

NATURE DETECTIVES

Fall 2003



Loveable Ladybugs

Ladybug is a popular name for the red/orange ladybird beetle, and ladybugs have a huge fan club. People like them because they are one of the cutest members of the beetle family. To farmers and gardeners, their huge appetite for aphids is even more pleasing than their pretty appearance. (Aphids are tiny plant-juice-sucking insects.)

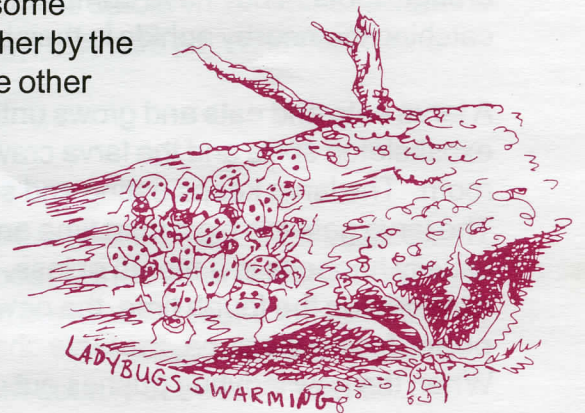
Mountain Migration Mystery

In the fall, ladybugs need to find shelter for the winter. Their body temperature drops with the cold weather and they stop moving, making them an easy catch if they are not well hidden from predators.

Sometimes in the fall, you will find ladybugs searching for a hiding place in your home. More often, ladybugs will look for crevices in tree bark or cracks on the sides of buildings to crawl into, or for piles of leaves and twigs to crawl under.

The most mysterious fall gathering of ladybugs happens on some mountaintops. For reasons known only to ladybugs, they gather by the thousands on mountains in Colorado, California, and in some other parts of the world. In September, jumbles of them cover rocks, trees, and logs on several Boulder mountain peaks. Slowly they find hiding places among the rocks and trees, and by November most of them are hidden safely away.

Their mountaineering behavior is puzzling. Many animals such as elk leave the highest mountains in winter because it is cold and windy there. Scientists have some guesses why ladybugs choose mountaintops for winter cover. * Can you think of any reasons mountaintops provide ladybugs with safe cold-weather shelter?

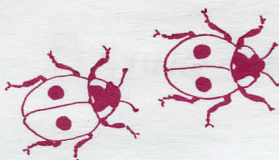
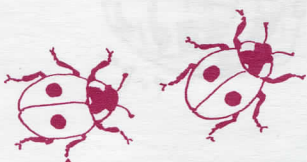


With their low body temperature and lack of activity, ladybugs don't need to eat during the winter. They depend on stored body fat to fuel the little energy they use to stay alive.

Warmer spring temperatures rouse the surviving ladybugs. Soon they are moving around searching for a mate. They fly down the mountains to yards and fields to lay their eggs. In the fall, new ladybugs will head for the mountains once again.

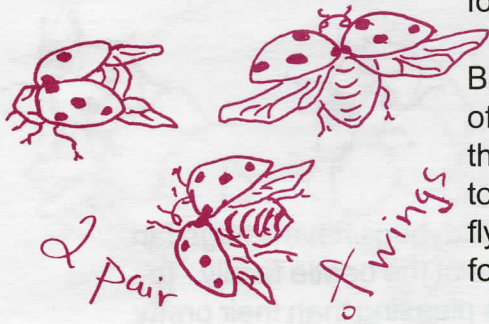
* Scientists' guesses or theories range from lack of predators to wind currents aloft.

Pull Out and Save



Ladybird Beetles

Ladybugs belong to the beetle family (*Coleoptera*). Beetles are the largest group of animals on earth. In fact, one fourth of all the earth's animal species are beetles. Scientists have found around 4,000 different kinds of ladybird beetles in the world.



Beetles are insects, so ladybugs have six short legs and two pair of wings. One pair of ladybug wings forms a protective cover over the pair of wings that do the flying. When the ladybug gets ready to fly, the hard outer wings open on a hinge, and the see-through flying wings underneath unfold. When the ladybug stops flying, it folds its transparent wings and covers them with the outer wings.

Ladybug eyes see things up close the best. They rely on their two antennae to detect their insect prey through smell and touch.

Ladybug Lifecycle – Metamorphosis

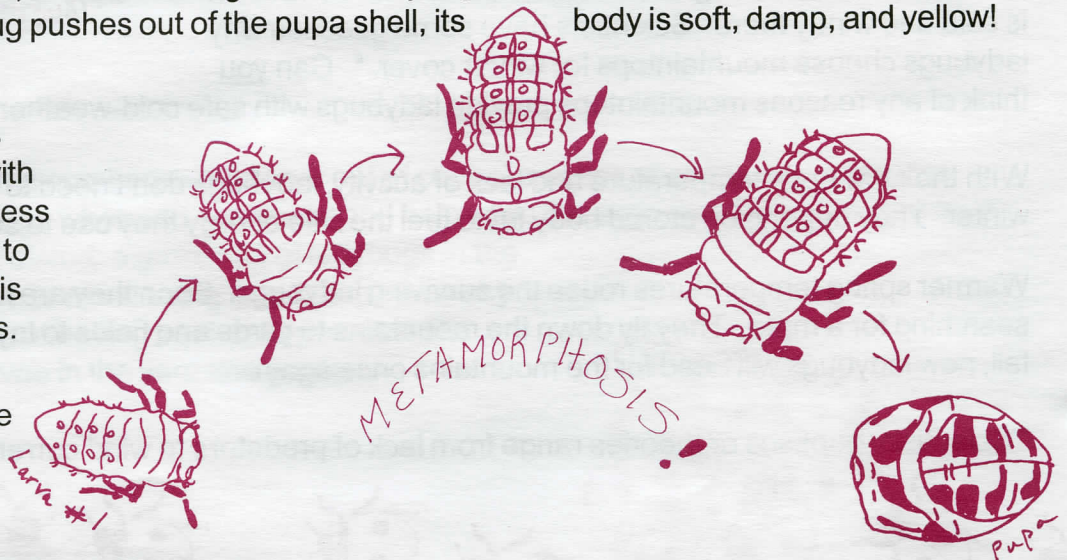
Despite the word “lady” in its name, some of the ladybugs are males. So they really should be called lady/gentleman bugs. The look-alike males and females mate in the spring. The female searches for leaves with plenty of aphids where she lays her sticky yellow **eggs** in clusters. One ladybug can lay 50 to 300 eggs.

Shortly before hatching, the eggs turn white, usually in about five days. The **larvae** hatching out of the eggs look more like teeny alligators than ladybugs. They are black with blue, black, and orange spots. They have bumps and spines and six legs. They are hungry and ready to start catching the nearby aphids in their big jaws.

A larva eats and eats and grows until its outer layer or exoskeleton is too tight. The exoskeleton splits and the larva crawls out and a new exoskeleton hardens with more growing room. The larva keeps eating and soon the new exoskeleton is too tight and must be shed. The larva gets too big a third time and sheds. Before the larva sheds the fourth time, which usually happens in a month or less, it attaches to a leaf with a silky pad. After it splits off its exoskeleton the fourth time, the new outer skin becomes a hard shell. Now the larva is called a **pupa**. Inside the pupa, the larva changes into a ladybug **adult**, which takes seven to ten days. When the new ladybug pushes out of the pupa shell, its body is soft, damp, and yellow!

In a few hours, the ladybug's outer wings harden and turn red with black spots. The process of changing from egg to larva to pupa to adult is called metamorphosis.

Adult ladybugs can live for about a year.



Plant-friendly Diet

The favorite food of ladybugs is aphids. Aphids spend their lives sucking plant juices, oozing sticky stuff on leaves, and spreading plant diseases. No wonder growers are happy when they see red ladybird beetles or larvae on their crops. Ladybugs are a big help to growers because they have a big appetite for aphids.

Hunger for aphids begins with the ladybug larva. The larvae have large jaws for their size, jaws that are perfect for catching aphids. During the time it spends being a larva, the ladybug will eat 200-400 aphids.



Adult ladybugs capture aphids with their jaws and with the claws on their legs. One ladybug might eat up to 75 aphids in a day. During its lifetime, it might dine on 5,000 aphids. Female ladybugs gorge on 200-500 aphids for the energy they need to produce eggs.

Ladybugs are so desirable on plants that some people even buy beetles to release in their garden. Unfortunately, most seem to fly off or not feel like eating. Of course, you should never take ladybugs for your garden if you come across a group of them in the fall when they are getting ready to find their winter hiding places. Disturbing them disrupts their life cycle and they will likely die. The best ladybugs are the ones that live naturally in your garden.

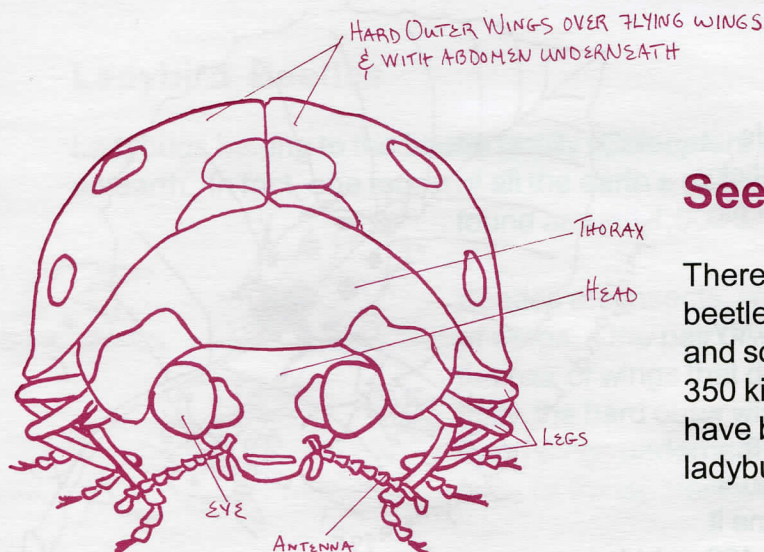
Red ladybugs sometimes eat other things besides aphids such as spider mites and Colorado potato beetle larvae. To put on the fat needed for winter energy, they add pollen to their menu in the fall.

Faking Out the Enemy

Ladybugs have a few tricks to keep birds or other predators from eating them. First of all, their red and black color is a bright warning that they don't taste good. If their color doesn't stop the predator, they squeeze stinky yellow liquid from their knees. If that doesn't make the predator back off, the ladybug just might roll on its back and play dead. Looking dead with stinky yellow stuff oozing from your legs doesn't seem appetizing at all. That usually does the trick with birds, but some ladybugs fall prey to wasps, flies, ants, and disease, despite their best defenses. When people spray pesticides, they unwittingly kill the friendly ladybugs, too.



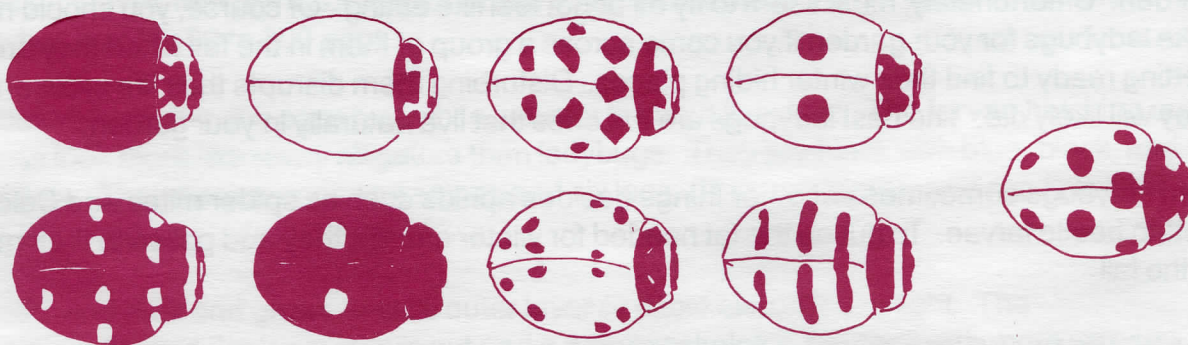
PLAYING DEAD



Seeing Spots

There are lots of kinds or species of ladybird beetles. Some have different numbers of spots, and some are even different colors. There are 350 kinds in the United States, and 60 species have been found in Colorado. The seven-spotted ladybug is one of the most common.

Below are the backs of several different ladybird beetles. Take this page with you and explore an outdoor area filled with a variety of plants. See if you can find any of the ladybird beetles shown here. Mark off or circle the ones you find. Don't forget to check the undersides of leaves.

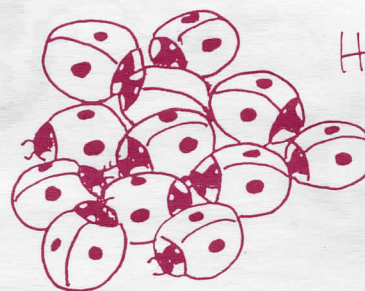


If you see a ladybird beetle that looks different from the ones shown here, draw it next to the other outlines.

See how many red/orange ladybugs you can count. How many of them are seven-spotted ladybugs?

Be a Friend to Ladybugs

Without ladybugs, aphid numbers would soar out of control and lots of plants would get sick. You can protect ladybugs when you see them, and help keep the eggs, larvae, and pupae from being harmed. Never disturb a gathering of ladybugs in the fall. Encourage people to avoid using bug-killing sprays by explaining the benefits of having pest-eating insects like ladybugs and their larvae in the yard and garden.



HIBERNATING

