

Azalea Lace Bug

Management In Urban Landscapes

Photo: MOROROPHOTO via flickr.com

Introduction & Purpose

Azalea lace bug, *Stephanitis pyrioides*, is in the Tingidae family of insects.¹ Azalea lace bug is the most damaging species in its genus that is associated with landscape plants. This pest is a major concern in the nursery industry because of the aesthetic damage it causes to plant foliage.¹

The purpose of this guide is to provide growers and landscapers with information for the identification, detection, prevention, and sustainable removal of azalea lace bugs. A worksheet is included at the end of this guide that outlines the scouting process.

Biology & Identification

Eggs

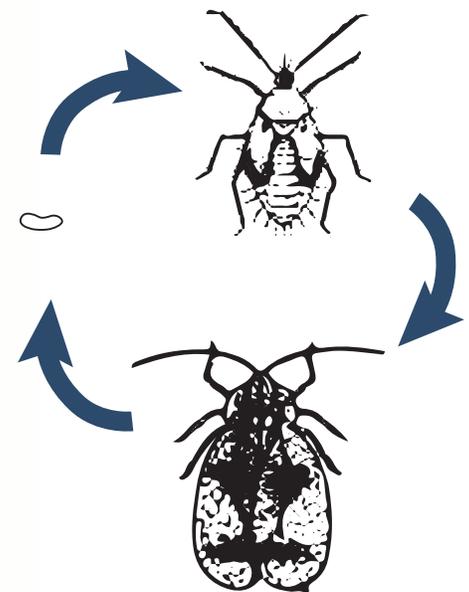
Azalea lace bug adults may lay upwards of 300 eggs in a season at a rate of five to seven a day.² Eggs laid in the fall overwinter inside the stem at the base of the plant's leaves.⁹ When scouting for azalea lace bug eggs, close attention should be paid to leaf veins on young leaves where other generations of eggs are most likely to occur.⁵ Eggs look like brown raised spots⁵ and will often be accompanied by black specks of excrement.^{2,6}

Nymphs

Azalea lace bug nymphs are 0.4 mm to 1.8 mm long. Their bodies are nearly transparent after hatching, then become yellow-green. Soon before becoming adults, nymphs will appear black and spiny.^{2,3}

Adults

Azalea lace bug adults may overwinter in leaves below plants.⁵ They are 1/8th to 1/16th inch wide and 1/4 inches long, and their bodies are light to dark brown in color with characteristic white and black patterns on wings resembling lace.^{2,3}



Characteristic Traits

Azalea lace bug nymphs will shed skin six times before becoming adults.³ Their excrement is often described as tar-like due to its black, dry and shiny characteristics.^{2,3} Note that depending on the time of year, you may see all life cycles of the azalea lace bug—including eggs, shed skin and excrement—on the underside of leaves.



Lace bug eggs covered by excrement
Photo: Robin Rosetta, Oregon State University

Life History & Habitat

Unlike rhododendron lace bugs (*Stephanitis rhododendri*) which only have one generation per growing season, azalea lace bugs may have two to four generations.² Azaleas, including rhododendrons, are particularly vulnerable to attack and serve as ideal habitat for azalea lace bugs while they complete their life cycle. Mountain laurel (*Kalmia spp.*) and andromeda (*Pieris spp.*) are other plants in the landscape that azalea lace bugs damage.^{2,3} This resource may be adapted to manage rhododendron lace bugs and other lace bugs that attack a wider variety of plants as well as managing azalea lace bug in suburban and rural landscapes.

Scouting | Detection & Monitoring

Overwintered azalea lace bug eggs tend to hatch sometime between mid-May through mid-June, but may hatch sooner.⁷ The first generation will hatch as weather warms up, but growth will be slowed by cooler periods. Start scouting in early April and repeat every two to three weeks throughout the growing season to ensure early intervention. Research on azalea lace bug has shown it takes 22 days at 30°C (86°F) to 97 days at 15°C (59°F) from egg to adult.^{2,7}

Spring

Azalea lace bug eggs laid in the fall will overwinter in the stem so early spring scouting should focus on detection of young nymphs. Treatment should be implemented at first detection of nymphs and repeated as needed (approx. every 1-3 weeks) to prevent leaf damage and ensure ideal blooming potential.

Summer

When summer scouting look for signs of azalea lace bugs such as leaf damage. This includes yellowing or lightening of part or entire leaf surfaces. In early summer, azalea lace bug eggs can be found along the veins of mature leaves. It is important when looking for nymphs and adults that they be treated accordingly to prevent future generations.

Fall

Azalea lace bug damage is the most apparent in early to mid-fall. It is paramount that monitoring continues to determine severity of azalea lace bug damage and that treatments are adaptable.

Winter

When preparing for winter, remove all damaged plant parts back to the lowest leaf bud and dispose of trimmings in a closed bag or burn. This is important to limit successful overwintering of azalea lace bugs.

Damage

Plant damage is caused when azalea lace bug nymphs and adults use their piercing/sucking mouthparts to feed from the underside of leaves. Early signs of leaf damage include yellow and green stippling with severe damage resulting in all or part of the leaf turning white or brown, drying and dropping. After the leaves have yellowed, the veins may still be green.

Visual impact of plant damage may be recognized by the public after 2% of leaves are impacted.⁴ Plants with over 14% leaf damage will likely not grow or produce flowers.^{2,4} Extreme or unmanaged populations may result in the death of plants, particularly those plants already experiencing water, heat or soil nutrient pressures.^{2,5}



Sustainable Treatments & Prevention

Early season treatment of first generation lace bugs is most effective. Nymphs are the most susceptible to insecticidal soap, horticultural oil, diatomaceous earth, microbial and botanically-based products. When used correctly these treatments with multiple applications can be up to 90% effective.^{2,3}

Spraying undersides of leaves with water,^{5,8} enhancing the surrounding landscape with other flowering plants and trees to reduce heat stress^{2,3,9} and promoting natural biological control predators (azalea plant bug, tree crickets, earwigs, minute pirate bugs, and spiders)^{3,5,8} may be effective strategies to prevent severe outbreaks of azalea lace bug. In a greenhouse study, green lacewing larvae purchased as a biological control agent resulted in 79%-97% control of azalea lace bug nymphs.³

There are several ways to prevent new infestations of azalea lace bug. The guidelines that follow outline what you can do to proactively manage your landscape plants.

1. It is important to consider and use caution when purchasing and installing new plants as some cultivars are considered less susceptible to infestation by azalea lace bugs.⁷
2. Nursery studies have shown that wood mulch use correlated with reduced azalea lace bug pressure, while added nitrogen fertilization appeared to increase their attractiveness.⁷
3. Keeping the ground under susceptible plants close to bare over the winter may help prevent the survival of adults.⁵

See the Pesticide Information Center OnLine Database for certified organic pesticides: picol.cahnrs.wsu.edu/

References

1. Gyeltshen J, Hodges A. Common name: azalea lace bug [Internet]. University of Florida Entomology & Nematology: Featured creatures; 2006 May, revised 2019 Jan [cited 2020 Jun 15]. Available from: http://entnemdept.ufl.edu/creatures/orn/shrubs/azalea_lace_bug.htm
2. Rosetta R. Azalea lace bug: biology and management in commercial nurseries and landscapes [Internet]. OSU Extension Service: OSU Extension Catalog; 2013 Jul [cited 2020 Apr 21]. Available from: <https://catalog.extension.oregonstate.edu/em9066>
3. Smith-Fiola D. Lacebugs: life cycle, monitoring, and pest management in New Jersey [Internet]. New Jersey Agricultural Experiment Station: Rutgers Cooperative Research and Extension; 2001 Sep [cited 2020 Apr 21]. Available from: <http://njaes.rutgers.edu/pubs/publication.asp?pid=FS783>
4. Klingeman WE, Braman SK, Buntin GD. (2000). Evaluating grower, landscape manager, and consumer perceptions of azalea lace bug (Heteroptera: Tingidae) feeding injury. *J Econ Entomol* [Internet]. 2000 Feb [cited 2020 Apr 21];93(1):141-148. Available from: <https://doi.org/10.1603/0022-0493-93.1.141>
5. Dreistadt SH. Pest notes: Lace bugs [Internet]. UC Agriculture and Natural Resources: Statewide Integrated Pest Management Program; 2014 Mar [cited 2020 Apr 21]. Available from: <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7428.html>
6. Neal JW, Haldemann RH, Henry TJ. Biological control potential of a Japanese plant bug *Stethoconus japonicus* (Heteroptera: Miridae), an adventive predator of the azalea lace bug (Heteroptera: Tingidae). *Ann Entomol Soc Am* [Internet]. 1991 May [cited 2020 Apr 21];84(3):287-293. Available from: <https://doi.org/10.1093/aesa/84.3.287>
7. Rosetta R. Azalea lace bug [Internet]. Oregon State University: Department of Horticulture; 2009 [cited 2020 Apr 21]. Available from: http://oregonstate.edu/dept/nurspest/Azalea_lacebug.pdf
8. JS, Rosetta R. Green lacewings and water sprays for azalea lace bug control. *J Env Hort* [Internet]. December 2018 [cited 2020 Apr 21];36(4):119-125. Available from: <https://www.hrjournal.org/doi/full/10.24266/0738-2898-36.4.119>
9. Shrewsbury PM, Raupp MJ. Evaluation of components of vegetational texture for predicting azalea lace bug, *Stephanitis pyrioides* (Heteroptera: Tingidae), abundance in managed landscapes. *Environ Entomol* [Internet]. 2000 Oct [cited 2020 Apr 21];29(5):919-926. Available from: <https://doi.org/10.1603/0046-225X-29.5.919>

Azalea Lace Bug Scouting Worksheet

Location: _____ Time: _____ Weeks since last scouting: _____

Date: _____ Temperature: _____ Name of observer: _____

Directions: You should know exactly what to look for while identifying life cycle stages of azalea lace bugs. Ideally, spend a few minutes on each plant. If there are too many plants on the landscape for individualized attention, scout every third plant you come across or those exhibiting leaf damage. While scouting, be sure to take thorough notes and observations. Refer to the guide for treatment recommendations and plan accordingly.

Were nymphs found? (circle one) Yes / No

Observations:

Were eggs found? (circle) Yes / No

Observations:

Were adults observed? (circle) Yes / No

Observations:

What leaf damage was observed? (circle) Yes / No

Observations:

Recommended treatment:

Plan for executing recommended treatment:

 **King County**
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