

# PEST ALERT: Viburnum Leaf Beetle

The viburnum leaf beetle, *Pyrrhalta viburni* ("VLB"), was first found in North America in 1947 in Ontario, Canada. In 1996 it was discovered in a park in New York, where native plantings of arrowwood (*Viburnum dentatum* complex) were found to be heavily damaged by larval feeding. Many of these shrubs were nearly totally defoliated, and only wisps of skeletonized leaves remained on the branches. The first North American breeding populations of this European leaf beetle were discovered in 1978, in the Ottawa/Hull region of Canada, where they were causing severe defoliation of ornamental viburnums, particularly the popular European cranberrybush viburnum (*V. opulus*).

## Distribution

Viburnum leaf beetle was first discovered in Massachusetts in 2004. Surveys have since detected its presence in most counties in the state. This species has also been found Maine Connecticut, New Hampshire, Vermont, New York, Pennsylvania and Ohio.



Viburnum leaf beetle larva

Source: Paul Weston, Cornell University

## Identification

Adult viburnum leaf beetles are 4.5-6.5 mm long, with females larger than males. Their dorsal surface has small, dense punctures, and the space between punctures is somewhat wrinkled, with thick, golden-grey pubescence. The head, thorax, and elytra (wing covers) are brownish, but the shoulders of the elytra are darker. Larvae are 10-11 mm long when mature, vary in color from pale green to pale orange or yellow, and are covered with a pattern of black dots and dashes. They feed gregariously on viburnum



An adult Viburnum leaf beetle (actual size approx. 5mm long).

Source: Paul Weston, Cornell University

foliage. Skeletonized leaves in the spring (May-June), heavily chewed leaves in the summer (July-September), and terminal twigs with characteristic egg "caps" arranged in straight rows (throughout the summer) are characteristic of a viburnum leaf beetle infestation.

## Life Cycle and Habit

In Europe and North America, viburnum leaf beetle overwinters in the egg stage. From late June to early July through October, females chew holes (1 x 1 mm) in small branches or twigs of viburnum (generally the current year's growth, but occasionally in the previous year's growth) for oviposition. These egg sites -- deep, rounded cavities -- are often arranged in a straight row on the under surface of the terminal twig. Several eggs (average of five) are inserted into each cavity. In excavating each egg site, the female chews away the bark, splits the wood into small fibers that remain attached to the upper circumference of the area that was chewed away, and hollows out the egg cavity by excavating the pith. After filling the cavity with eggs, the female closes the opening by making a "cap" or lid composed of excrement, chewed bark, and cement from her collateral glands and pushing it up beneath the cluster of previously shredded wood fibers. For several weeks, the color contrast between the cap (brownish black) and the bark (green to brown) is sharp. This cap not only protects the eggs, but also sponges up

and stores water that runs down the branch, providing humidity for the eggs. A female can lay up to 500 eggs. By early to mid-May of the following spring, the eggs hatch and the larvae feed gregariously on the underside of tender, newly expanding viburnum foliage. Larvae skeletonize viburnum foliage, usually starting with lower leaves and leaving only midribs and major veins intact. By early to mid-June, mature larvae crawl to the ground, enter the soil, and pupate. By early July, adults emerge and begin to feed on viburnum foliage. Complete development from egg hatch to adult emergence generally takes 8 to 10 weeks. Adult feeding damage consists of irregular circular holes, and severe feeding can nearly defoliate shrubs.

From summer through fall, adults will continue to be active, mating, laying eggs on terminal twigs, and feeding upon foliage, until the first killing frosts. There is one generation per year.

## Host Plants

This leaf beetle is restricted to feeding on species of Viburnum. It exhibits a strong preference for the popular arrowwood viburnums (*V. dentatum* complex), European cranberrybush (*V. opulus*), American cranberrybush (*V. trilobum*), and Rafinesque viburnum (*V. rafinesquianum*). Other viburnums also known to serve as hosts include Sargent viburnum (*V. sargentii*), wayfaringtree viburnum (*V. lantana*), nannyberry (*V. lentago*), and blackhaw viburnum (*V. prunifolium*).

Particularly resistant species include Koreanspice viburnum (*V. carlesii*), Burkwood viburnum (*V. burkwoodii*), doublefile viburnum (*V. plicatum* var. *tomentosum*), Judd viburnum (*V. x juddii*), lantanaphyllum viburnum (*V. x rhytidophylloides*), and leatherleaf viburnum (*V. rhytidophyllum*).

## Economic Impact

Heavy infestations by viburnum leaf beetle can defoliate shrubs, cause dieback, and eventually kill plants. Plantings of European cranberrybush can be especially ravaged by larval and adult feeding. In addition to heavy foliar damage, inflorescences may be fed upon by larvae. Shrubs repeatedly defoliated over a period of two to three years are likely to die.

## What to do if you have Viburnum Leaf Beetle:

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- **Isolate any infected plants** (remove from sales area).
- Treat viburnums depending on the life stage of the beetle:
  - Twigs with egg masses can be pruned and destroyed while beetles are inactive (October-April)
  - Horticultural oil sprays applied to egg laying sites may reduce egg hatch by 75-80% (before leaves emerge in spring)
  - Larvae can be treated with registered pesticides, including Conserve, Orthene, Sevin, or Lorsban. (April-May, when eggs hatch)
  - Adults can be treated with Decathlon or other registered pesticides. (late June-October)
- A nursery inspector will need to revisit your site until there are no signs of infestation.

### For More Information:

- VLB Fact Sheet, Massachusetts Introduced Pests Outreach Project. <http://massnrc.org/pests/pestFAQsheets/viburnumleaf.html>
- Viburnum Leaf Beetle Citizen Science Project, Cornell University. <http://www.hort.cornell.edu/vlb/index.html>



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