The Lost Ladybug Project

IN SEARCH OF LADYBUGS

NATIVE LADYBUGS ARE DISAPPEARING. JOIN THE LOST LADYBUG PROJECT AND HELP US FIND THEM!

MISSING NATIVES

The two-spot, the nine-spot, and the transverse ladybugs were once common but now they are very rare. The good news is that they are not extinct. There may be a rare ladybug in your backyard right now!

Nine-spotted ladybug, *Coccinella novemnotata* (C-9), has four spots on each wing and one split in the middle. Until 20 years ago it was one of the most common ladybugs across the United States and Canada. Unfortunately, by the time C-9 became the New York State insect in 1989, the population had begun to rapidly decline.

Transverse ladybug, *Coccinella transversoguttata*, has markings on its back that resemble ink drops that have slipped sideways, forming a black band close to the front. This ladybug was once very common but is now almost as rare as its nine-spotted cousin. A few were found in the first year of the Lost Ladybug Project.

Two-spotted ladybug, *Adalia bipunctata,* is usually bright red with two dark spots on its wings. This beetle is considered native to both North America and Europe. Although it is still occasionally collected in the midwestern United States, we fear this ladybug may soon be gone from much of its former range. This beetle has been so respected for its role in pest suppression that it has been honored in places as diverse as Connecticut and Latvia.

COMMON NATIVES

Some native species of North American ladybug are more common than the two-spotted, transverse, or nine-spotted ladybugs. Please help us find these, too.

Convergent ladybug, *Hippodamia convergens,* is distinguished by two converging white lines on its pronotum (neck shield). This ladybug is still common in the west but lately has become much harder to find in the eastern United States.

Spotted pink ladybug, *Coleomegilla maculata,* is an active, oval-shaped ladybug distinguished by its pink color and the absence of white on its pronotum. Along with aphids, insect eggs, and small larvae, this ladybug eats a lot of pollen so you may find it in corn and fruit trees.

Parenthesis ladybug, *Hippodamia parenthesis*, was named for the two paired marks on its back that resemble curved parentheses. This little ladybug is *small*, only about ½ cm long.

NEW LADYBUGS

Some of the new ladybugs introduced to North America decades ago have increased their numbers and range. We need to know where these are, too!

Multicolored Asian ladybug, *Harmonia axyridis*, comes in various color patterns but is consistently large and round. It was introduced from Japan for biological control of scale insects. This beetle has a huge appetite and has adapted in North America to eat much of the same foods that native ladybugs eat; it even eats ladybug larvae, including its own. It is known for spending the winter inside houses in groups.

Checkerspot ladybug, *Propylea quatuordecimpunctata*, hardly can be said to have spots at all. Most commonly, several spots fuse to form a checkerboard pattern. It is small and yellow—not red. It was introduced to North America near the St. Lawrence River from Europe in the 1960s and has been moving south.

Seven-spotted ladybug, *Coccinella septempunctata*, is a close relative of the nine-spot and looks very similar, only missing one spot on each wing. It was introduced to North America from Europe in 1956 and started to extend its range about the time that the nine-spot and the transverse ladybugs began to decline.

WE LOVE LADYBUGS

Some people believe ladybugs were given their name in Europe after the red robes of the Virgin Mary ("Our Lady") or because farmers believed they were sent by her to deliver them from the ravages of pests. The "Beetles of Our Lady" became "Lady Beetles." With their round shape, bright colors, and bold patterns, ladybugs are fun even for people who don't like insects. But ladybugs are more than just pretty visitors. They are beneficial predators with an essential job to do. On the farm and in the forest they devour aphids and scale insects, including mealybugs. These pests that feed on farm plants and orchard trees are a ladybug's favorite lunch—and that means better lunches for all of us!

Cornell University
College of Agriculture and Life Sciences
Department of Entomology

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The Lost Ladybug Project

Scientists need detailed information on which ladybugs are still out there and how many individuals can be found. Here's how to participate in our research project:

1 COLLECT

Go out and collect ladybugs!

2 TAKE NOTES

Note the date, time, location, and habitat (for example, wetlands, meadow, garden).

3 TAKE THEIR PICTURE

If you find any ladybugs, take pictures of them all! Please do not kill the insects, especially if they are rare finds. (See below for more tips on collecting and photographing ladybugs.)

4 SEND THE INFO

To send this information with the digital images go to **www.lostladybug.org**. If you do not have a digital camera, send color prints to Lost Ladybug Project, Cornell University, Department of Entomology, 4117 Comstock Hall, Ithaca, NY 14853.

5 RETURN THEM

Please release the ladybugs safely where you found them.

WHY DOES BIODIVERSITY MATTER?

Even though there are more than 5,000 species of ladybugs worldwide—about 500 native to North America—the disappearance of even a single species can be a great loss. This is because diverse ecosystems are composed of plants and animals and other organisms, each with a unique combination of traits. Each has a position in the food web, a special habitat, and a particular life cycle. Each organism has its own role to play. More diverse ecosystems have more actors to contribute when conditions change such as a short summer or a year without much food. So, although all of these ladybugs eat aphids, they may not all do equally well in all places or under all conditions. The fewer the species of ladybugs, the more vulnerable ecosystems become to pest insect population explosions.

KIDS CAN FIND RARE INSECTS, JUST BY LOOKING

We need you to be our eyes and hands.

Citizen scientists Jilene and Jonathon Penhale found an extremely rare nine-spotted ladybug near their home in Arlington, Va., in October 2006. The sister and brother, 11 and 10 years old at the time, were the first people to see a nine-spotted ladybug in the eastern United States in 14 years. Their finding proved that the nine-spotted ladybug is not extinct.

It's possible there's a rare ladybug in your yard—or in nearby farm fields or woods.

This is the ultimate summer science project: You can learn, have fun, and help save important species, all at the same time.

WHY WE NEED THEM ALL

Every ladybug you find, rare or common, native or exotic, is important. Even if you collect 20 of the same species we would like to see them all because that tells us how common that ladybug species is in your area and how rare other species are.

TIPS FOR LOOKING FOR LADYBUGS

- Ladybugs hibernate in late fall and winter, often aggregating in leaf litter or buildings. They come out in spring when the weather warms up. The best time to look is between May and October.
- Most ladybugs are predators and can be found wherever there are aphids and small soft-bodied insects for them to eat. They can be found in gardens, meadows, bushes, and trees. Farmers' fields make excellent collecting sites, especially alfalfa, clover, wheat, and corn. (Get permission and be sure the field has not been sprayed with chemicals recently.)
- Ants like aphids, too: they eat sweet honeydew that is made by aphids and in return they protect the aphids from predators. Look for ladybugs where you find ants.
- Misshapen or wrinkly leaves may have infestations of aphids underneath. Look for hungry ladybugs there.
- Handle ladybugs gently. Let them crawl on your hand. Don't squeeze them. If you put one in a bottle, also put in twigs and grass and a few drops of water. Don't leave the bottle in direct sunlight. Too much heat will kill your ladybug friend.
- To learn more about ladybugs, how to collect them, how to photograph them, and how to make your own sweep net, visit the Cornell Entomology Department's Lost Ladybug Project web site: www.lostladybug.org.

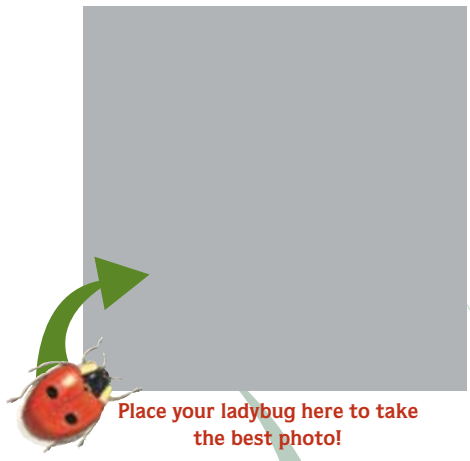
TOOLS YOU MIGHT WANT TO USE

Sweep net: Buy one or make one with a coat hanger, stick, and cloth or a pillow case. (See instructions at www.lostladybug.org.) Sweep the leaves of plants and grasses as you walk along. Check for ladybugs in your net or carefully empty the net, inside out, into a washbasin or onto a sheet. Let any bees fly away.

Beating sheet: Place a light-colored cloth under a bush that looks good for ladybugs and then gently tap the bush with a stick to knock the ladybugs onto the sheet.

Hand lens: Use a magnifying glass to see a ladybug close up.

Cooler or freezer: Chill out! Your ladybug will be too active to get a good image unless you slow it down a little. You can do this in a freezer safely for 5 minutes (over 6 may kill them) and this will quiet them for 2 to 4 minutes. Coolers are not as cold as freezers, so it will take 30 or more minutes to get 1 to 6 minutes of quiet time. Ladybugs will survive for days in a refrigerator.



Place your ladybug here to take the best photo!

Digital camera: Place your chilled-out ladybug on a gray background (see above) and take the largest shot you can while maintaining focus. Use your camera's close-up mode. Glare or reflection off the ladybug is often more of a problem than not having enough light. Shield the ladybug from bright light and use the flash only if there is very little light.

Ladybuggers at work!

For more information, questions, and support, visit www.lostladybug.org.

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