

Viburnum Leaf Beetle

By The Bartlett Lab Staff
Directed by Kelby Fite, PhD

The Viburnum leaf beetle (VLB), *Pyrrhalta viburni*, is an exotic invasive pest of Viburnum species in the United States. This highly destructive pest was first detected in New York State near Lake Ontario in 1996, and since then has spread to most of NY and New England, as well as parts of NJ, PA, OH, and MI. There is also a separate population that has been introduced into the Pacific Northwest and British Columbia. The spread of this beetle to the south may be limited by the physiological requirements of eggs, which need a prolonged chilling period to hatch.

Pest

Detection of this pest may be based on feeding damage, observation of larvae or adults, or detection of the characteristic lines of egg-laying damage on twigs. The larvae of the VLB are yellow with black spotting (Figure 1). There are three larval instars per generation, and the last stage is grayer than the earlier yellow instars. The final instars are about 10-11 mm in length. Adult beetles are 4-7 mm in length, and are mostly brown with golden-gray hair on the upper (dorsal) surface.

Figure 1: Larvae



Damage

Feeding by the VLB results in leaf skeletonization and total defoliation of the host plant, and heavy infestations leading to complete defoliation can kill the

plant in just 2-3 years. Both larvae and adults feed on viburnum foliage, and damage caused by both stages is similar. Field observation indicates that some species are more susceptible to attack than others (Table 1), but in general, the VLB prefers the more glaucous (hairless) varieties of viburnum. Native arrowwood viburnum (*V. dentatum*) is highly susceptible to this pest.

Life Cycle

Eggs of the VLB are laid in twigs, usually on the bottom side of current season's growth. The female chews shallow depressions in the twigs where she

Figure 2: Eggs deposited on twig



deposits several eggs, and then covers them with chewed plant material (Figure 2). Females create many oviposition wounds, usually in a linear arrangement, and can lay up to 500 eggs each season.

Table 1: Relative susceptibility of Viburnum species to VLB attack (adapted from Cornell University’s Viburnum Leaf Beetle Citizen Science Project)

Most susceptible to VLP
<i>V. opulus/trilobum</i> - European cranberry bush viburnum
<i>V. dentatum</i> - arrowwood viburnum
<i>V. sargentii</i> - Sargent viburnum
Moderately susceptible to VLP
<i>V. acerifolium</i>
<i>V. carlcephalum</i>
<i>V. lantana</i> - wayfaring tree viburnum
<i>V. lentago</i> - nannyberry viburnum
<i>V. macrocephalum</i>
<i>V. pragense</i>
<i>V. prunifolium</i> - blackthorn viburnum
Resistant to VLP
<i>V. burkwoodii</i>
<i>V. carlesii</i>
<i>V. lantanoides/alnifolium</i>
<i>V. plicatum f. tomentosum</i>
<i>V. rhytidiophylloides</i>
<i>V. rhytidiophyllum</i>
<i>V. sieboldi</i>

VLB eggs hatch in early spring (typically mid-April through May), and the larvae feed on foliage until early summer (June), when they move to the soil and pupate. Adults emerge from the soil in mid-summer (July), and continue to feed on the viburnum foliage. Adults feed, mate, and lay eggs until the first killing frost. The life-cycle from egg to adult is complete in 8-10 weeks, and there is one generation per year.

Management

There are several different approaches to managing VLB. Planting resistant species will help limit the ability of the pest to thrive and reproduce. Natural predators such as lady beetles (larvae and adults) and lacewings feed on the VLB larvae. Removal of twigs bearing VLB eggs is also an effective cultural method to reduce populations.

Natural pesticides such as spinosad, horticultural soaps, or organic pyrethrins give effective contact control over larvae, and horticultural oil has been shown to smother eggs and limit emergence by 75% or more. Systemic insecticides are also very effective and treatment with soil-applied systemic products will reduce the impact on non-target and beneficial organisms.



Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company’s services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.