



## Avocado lace bug

# *PSEUDACYSTA PERSEAE*



Figure 1. Avocado lace bug adults © 2016 Masumi Palhof

### Background

The avocado lace bug, *Pseudacysta perseae* (Heidemann) (Hemiptera: Tingidae), was first described in 1908 from specimens collected in Florida (USA). For most of the twentieth century it was regarded as having a restricted distribution, primarily to peninsular Florida, and being only an occasional minor pest. However, during the last 20 years it has become a more frequent and damaging pest of avocado and dramatically expanded its geographical distribution in the Caribbean and spread to northern areas of South America (Peña *et al.*, 2012).

Within the UK Overseas Territories (UKOT) avocado lace bug was recently recorded from the British Virgin Islands and poses a plant health risk to all the UKOTs in the Caribbean where avocado is grown.

## Geographical Distribution

*Pseudacysta perseae* occurs from northern South America northwards to southern USA (Humeres *et al.* 2009).

**North America:** Mexico, USA (California and south-eastern states).

**Central America:** Guatemala.

**South America:** Venezuela, French Guiana

**Caribbean:** Bermuda; British Virgin Islands; Cuba, Dominican Republic; Guadeloupe; Martinique; Puerto Rico.

## Host Plants

*Pseudacysta perseae* is oligophagous on Lauraceae, including avocado (*Persea americana*), camphor (*Cinnamomum camphora*), red bay (*P. borbonia*) and swamp bay (*P. pallustris*).

## Description

The adults are oblong-oval and about 2 mm long. They appear distinctive with their lace-like wings being yellowish white bearing a transverse black bar, and a black head and prothorax (section of body behind the head) (Fig. 1). The wings are sometimes darker, being brownish and/or orange. The legs and antennae are pale yellow, with blackish tips. The nymphs are blackish with paler wing buds, and blunt spine-like projections emerging from the body (Fig. 1). The eggs are oval, black and have a circular lid (Fig. 2). The eggs are often hidden beneath black blobs of tar-like excrement.

*Pseudacysta perseae* is the only species in this genus, so identification to genus is tantamount to specific level. Blatchley (1926) described the genus *Pseudacysta* and provided keys to the Tingidae of eastern USA. Hurd (1946) provided a key to the lace bug genera of North America. Heidemann (1908) provided a detailed description of adults and late instar nymphs.

## Biology

*Pseudacysta perseae* is sexually reproductive, lays eggs and has five nymphal instars. It can take from three weeks in warm weather (Abud Antum, 1991) to several months in cooler conditions to complete its develop from egg to adult. It has several generations a year and all developmental stages can be found living together throughout the year. The lace bugs live in colonies, depositing eggs upright in irregular rows in groups on the lower leaf surface. The nymphs and adults only feed on the lower surface of the foliage (Moznette, 1922), which causes gradual local destruction of the plant cells, resulting in chlorotic patches (Figs 4 and 5). The lower surface of the leaf becomes covered in exuviae, spots of frass, and mould (Fig. 3), and the upper leaf surface develops yellow patches that eventually turn brown or bronze (Fig. 5).

The natural enemies of avocado lace bug have been studied in detail by Peña *et al.* (1998, 2012, and references cited therein).



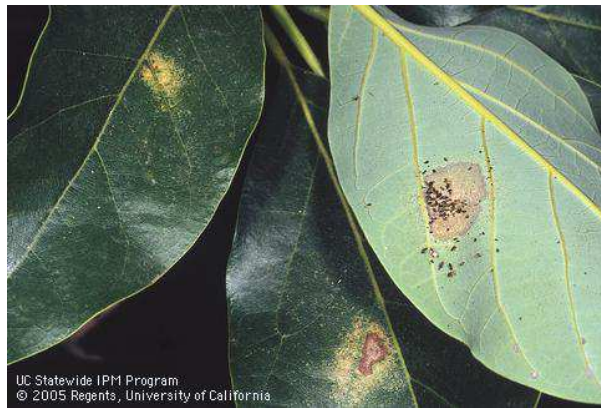
**Figure 2** Avocado lace bug adult (centre) and nymphs © James Castner, University of Florida



**Figure 3** Avocado lace bug eggs showing their distinct lids © Adrian Hunsberger, University of Florida



**Figure 4** Colony of avocado lace bug with adults, eggs, nymphs, exuviae and black faecal spots © David Rosen



**Figure 5** Avocado lace bug colony on the underside of a leaf and damage on the upper side of adjacent infested leaves © David Rosen



**Figure 6** Avocado leaf with damage to the upper surface caused by avocado lace bug © James Castner, University of Florida



**Figure 7** Avocado leaf with damage to the upper surface caused by avocado lace bug © [www.californiaavocadogrowers.com](http://www.californiaavocadogrowers.com)

## Dispersal and Detection

The winged adults are the main natural dispersal stage. The eggs, nymphs and adults may also be dispersed over long distance in plant trade.

The bug is likely to be first detected by the damage to the foliage. However, similar symptoms may be caused by thrips, mites, and certain diseases and disorders. The leaves therefore need to be examined carefully with a X10 hand lens to confirm the presence of the lace bug. The small droplets of black tar-like excrement on the under-surface of the foliage are characteristic.

## Economic Impact

Infestations of the lace bug result in distinct brown necrotic patches on the foliage (Fig. 5). These patches, however, may be caused by the anthracnose fungus, *Colletotrichum gloeosporioides*, that is often found in association with the bug.

Heavily damaged leaves become dry, curl up, and drop prematurely. Leaf photosynthesis is reduced by 50% when the leaves sustain 40% damage of the foliar area (Peña *et al.*, 1998). The avocado bug has been particularly damaging in the Dominican Republic, where it has caused complete defoliation of avocado trees. Defoliation stresses the trees which have reduced fruit yields.

## Advisory Information

Pesticides used to control sucking insects may be effective against avocado lace bug. Chemical applications should only be targeted at focal points of infestation and widespread applications should be avoided in order to preserve the natural enemies. Before using any pesticide the appropriate government body or plant protection service needs to be contacted to check the current regulation and the label instructions must be followed. Growers should refrain from moving avocado foliage and wood infested with avocado lace bugs. Avocado varieties vary in their susceptibility, for example West Indian x Guatemalan avocado hybrids appear to be particularly resistant to attack whereas Hass avocados (a Mexican-Guatemalan hybrid) can be severely damaged by lace bug outbreaks.

## References

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