



ASIAN LADY BEETLE INFESTATION OF STRUCTURES

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People first started reporting large aggregations of lady beetles (ladybugs) on homes and buildings in Kentucky during the fall of 1993. Ladybugs are normally considered beneficial insects because they feed outdoors on aphids and other harmful plant pests. However, these beetles are congregating on the sides of buildings, and if given the opportunity, moving inside. Lady beetles do not sting or carry diseases, nor do they infest food, clothing, or wood. Nonetheless, this particular species (*Harmonia axyridis*) can become a nuisance when large numbers begin crawling on windows, walls, light fixtures, and other indoor surfaces. When disturbed, they also secrete a foul-smelling orange-colored fluid that can spot and stain walls, carpeting, and other surfaces.

Where Did They Come From?

H. axyridis, sometimes known as the Asian Lady Beetle, is new to Kentucky. Our earliest records date back to a few specimens collected in Hickman County in 1992. The beetle is native to eastern Asia, where it is an important predator of scale and aphid pests on trees. Over the years, several states, including Georgia, Louisiana, Texas, Mississippi, Maryland, Ohio, and Pennsylvania, have attempted to establish the beetle as a natural control agent of agricultural pests. *No such releases have ever been attempted in Kentucky, and their movement here is a natural migration from other states.* The first specimens recovered in the United States were collected in Louisiana in 1988. Since then the beetle has increased its distribution to include most areas of the United States and parts of Canada.

Description and Habits

Adult Asian lady beetles are oval, convex, about 1/4-inch long, and pale yellow-orange to dark orange-red. They often have several black spots on the wing covers, although on some specimens the spots may be indistinct or entirely absent. Most specimens have a small, dark "M"-shaped marking on the whitish area directly behind the head (Figure 1).

Eggs are yellow, oval-shaped, and typically laid in clusters on the undersurfaces of leaves. The developing larvae are often red and black and shaped like tiny alligators. Larvae

complete their development on plants where their food is abundant. The immobile pupal (cocoon) stage remains attached to vegetation by its molted skin, but occasionally may

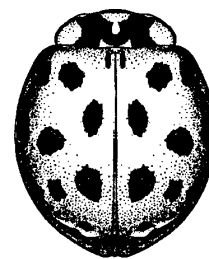


Figure 1. Adult H. axyridis. Note the small, dark "M"-shaped marking behind the head.

be found clinging to exterior walls and foundations of buildings. The average time from egg to adult is about one month, and there are multiple generations per year.

The millions of forested acres throughout Kentucky provide a vast habitat for *H. axyridis*, which is abundant on trees such as apple, pine, oak, maple, and yellow poplar. The beetle also inhabits ornamental and agricultural crops including roses and tobacco. Throughout the spring and summer, the larvae and adults feed mainly upon aphids.

Movement Into Buildings

As autumn approaches, the adult beetles are attracted to buildings or rock outcroppings (their natural aggregation sites) in search of protected places to overwinter. In Kentucky, movement to buildings generally begins in October, continuing through mid-November.

Preliminary research indicates that the beetles fly well above the tree tops, and are able to detect preferred aggregation sites from long distances (at least several hundred yards).

While the beetles tend to be more attracted to lighter colored buildings, illumination or brightness appears to be an even stronger attractant than color. For this reason, beetles tend to initially congregate on the sunnier (southwest) side of most buildings. Homes or buildings that are not brightly illuminated by sun, especially if shaded on the southwest side, are less likely to attract lady beetles.

Because the Asian lady beetle is a tree-dwelling insect, homes and buildings in forested areas are especially prone to infestation. Suburban and landscaped industrial settings adjacent to wooded areas have also had large lady beetle aggregations.

Once the beetles land on the sunny side of the building, they attempt to locate cracks and other dark openings for hibernation sites. These locations may ultimately be on any side of the structure. Common overwintering sites include cracks and crevices around window and door frames, porches, garages and outbuildings, beneath exterior siding and roof shingles, and within wall voids, attics, and soffits. Structures in poor repair or with many cracks and openings are especially vulnerable to problems.

As temperatures warm in late winter and spring, the hibernating beetles once again become active. Adult reemergence often occurs sooner on the sunnier, southwest side of the structure. As the awakening beetles attempt to escape to their natural habitat outdoors, some inadvertently disperse inward through cracks and openings around door and window casings, underneath baseboards, from above false ceilings, and around light fixtures and ventilators. Since ladybugs are attracted to light, they are often drawn toward windows and light fixtures.

Ladybug Management

Ladybugs are very beneficial in nature because they help maintain landscape and agricultural pests at non-damaging levels. As spring approaches, beetles overwintering in and around structures will again disperse outdoors to play their important role as beneficial insects. Lady beetles unable to find their way outside will eventually succumb to a lack of food and die.

As noted, lady beetles do not injure humans, nor can they breed or reproduce indoors like fleas or cockroaches. Nonetheless, some people will not tolerate insects *of any kind* in their homes. Hospitals, food processors, and similar hygienic establishments have zero tolerance for contaminants of any kind, including insects. Given these varying levels of tolerance, we offer the following management options.

Vacuuming

The easiest way to remove ladybugs, once they are indoors, is with a vacuum cleaner (Figure 2). If you wish to subsequently release beetles outside place a handkerchief between the vacuum hose and the dust collection bag to act as a trap. A broom can also be used to remove beetles indoors, but is more likely to cause staining. (The orange-colored fluid that the beetles secrete when picked up or disturbed is harmless, but will stain walls and other surfaces.)

Pest Proofing

Because *H. axyridis* seeks out overwintering sites in the fall, exterior cracks and openings can be sealed as a long-term, preventive measure.

- Adjust or install tight-fitting door sweeps or thresholds at the bottom of all exterior entry doors. Gaps of 1/8" or less will permit entry of lady beetles and other insects. Garage door



Figure 2. A vacuum cleaner is recommended for indoor removal.

bottoms should be fitted with a bottom seal constructed of rubber (vinyl seals poorly in cold weather). Gaps under sliding glass doors may be sealed with foam weatherstripping.

- Seal utility openings where pipes and wires enter the foundation and siding, e.g., around outdoor faucets, receptacles, gas meters, clothes dryer vents, and telephone/cable TV wires. Holes can be plugged with caulk, cement, urethane foam, steel wool, or copper mesh.
- Caulk cracks around windows, doors, siding, and fascia boards (Figure 3). Use a good quality silicone or siliconized acrylic latex caulk. Although somewhat less flexible than



Figure 3. Sealing cracks and exterior openings provides long-term relief against pest entry.

pure silicone, siliconized latex-type caulks clean up with water and are paintable. Caulks that dry clear are easier to use than pigmented ones because they cover mistakes.

- Repair damaged window screens and install insect screening behind attic vents.

These practices will also help prevent entry of other pests, such as flies, mosquitoes, wasps, crickets, and spiders. Pest proofing further helps to conserve energy and increases the comfort level during winter and summer.

Insecticides

Indoor Treatment. Insecticide foggers or sprays are generally not recommended for eliminating lady beetles indoors. Beetles need to be sprayed directly, or have to crawl over treated surfaces, in order for the insecticide to be effective. Such applications create pesticide residues on walls, countertops, and other exposed surfaces. A vacuum cleaner is more sanitary and effective. Attempting to kill overwintering lady beetles in wall voids is difficult and rarely justified. Large numbers of dead insects in these areas also may attract carpet beetles and other pests of food and fiber.

Limited use of indoor insecticides may be warranted, but only in specific locations for immediate relief of heavy infestations. Aerosol-type foggers containing synergized pyrethrins might be used in attics or outbuildings, for example, but these provide negligible control of beetles that have not yet emerged from cracks, wall voids, and other protected locations. Large numbers of beetles accumulating in enclosed ceiling light fixtures would suggest the attic as a possible treatment area, but, as mentioned, insecticides are not generally recommended for treating occupied areas.

Exterior Treatment. While sealing openings is the more permanent way to deny beetle entry, comprehensive pest proofing is time-consuming and sometimes impractical. There are often too many cracks under and around eaves, siding, vents, etc., where beetles can potentially enter a home. On multi-story buildings, sealing becomes still more difficult.

If a household or business continues to be infested by lady beetles, owners can enlist the services of a professional pest control firm. Many companies offer insecticide treatment of the building exterior, which helps to prevent pest entry. Fast-acting, residual formulations of synthetic pyrethroids (e.g., cypermethrin, cyfluthrin, lambda cyhalothrin, deltamethrin) can be applied around eaves, attic vents, windows, doors, siding, and other likely points of pest entry (Figure 4). The key is to initiate such treatments in late September or early October, *before* the beetles enter buildings to overwinter. Once the beetles are indoors (i.e., winter/early-spring), such treatments would be ineffective.



Figure 4. Pest control operator performing an exterior treatment.

Closing Remarks

Lady beetle infestation of homes and buildings is a sporadic event. It is not yet known what percentage of homes and buildings currently experiencing problems will again be infested the following year. Vacuuming and sealing are the preferred methods of dealing with lady beetles infesting structures in Kentucky. Insecticides should be considered only when the situation warrants, and prescribed as indicated above.

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