

## WILDLIFE DETECTIVE

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## GOALS:

The student will:

1. Be encouraged and stimulated to develop investigative abilities; use inductive reasoning, learn to interpret available information; learn how to ask pertinent questions in order to gain more information and understanding.
2. Learn to identify certain animal tracks and how to differentiate between types of tracks.
3. Learn to recognize other evidence of the presence of wildlife with an emphasis on sound, but also including animal's homes, droppings and evidence of animals feeding on plants.
4. Gain some understanding of relationships between animals and their environments---Why certain animals are found in certain places.
5. Learn the importance of leaving evidence undisturbed--both for investigative reasons and so that others may see and appreciate it.
6. Learn how to keep a field journal.

## MATERIALS NEEDED:

- Blindfolds
- Track patterns
- Plaster of Paris track samples (casts)
- Rakes
- Magnifying glasses
- Plaster of Paris, metal for framing tracks, mixing bowl, bottle of water, paper clips, toothbrush with soft bristles
- Rulers
- Small paint brush
- Paper
- Pencils
- Stapler
- Sound identifying material
- sheet

## SUPPLEMENTAL RESOURCES AVAILABLE in the office:

Sierra Nevada Natural History

A Field Guide To Western Birds

A Field Guide To Animal Tracks

North American Wildlife

## WILDLIFE DETECTIVE - Introduction and General Information

Wild animals are shy and try to avoid contact with people. There are, of course, exceptions, most notably in our national parks where people have for years fed the "wild animals. However, to a large degree, wildlife does try to avoid contact with humans. Many species of mammals are nocturnal, that is, active at night and, therefore, are not seen during the day. As we travel about during the day most animals leave before we get very close. Isn't it nice to be so popular? It is important to recognize that man is a predator and there are valid reasons for them to run away. If we cannot see the animals that live in an area because they run away or are primarily active after dark, how can we know what lives there?

There are actually many clues available to the person who wants to find out what wildlife there is in a given place. Of course, the surest way of knowing a particular species can be found somewhere is to actually see it. Too often, however, we limit ourselves to that one prerequisite...I will believe it is there if I see it.

So, what are some of the other ways of determining an animal's presence? Probably the most obvious is by the tracks they leave behind as they travel through an area. For that reason tracks will receive much emphasis in this course.

Another valuable source of information is the different sounds made by different species of wildlife. We all recognize the bark of a dog, the meow of a cat and the croak of a frog. We know what those sounds represent as soon as we hear them without the need of seeing the sound-makers. By learning to recognize other animal sounds we can learn of their presence in an area without having to see them.

Many animal's homes are very distinctive and serve as valuable clues. Most of us can recognize the woodpecker's hole in a tree or a gopher's mound in a meadow. Again, we can be aware of their presence without seeing the homebuilders themselves.

Yet another valuable clue to the wildlife detective is what an animal has eaten. We learn a lot from animal scats (dung) or pellets (materials regurgitated by birds of prey).

Animal scats can be helpful in recognizing whether a species can be found in a given area, but are more valuable in helping determine how a species lives in an area. Animal scats contain a great deal of information on what types of foods are being consumed by the animal leaving the scat. Many predators have bad reputations and are often pictured in cartoons, movies, television and books as being ruthless, cunning, devilish killers whose sole desire is to slaughter our livestock, poultry, pets and children. Exhaustive research by wildlife biologists, which includes much data obtained by examination of the stomach content of predators and their scats, has revealed a different picture.

Contrary to popular belief, many predators are extremely valuable to mankind in that their diets consist mainly of what we call pest species (species of animals that cause crop damage and present health hazards). By examining scats of plant-eating animals we can determine what plants they eat. This gives us some insight into an animal's relationship with its environment. Each animal species has specific food requirements that must be met for it to survive. Animals tend to live in an area where their requirements can be satisfied. Gophers and ground squirrels live in meadowy, open areas where there is a readily available source of food---grasses, roots, insects. On the other hand, the chickaree (red squirrel) and gray squirrel live in forested areas where nuts, cones, buds on trees and berries are more available. The relationship between these animals and their habitats can be seen in the following examples:

1. Sightings - Ground squirrels are most often seen in open areas while the tree squirrels (red and gray) are most often seen in forested areas.
2. Scats - Ground squirrel's scats contain plant fibers from grasses, etc., while tree squirrel droppings have evidence of nuts, etc.
3. Tracks - Ground squirrel tracks are found in open areas, tree squirrel tracks are found in forested areas.
4. Homes - Ground squirrels dig burrows in meadows, tree squirrels live in hollows or nests in trees.

Of course, it follows that the distribution of plant-eating animals affects the distribution of the predators who prey on them. Red-tailed hawks eat ground squirrels. Thus, you would find a higher population of red-tailed hawks in an area having a large ground squirrel population than in an area with a relatively small rodent population. This results in red-tailed hawks being more commonly found in open areas than in heavily forested areas.

Piecing together these different types of evidence (tracks, scats, sounds, homes, etc.) and endeavoring to interpret the data you have what makes being a wildlife detective challenging, enjoyable and very rewarding.

One of the truly great rewards of the wildlife detective is to find and accumulate evidence; interpret it as he can as he moves along--and then to actually see the animal doing just what he expected it to be doing.

I can recall such an experience happening to me. I had spent an afternoon exploring an alpine meadow near Fletcher Peak in Yosemite. As I headed down from the meadow on my way back to our campsite, I startled three mule deer bucks. They were in a small cluster of lodgepole pines and jumped out in front of me and disappeared down the slope in an instant. As they vanished below me I began to run along the hillside toward the end of the ridge I was on.

I figured they would not continue to run downhill toward the area where we were camped but would, instead, try to circle around the end of the ridge and get back up higher to where they could again be safely out of sight. The hillside had many similar clusters of pines as well as many open spots. My plan was to stay up high and catch a glimpse of the deer as they circled around. I watched and waited for a while, but failed to see the deer. I went back to the spot where I had first seen them. I could see some of their tracks where they had run down the slope. I decided to pick one set of tracks and see if I could follow them to the deer itself. Much of the hillside was rocky, there was a good deal of bunch grass, and there were spots where the rocky soil was soft. Sometimes the tracks were easy to follow, sometimes they were barely discernable, and at other times they disappeared altogether. I knew that shortly after the deer were safely out of my sight they would quit running and begin their more characteristic slow and deliberate movements--being cautious and blending in with their surroundings. This was proven to be the case by the tracks. At first the tracks were far apart and deep where the deer had leaped and landed hard. Soon, however, the spacing became shorter and the tracks more shallow as the deer began to walk and have their weight distributed differently.

As I followed the tracks of one particular deer (the group had split up), I had to remind myself over and over that deer (as well as other animals) do not simply disappear into thin air. They, like me, take one step at a time to get from one place to another. Sometimes the step might be on solid rock and not leave a print at all. Other times the step might be on the grasses there and the only evidence would be blades of grass that were flattened out or bent over or broken off. Other times there might be a perfect track in the softer soil.

After following the track for about half an hour I noticed another fresh set of deer tracks joining the first. The tracks continued together around the mountain just as I had assumed they would. Time and again I lost the tracks, but by remembering that they didn't disappear and by examining closely the evidence, I could find I was able to pick up the tracks.

Eventually the tracks led through a small meadow to a thick stand of willows. As the meadow was soft from ground moisture, the tracks showed very well there. They went straight to the center of the stand. This, I believed, was where the deer were hidden.

I quietly circled around the uphill edge of the willows and stopped there. I stood as still as I could and listened. Within a few seconds I heard the single snap of a branch. Then a tremendous crashing sounded just six feet in front of me as the two frightened deer bounded away. I had such a great feeling of satisfaction and achievement!

Following and interpreting tracks isn't always easy. But the satisfaction of learning more about wildlife and the feeling of accomplishment are well worth the efforts involved.

It is a good idea when you find a track or some interesting scats or pellets to mark them with three sticks. You should place the sticks in a teepee over what you find. When you do this people who follow you will know where to look. Also, you should look for the markings of others as you walk in the forest.

If you plan to do the Wildlife Detective unit, let us know the Friday before you come. Then we will be sure to bait the areas and you will have a good chance to see tracks.

Check the board in the lodge for animal and track sightings and mark your own when you return from this unit. There is no trail, so you should look where tracks have been seen, in the baited areas, and in other places that seem likely, such as the mud by the lake.

## WILDLIFE DETECTIVE - Lesson Plan

### I. Introduce the concept of being a good detective.

Ask your students who their favorite TV detective is. What does he or she do to gather information? Among the answers might be such things as: fingerprints; stakeouts of someone's home; witnesses; and questions asking who, what, when, where, why, and how. Of course luck helps, too. On TV any mystery can be figured out in an hour. The wildlife detective will use similar methods, but will find that some mysteries can't be solved that easily. Luckily for us the detecting is half the fun.

### II. Fingerprints - Tracks

One of the best, most conclusive types of evidence used by police detectives is a person's fingerprints. We know that now two people have exactly the same fingerprints. We can tell exactly who touched something by matching fingerprints taken from the item touched to an individual's fingerprints.

In the same way every animal when it puts its foot, paw, claw, hoof, toe, tail, talon or belly down on certain surfaces leaves its own unique imprint or track. Every different type of animal has a different type of track. Different animals of the same species will leave different tracks due to their size, weight, stride and any peculiarities of the individual animal.

Ask students what surfaces would be good for finding tracks. Why? What surfaces would be poor for finding tracks? Why? Some examples:

#### Good Surfaces

Mud  
Sand  
Snow  
Soft dirt

#### Poor Surfaces

Rocks  
Concrete  
Blacktop  
Very hard soil  
Grassy areas  
Areas covered with dense layers  
of pine needles

Have students look around where they are. Ask them to point out at least two areas where tracks might easily be found and two areas where tracks would be difficult to find. Tell them to remember this when actually out looking for tracks to avoid wasting time.

#### TRACKING EXERCISE

Go to the sand volleyball court for the tracking exercise.

## Tracking Exercise #1

Materials needed: Blindfolds, rakes  
Time necessary: 30-40 minutes  
Objective: Learn basic track-reading skills.

### Method:

1. Have students use rakes to smooth out the volleyball court and rid it of old tracks. Be certain students stay off the newly raked areas until they begin actually making the tracks. Dampening the sand makes the tracks more clear.
2. Divide the group into four teams.
3. Have teams #1 and #2 be on one side of the net, teams #3 and #4 on the other side.
4. Blindfold teams #2 and #4. They will be the trackers. Give teams #1 and #3 a few minutes to plan a strategy and make the tracks.
5. The trackers may now remove their blindfolds and determine a) Who made which tracks? b) What were they doing? The trackers must take care not to obliterate the tracks as they look.
6. Switch teams and repeat.

### STRATEGIES

1. Have each student doing a different activity, parallel to one another: walk, run, skip, hop, crawl, cartwheel.
2. Have students enter from different directions, meet in the middle, and carry out one member.
3. Have students walk in backwards part way, then walk out forward in their own tracks.
4. Have students walk in each other's tracks.
5. Have students walk in, sit down, stand up, hop three times, turn in a circle, and walk out on all fours (hands & feet, not knees)

Hints for trackers: Tracks match shoe sole patterns. Tall people normally take longer strides than short ones. Heavier people make deeper tracks. Running, hopping, etc., make different tracks.

After the exercise discuss what tracks can and cannot tell you. Discuss why the age of a track might be important.

### III. Animal Track Recognition

Materials: Plaster casts of tracks, track pattern sheets

Time: 15-20 minutes

Objective: Recognition of specific animal tracks

Method:

1. Ask the students if any of them have pets at home. How many toes does your pet have? How big is your pet's foot? Compare to a penny, a quarter, a doughnut. How much does your pet weigh? How does your pet move? Does its stride change much as it moves faster? How would these factors affect the tracks your pet makes? By thinking about these factors you might be able to recognize animal tracks more readily. In this exercise students will have an opportunity to learn some specific characteristics of tracks made by animals that live in and around Calvin Crest.
2. Use the plaster of Paris casts to make track imprints in the sand at the volleyball court or in the nearby mud. The tracks will probably show up better in the mud.

Please be sure to clean off the plaster casts after using them by brushing them off with the enclosed brush.

Track #1 is a raccoon track. Ask students what the track is similar to. How many toes does it have? How long is the track?

NOTE: At this point it would be good to point out that most tracks you see will not be perfect, complete tracks. They may only show up part of the toes or pad, but shapes and patterns remain fairly distinctive to the well-trained eye.

In the sand (mud) try to show the pattern of a raccoon's track. Tracks appear side by side (parallel) in a set and 6 to 20 inches between sets. Use Track #1B for this.

Track #2 is a track made by a great blue heron. Herons only visit here rarely and if seen are usually down by the lake. The heron actually has a fourth toe coming directly back from the front three, but that toe didn't leave a print in this instance. What is an easily recognizable difference between the track of a great blue heron and the track of a robin? Size - the great blue heron's track is much larger, 6 inches long compared to 1-1/2 inches.

Track #3 is a coyote track (front foot). Coyotes, like other members of the dog family (wolves, foxes, dogs) have four toes. Often the toenails will show in the track, but not so in this track. Cat and dog tracks show considerable resemblance, but there are some significant differences if the tracks show details. Cats normally keep their claws retracted so that the toe nails (claws) usually don't show in their tracks. In wild-cat tracks the heel pads appear relatively larger and often the front edge of the pad will show two lobes compared to a single lobe at the front of a dog's track.

Track #4 is a domestic dog's track. Note how the back track (track with the smaller heel pad) partially overlaps the front track (large heel pad). In this set of tracks the toenails are evident. Comparing Track #4 to Track #3 we can observe a fairly common difference between coyote and domestic dog tracks. Domestic dogs tend to "miss" the front foot's track with their back foot. Coyote's back feet tend to land in the tracks left by their front feet as they walk along. This is not always the case and track patterns of dogs and coyotes change a great deal as their paces change from walking to trotting to galloping. Refer to Murie's Field Guide to Animal Tracks for more complete information and diagrams.

Track #5 is a set of tracks made by a red squirrel (chickaree). A chickaree is a tree squirrel, spending most of its time in trees. Trees serve as home and sources of food for these squirrels. Living in and moving around in trees requires a great deal of physical coordination and accuracy. The tree squirrel tracks have the front paws together and the ground squirrel's paws are offset. Ask the students why that might be. If a squirrel leaps and misses, the consequences could be disastrous. As a result tree squirrels (chickarees and their larger relatives, gray squirrels) tend to have their front feet land even with one another as they leap from place to place. This is true of them when they are on the ground as well (usually).

On the other hand, ground squirrels do not require such accuracy and, therefore, their front feet tracks tend to be offset, -not parallel.

This track cast shows the trait of squirrels to have the back feet ahead of and farther apart than the front feet. A series of such tracks would tend to be separated by leaps of from 8 to 30 inches.

#### IV. Witnesses - Identifying Animal Sounds

Choose a place away from camp and introduce the concept of identifying animals by the sounds they make. We gain a tremendous amount of information daily through our ears...radio, communication with people, street sounds, etc. What do you think of when you hear bacon sizzling, brakes squealing, or crowds cheering? We learn from sounds without realizing it. We can also tune sounds out. People living near an airport or on a busy street tune out the sounds of planes or traffic.

Ask for the student's favorite sounds.  
Ask for the student's least favorite sounds.

We tend to hear what we are interested in and want to hear and to tune out that which we don't care about or don't want to hear.

Tell the following story:

An Indian, who had lived his whole life in the country, was visiting a friend in New York City. As they were walking down a crowded sidewalk along a street filled with cars, trucks and busses, the Indian suddenly stopped. It was obvious to his companion that he was listening to something. The Indian looked around for a moment and then a smile crossed his face. The man with him was puzzled and asked, "What is it? What are you smiling about?"

The Indian replied, "Oh, I'm just enjoying the sounds of the cricket."

"A cricket," asked the companion. "Where's a cricket?"

The Indian said, "Follow me, I'll show you." With that he walked along the sidewalk to a planter that contained a small tree and several shrubs. After a few moments searching, he spread apart the branches of one of the shrubs and revealed the cricket to his companion's surprise.

"That's amazing!" the man said. "How did you ever hear the cricket with all the noise around you? You must have super-human hearing!"

"No," the Indian replied. "My hearing is normal. It just depends on what you are listening for. Here, I'll show you." He then reached into his pocket and pulled out several coins. He dropped them on the concrete sidewalk. Immediately, every head within 25 feet turned and began the search.

Very often only our ears tell us what is around. We've all heard dogs barking in the night, planes flying above the fog, sirens wailing several blocks away. We don't need to see the source of the sound to know what's making it. We recognize the sound and our minds can easily picture the source.

The same is true with the wildlife investigator. Often we can hear animals long before we ever see them. Sometimes we can hear animals and know basically where they are, what they are and even what they are doing without ever seeing them at all...because we know what the sounds represent.

### Indentification of Common Sounds

Materials needed: coins, comb, piece of paper, jar of water, whistle, two sticks, zipper.

Time: 15-20 minutes

Objective: Make students aware of how much they can recognize merely by listening.

1. Have all the students sit with their backs toward you. Have them listen carefully to the sounds you make and try to identify them.

Do the following:

- Snap your fingers
- Blow your nose
- Zip up and down on the zipper
- Pour water out of the container
- Run your fingernail along the teeth of a comb
- Drop the coins on a hard surface
- Use one stick to hammer a second one
- Crumple a piece of paper
- Blow lightly on the whistle

2. Listening to sound around you.

Objective: To learn to discern sounds made by different types of animals and other sources and determine where the sounds are coming from.

The students should sit as quietly as possible with their eyes closed. When a student hears the sound have him or her raise a hand, identify the type of sound and from where it is coming.

Try these sounds (also feel free to use your imagination):

- a. Bird
- b. Mammal
- c. Man-made sound not coming from the group
- d. Natural sound not made by an animal
- e. Insect
- f. Sound coming from ground level
- g. Sound coming from up in a tree
- h. Sound you have never heard before.

## 7. The Stake-Out

Now is the time to put your detecting skills to the test. The board in the lodge should give you a clue where to start looking for animals. Also, two areas have been specifically prepared with salt licks and food scraps. Have students remember their volleyball tracking exercise. Coyotes tend to sneak up slowly on their prey and run off with it, leaving different tracks. The two baited areas are:

1. The area circled on the map near the open meadow.
2. The landslide area past the orienteering course. Go through the gate behind the office and turn right, going up the road to the landslide.

The edges of roads tend to be fairly good places to see tracks. Also look along ditches, edge of the lake, muddy areas, and any other areas you notice which look promising. Students should be listening for sounds, looking for evidence of animals having eaten plants, looking for their homes or their droppings, and staying very quiet. They should keep a field journal for every animal they hear or track they see. See journal guidelines at the end of this unit.

When you find tracks try to do the following:

1. Observe without destroying and mark good tracks with a 3-stick teepee.
2. Identify what made the tracks.
3. Determine in what direction the animal was traveling.
4. Follow the tracks as far as possible.
5. Guesstimate or interpret what the animal may have been doing.
6. Make a plaster cast of the track if:
  - a. it is clearly visible and distinct
  - b. time permits (come back if necessary; plan on 20 minutes minimum for the track to harden)
  - c. It is the track you want to make a cast of; limit yourself to one cast per class.

See the cast-making guidelines at the end of the unit.

There are three types of aids available to help the students recognize different types of tracks.

1. Track patterns - Diagrams of tracks along with other pertinent information about the animal at the end of the unit.
2. Plaster of Paris track casts...casts of actual tracks. Useful for seeing relative size and shape of specific animal tracks.
3. Guide to Animal Tracks - by process of elimination tracks can be identified.

You may want to key out birds or animals with the resource books.

## GUIDELINES FOR MAKING A FIELD JOURNAL

Materials: paper, pen or pencil, stapler

Make a different entry for each animal you can find any information on. Include as much information as you can. Some entries will only have one item, such as a paw print or bird call.

Obviously, a field journal could be kept for years, growing more complete with each trip to the Sierra. When you have completed as much as you can staple the entries together with a title page.

Example of a field journal entry:

Name: Domestic cat  
Colors: White, orange, brown, black, etc. (great variety)  
in stripes, solids, spots  
Size: Generally 5 to 10 pounds  
Body length at one foot.

Sketch

Print

Food: Small rodents, insects, cat chow  
Dens: Human houses, garages, closed spaces  
Droppings: Small, color dependant on food, oval-shaped  
Predators: Dogs, coyotes  
Voice: "Meow"

Entries should include only observed information and won't necessarily include a name. You can put a temporary name in parenthesis until you find the real one.

## SHEET SHAKE

Materials: Large piece of cloth

If you have time you may add insects to your field journal. You need to find a bush and put your sheet under it. Vigorously shake the bush until the insects in it fall to the sheet. You can sketch them, give them a temporary name, and include any other information you can about them. Then shake the sheet over the bush to return the insects to their home.

Another good place to look for insects is fallen logs. Termite tracks should be easy to spot.

TRACKS MOST COMMONLY SEEN AT CALVIN CREST

- |             |                 |           |
|-------------|-----------------|-----------|
| 1. People   | 3. Domestic cat | 5. Cattle |
| 2. Vehicles | 4. Domestic dog | 6. Horse  |

WILDLIFE

Mammals

- |                                 |                                    |                   |
|---------------------------------|------------------------------------|-------------------|
| 7. Coyote                       | 11. Mule deer                      | 14. Raccoon       |
| 8. Ground squirrel              | 12. Mice (white-footed,<br>meadow) | 15. Bobcat        |
| 9. Gray squirrel                | 13. Black bear                     | 16. Gray fox      |
| 10. Chickaree (Red<br>squirrel) |                                    | 17. Striped skunk |

Birds

- |                  |                        |                           |
|------------------|------------------------|---------------------------|
| 18. Stellar jay  | 21. Brewer's blackbird | 24. Sparrows<br>(Various) |
| 19. Robin        | 22. Raven              |                           |
| 20. Oregon junco | 23. California quail   |                           |

Amphibians and Reptiles

- |                               |                      |   |
|-------------------------------|----------------------|---|
| 25. Western spadefoot<br>toad | 27. Alligator lizard | 29. Snakes (garter,<br>rubber boa, ring-<br>necked, gopher) |
| 26. Western fence lizard      | 28. Gilbert's skink  |   |

Insects and Miscellaneous

- |                                |                       |
|--------------------------------|-----------------------|
| 30. Beetles, ants<br>(various) | 32. Earthworms        |
| 31. Grasshoppers               | 33. Spiders (various) |

WILDLIFE CHECKLIST OF CALVIN CREST CONFERENCES  
Oakhurst, California

Seasons:

- Winter: November - February  
Spring: March - May  
Summer: June - August  
Fall: September - October

Note: Some overlap occurs due to seasonal variations in weather.

Relative Abundance:

- C: Common - Present (often in large numbers) or over half of the species visits to the proper habitat occur in the proper season.  
U: Uncommon - Present (often in smaller numbers) or from 10-50% of the species visits to the proper habitat occur in the proper season.  
R: Rare - Present every year in the proper habitat at the proper season, but in lowest relative numbers.  
O: Occasional - Not seen every year.  
X: Extraordinary - One or two records (out of normal range, habitat or season).

Habitats:

- F: Forest, heavy growth of timber.  
R: Riparian (streamside) willows, conifers and oaks.  
C: Chaparral (manzanita, scrub oak, brushy area)  
P: Ponds and streams  
O: Orchard area  
G: Grassland (pastures and meadows)  
A: Aerial (see flying over Calvin Crest)  
S: Swamp  
H: Hibernates

	Winter	Spring	Summer	Fall	Habitat
Band-tailed Pigeon	U	U	C	F	
California Quail	U	C	U	R,C,G	
Mountain Quail	U	U	U	C,F	
Western Bluebird	U	U	O,G		
Mountain Bluebird	R	R	O,G		
Golden-crowned Kinglet	U	C	U	F	
Ruby-crowned Kinglet	U	U	U	F	
Cedar Waxwing	O	O	O,R		
European Starling	U	C	U	O,R,G	
Warbling Vireo	U	U	R,P		
Yellow Warbler	U	U	U	R	
Audubon Warbler	C	C	C	R,O,F	
MacGillivray Warbler	R	R	R		
Wilson Warbler	R	R	R,P		
Western Meadowlark	R	R	G		
Bulllock Oriole	C	C	O,R		
Western Tanager	U	U	F,R		
Black-headed Grosbeak	U	C	U	F,R,O	
Evening Grosbeak	O	O	O	O,F	
Lazuli Bunting	O	O	R		
Purple Finch	U	C	O,R		
Pine Siskin	U	U	U	F,R	
Lawrence Goldfinch	U	U	O,G		
Red Crossbill	O	O	O	F	
Rufous-sided Towhee	O	C	C	U	R,F,O
Junco	C	C	C	C	R,F,O

	Winter	Spring	Summer	Fall	Habitat
White-crowned Sparrow	U	U	O,G		
Golden-crowned Sparrow			R	O,G,R	
Chipping Sparrow	C	C	C	O,G,R	
Rox Sparrow	U	U	O,G,R		

Winter  
Spring  
Summer  
Fall  
Habitat

Opposum 0 0 0 0 F, P, R

Western Mole U U U U G, F

Shrews R R R R G, F, C, P

Bats R U C U O, F, P, G, R, A

Black Bear R R R R F, R, O

Raccoon C C C C F, R, P, S

Spotted Skunk R R R R G, C

Striped Skunk U U U U G, F

Long-tailed Weasel R R R R O, G, F

Domestic Dog C C C C F, R, P, O, G

Coyote C C C C F, R, O, G, C

Gray Fox R R R R C

Domestic Cat C C C C O, G, R

Wildcat (Bobcat) R R R R F, C

Mountain Lion R R R R F

Ground Squirrel U C C C G \*H

Gray Squirrel U U C C F, R

Chickaree U U C C F, R

Flying Squirrel R R R R F

Pocket Gopher C C C C G

White-footed Mouse C C C C F, R, G, O, C

Meadow Mouse U C C C G

Jumping Mouse R R R R G \*H

Long-eared Chipmunk R R R R F \*H

Black-tailed Jackrabbit R R R R F, G

Mule Deer R U C C F, G, O

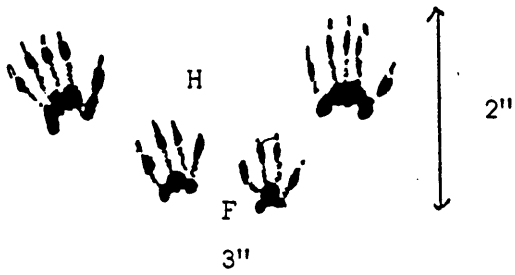
Cattle C C C F, G

BIRDS

	Winters	Spring	Summer	Fall	Habitat
Pied-billed Grebe					
Mallard					
Great Blue Heron					
Belted Kingfisher					
Water Ouzel					
Killdeer					
Violet-Green Swallow					
Barn Swallow					
Cliff Swallow					
White-throated Swift					
Red-tailed Hawk					
Turkey Vulture					
Golden Eagle					
Raven					
Osprey					
Red-winged Blackbird					
Brewer's Blackbird					
Brown-headed Cowbird					
Yellow-bellied Sapsucker					
Hairy Woodpecker					
Downy Woodpecker					
Nuttall Woodpecker					
White-headed Woodpecker					
Pileated Woodpecker					
Lewis Woodpecker					
Red-shafted Flicker					
Mourning Dove					
Coshowk	R	R	R	R	F,R
Cooper's Hawk	R	R	R	R	F,R
Sharp-shinned Hawk	R	R	R	R	F,R
Great Horned Owl	R	R	R	R	F,R
Great Gray Owl	O	O	O	O	F,R,G
Pygmy Owl	R	R	R	R	F,O,R
Spotted Owl	R	R	R	R	F
Anna Hummingbird		U	C	C	O,G,R
Rufous Hummingbird			C	C	O,G,R
Calliope Hummingbird			C		O,G,R
Ash-throated Flycatcher		U	U	U	O,G,R,C
Black Phoebe		U	U	U	O,G,R
Olive-sided Flycatcher		U	C		F,R
Small Flycatchers			C		F,R,P
Wood Pewee		U	C	U	F,R
Stellar Jay	C	C	C	C	F,O,R,C
Scrub Jay			X		C
Clark Nutcracker			X		F
Mountain Chickadee	C	C	C	C	F,O,R
White-breasted Nuthatch		U	U	U	F
Red-breasted Nuthatch		U	U	U	F
Pygmy Nuthatch		R	R	R	F
Brown Creeper		U	U	U	F
Winter Wren	R	U	U	R	R,P,F
House Wren		C	C	U	O,R,C
American Robin	C	C	C	C	O,G,R,F
Varied Thrush	U	U	U	U	F,R

KEY TO TRACKS

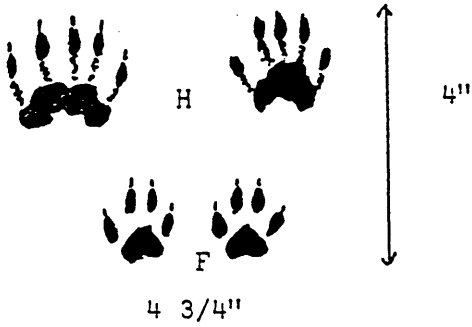
Chickaree



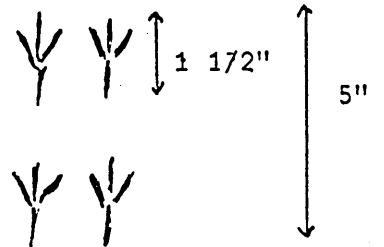
Meadow Mouse



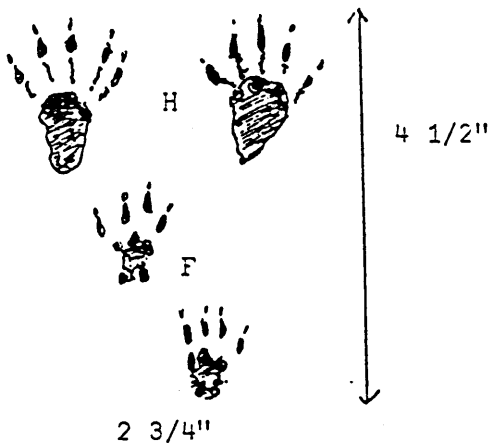
Gray Squirrel



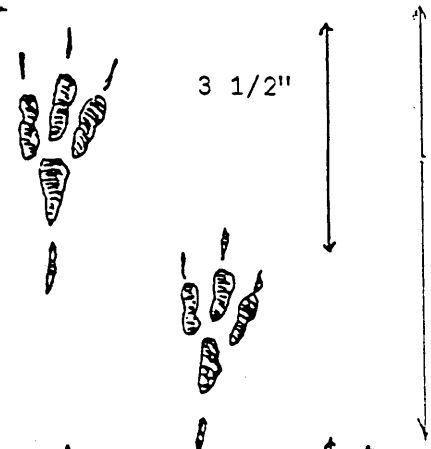
Junco



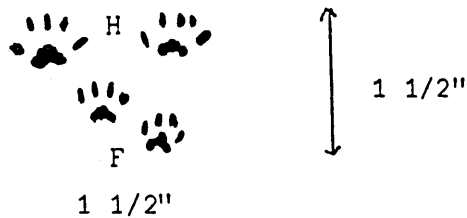
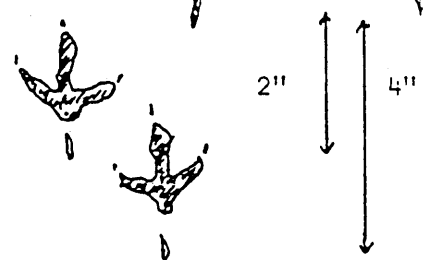
Ground Squirrel



Raven



California Quail



# SKUNK



(Hind)



(Front)

## EVIDENCE:

### Tracks:

Droppings: Small and irregular in shape, about 1/4-inch in diameter.

Shelters in hollow logs, burrows of other animals, crevices in rock piles, under houses.

Forage pit where the animal has dug for insects. †

Thumping sound: Skunk thumps a foot when he's disturbed.

Odor: Sprayed from the anal glands. Used as defensive weapon.

## HABITAT:

Grassland, foothills, forest

## FOOD NEEDS:

Grasshoppers, crickets, beetles, other insects, small rodents, birds, carrion, eggs, some plants, some reptiles and amphibians.

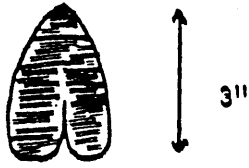
## PREDATORS:

Large owls, large dogs, man

# KEY TO TRACKS

H: hind foot      F: front foot

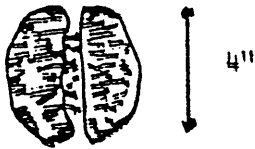
Elk Deer



Horse



Cattle



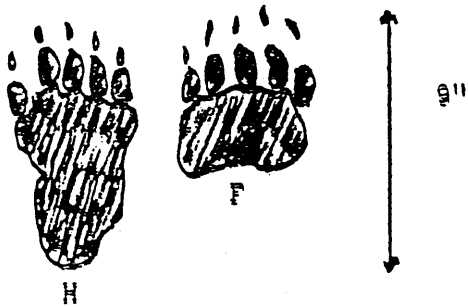
Striped Skunk



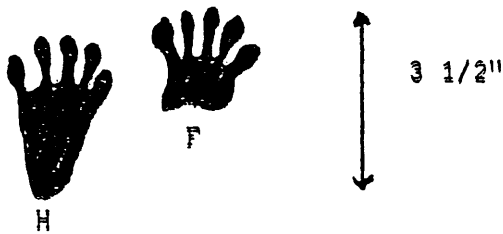
Creepine



Black Bear



Raccoon



Opusum



Gray Fox



Coyote



Domestic Dog



Domestic Cat



Wildcat (Bobcat)



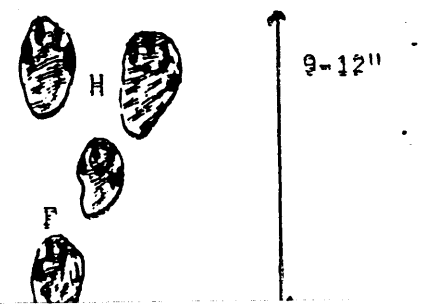
Mountain Lion



Weasel



Jackrabbit



# WHITE FOOTED MOUSE



(Hind)



(Front)

## EVIDENCE:

### Tracks:

Droppings: Tiny 1/10 to 1/8-inch long, shaped like rice grains.

Voice: Squeak.

Nests: Vary from a few inches to nearly one foot in diameter. Location varies--burrows, logs, holes in trees, even bushes. Often they will roof over an abandoned bird's nest and live in it.

## HABITAT:

The largest range for any mammal. It lives almost anywhere.

## FOOD NEEDS:

Seeds of grasses, herbs and conifers, larvae or adult insects and some fungi.

## PREDATORS:

Almost every snake, bird, and mammal predator.

# GROUND SQUIRREL



(Hind)



(Front)

## EVIDENCE:

### Tracks:

Droppings: Up to 3/4-inch long, usually rounded on the ends.

Burrows: Up to 4½ inches in diameter. Runways about 3 inches wide through grass.

Voice: Whistles

## HABITAT:

Plains, foothills, open areas in forest, up to 8,000 feet elevation.

## FOOD NEEDS:

Vegetation, seeds, birds, bird eggs, carrion.

## PREDATORS:

Birds of prey, larger mammals of the dog and cat families, snakes, badgers.

# CHIPMUNK



(Front)



(Hind)

## EVIDENCE:

### Tracks:

Droppings: 1/4 inch or smaller, oblong and irregular.

Burrows: Usually hidden. Few have been found and excavated by naturalists. Some nests have been found in decaying stumps. Others were found underground. Nests were lined with soft leaves, lichen and feathers.

Food caches: Large, underground food storage areas.

## HABITAT:

foothills, forest, sub-alpine meadows.

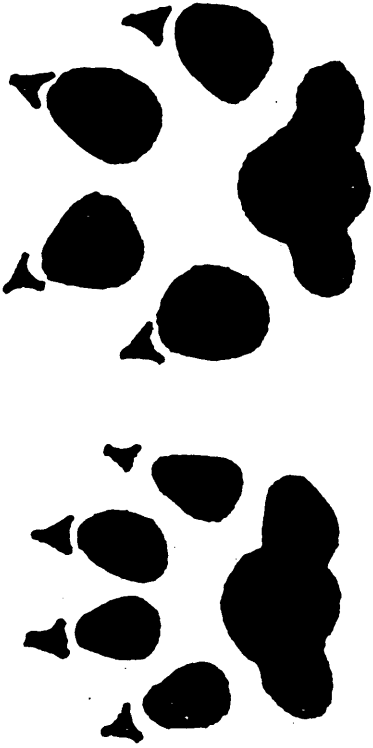
## FOOD NEEDS:

Seeds, insects, berries, fruit.

## PREDATORS:

Snakes, birds of prey, weasels, bobcats, other large carnivores.

# GRAY FOX



(Front)

(Hind)

## EVIDENCE:

### Tracks:

Droppings: Dog-like; one-half inch in diameter.

Voice: A sharp bark and growling notes.

Dens: Ground burrows, rock dens.

## HABITAT:

Foothill and yellow pine belts

## FOOD NEEDS:

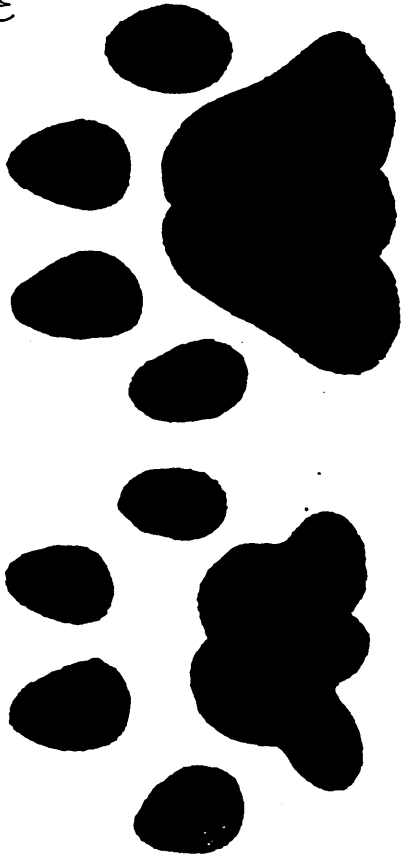
Manzanita and coffeeberries, pocket gophers, mice, other small rodents, rabbits, small birds

## PREDATORS:

Eagles, dogs, man

# BOBCAT

(Wildcat)



(Hind)

(Front)

## EVIDENCE:

### Tracks:

Droppings: 3/4-inch in diameter, up to 4 inches long, can be greatly constricted. Similar to dog or coyote scats. Surrounded by scratch marks and covered with dirt.

### Dens:

In rock crevices or caves, in hollow trees, or logs, in thickets.

### Voice:

Similar to house cat, but much greater volume.

## HABITAT:

Foothill and yellow pine belts; in brushland, rock slides, or timber.

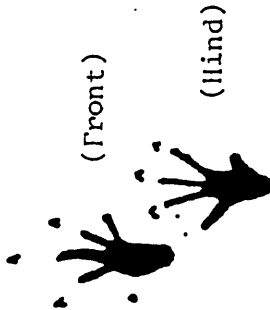
## FOOD NEEDS:

Rabbits and rodents; especially ground squirrels, wood rats and pocket gophers. Some small birds. Deer, if injured.

## PREDATORS:

Man

# POCKET GOPHER



(Front)

(Hind)

EVIDENCE:

- Tracks: Very seldom found.
- Droppings: About one-half inch long, somewhat cylindrical with rounded ends.
- Runways: Earth cores resembling heavy ropes lying on the ground after snow melts. They are not tunnels. They were created when the animal tunneled through snow.
- Mounds: A pile of fine soil with an earthen plug at the center or side.
- Nest: Underground. 6 to 8 inches in diameter. Lined with shredded plant material.

HABITAT:

Around meadows and in soft soil of open forest. Never in dense woods or bare rocky areas.

FOOD HELDS:

Roots, stems, leaves

PREDATORS:

Owls, hawks, coyotes, foxes, badgers, weasels, snakes

# DEER



(Adult Male)

(Fawn)

## EVIDENCE:

### Tracks:

Droppings: Small, oblong, up to 1/2 inch long, dark brown-black, smooth. Usually pointed at one end and dimpled at the other.

### Bed:

Slight depression, 2 or 3 feet in diameter, sometimes scraped free of surface litter, often under bushes.

### Browsed

### Bushes:

Deer eat all the foliage as high as they can reach on some brush.

Hair on fences, logs, etc.

Hoof scrape marks on fallen logs.

## HABITAT:

Some deer live year-long in the foothills. Others migrate to higher elevations in summer, returning to the foothills the next winter.

## FOOD NEEDS:

Grass, herbs, brush

## PREDATORS:

Mountain lion, man

# MOUNTAIN LION

EVIDENCE:

Tracks:

Droppings: Mountain lions cover their droppings with earth and scratch in the dirt. Droppings are up to 5 inches long and are deeply constricted.

Dens: In caves, if any are available, or in any spot that gives natural shelter.

Mountain lions bury their surplus food with twigs and leaves.

Voice: Similar to a house cat, but magnified many times in volume and depth of tone.

HABITAT:

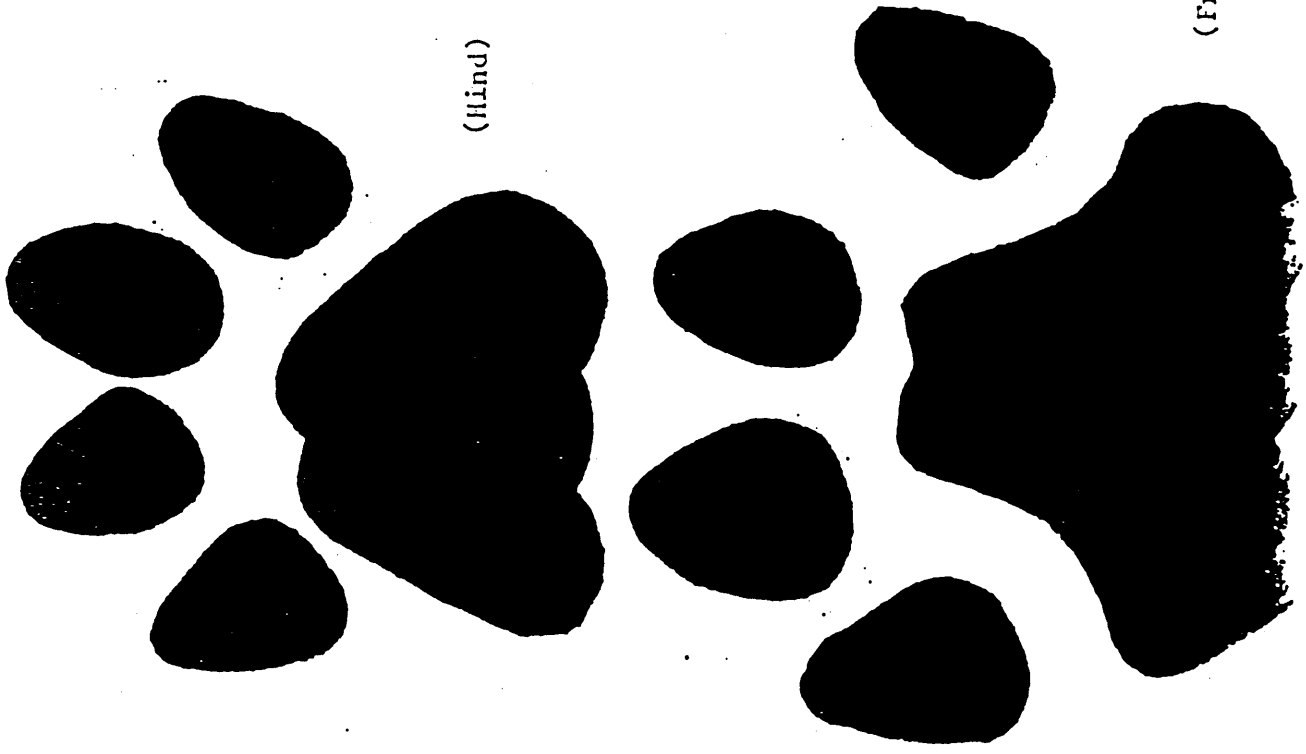
Foothills, brushy country, forest

FOOD NEEDS:

Mule deer are the favorite and principal food. Mountain lions will eat smaller mammals when deer aren't available. Other food includes beaver, dogs, skunks, porcupine ground squirrels, and whatever else opportunity brings.

PREDATORS:

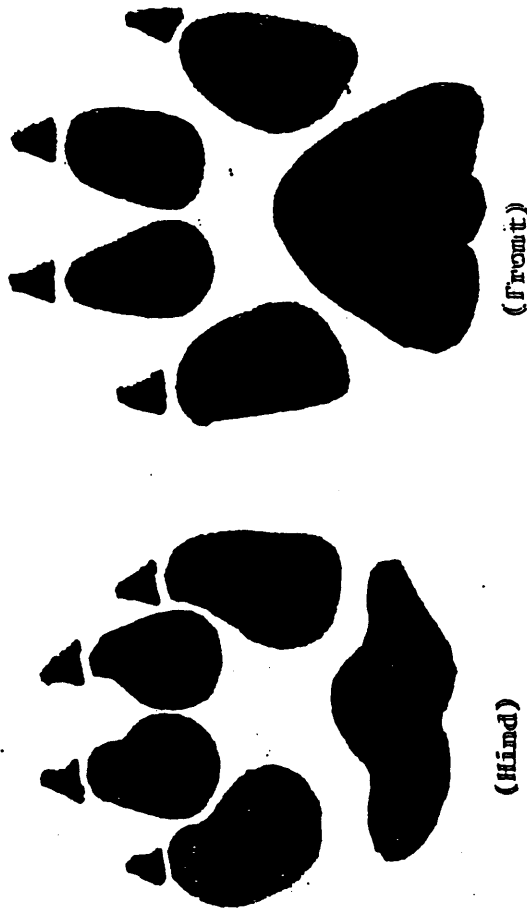
Man



(Hind)

(Front)

# COYOTE



## EVIDENCE:

- Tracks:** Outer toes larger than a dog's.
- Droppings:** Dog-like, with hair, often light-colored.
- Dens:** Under trees, rocky areas, logs, with openings 1 to 1½ feet in diameter. Sometimes enlarge another animal's burrow.
- Partially consumed remains of animals-- often with leg bones broken.

## HABITAT:

Prairies, desert, open woodlands, brush and boulder-stream areas, forest. Usually not more than 6 miles from water.

## FOOD NEEDS:

Small rodents, rabbits, mice, almost any weak or old animal; the young of most animals; vegetation.

## PREDATORS:

On young: Bobcats, eagles, dogs  
On adults: Man

# JACK RABBIT

(Black-tailed Hare)

## EVIDENCE:

### Tracks:

Droppings: Flattened, spherical, one-half-inch diameter.

Trails: Narrow and straight through grass.

### Resting

Places: On ground, under bushes.

## HABITAT:

Distribution ranges from sea level to over 1,200 feet. Jack rabbits favor open areas in foothills, grassland, chaparral. They are found in some flat, open areas in forest.

## FOOD PLANTS:

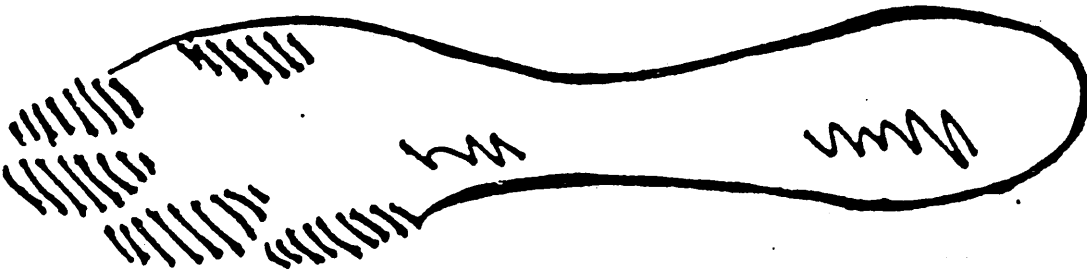
Grasses, herbs, stems and leaves of shrubs.

## PREDATORS:

Birds of prey, bob cats, coyotes, dogs, man.



(Front)



(Hind)

# GRAY SQUIRREL



## EVIDENCE:

### Tracks:

Droppings: Lumpy and rounded, up to 2/3-inch long and 1/4-inch wide.

Food buried in the ground in many places.

Gnawing on tree trunks or limbs.

Remains of pine cones cut open to obtain seeds.

Nests: In hollow trees and up to 75 feet high in the branches of conifers. Made of leaves and twigs.

Voice: Hoarse rough coughing, in slow series.

## HABITAT:

Foothills and forest.

## FOOD NEEDS:

Nuts, seeds, berries, mushrooms, buds, bark, acorns

## PREDATORS:

Larger mammals of the dog and cat families, birds of prey, snakes, pine marten, fisher.

# RACCOON



(Hind)



(Front)

## EVIDENCE:

### Tracks:

Droppings: Not readily identifiable, granular appearance, 1 to 2 inches long, even in diameter, black to reddish, some-  
times bleached white.

Sleep: In rotted-out cavities of trees, or in rock piles or burrows.

Call: A long, mournful who-oo-oo

## HABITAT:

Grasslands, foothills, yellow pine belt. Usually near water

## FOOD NEEDS:

Raccoons exceed bears in their varied diet--rodents, rabbits, birds, frogs, fish, insects, other invertebrates, acorns, fruit's, berries, grapes, carrion, cultivated grain and melons.

## PREDATORS:

Dogs

# BLACK BEAR

## EVIDENCE:

### Tracks:

### Droppings:

### Voice:

### Scratches:

### Sheltering:

## HABITAT:

## FOOD NEEDS:

## PREDATORS:

Irregular, large, blackish

Sniffs or snorts; loud growl or bawl when scared or injured

On trees. Rotten logs torn open when grabbing for insects.

In caves, rock piles, hollow trees, logs.

Forest floors or thickets

Almost anything. Small mammals or insects, any flesh or carrion, garbage, grasses, leaves, fruit, berries, nuts.

Man



# RINGTAIL CAT



(Front)

(Hind)

## EVIDENCE:

- Tracks:** Hind track usually partly covers front track.
- Droppings:** Vary according to food eaten. Often found broken in short lengths. Crumble when dry.
- Den:** A hollow tree, a rock pile, or a crevice in a cliff.
- Voice:** Bark like a dog.

## HABITAT:

Near water on brushy, rocky, slopes or forest.

## FOOD NEEDS:

Rodents, bats, insects, fruits, birds.

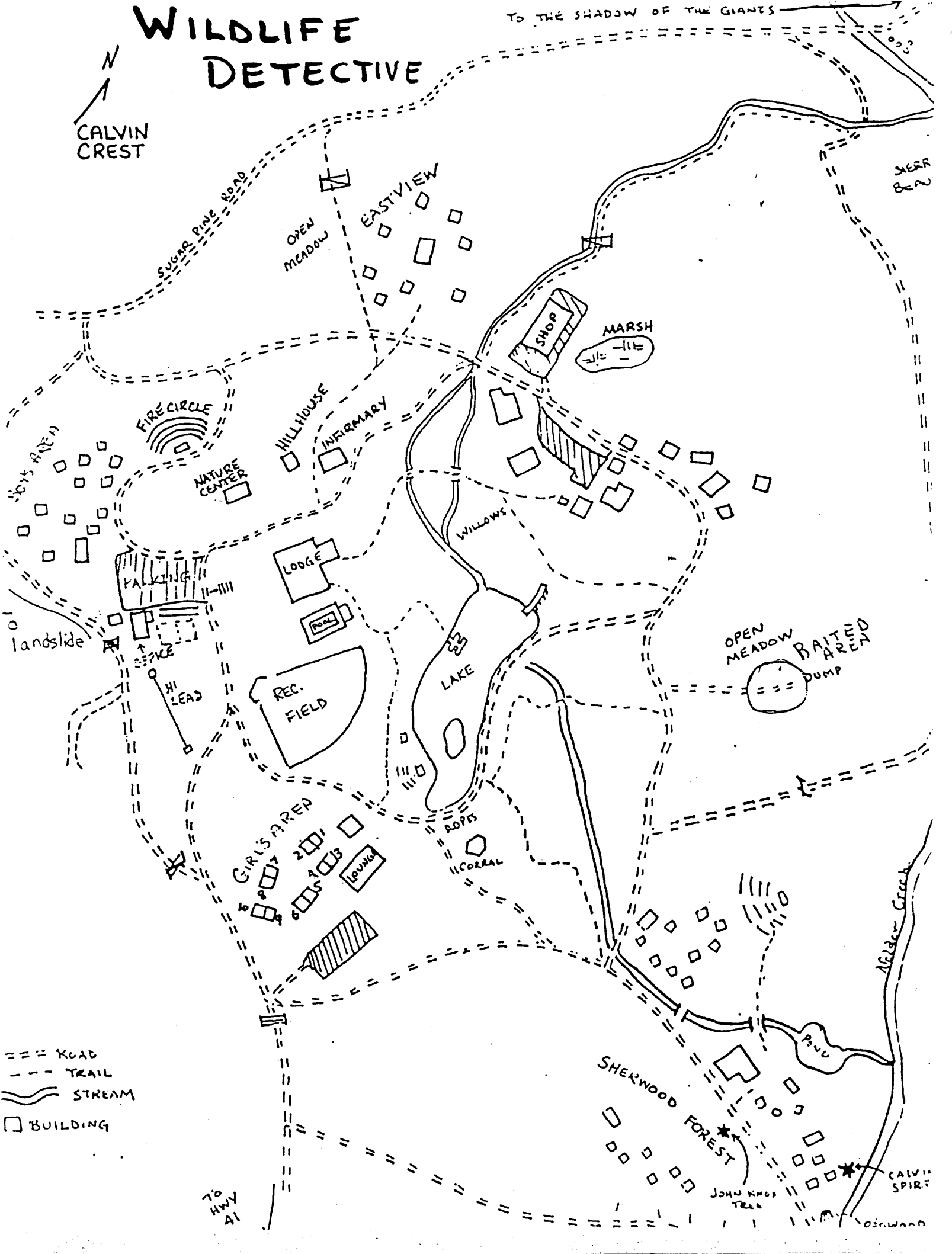
## PREDATORS:

Owls

# WILDLIFE DETECTIVE

TO THE SHADOW OF THE GIANTS

N  
CALVIN  
CREST



SUGAR PINE ROAD

OPEN MEADOW EASTVIEW

FIRE CIRCLE

NATURE CENTER

HILLHOUSE

INFIRMARY

SHOP

MARSH

WILLOWS

LAKE

OPEN MEADOW BAITED AREA PUMP

REC. FIELD

GIRLS AREA

LOUNGE

ADOPTS

CORRAL

SHERWOOD FOREST

JOHN KNOT TREE

Alder Creek

CALVIN SPIRIT

TO HWY 41

- === ROAD
- - - TRAIL
- ~~~~~ STREAM
- BUILDING