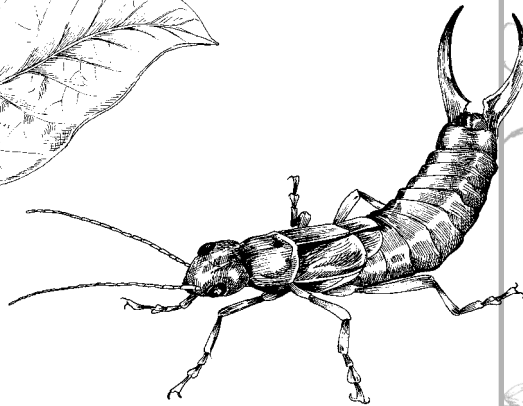
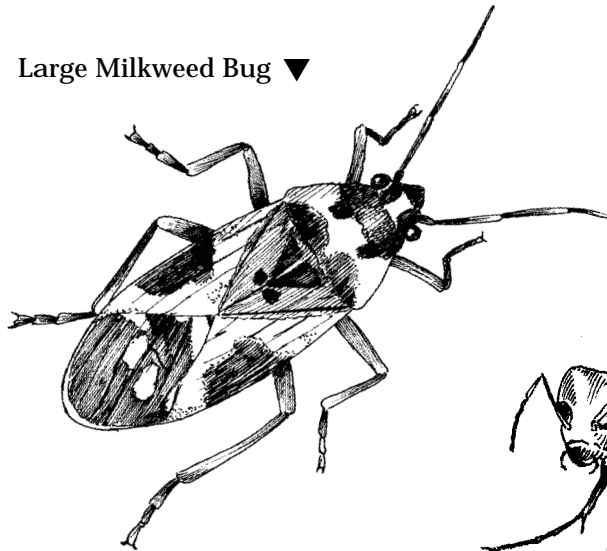


Short-Horned ▲
Grasshopper



▲ European Earwig

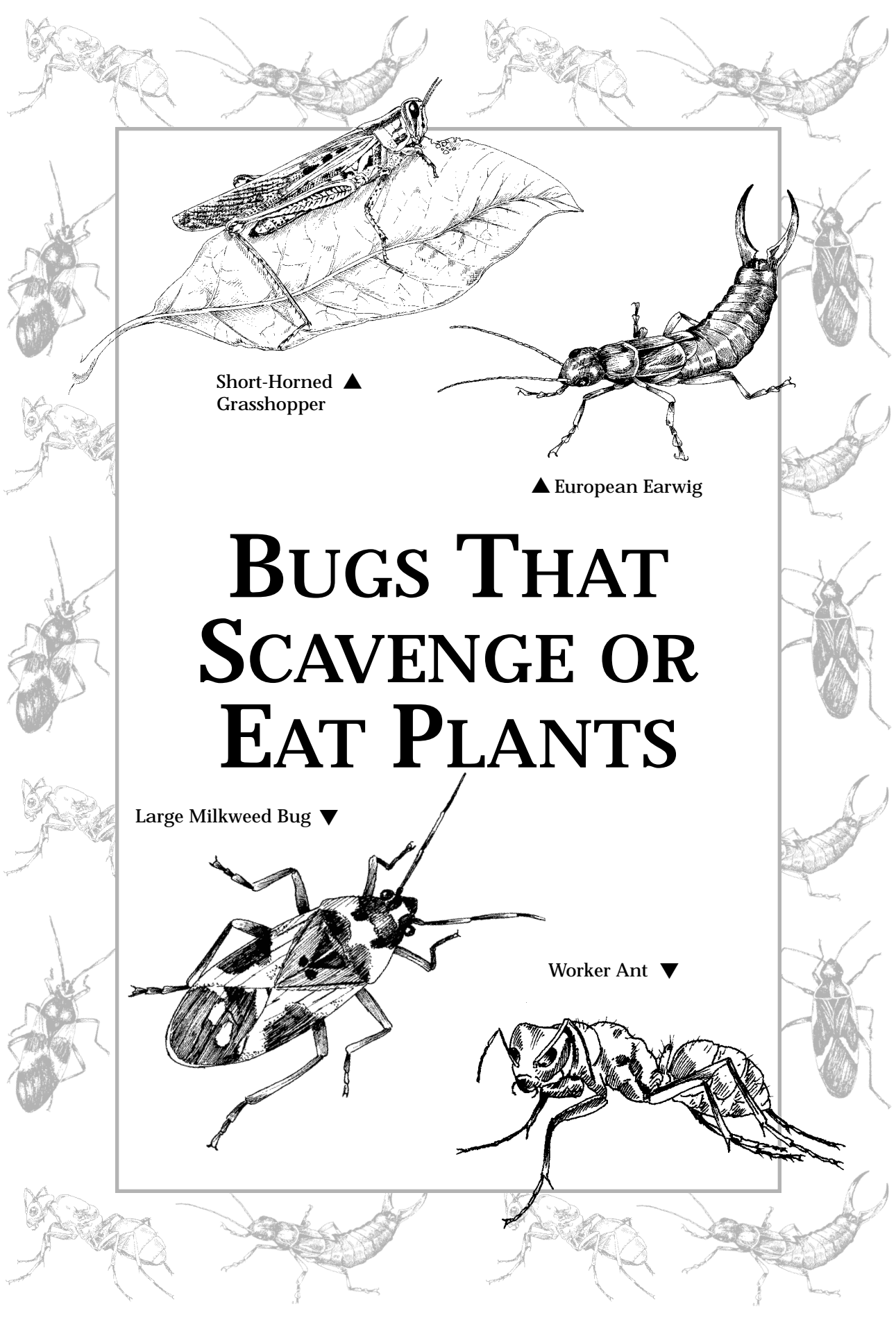
BUGS THAT SCAVENGE OR EAT PLANTS



Large Milkweed Bug ▼



Worker Ant ▼



ANTS

What They Look Like

Everyone knows what an ant looks like, but did you know that there are about 10,000 species of ants? On all wingless ants, the three body parts (the head, thorax, and abdomen) are clearly separated and easy to recognize. But the body parts can have somewhat different shapes in different species. Some species are longer or thinner or more long-legged than others. Ants also differ in size and color. Some are less than $\frac{1}{16}$ inch (2 mm) long, others as long as 1 inch (24 mm). They can be black, brown, reddish, or yellowish. Black is probably the most common color.

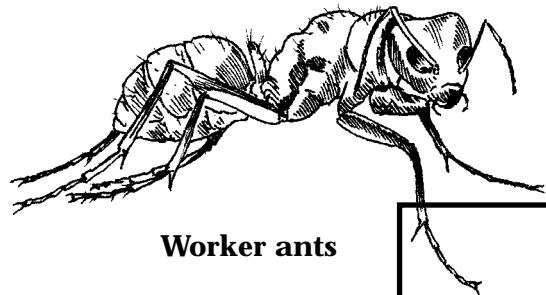
Ants within a single colony can have a different appearance, although they are all the same species. Some may have much bigger heads and jaws than others. The big-headed ones are called **soldiers**. The others are workers, except for the queen, who is often much bigger than the rest.

Ants have distinctive antennae. The antennae are bent as though they have an elbow in the middle. This is not true of ants' relatives, the wasps and bees.

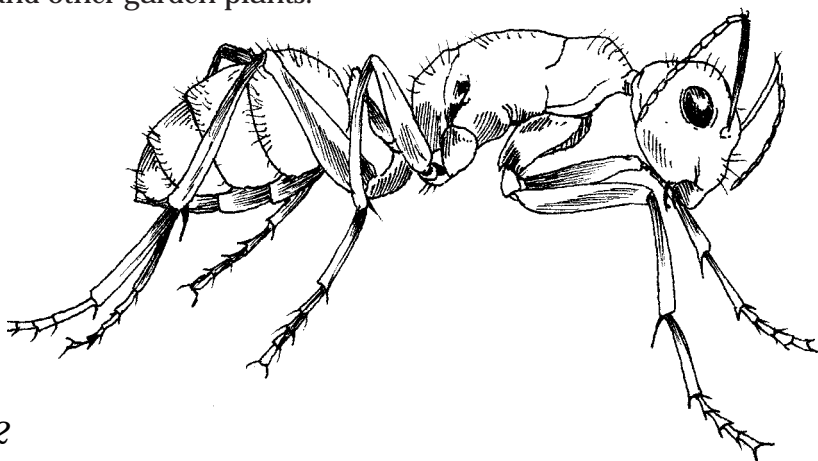
Ants and wasps have a narrow waist between the thorax and the abdomen. The waist of an ant, sometimes called the abdominal stalk, has one or two small humps. Sometimes these humps look like oddly shaped pop beads that join the thorax and abdomen together.

Where to Find Them

Ants are pretty easy to find. Look under logs and near walls, in loose soil. Look for the hills of granular soil that ants have piled up around their holes. Also try looking on plants where aphids live, such as tomatoes, lettuce, and other garden plants.



Worker ants

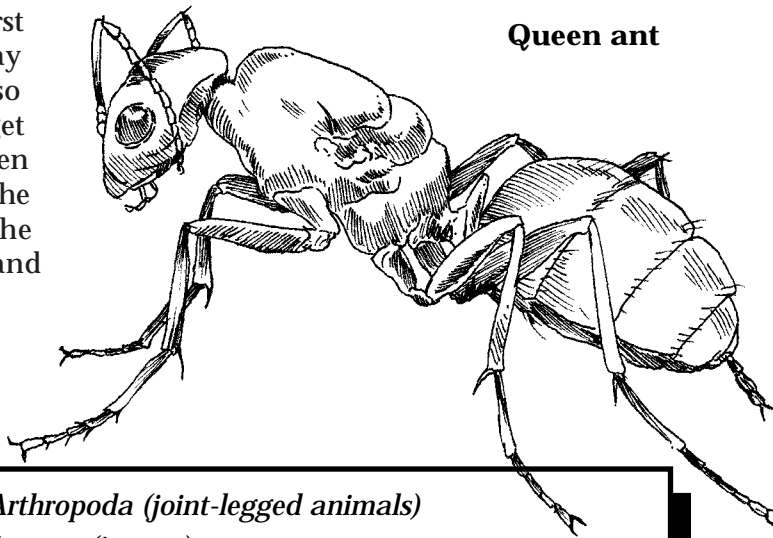


If you don't see any ants around, try putting an apple core in your yard as bait and waiting. It may take a few days (or maybe just a few minutes), but eventually ants will find the core. If not, try another spot. The ants that come to the apple will be worker ants. If the apple doesn't attract ants, try putting a slice of a soft candy bar (like a Milky Way) on the ground near a wall or garbage can. Use sweets that have real sugar in them, not sugar substitutes.

If you locate a line of ants rather than a nest, follow the line back to the nest. You don't need the nest if you want only workers. But if you want the queen you'll need to find where the colony lives.

How to Catch Them

If ants have come to an apple core or other food in your yard, pick up the bait and shake the ants into a jar. Put a lid on it, with no holes in the lid (ants could escape). If you don't want to touch the ants, put the bait in a jar instead of on the ground when you first set out the bait. Lay the jar on its side so the ants can easily get in and out. Then when you go to check on the bait, just pick up the jar with the bait and ants inside. Put the lid on it quickly.



Phylum:	<i>Arthropoda (joint-legged animals)</i>
Class:	<i>Insecta (insects)</i>
Order:	<i>Hymenoptera (ants, wasps, bees)</i>
Family:	<i>Formicidae (ants)</i>
Characteristics:	<i>Narrow waist with one or two humps. Usually not winged. Antennae strongly elbowed. Live in colonies, usually underground, with a queen, workers, and soldiers.</i>
Distribution:	<i>Throughout the United States</i>
Food:	<i>Some are plant eaters, some are scavengers, some are predators.</i>

4 Bugs That Scavenge or Eat Plants

If you've found a line of ants or a nest of ants without using bait, you can get them into a jar by using a small paintbrush. Hold the jar under the ants or against the ground in front of the ants and brush them in. You'll get sand and plant parts, too, but that's okay.

How do you catch the queen? Occasionally you may get lucky and find the queen inside a rotten log that is easily broken apart. She is generally twice as big as the workers, maybe more. Her abdomen may be quite large, because it's full of eggs.

You can try to get a queen from an underground nest. Dig with a shovel until you reach the nest. Put the entire contents of the nest onto a newspaper. Then use a spoon to pick up what you want to take. Put the small white eggs, the small wiggling larvae, and the larger white pupae or cocoons into a small bag or jar. The eggs are round and no bigger than a worker's head. But the pupae are oval and closer to the size of a worker's body. The queen may be much larger than the workers. Don't forget to take some workers, at least 15, because the queen and her young can't manage without them.

Any disturbance to the nest is likely to bring out soldiers. The soldiers are workers with big heads and big biting jaws. They will bite, so be careful. Some species of ants sting as well as bite. Those that have two beads or humps to the abdominal stalk that joins thorax to abdomen are more likely to sting. Those with one bead or hump belong to a different sub-family and are less likely to sting.

Fire ants belong to the two-hump group. You don't want to catch fire ants. A sting from a fire ant hurts and may cause a small blister. If you live in the southern United States, you may want to call the agricultural extension service in your county and ask if fire ants are in your area and ask how to recognize them.

If you find only workers, that's okay. They alone are entertaining. Try to get about 30 in your jar. They'll take care of themselves and will live for a few weeks.

If you get the workers and a queen, the workers will take care of themselves and the queen, and she will produce more workers and new soldiers. Your captive colony can go on for much longer. Queens sometimes live as long as 15 years!

How to Keep Them

Ants are hardy. They need only food, water, natural sand or soil, fresh air, and a mild temperature. It's best to keep them in clear containers, so that you can see what's going on below ground level. To be able to see them, you have to force the ants to build their tunnels right next to the glass or plastic sides of the container. So the layer of soil next to the glass must be made very thin. You can do this by putting something like a can, a

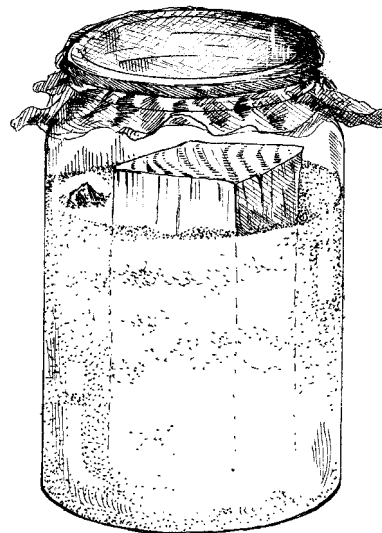
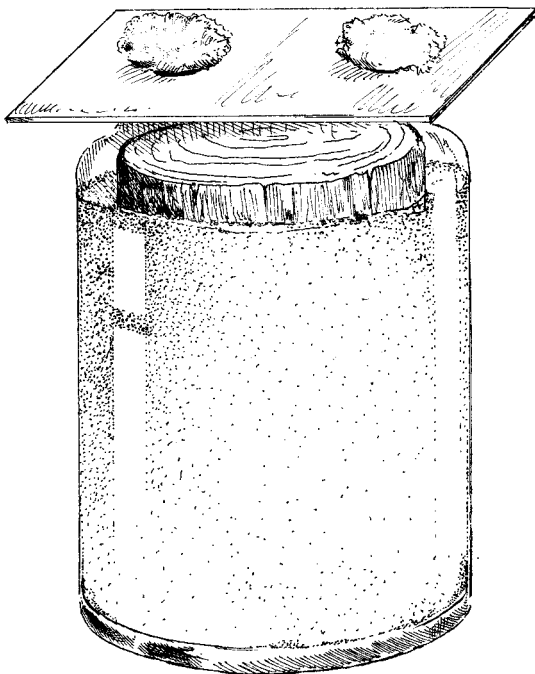
smaller jar, or a block of wood into the center of a glass or plastic jar. Fill the space around the object with *slightly* damp sand or fine soil. This forces the ants to build their tunnels in the space between the outer jar and the inner jar or block. Leave a space of about an inch at the top. A gallon jar is great if you can find one that big. If not, use a quart jar or a large peanut butter jar.

To make a lid, put a piece of cardboard over the mouth of the jar. Mark two spots on the cardboard for holes that will open into the space where the sand or soil is. Get a grown-up to help you make the holes, each about $\frac{1}{2}$ inch (about 1 cm) in diameter. Now put glue all the way around the rim of the jar and put the cardboard in place, with the holes over the sand. Press the cardboard into the glue.

After the glue has dried, get your ants ready to move by chilling them to slow them down. Put the bag or jar you carried them home in into the fridge for a couple of hours, or until none of the ants are crawling around. (Since they aren't warm-blooded, this doesn't hurt them. See the Introduction for an explanation.) Then take the chilled ants and prepared jar outside. Put the ants through one of the holes so that they fall onto the sand in their new home. Plug both holes with cotton when not in use. Air will pass through the cotton. You can also ask an adult to poke

tiny holes in the cardboard with a needle if you want to, but it isn't necessary.

When the ants are not near the hole, add some food in very small amounts. The food will get moldy fast on the damp



Ant jars

6 Bugs That Scavenge or Eat Plants

sand, so don't put in more than a pea-size amount at one time. Remove moldy food through the hole with tweezers.

Feel the sand occasionally. If it feels dry, dribble a little water into the second hole with an eyedropper or a small spoon. It must be kept damp, but not sodden. Always put the cotton back in place when you've finished feeding, watering, or cleaning. Be sure, too, that the lid to your ant home stays glued on tightly so that the ants don't get out into your home.

What do you feed ants? Try a few grains of sugar, crumbs of bread or cake or cookie, a tiny shred of cooked meat, a freshly killed small insect, a drop of pancake syrup or honey on a piece of foil, a tiny caterpillar or maggot, or a tiny piece of fruit or vegetable.

What They Act Like

There is something very peculiar about ants and their relatives, the wasps and bees.

Worker ants, although they are all female, do not have their own children. Instead they raise new workers in the colony, children of the queen, as though those eggs, larvae, and pupae were their own.

Ants, wasps, and bees are referred to as social insects because many of them live in large groups. In these groups, all individuals work toward the good of the colony as a whole. How does a new colony begin?

A new colony can begin at only one time during each year. At that time, the queen lays eggs that will develop into adults with wings. Unlike the workers, these adults are fertile. They will be able to have their own offspring. Some are male and some are female. They fly away from the colony and mate with other winged ants from other colonies.

After mating, each winged female has all the sperm she will ever need to produce fertile eggs for many years. The male dies after mating. Each female crawls under a rock or log by herself and rubs her wings off. She is developing into a queen. Her body digests the wing muscles and body fat, and she begins to lay eggs. After a few weeks some of the eggs hatch into larvae. She feeds some of the unhatched eggs to the larvae. The larvae grow and then turn into pupae. Inside each pupal skin a worker ant is forming.

When the workers emerge from the pupal skins or cocoons, they are all white. The first ones are small, since as larvae they didn't get much to eat. Soon they darken and then go out looking for food for the queen. From then on, they devote their lives to caring for the queen and her offspring (their sisters).

One of the workers' jobs is to make the nest bigger. They make several underground rooms, all connected with tunnels. The queen stays in one chamber for her whole life, taken care of by workers. Her body gets much larger. The eggs she produces are carried by workers to another chamber.

When they hatch, the larvae are fed and tended by workers. The pupae also have a chamber to themselves. Workers help them crawl out of their cocoons when they are ready. These new workers replace the old workers as they die.

Some of the larvae from the queen's eggs will develop into soldiers—the workers that have large heads and jaws. A soldier's job is to defend the colony against attack. Colonies may be invaded by predators looking for larvae and pupae to eat. Or they may be invaded by other ants. Some species of ants invade other colonies and carry away the young to serve as slaves inside their own colonies. Some species of ants don't even have their own workers other than soldiers. They rely totally on slave workers from other colonies to tend their queen and young.

Ants can be not only slave keepers but farmers, too! Many ant species have evolved a relationship with aphids that benefits both the aphids and the ants. Aphids suck juices from plants, and with the plant sugars they eat, they produce a sweet fluid called honeydew. An ant can stroke an aphid in a way that signals the aphid to release a drop of honeydew. The ant takes the honeydew into its crop, or storage stomach, and takes it home. The crop is different from the stomach that digests the ant's own food. Back inside the colony, the ant regurgitates the honeydew and feeds it to other workers, the queen, or young.

You may see a line of ants walking one behind the other for a long distance. Why do they walk in a line like that? They are following a chemical trail. The workers that made the trail used chemicals from their abdomens. The ants can smell or taste the chemical with their antennae. In this way an ant who finds a good food source can lead the other workers to it, so they can help bring the food back to the colony. If a trail is disrupted, the ants become confused. You can observe this for yourself. If you find a line of ants, drag your finger or a stick across the trail to create a gap of an inch or so. When the ants reach the gap, they will seem disoriented. They'll search the area until they pick up the trail again, laying down new chemicals over the gap.