



If you have been around a few years, perhaps you've noticed that it is becoming increasingly rare to see the red lady bugs you remember as a child. Instead, it is becoming more and more common to see orange or yellow lady bugs. If you have had the thought that the color of the lady bugs was changing, you are correct. There has been a very real shift in lady bug populations, especially in the past twenty years.

The first thing to get straight is that we are talking about two different species. The red lady bugs you remember from childhood are the native American lady bugs, which are comprised of two or three common species recognized by their distinct red hue. The orange-yellow bugs, on the other hand, are Asian lady beetles, native to central Asia and recognizable by their orange color and tendency to swarm.

In this article, we will explain how to distinguish between the species, look at the origin of the Asian lady beetles in America, and examine the benefits and concerns surrounding this insect.

### Distinguishing between Asian Lady Beetles and American Lady Bugs

The Asian lady beetle (*Harmonia axyridis*) is considered an invasive species and is proliferating with astonishing speed all across North America. They are about 1/3 inch long and are typically some hue of yellow or orange. Like lady bugs, their backs are spotted with a series of black spots, although some may not have any spots at all. A very easy way to identify them with certainty is by looking at the white spots on the insect's head; the white markings on an Asian lady beetle's head are shaped like an "M" (or a "W" if viewed from the front). Unlike American lady bugs, the Asian lady beetles will swarm and can appear indoors in very large numbers, especially in the fall.

The common native American lady bug (*Coccinella novemnotata*) has a very distinct red hue, never orange or yellow. In addition to this, it typically has nine spots, although other varieties of red lady bugs exist with two or seven. The native lady bug features only two white splotches on its head that are separated from each other.

### Origin of the Asian Lady Beetle in America

Although the Asian lady beetle problem has only gained national attention within the past decade, their origin in this country goes much further back. The Asian lady beetle was originally imported into the United States way back in 1916 as a means of controlling aphids, which were then devastating farmers crops. Despite this early introduction, the Asian lady beetles did not become strongly established in the U.S. until the late 1980's, and since then they have proliferated and are now themselves in need of being controlled, which is usually the result when one species is introduced to control another.

### **Benefits and Detriments of the Asian Lady Beetle**

The Asian lady beetles are **not all bad**. They are good at eating aphids, which is the purpose for which they were introduced. Recently they have been attacking the soybean aphid population, which has saved American farmers a lot of money.

**Aphids, however, provide food for many other native insect species**, and the voracious appetite of the Asian lady beetle means that it often outcompetes other species, especially the North American lady bug - **sometimes it even eats lady bugs** when aphids are not available!

It is also considered invasive because of its need to overwinter indoors. They do tend to bite humans and leave an unpleasant odor and stain when squashed. They also are carriers of a microsporidian parasite to which it is immune but that can infect and kill other species, especially native lady bugs, which have experienced a dramatic decline in all areas where the Asian lady beetle has become dominant.

Indeed, the **lady bug is the greatest victim of the Asian lady beetle invasion**. In some places, the native lady bug has been pushed to the margins of extinction. In New York State, the nine-spotted American lady bug, once the state insect, has practically gone extinct. In other places, other versions of the lady bug have been introduced to replace depleted nine-spotted lady bug populations. One example is the seven spotted lady bug, native to Europe, which was introduced back in the late 1950's.

In addition to all this, the agricultural value of the Asian lady beetle is being questioned as well. While they are undoubtedly beneficial in eating crop-destroying aphids, the Asian lady beetles themselves have been known to contaminate grapes and other tender fruits. Thus even as a natural pest control agent their value is questionable.

### **Controlling Asian Lady Beetles**

While Asian lady beetles swarm, they do not reproduce inside a home. This means that the lady

beetles you find in your home in the spring are the same ones that came in during the fall. As they are attracted to bright, reflective surfaces, dark trim or paint will dissuade the swarming of Asian lady beetles. If they are inside a home, they can simply be vacuumed up. Making sure doors and windows are properly sealed and any cracks and crevices caulked will also deter them. If seeking a more short term solution, a perimeter pesticide application can temporarily deter them. One application in the fall and one in the spring would be advisable.

**Source: Creature Control: Humane Pest and Wildlife Solutions**

### Asian Lady Beetle



### Multicolored Asian Lady Beetles

The **Multicolored Asian Lady Beetle** (*Harmonia Axyridis*) now makes its home in the United States. A native of Asia, this beneficial ladybug was imported in the early 1900's to help naturally control pest populations that were damaging such crops as alfalfa, pecan and citrus trees.

Over the past 15 years, USDA, the Forestry Commission, state and private agencies have released this ladybug in several locations in the Northeastern part of the US. The beneficial aspects of this ladybug have been quite useful in reducing the need for pesticides and have relieved the hardwood forests of many disease carrying aphids, mites and scale insects.

**\*\*Releases are no longer taking place.\*\***

The Asian Lady Beetle is much like the native species found through the United States. They are small, hemispherical in shape, and can be found with and without spots. Their colors may vary from red, and orange to a dull cream. However, unlike the native species, this ladybug can be quite aggressive. Masses of ladybugs have been known to swarm and even bite when seeking shelter for the winter months. In this regard, they have been an unwelcome guest for homeowners that don't find them to be good luck at all, but rather a nuisance.

The multi-colored Asian Lady Beetle goes through four stages in its life cycle. Female adult lady beetles lay eggs on plants near colonies of aphids, mites and scale insects. Yellow eggs are laid in clusters of varying numbers. After 3-7 days, the larva hatch out and begin searching for food. A larva will molt about four times (or shed its outer layer of skin) as it grows. Sometimes after the last molt, the larva will attach itself to the plant, becoming immobile as it is now in the pupa. Depending on the environmental factors, the new lady beetle will emerge from the case. It will

look wet, shiny and often golden in color. The ladybug is very vulnerable during this time, as it waits for the exoskeleton to harden and dry revealing its true colors and markings.

Research Entomologists have been working diligently on methods to prevent ladybugs from entering the home and on ways to safely and effectively capture them once inside. Fortunately, ladybugs are not structure damaging insects. They will not eat home materials and will not lay ladybug eggs in the home. Yet, if disturbed, the ladybug will stress, releasing a yellow, smelly substance from their joints. This is known as "reflex bleeding". It is a defensive mechanism for the insect to defend itself from predators.

The best preventative is to caulk cracks and crevices around doors and windows, pipes that enter the house and replace or repair damaged clap boards. Once ladybugs penetrate the home, they typically return year after year, knowing this was a good ladybug rest. Pheromones released by past ladybugs are detected by future generations. Also, the color of a home and the location are important factors. They tend to choose light colored homes that are nestled in forest or wooded areas.

**Source: LadybugLady.com**

Who would have ever thought that such an endeared insect could cause such a commotion. Among the most familiar of beetles, they are readily recognized by their round, generally small spotted bodies. Colors range from shiny red, orange, or yellow with black markings, or black with red or yellow markings. They are all voracious predators, mostly of aphids. During the middle ages, these beetles little beetles managed to rid grapevines of insect pests hence, they were dedicated to "Our Lady". They are no less the state insect of six states in the United States. How could such a wonderful little bug suddenly fall from praised predator to insect pest? Enter the Asian Ladybug (*Harmonia axyridis*) imported into the United States by the agriculture industry to help curtail crop destroying insects. These Asians will prey on some forms of insects our natives will not touch. Unfortunately, these bugs don't like the cold weather winter brings. They chose to hibernate inside buildings, rather than under bark and leaf litter like our native Ladybugs. The invasion into some homes is so vast that people actually resort to vacuum cleaners to get rid of them. The Asian bugs have no natural enemies in North America. If you want to get rid of them, check with your state lawmakers to be sure they are not protected. To my knowledge they are not considered an endangered species, although the native Lady Bug population appears to be diminishing in some areas. All Ladybugs secrete a fluid that is foul smelling, and it is claimed foul tasting, but who do you suppose has tasted one? People often claim they have been bitten or stung by them. Lady Bugs do not have stingers. The truth is some people are sensitive to the yellow foul smelling fluid they secrete when it comes in contact with their skin.

Native

European

Asian



Convergent Ladybug

Orange wing covers, six small black spots on each, # of spots can vary to no spots. Two converging white lines on head (hence the name) Over winters in sheltered locations outdoors.



Nine Spotted Ladybug

Wing covers yellowish red or orange with 9 black spots or spotless. Body shape almost hemispherical. Over winters in hedges or leaf litter on ground.



Wing Covers orange-red with two black spots. Head and thorax black marked with yellow. Western version has a white head with an M shaped mark. Winters around buildings or other protected buildings.



Seven Spotted Ladybug

Red wing covers, 7 black spots. Over winters in hedges or leaf litter on ground.



Various colors and numbers of spots (see chart above) Over winters inside homes and buildings if they can find a place to enter.

# Ladybugs, Lady Beetles or Ladybird Beetles. How Good are They?

BY BEATRIZ MOISSET



Polished lady beetle. © Beatriz Moisset. 2012

What is in a name? Most call it a ladybug; others, ladybird or ladybird beetle or just lady beetle. Is one name more appropriate than others? Is there just one kind, or many kinds of this insect?

Scientists prefer the term Coccinellidae to include all the members of this large family of beetles. The technical name has the advantage of leaving no room for confusion.



Seven-spotted Lady Beetle (*Coccinella septempunctata*). © Beatriz Moisset. 2013

Ladybug is not entirely correct because "bugs" are insects with sucking mouth parts and simple development. "Ladybugs" are, in fact, beetles, with chewing mouth parts and with a full metamorphosis, with larva, pupa and adult, similar to that of butterflies. So the preferred common name is lady beetle.



Spotted lady beetle (*Coleomegilla maculata*). © Beatriz Moisset. 2013

Now that we settled this, we can move on. If you are thinking of just one generic lady beetle, think again. The 500 species of lady beetles in North America vary in size from a pinhead to almost half an inch. They are not all red with black dots; some are entirely black or mostly red or have a pattern of black and ochre or black and yellow.



Twenty-spotted lady beetle (*Psyllobora vigintimaculata*), adult and larva. © Beatriz Moisset. 2012

Most feed on aphids and other small, juicy insects, and we love them for that. But a few of them feed on plants, to gardeners' disappointment. A handful of species feed on mildew. The babies, or larvae, are as ugly as the adult is pretty (well, I find them beautiful anyway). They look like little alligators. If all this shocks you a little, you may want to spend a couple of minutes digesting it.



Spotted lady beetle larva (*Coleomegilla maculata*). © Beatriz Moisset. 2013

Most of those 500 species of lady beetles are native to North America; but a few dozens came from other continents. Some arrived accidentally, but others were brought to combat pests. The first one of these intentionally-introduced pest enemies was the Vedalia beetle, *Rodolia cardinalis*, brought from Australia in the 1880s to fight a non-native pest, the cottony cushion scale. This scale insect was devastating the orange groves of California.



The non-native fourteen-spotted lady beetle (*Propylea quatuordecimpunctata*). © Beatriz Moisset. 2011

The introduced lady beetle was such a resounding success that it inspired horticulturists to start using other insects as pest controls, also called biocontrols. Some of the newcomers are doing a satisfactory job, especially the ones that help control non-native green-house pests. It is too bad that sometimes we learn the hard way about unintended consequences. Not all introduced species continue to be well behaved guests. Some develop into unwanted pests themselves.



The non-native Asian lady beetle (*Harmonia axyridis*). © Beatriz Moisset. 2013

You will not like what I am about to tell you because I am sure you have seen this lady beetle and delighted in it, thinking that it is a good friend of your garden. The Asian lady



beetle, *Harmonia axyridis*, has been in North America for almost a century. It was brought from Asia because of its voracious appetite for aphids. We can't deny that it goes through them with gusto.



Asian lady beetle invasion in winter. © Beatriz Moisset. 2009

Unfortunately, its population has grown explosively since its arrival and, once established, it revealed some undesirable habits. It is larger than most native lady beetles, so it has no trouble including them into its diet, and it may be endangering some of them. The Asian lady beetle has become a nuisance in another way. When winter comes, it looks for a place to sleep, often gathering in large crowds in garages and attics. No wonder Europeans are trying hard to stop this invasion. It is too late for us, though.

The concept of using lady beetles has spread to ordinary gardeners, who see advertisements and decide to purchase some. This is not as desirable as it seems at first sight. You can find some good advice at the [North Carolina State University website](#), [University of Wisconsin website](#) and [About.com](#). Purchasing lady beetles may be unnecessary if you maintain a healthy garden (no pesticides) which invites the local lady beetle fauna. Moreover, a healthy garden welcomes other allies in the war against aphids, such as lacewings, syrphid flies and parasitic wasps.

If you still insist on buying lady beetles, beware! Most sites that sell them provide insufficient or false information. Some don't mention which species they are selling, as if all lady beetles were the same. They are not! They fail to inform you where they were collected, or whether they were bred. A few provide the wrong instructions for releasing them.



Convergent Lady Beetle (*Hippodamia convergens*). © Beatriz Moisset. 2013

Stay away from the non-native Asian lady beetle. Find the origin of the insects you buy. Just as with native plants, you want to choose the locally native ones. Convergent lady beetles are usually harvested from their wintering sites in California. The lady beetle market may represent a threat to their populations. Moreover, these lady beetles are not inclined to stay in your garden. Their instinct tells them to fly away from the crowd that was sharing their wintering places. Few or none will remain in your garden. Also, these transported lady beetles may carry pests and introduce them to new places.

We may go on loving lady beetles and being grateful for their services. Let us love the native ones and make the effort to create the right habitat for them, including some sustenance, as Christy Peterson reminds us with a touch of humor.



Larva of a giant lady beetle, *Anatis* sp. I see beauty in this ugly little thing. © Beatriz Moisset.

2013



Eggs of unidentified lady beetle amidst a colony of aphids, also a beautiful sight. © Beatriz Moisset. 2013

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Source: <http://nativeplantwildlifegarden.com/ladybugs-lady-beetles-or-ladybird-beetles-how-good-are-they/>



The Asian Lady Beetle. Photo by Scott Bauer/USDA

Ladybugs are the subject of nursery rhymes (lady bug, lady bug, fly away home...), the name of a girls' soccer team of movie fame, and considered a good luck symbol by many. They are beneficial insects because they feed on plant pests and they live outdoors ... usually.

While most ladybugs are harmless and good for the environment, the recently introduced Asian Lady Beetle is an exception.

## The Difference Between Good and Bad Ladybugs

At a quick glance, this ladybug species can be difficult to distinguish from its beneficial cousins, partly because its color can vary from light tan or orange to bright red. But a more thorough inspection gives away its differences: primarily that of a white marking behind its head in the openings of what looks like a black M. Some Asian Lady Beetles have dark black spots, while others have very light spots or none at all.

The beetle was purposely introduced into the U.S. from Asia in the latter half of the 1900s by the U.S. Department of Agriculture (USDA) as a means of controlling agricultural pests, such as aphids and scale insects. The USDA released the lady beetles in Georgia, South Carolina, Louisiana,

Mississippi, California, Washington, Pennsylvania, Connecticut and Maryland, and since then it has migrated so that it is now found throughout most of the U.S.

In addition to this intentional introduction, beetles have also been accidentally introduced to the U.S. on freighters, which is likely to also have caused or magnified the current continental distribution.

Since their introduction, however, the not-so-beneficial aspects of this species of ladybug have been realized:

- Like boxelder bugs and stink bugs, Asian Lady Beetles will crawl into cracks and crevices of the home – of eaves, siding, or even the foundation – to overwinter between the walls. They then often emerge into the warmth of the home at various times throughout the winter.
- Once inside, they will crawl or fly around rooms, on windows and walls.
- The presence of numerous such insects in the home can be unpleasant enough. But, if disturbed, these beetles also put out a noxious odor and emit a yellowish fluid that can stain walls, furniture, and other surfaces on which they crawl.
- Some people can have allergic reactions to the presence of the beetles, particularly if there is a large infestation. Allergenic reactions can vary from eye problems, such as conjunctivitis (or "pink eye"), hay fever, cough, asthma, or hives. Reactions can be triggered by handling of the beetles then touching one's eyes, or simply by being around a large or lengthy infestation.
- Asian Lady Beetles can be aggressive and bite if they land on the skin. This can be a defensive move or simply its natural tendency to bite and eat other insects and/or seek moisture.
- Although the lady beetles do help rid gardens of plant pests, they can become a problem in vineyards, where they can end up being "collected" along with the grapes resulting in an off taste in the wine from the beetle's emitted odor.

## **Control Ladybugs**

The best way to control ladybugs is through pest-proofing measures to prevent them from entering your home, including sealing of cracks around windows, doors, utility wires and pipes, and vents, as well as in siding, eaves, and the foundation. Ensure that all doors and windows are tightly fitted and screening is in good repair.

Once inside your home, the ladybugs can be vacuumed or trapped with sticky tape. To avoid staining and odor, do not try to swat or squash the bugs. There are pesticides that also can be used to supplement control efforts, particularly if you have encountered persistent, large infestations of multicolored Asian lady beetles. Recommendations are discussed in the Ohio State University Extension Fact Sheet: Multicolored Asian Lady Beetle (Sections: Outside the Home/Inside the Home).

**Sources:** Asian Lady Beetle Infestation of Structures by Michael F. Potter, Ric Bessin, and Lee Townsend, Extension Entomologists, University of Kentucky College of Agriculture. Information also cited from The Ohio State University Extension.