



Lobate Lac Scale

Paratachardina pseudolobata Kondo & Gullan

(Hemiptera: Kerriidae)

Arborists participating in a tree climbing competition at Moanalua Gardens noticed a large *Ficus benjamina* tree exhibiting symptoms of stem dieback and defoliation. Samples of stems with a severe sooty mold infestation were brought to the Hawai'i Department of Agriculture in October 2012. Upon closer examination, various life stages of a lac scale were found. The scale was identified by G.A. Evans (U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine, National Identification Services) as the lobate lac scale, *Paratachardina pseudolobata* on October 19, 2012.

Description

P. pseudolobata are members of the Kerriidae family, scale insects which produce lac or thick resinous secretions. Immature stages are bright red (Fig. 5), flat, oblong oval, and around 0.4 mm in length. Mature females are a convex x-shape and encased in a dark red-brown covering which can reach around 1.5-2 mm in length and width (Fig. 1-3). This species reproduces by parthenogenesis; no males have ever been observed¹.

Hosts

In Florida alone, the lobate lac scale has been recorded on over 300 native and non-native plant species in over 50 families. According to Dr. Greg S. Hodges (Florida Department of Agriculture & Consumer Services, Division of Plant Industry), the most favorable hosts of *P. pseudolobata* include *Hibiscus rosa-sinensis*, *Chrysobalanus icaco*, *Ficus* spp., *Myrica cerifera*, *Bucida buceras*, and *Conocarpus erectus*. The lobate lac scale is known to attack agriculturally important crops in Hawaii such as macadamia and coffee. In addition, it is very likely that this invasive pest will make its way into natural areas and attack native plant species, as Hawai'i provides favorable habitat similar to Florida.

Since its discovery in Hawaii, the lobate lac scale has been recorded from: *Ficus benjamina*, *F. microcarpa*, *F. religiosa*, *Hibiscus rosa-sinensis* (pink, red, yellow, and orange varieties), *H. arnottianus*, *Gardenia* sp., *Mangifera indica*, and *Koelreuteria elegans*.

Damage

The lobate lac scale commonly infests the woody branches and main stems (<2 cm in diameter) of dicotyledonous plants¹, but has also been recorded on phoenix palms and dendrobium orchids. Small populations are difficult to detect, as individuals will occur sporadically on stems. However, heavy infestations will lead to stems encrusted with thick layers of sooty mold, defoliation and stem dieback. To date, the O'ahu infestations appear to be the highest on *F. benjamina* (Fig. 4-6).



Figure 1. Adult female lobate lac scales, dorsal view.



Figure 2. Side view.



Figure 3. Infestation on hibiscus stems.



Distribution

Florida, Bahamas, Australia: Christmas Island², Puerto Rico³, and Cuba⁴.

In Hawai'i, the lobate lac scale has been found only on O'ahu, extending from Moanalua to Pawa'a, and is now considered to be established. **It has not been found on any other islands.**

Control

In Florida, parasitism of the lobate lac scale has been recorded at <1%¹. When first discovered there, *P. pseudolobata* was misidentified as a native to India and Sri Lanka. Unfortunately, efforts at classical biological control proved to be concentrated in the wrong geographical area, and were unsuccessful⁴.

Pesticides such as imidacloprid root drenches and topical sprays of bifenthrin or imidacloprid have been shown to be effective in Florida⁶.

If you suspect an infestation of the lobate lac scale, please call:

- Maui:** 873-3949;
- Kauai :** 274-3072;
- Big Island- Hilo:** 974-4146, **Kona:** 323-7579;
- Oahu:** 973-9525 (Please call only if you are not in a known infested area)

Acknowledgments

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Reference

1. Howard, F.W., R. Pemberton, S. Schroer, and G. Hodges. 2010. *Paratachardina pseudolobata* (Coccoidea: Kerriidae): Bionomics in Florida. Fla. Entomol. **93**(1): 1-7.
2. Kondo, T. and P.J. Gullan. 2007. Taxonomic review of the lac insect genus *Paratachardina* Balachowsky (Hemiptera: Coccoidea: Kerriidae), with a revised key to genera of Kerriidae and description of two new species. Zootaxa **1617**: 1-41.
3. Segarra-Carmona, A.E. and I. Cabrera-Asencio. 2010. *Paratachardina pseudolobata* (Hemiptera: Coccoidea: Kerriidae): a new invasive scale insect in Puerto Rico. J. Agric. Univ. PR. **94**(1/2): 179-181.
4. Mestre, N.M., H.G. Ravelo, and G.S. Hodges. 2006. *Paratachardina lobata lobata* (Chamberlin) (Hemiptera: Coccoidea: Kerriidae) un nuevo registro de insecto escama para Cuba. Centro Agrícola, Cuba **33**:21-24.
5. Schroer, S., R.W. Pemberton, L.G. Cook, T. Kondo, and P.J. Gullan. 2008. The genetic diversity, relationships, and potential for biological control of the lobate lac scale, *Paratachardina pseudolobata* Kondo & Gullan (Hemiptera: Coccoidea: Kerriidae). Biol. Control. **46**: 256-266.
6. Howard, F.W. and B. Steinberg. 2005. Root Drenches and Topical Insecticide Treatments for Control of the Lobate Lac Scale, *Paratachardina lobata* (Chamberlin). Proc. Fla. State Hort. Soc. **118**:314-318.



Figure 4. Sooty mold covering *F. benjamina* stems and foliage.



Figure 5. Adult and stem covered by sooty mold crust and red immature scales.



Figure 6. Dieback of *F. benjamina* branches.