



Viburnum Leaf Beetle

Pyrrhalta viburni Paykull (Coleoptera: Chrysomelidae)

Introduction:

The Viburnum leaf beetle (VLB) is an invasive insect pest native to Eurasia that was probably brought into North America on imported nursery plants. It was first detected in 1947 in Ontario, Canada, and then in 1978 a breeding population was discovered in the Ottawa-Hull area of Canada. From there VLB spread southeast into the U.S. It is thought that VLB may readily become widespread in North America due to the favorable climate and widespread availability of host plants. VLB feeds voraciously on many species of viburnums, heavily damaging and defoliating this popular landscape shrub.

North American Distribution/Spread:

After its initial detection in Canada, VLB spread into Maine (1994) and New York State (1996). In 2001 VLB was detected in British Columbia, and spread rapidly south into Washington State. VLB is now found in many areas of Ontario, the Canadian Maritime Provinces, and in parts of Maine, New York, Vermont, New Hampshire, Massachusetts, Connecticut, Pennsylvania, Ohio and Washington State. Recent studies indicate that its southern expansion may be limited by mild winters, as VLB eggs require a prolonged chilling period to hatch. The beetles spread naturally by flight, and long distances artificially through people moving infested nursery stock into non-infested areas.

Host Plants:

VLB adults and larvae feed on native and exotic species of viburnum in both natural and managed landscapes. Though they show a preference for species with little hair on the foliage, they are severely damaging on many of the approximately 150 known species of viburnum. Dr. Paul Weston of Cornell University categorized commonly grown viburnums into four categories of susceptibility, which may be accessed at:

<http://www.hort.cornell.edu/vlb/suscept.html>.

Biology and Damage:

VLB completes one generation each year and overwinters in the egg stage, requiring a chilling period of about five months before hatching. Immature larvae hatch out in early to mid-May when viburnum leaf buds open, and feed in groups between the veins on the underside of tender, newly expanded leaves. Larvae skeletonize the leaves, consuming leaf tissue but leaving midribs and major veins intact. VLB is the only pest known to cause this type injury to viburnums.

Larvae pass through three instars during development, and as they get older they also feed on the tops of leaves. Both larvae and adults may drop off the leaf if disturbed. By early to mid-



Adult VLB: small (~1/4"), generally brown with golden sheen in sunlight.

June, mature larvae crawl down the plant stem and burrow into the soil to pupate. Adult VLB begin to emerge about ten days later in early July, and begin feeding on viburnum foliage, leaving oblong shaped "shot" holes chewed through the leaves. Adult VLB actively feed, migrate to new bushes, mate, and lay eggs until the first killing frost.

Adult females begin laying eggs soon after emergence and each may lay as many as 500 eggs. The female chews multiple pinhead-sized, round cavities into the underside of a small branch or terminal twig, typically arranged in a straight row. Into each cavity she inserts an average of five eggs, then seals the cavity with a "cap" made of chewed bark, excrement and mucous, which hardens upon exposure. The cap protects the eggs and absorbs water to maintain the proper humidity for egg development. For several weeks there is a sharp contrast between the colors of the cap (brownish black) and the bark (green to brown).

Identification:

- Adult VLB are 1/5 to 1/4" long (4.5-6.5 mm). Females are larger than males.
- The head, thorax and wing covers are generally brown; the shoulders of the wings are darker.
- Adults have a golden sheen due to dense, golden-grey hair covering the back.
- Newly hatched larvae are tiny (~1/25-1/12" or 1-2 mm long), greenish-yellow to off-white, and lack spots.
- Older larvae are worm-like with legs, yellowish-brown with a pattern of dark spots along their backs, and about 2/5" long (10-11 mm).
- All stages of larvae feed gregariously on viburnum foliage.



2nd (left) and 3rd (right) instar larvae showing markings down back.

What to Look For:

Both VLB larvae and adults feed voraciously on the foliage of viburnums. Viburnums grown in shade appear to suffer more feeding damage. Heavily attacked hosts can have every leaf skeletonized, causing dieback and eventual death. Plants nearly defoliated by spring feeding larvae may initiate second growth, only to be defoliated by adults feeding in summer. Defoliation 2-3 consecutive years can be fatal, and consecutive feeding of larvae and adults within a season can hasten the death of the plant.



Typical larval feeding damage: skeletonized leaves with veins left intact.

Photo credits: all images by Paul Weston, Cornell University, Bugwood.org

Symptoms of VLB infestation include:

- Skeletonized viburnum leaves in spring (May-June) from larval feeding.
- Immature larvae feeding together on undersides of young, tender leaves near empty egg-laying sites on dead twig tips.
- Older larvae feeding on tops and bottoms of leaves; larvae may drop off if disturbed.
- Many oblong “shot” holes chewed through leaves in the summer/fall by adults (see below).



- Small brown beetles dropping off or flying away from the host plant if disturbed.
- Characteristic egg “caps” (1/8 x 1/8” or 1x1 mm) arranged in straight rows on undersides of terminal twigs, seen throughout the summer, fall and winter months (see below).



How to Report a Possible Sighting/Infestation

In Maryland:

University of Maryland Cooperative Extension Exotic Pest Threats Website:

<http://hgic.umd.edu/faq/sendAQuestion.cfm>

Maryland Department of Agriculture: call 410-841-5920 to report suspect pests; visit http://www.mda.state.md.us/plants-pests/invasive_species.php for information.

Nationally: USDA-Animal and Plant Health Inspection Service (APHIS) at http://www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml

Adult VLB Actual Size:



Where to Get More Information:

UMD Cooperative Extension Exotic Pest Threats Website: <http://www.PestThreats.umd.edu/index.cfm>

Project Participants: Chris Sargent, Research Assistant; Michael Raupp, Entomologist; Sandra Sardanelli, IPM Coordinator; Paula Shrewsbury, Entomologist; David Clement, Pathologist; Mary Kay Malinoski, Entomologist.

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