Vburnum x juddii by Chris Coen

Viburnum Leaf Beetle: The Next Horticultural Disaster?

Written by Chris Coen

A burgeoning menace--a tiny brown beetle, Pyrrhalta viburni, also known as the viburnum leaf beetle--is moving southward, consuming and destroying both native and imported varieties of viburnums as it advances. Cornell University has been studying this invader, monitoring its behavior and serving as a clearinghouse for information on dealing with the infestation - you can find their webpage here: http://www.hort.cornell.edu/vlb/, including photos of the beetles, larvae and eggs.

The beetle, a European native which appears to have been accidentally introduced to North America through Canada, was first encountered in Maine in 1994 and in New York, along the shores of Lake Ontario, in 1996. Its larvae infest and skeletonize susceptible plants before pupating in the soil and then arising in midsummer to begin the cycle over again. Subsequent infestations weaken the plants until eventually they die. Females lay eggs in tiny holes drilled along the twigs of the host plants, leaving identifiable scars which we in the Virginia nursery and landscape trades should familiarize ourselves with, as the most recent data indicates the beetle has spread as far southward as Harrisburg PA and parts of New Jersey.

Viburnum species known to be susceptible to the beetle include the following, divided into degree of susceptibility according to data collected by entomologist Dr. Paul Weston, formerly of Cornell University, and his staff:

Very susceptible:
-- V. dentatum, Arrowwood viburnum
-- V. nudum, Possomhaw or smooth witherod viburnum
-- V. opulus, European cranberrybush viburnum
-- V. opulus var. americana, formerly V. trilobum, American cranberrybush viburnum
-- V. propinquum, Chinese or Taiwanese viburnum
-- V. rafinesquianum, Rafinesque viburnum

Susceptible:
-- V. acerifolium, mapleleaf viburnum
-- V. lantana, wayfaringtree viburnum
-- V. rufidulum, rusty or southern blackhaw
-- V. sargentii, Sargent viburnum
-- V. wrightii, Wright viburnum

Moderately susceptible:
-- V. alnifolium (V. lantanoides), hobblebush
-- V. burkwoodii, Burkwood viburnum
-- V. x carlcephalum, Carlcephalum viburnum
-- V. cassinoides, witherod viburnum
-- V. dilatatum, linden viburnum
-- V. farreri, fragrant viburnum (except 'Nanum', which is highly susceptible)
-- V. lentago, nannyberry viburnum
-- V. macrocephalum, Chinese snowball viburnum
-- V. x pragense, Prague viburnum
-- V. prunifolium, blackhaw viburnum
-- V. x rhytidophylloides, lantanaphyllum viburnum
-- V. tinus, laurustinus viburnum

Mostly resistant:
-- V. bodnantense, dawn viburnum
-- V. carlesii, Koreanspice viburnum
-- V. davidii, David viburnum
-- V. x juddii, Judd viburnum
-- V. plicatum and V. plicatum var. tomentosum, doublefile viburnum
-- V. rhytidophyllum, leatherleaf viburnum
-- V. setigerum, tea viburnum
-- V. sieboldii, Siebold viburnum

(source: http://www.hort.cornell.edu/vlb/suscept.html)

What can you do to help stop the spread of this pest? First, know what an infestation looks like. The beetles and their larvae are very small--about one quarter inch long--but tend to be found in large numbers. The eggs are best spotted when the plants are leafless, in the fall and winter; look for matchhead-sized brown caps studding the undersides of young twigs. When the larvae are feeding, you will see skeletonized leaves, often with holes that cross leaf veins but leave the veins themselves intact. See photos at the Cornell site (*http://www.hort.cornell.edu/vlb/id.html*).You can report any beetles you do encounter on Cornell's blog here: *http://blogs.cornell.edu/hort/2009/05/22/viburnum-leaf-beetle-invading-nyc/#respond*. There's also a time-lapse video of the larvae foraging on that blog.

Based on feedback from professionals and homeowners, the beetle can be controlled in several ways. If you spot egg cases on viburnum twigs, you can prune out those twigs and destroy them; Dr. Weston confirms this as the most effective means of control, although it is somewhat labor intensive. Additionally, early season use of high concentrations (4%) of horticultural oil before the plants leaf out and use of insecticidal soaps on recently hatched larvae, especially during dry periods, have proven very effective. Weston reports a 75-80% reduction in egg hatch following use of horticultural oil applied to egg-infested twigs 2 weeks before expected egg hatch. Both methods avoid harm to beneficial insects which prey on the viburnum leaf beetle, specifically, larvae and adults of the multicolored Asian lady beetle, larvae of lacewings, and spined soldier bugs (all of which are commercially available for application). Because the larvae crawl down the trunk to the soil (rather than simply falling off the shrub) when they are ready to pupate, use of sticky traps to catch them may also prove effective.

Top: *Skeletonized Viburnum leaves, beetle larvae present. Courtesy of Jennifer Schlick. More info at http://www.flickr.com/photos/jenniferschlick/522306598/in/photostream/*

Bottom: *Viburnum leaf beetle egg cases. Courtesy of Christopher Tracey. More info at http://www.flickr.com/photos/ctracey/3377220485/in/photostream/*

Left: *Viburnum x juddii in full autumn glory. Courtesy of Chris Coen.*

Additionally, and potentially of more use to those with large viburnum collections or nurseries where logistics demand efficiency, there are many insecticides registered for use against the larvae. Weston suggests soil-applied imidacloprid as "by far the best control with fairly minimal environmental impact (since the insecticide is confined to the soil surrounding the plant)."

As landscape designers, we have another means of control at our disposal: careful selection of resistant species in our designs. The susceptible species above read like the viburnum all time favorites list. While the beetle has not yet been identified in Virginia, the infestation is rapidly working its way southward--the beetle has already been documented throughout New England and in Michigan, Ohio, Pennsylvania and New Jersey, and has recently

been identified in Washington State. There is indication that the beetle's southward spread may be limited by warm winter weather, as the eggs require a prolonged chilling period, but most of Virginia provides the necessary chilling temperatures. You may wish to be cautious in your choice of species for the projects you design and install, and continue to monitor professional journals on the subject.

Resources:

The Impact of Viburnum Leaf Beetle on Native Arrowwood, Weston, Paul and Victoria Nuzzo, Department of Entomology, Cornell University, September 2008.

Viburnum Leaf Beetle: Biology, Invasion History in North America, and Treatment Options, Weston, Paul, Gaylord Desurmont, and E. Richard Hoebeke, American Entomologist, Summer 2007.

http://pest.ceris.purdue.edu/searchpest.php?selectName=INAMGUA - Webpage on the viburnum leaf beetle maintained by the National Agricultural Pest Information System, including a current map of the known distribution of the beetle.

http://www.dkbdigitaldesigns.com/galleryweeklyreport/Images/pyrrhalta_viburnicola_eggs.jpg - Close-up photo of the egg cases of viburnum beetles.

http://www.agmkt.state.ny.us/caps/pdf/VLB%20Poster%2008.pdf - An excellent PDF-based poster with photos of the beetle and its larvae.

http://www.entnemdept.ufl.edu/creatures/orn/beetles/viburnum_leaf_beetle.htm - Webpage managed by University of Florida's Dept. of Entomology and Nematology, summarizing scientific data on the beetle and its spread. This particular page has a detailed bibliography for those inclined to further research.

[i] Dr. Weston's research shows that V. dentatum is perhaps the most susceptible of all the viburnum species

MEMBER PHOTOGRAPHS

Submitted by Virginia Rockwell, Gentle Gardener Green Design

Before and after shots of a pool terrace at a private residence in Keswick Estates. This garden was viewed by many members during the VSLD summer tour 2008 in Charlottesville. Thanks to Virginia for submitting the photos!