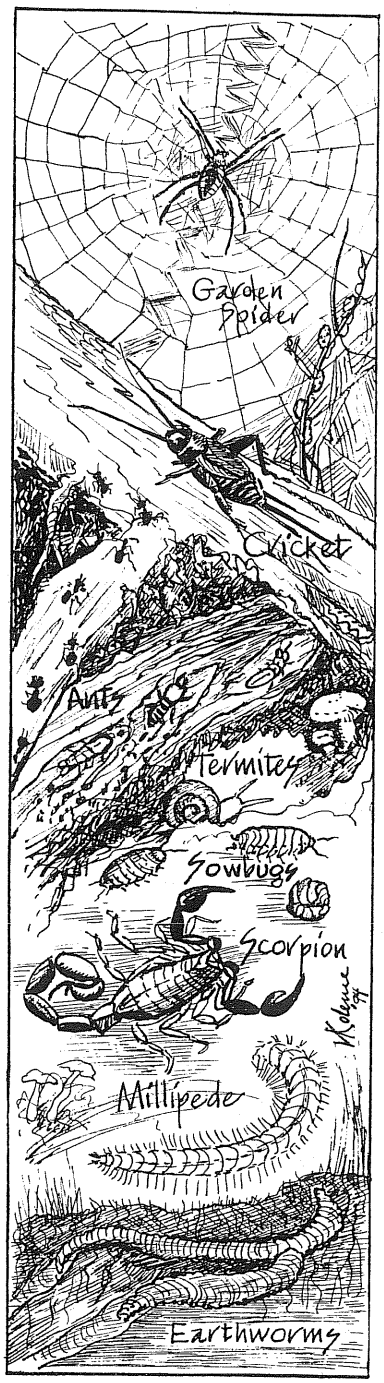
Foothills
Nature Notes

CREEPING CREATURES



Beneath the debris of the woodland floor is a busy little world of tiny, unseen creatures that creep, crawl, jump, scurry, and slither. Most are but a fraction of an inch in length or barely visible specks while the "giants" attain lengths of an inch or two. They occur in many different forms and often in large numbers. Though generally unfamiliar to us, they are nevertheless fascinating to study and observe. These are the invertebrates, animals without backbones or internal skeletons. They include mollusks, worms, crustaceans, centipedes, millipedes, scorpions, spiders, ticks, mites, and the most well known of all, the insects.

By day most of these invertebrates are inactive or active only within their underground shelters. At night, however, they emerge to forage or hunt. One important advantage of nocturnal activity, not to mention safety from birds, is the conservation of body water. Unlike some insects which have hard-shelled bodies, most invertebrates are susceptible to rapid drying out. Most of the woodland invertebrates come out only when the temperature has gone down and the humidity has gone up.

The world of these animals is a fierce and competitive one, a situation where everyone eats everyone else. As in the world of larger creatures there are the predators and the prey. The base of the food chain is plant material: leaf litter, fungi, wood, and humus. Grazers and scavengers such as worms, slugs, snails, spring-tails, and termites, convert this plant material into their own living protein. They in turn are preyed upon by more aggressive animals such as scorpions, spiders, centipedes, and crickets. Both predator and prey have wonderful ways of capture and escape. The webs and poison venom of spiders are well known. Centipedes also have poison venom which they release through fangs, which are actually the modified first pair of legs of the body. The stinger on the tail of a scorpion is similarly a poisonous weapon. Prey species also have their means of defense. Spring-tails have a tail-like attachment to their stomachs that act like a spring. When suddenly released it hurls the spring-tail through the air to safety. Sow bugs or pill bugs curl up into a round ball to protect their soft underbellies. Some are just plain distasteful. The Camel Cricket can easily jump a foot or more from danger, and the social ants get their strength from the unity of their numbers.

It is interesting to roll over a log to see the numbers and types of creatures beneath. Select an old, moldy log in a damp situation where there is overhead shade and leaf litter on the ground. The longer you look, the more you will see. But still, you will only see the larger creatures. To see the far more numerous smaller ones, spread a handful of earth and leaves onto a flat, white surface and look closely, use a hand lens if you have one. You will be amazed at what you see. Always roll the log back, so you do not to destroy the insect habitats you have just observed.

Illustrated by Virginia Kolence

SEE REVERSE FOR TABLE OF COMMON TERRESTRIAL INVERTEBRATES OF THE FOOTHILLS.

City of Palo Alto Department of Community Services

COMMON TERRESTRIAL INVERTEBRATES OF FOOTHILLS PARK

LAND SNAILS
•Shell about 1/2" and more disc-like than the common garden snail. Active only at night or during wet weather. Feeds upon leafy vegetation. Eggs are laid in gelatinous masses in damp crevices. These snails become inactive and remain hidden during the summer dry period.

BANANA SLUGS
•A remarkably large slug up to 5" long, yellow-orange in color. Has both male and female reproductive organs, and is thus an hermaphrodite. Found only during damp weather. Feeds upon decaying vegetation.

EARTHWORMS
•Can reach 6" in length. Most often found in rich, damp soil where it feeds on decaying vegetation and humus. Important tillers of the soil. Escapes the summer drought by burrowing down to damper ground.

SOW BUGS
•About 3/8" long. Sow Bugs, Pill Bugs, or Woodlice are crustaceans and relatives of shrimps and crabs. Pill Bugs roll up when disturbed. Oval body of many segments, each with a pair of legs. Feed on damp humus under rocks and logs.

CENTIPEDES
•About 2" long. Often a bright reddish color. Most common species have 15 pairs of legs, the first of which have become poison fangs used to subdue prey. Found under damp logs, etc. Feed upon small insects and other small invertebrates.

MILLIPEDES
•Different species vary in length, shape, and color. Some to 4". Unlike centipedes, millipedes possess two pairs of legs per body segment. They feed upon roots and decaying organic matter. Secrete a protective, repugnant fluid when disturbed.

SPIDERS
• • *Spiders are characterized by four pairs of walking legs*

Tarantulas
•Large, stout, and hairy spiders. The Smooth Tarantula grows to 3" and the Hairy Tarantula to 3 1/2". Both possess large fangs. May inflict a painful bite, but not dangerously poisonous to humans. Burrow in ground, and feed at night on insects, etc. Males can be seen migrating in the Fall.

Wolf Spiders
•To 1" long, with a brownish slender body. Long legged and swift. Found under bark and logs on the ground. Females often seen carrying a round egg cocoon. Hunts insects on the ground. Some have water repellent hairs on their feet and can run across the surface of the water.

Black Widow
•The only dangerously poisonous invertebrate in the Park. Shiny black spider found under rocks, logs, and other cover, often in dry areas. Larger females have a bright orange hourglass shape on underside of their abdomen. A shy spider that feeds on small insects.

SOLPUGIDS
•A relative of true spiders but with 10 legs and a segmented abdomen. About 1" long. Does not possess poison fangs, but crushes prey with powerful jaws. May be seen scurrying about in exposed, dry areas in the summer months, but rare in the Park.

SCORPIONS
•Look like a lobster, with a long thin tail and a pointed stinger on the end. May inflict painful sting, but the local species are not dangerous to humans. Hides under logs and rocks, emerging at night to hunt for smaller invertebrates.

TICKS
•Bodies to 1/4", brownish and shield shaped. Tiny head and eight legs. The Pacific Coast Ticks are active in the Spring when blood sucking females are seeking hosts to eat from. They climb grass blades or brush and drop on passers by.

MITES
•Park species are barely visible specks with eight red legs. They are common in leaf litter and rich upper layers of soil. While some mites are parasitic, the Park species seem to be free-living on humus in the soil.

INSECTS
• • *Insects are characterized by three pairs of walking legs.*

Springtails
•Springtails are 1/4" long or smaller. Common in leaf litter, they feed upon decaying plant material. They have a spring like appendage that allows them to hop when disturbed

Camel Crickets
•Camel or Cave crickets are up to 3/4" long, with very long hind legs for jumping. Common under rocks and logs in damp areas, they are generally carnivorous and feed on smaller animals. They have long antennae, are hump- or "camel" backed, and the females have conspicuous ovipositors

Ground Beetles
•Up to 1" long, they are small headed, long legged, and generally black. They are common under rocks and logs. Nocturnal, they feed on other insects and snails. Some species discharge ill smelling vapors or fluids to deter enemies.

Termites
•Social insects, termites live in colonies within rotting wood in damp ground. They are between 1/4" and 1/2" long, whitish, and feed on wood predigested by bacteria within their gut. Within a colony, one finds workers, soldiers with large jaws, the queen laying eggs, and in the Spring, winged drones and new queens.

Ants
•Like termites, ants are social insects and live in colonies in the ground. They are black or dark in color, with slim bodies. In the Park, they range in size up to 3/8". Most ant species are scavengers, but some are seed gatherers and others prey on smaller insects.

Velvet Ants
•Ant-like, but not a real ant, these fuzzy insects are at most 3/8" long. Often seen in hot, dry, exposed areas scurrying about in search of ground bee burrows. Females possess an ovipositor or stinger, wielded as a weapon when needed.