

WOOLLY NIGHTSHADE LACE BUG

Gargaphia decoris

The history of woolly nightshade lace bugs in New Zealand

The woolly nightshade lace bug is native to South America. Permission to release the lace bug in New Zealand was granted by ERMA in 2009. The first shipment, of Brazilian provenance, was imported in 2010 from South Africa where the lace bug has been used as a biocontrol agent for the past decade. Widespread releases of the lace bug began in New Zealand towards the end of 2010, and this insect has established readily at most sites.

How would I find woolly nightshade lace bugs?

Adult lace bugs are around 5 mm long. They are pale brown with two angled black patches on their otherwise transparent wings. Their underside is black. You will need a hand lens to see the delicate sculpting on the head, thorax and wings which gives them the name "lace bug". The adults tend to cluster together and feed in groups on the leaves, and should be visible throughout the warmer months.

Female lace bugs lay batches of up to 900 eggs primarily on the underside of leaves. The eggs themselves are tiny (0.5 mm in length) but because of their dark colour the batches are conspicuous against the pale undersides of the leaves so you may be able to see them.



Nymphs



Adult lace bug

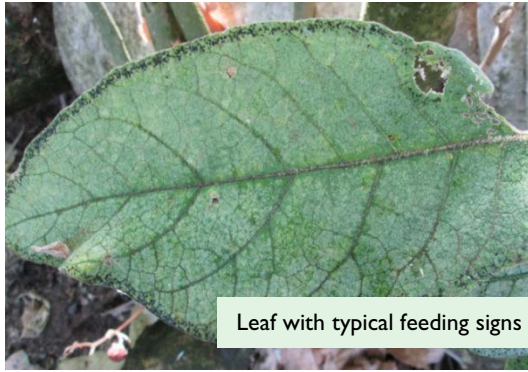
The nymphs should also be relatively easy to spot during the warmer months. When newly hatched they are almost transparent. The nymphs go through five moults. Later nymphal stages have prominent spines on their body and head and dark markings on their thorax. Wing buds become apparent from the fourth moult.

The nymphs also feed in groups on both the underside and upper leaf surfaces. They scatter if disturbed but will regroup soon afterwards. Adult females guard the eggs and young nymphs to help protect them from attack by predators or parasites. A characteristic sign of lace bug presence to look for is spots of dark frass deposited along the margin of leaves.

The woolly nightshade lace bug has a short generation time and has the potential to quickly build up large populations. At warm temperatures it takes about 30 days for an egg to become a new adult which will start mating after about 11 days. Adults are relatively long-lived and females can lay successive egg batches leading to overlapping generations..

You are unlikely to confuse the woolly nightshade lace bug with other insects. A native lace bug (*Tambyrysa cumberi*) lives on *Astelia* species and an exotic lace bug (*Stephanitis rhododendri*) can be found on rhododendrons. A sap-sucking psyllid (*Acizzia solanicola*) has recently established here and is common on woolly nightshade. The psyllid is smaller and greener than the woolly nightshade lace bug.





How do woolly nightshade lace bugs damage woolly nightshade?

Both the nymphs and adults damage woolly nightshade by feeding on the leaves. They puncture the surface and suck out the green layers beneath. This results in white chlorotic spots on the upper leaf surface. Heavy feeding causes the leaves to become bleached, dry out and fall off prematurely. Flowering and fruit production are reduced and if the attack is severe plants may die.

Will woolly nightshade lace bugs attack other plants?

Woolly nightshade (*Solanum mauritanum*) is the only species likely to be attacked by the lace bug. Host-testing has showed minor damage to egg plant (*S. melongena*) is possible but is unlikely to occur given it has never been reported in the lace bugs' native range in South America or introduced range in South Africa.

How effective are woolly nightshade lace bugs?

It is too soon to know what impact the lace bugs will have here. One damaging outbreak has already occurred in the Bay of Plenty with defoliation over a wide area. Similar outbreaks have occurred in South Africa but overall lace bug populations have remained below damaging levels due to predation. Studies have shown that the lace bugs do best at partially-shaded sites where there are fewer predators, and that they are surprisingly cold tolerant.

How can I get the most out of woolly nightshade lace bugs?

If the lace bug establishes at initial release sites it would be worth helping to establish them in all areas where they are needed. The adults can fly but are likely to disperse fairly slowly, possibly only a few kilometres per year.

How do I choose a release site?

Read *Guidelines for selecting release sites for biocontrol agents*.

How do I collect woolly nightshade lace bugs for release?

When adults and nymphs are present in good numbers cut infested leaf material and put it in a chilly bin or large paper rubbish bag. Always wear gloves when handling woolly nightshade foliage to avoid any health issues. At the new site wedge or tie the infested material firmly into woolly nightshade plants so the lace bugs can move across. Shift at least 1000 individuals to each new site at any time during the warmer months. Partially-shaded sites are best.

How do I manage the release sites?

Avoid any activities that will interfere with the lace bugs, such as herbicide application. If you need to undertake control measures then avoid the release site.



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