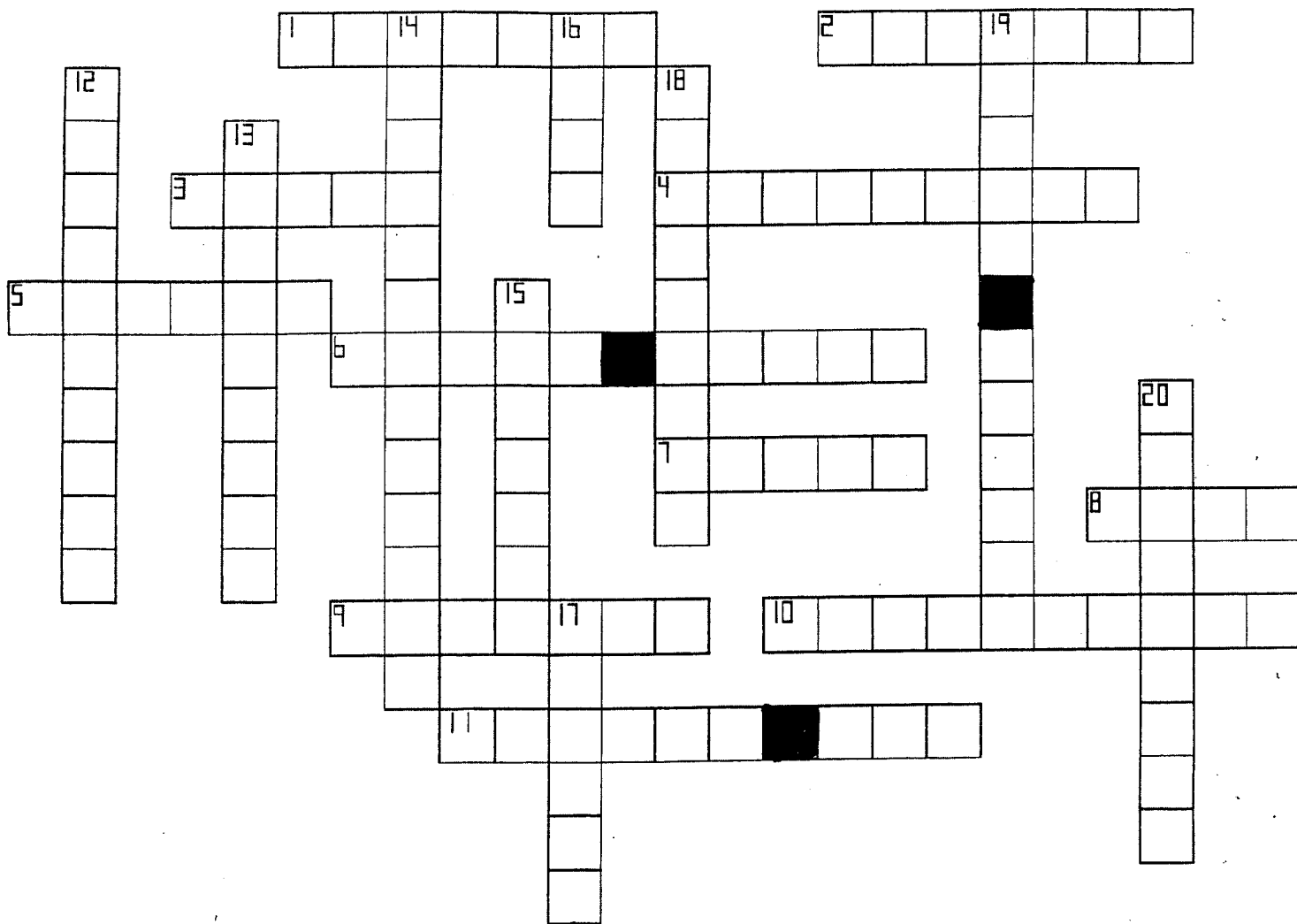
Rattlesnake *Crotalus viridis*

- Hibernates underground during winter
- Comes out during the spring
- Seeks warm place when cold and cool place when hot
- Grows a new rattle everytime it sheds its skin



A DAY IN THE MOUNTAINS

CROSSWORD PUZZLE



WORD LIST

WINTERS
 MINERS
 HERBIVORE
 ROSE
 POISON OAK
 DECOMPOSE
 HABITAT

BRIAR PATCH
 PREY
 YUCCA
 ADAPTATION
 NUTRIENTS
 FERTILIZER

ELFIN FOREST
 METAMORPHOSIS
 SEEDS
 COMMUNITY
 SUMMERS
 EDIBLE
 LIVE OAK

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ACROSS

1. California _____ are long and sunny
2. Most common large tree at Stunt Ranch which bears fruits called acorns
3. A food, fiber and soap plant with sword-like leaves found growing abundantly in the chaparral
4. A group of plants or animals living together in the same environment
5. _____ lettuce is found growing in early spring in shady locations
6. Large clumps or masses of wild roses
7. This food source was important because it was abundant and was easy to harvest and to carry
8. A creature hunted or caught for food
9. California _____ are short and wet
10. Development of characteristics which helped a species survive in its habitat
11. "Leaves of Three, Let It Be"

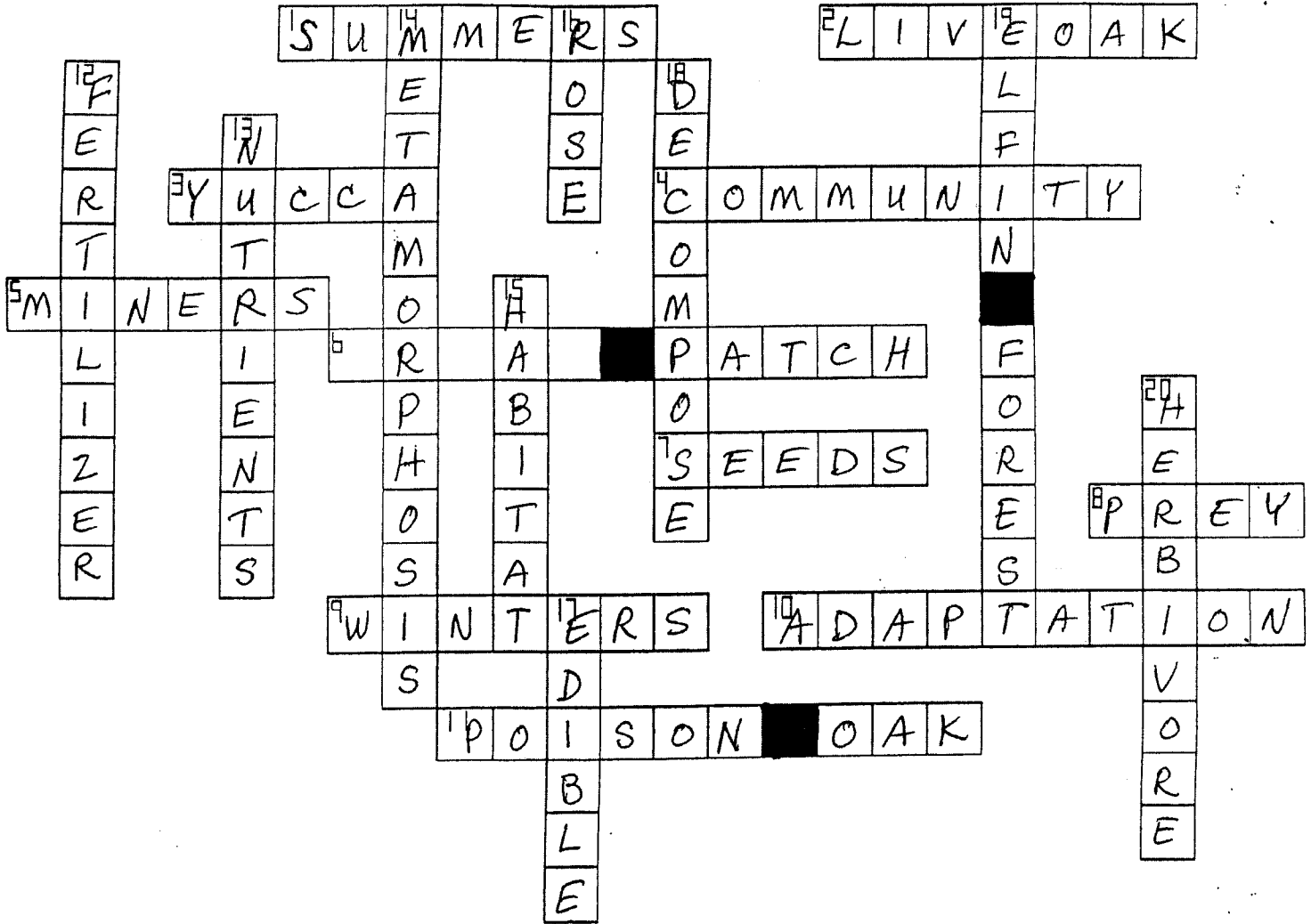
DOWN

12. Elements and compounds in soil that promote growth of plants
13. Essential food
14. Transformation of a living thing from one structure to another
15. A place that provides everything that a group of living things need
16. _____ petals were dried and crushed to make baby powder
17. Anything that can be eaten
18. To break down to basic elements
19. Name given to chaparral community (2 words)
20. Animal that eats only plants

Answer Key

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