

Research Note

PARATACHARDINA PSEUDOLOBATA (HEMIPTERA: COCCOIDEA: KERRIIDAE): A NEW INVASIVE SCALE INSECT IN PUERTO RICO^{1,2}

Alejandro E. Segarra-Carmona³ and Irma Cabrera-Asencio³

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This note reports the first finding of the lobate lac scale, *Paratachardina pseudolobata* Kondo & Gullan, in Puerto Rico. This scale was first seen in Bayamón 6 August 2008 attacking lemon drop mangosteen (mameyito), *Garcinia intermedia* (Pittier) Hammel, found by Héctor Díaz (USDA-APHIS). Subsequent findings were made by Díaz in Carolina 18 September 2008 attacking Indian almond (almondra), *Terminalia catappa* L., and white-mangrove (mangle blanco), *Laguncularia racemosa* (L.). Individuals were also found by the senior author 20 February 2009 on the University of Puerto Rico Campus in Mayagüez on a single java plum (jambolán), *Syzygium cumini* L. (Myrtaceae) tree. Preliminary inspection of the affected tree indicated a low level of infestation, with only a few inner twigs affected (Figure 1c). No other tree in the area was found infested. This is the first record for this scale insect family in Puerto Rico.

According to Kondo and Gullan (2007), *Paratachardina pseudolobata* can be diagnosed by the following features: (1) four pairs of ventral duct clusters (vdc), with most anterior pair (vdc-1) separated by a distance equal or greater than the width of the tentorial bridge (Figure 1a); and (2) test of adult female X-letter or bowtie-shaped with each of the four lobes of the test rather smooth, purplish red to dark reddish brown, often black because of sooty mold (Figure 1b). Early instars are reddish (Figure 1d). We observed all stages of the scale except males. Voucher specimens PR Acc. No. 1-2010 are deposited at the Museum of Entomology and Tropical Biodiversity of the University of Puerto Rico.

The lobate lac scale has been described elsewhere in the Caribbean as being a significant threat to native vegetation, and to horticultural crop plants (Pemberton, 2003a, b; Chong et al., 2008). According to Schroer et al. (2008) these scales were first detected in the Bahamas in 1992, and later found in South Florida's Broward County (1999) and in Miami-Dade County (2000), where they built up high densities in the following two years (Howard and Pemberton, 2003; Pemberton, 2003a). Mestre et al. (2006) reported the scale from Cuba, where it was found attacking *Ficus benjamina* L. (Moraceae). Initially this scale insect was mistakenly identified in all literature as *Paratachardina lobata lobata* Chamberlin [now a junior synonym of *P. silvestri* (Mahdihassan)]. A taxonomic revision of the genus by Kondo and Gullan (2007) determined that the lac

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³Professors, Department of Crops and Agroenvironmental Sciences, Agricultural Experiment Station, College of Agricultural Sciences, University of Puerto Rico, Mayagüez and Juana Díaz, respectively. Send all correspondence: E-mail: alejandro.segarra.@upr.edu.

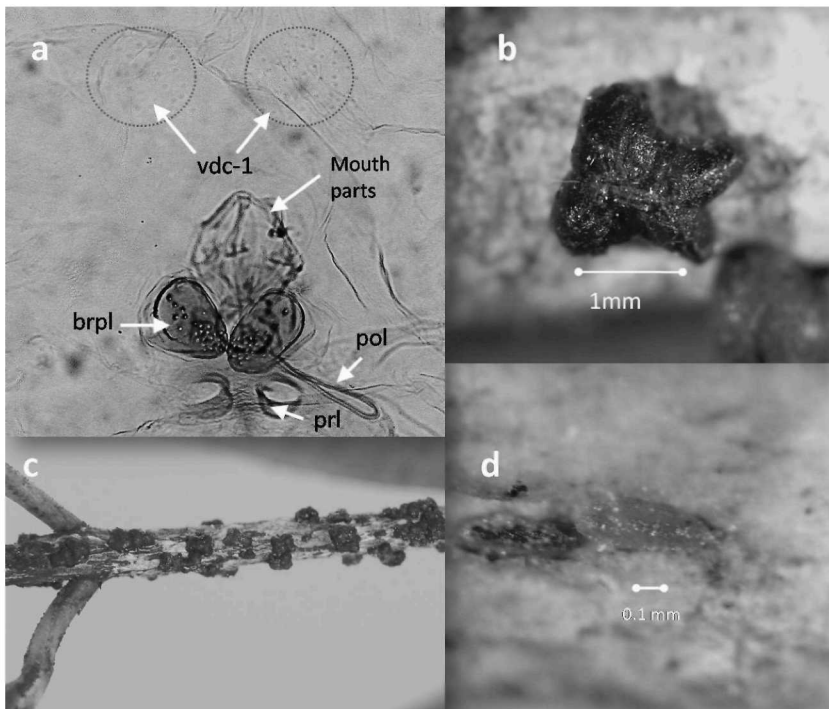


FIGURE 1. *Paratachardina pseudolobata* Kondo & Gulen. (a) Slidemounted specimen (400x) illustrating mouthparts: ventral duct clusters I (vdc-1), brachial plate (brlp), pre-oral lobes (prl), post-oral lobes (pol); (b) View of female test; (c) habitus in host plant twig; (d) early instar nymph. (Photos by A. Segarra).

scale captured from the Florida and the Bahamas was in fact a new species, describing it as *Paratachardina pseudolobata* Kondo & Gullan. It is now believed that the lobate lac scale is a species introduced to the Americas, and its native range remains unknown (Schroer et al., 2008). These authors also suggest that the lobate lac scale is closely related to the indotropical *Paratachardina* species, and has known populations in the Christmas Islands of Australia. Thus, its allies and natural enemies are probably found somewhere in Australasia.

Paratachardina pseudolobata is a highly polyphagous and invasive scale insect. Howard et al. (2006) offer a list of host plants in Florida, with 307 species in 58 different vascular plant families, including native plants, cultivated fruit trees, and ornamentals. *Syzygium cumini* (jambolán) is found listed among the scale's known host plants. Feeding records occur on a number of important crops in Puerto Rico, such as soursop (guanábana), *Annona muricata* L.; starfruit (carambola), *Averrhoa carambola* L.; pigeon pea (gandul), *Cajanus cajan* (L.) Huth; star-apple (caimito), *Chrysophyllum cainito* L.; mango, *Mangifera indica* L.; sapodilla (níspero), *Manilkara zapota* (L.) Van Royen; quinine (quenepa), *Melicoccus bijugatus* L.; avocado (aguacate), *Persea americana* Miller; guava (guayaba), *Psidium guajava* L.; and rose-apple (pomarroza), *Syzygium jambos* (L.)

Alston. The lobate lac scale also attacks important ornamental and forest trees, such as black olive (úcar), *Bucida buceras* L.; Santa María, *Calophyllum calaba* L.; Australian Pine, *Casuarina equisetifolia* L.; balsam fig (cupey), *Clusia rosea* Jacquin; buttonwood (mangle botón), *Conocarpus erectus* L.; banyan fig (laurel benjamín), *Ficus benjamina* L.; guayacán, *Guaiacum officinale* L.; violet tree, *Polygala cowellii* (Britton) Blake; and red mangrove, *Rhizophora mangle* L.

LITERATURE CITED

- Chong, J. H., A. L. Roda and C. M. Mannion, 2008. Mortality of the lobate lac scale, *Paratachardina pseudolobata* (Hemiptera: Kerriidae), at near or below freezing temperatures. *Fla. Entomol.* 91:674-678.
- Howard, F. W. and R. W. Pemberton, 2003. The lobate lac scale insect, a new pest of trees and shrubs in Florida: implications for the Caribbean region. *Proceedings of the Caribbean Food Crops Society* 39:91-94.
- Howard, F. W., R. W. Pemberton, G. S. Hodges, B. Steinberg, D. McLean and H. Liu, 2006. Host plant range of lobate lac scale, *Paratachardina lobata*, in Florida. *Proc. Fla. State Hort. Soc.* 119:398-408.
- 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.
- 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.
- Pemberton, R. W., 2003a. Invasion of *Paratachardina lobata lobata* (Hemiptera: Kerriidae) in South Florida: a snapshot sample of an infestation in a residential yard. *Fla. Entomol.* 86:373-377.
- Pemberton, R. W., 2003b. Potential for biological control of the lobate lac scale, *Paratachardina* (Hemiptera: Kerriidae). *Fla. Entomol.* 86:353-360.
- 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). *Biological Control* 46:256-266.

