

Florida Department of Agriculture and Consumer Services Division of Plant Industry

Lepidosaphes laterochitinos (Green), a new mussel scale intercepted in a Florida nursery

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INTRODUCTION: On November 15, 2016, FDACS-DPI inspector Lane Smith collected specimens of the armored scale *Lepidosaphes laterochitinos* (Green) (Hemiptera: Diaspididae) during an inspection of *Dracaena* sp. (Agavaceae, alternatively Liliaceae) plants imported from Costa Rica. This scale is frequently intercepted at USDA port inspection facilities, but this is only the second occasion that it has been detected in a Florida nursery. In 1987, the scale was intercepted on two shipments of *Aglaonema* sp. (Araceae) imported from the Philippines and was the subject of Entomology Circular No. 304 (Hamon 1988), in which details of slide-mounted specimens are illustrated. *Lepidosaphes laterochitinos* is a polyphagous species that is widely distributed in the Asia-Pacific and Austro-Pacific region (Garcia Morales et al 2016). This is the second *Lepidosaphes* in recent years found infesting nursery products that either were, or are thought to have been, imported from offshore; in 2014 and on several occasions subsequently, *L. chinensis* Chamberlin (Chinese mussel scale) was collected on lucky bamboo (*Dracaena braunii*) (Stocks 2014). Although there are minor differences between the scale covers of *L. chinensis* and *L. laterochitinos* that are visible on specimens attached to the leaf, they are very similar both to each other and other *Lepidosaphes* species that occur in Florida, and slide-mounted specimens are required for identification. However, other Florida species of *Lepidosaphes* are not typically associated with hosts from either the Agavaceae (e.g. *Dracaena* sp.) or Araceae (e.g. *Aglaonema* sp.) plant families.

IDENTIFICATION: Mussel scales on host leaves (*L. laterochitinos*) or host stems and leaves (*L. chinensis*) are very distinctive; the scale cover is elongated with a variously tapered 'tear-drop' outline and is generally a light to dark brown color. Feeding induces an irregular but prominent chlorosis, or yellowing, in the leaf tissue (Figs. 1 & 2; white arrows) suggestive of a natural variegated leaf color pattern. The chlorotic patch expands as the female matures and as other females settle and form a mixed-age group (Fig. 2, white arrows); typically, the chlorosis yields to tissue necrosis, which results in unsightly blemishes and leaf death if sufficiently extensive. The dorsal scale cover of an adult female in the egg production phase consists of the exuviae of the first two immature stages (Figs. 3a and b) attached at the anterior end and the elongated fibrous section composed of secreted fluids (Fig. 3c); ventrally there is a thin, white, waxy 'membrane' (Fig. 4e) attached to the leaf surface and continuous with the lateral margins of the cover. If the membrane is torn, the mouthparts (Fig. 4d), eggs (Fig. 4f) or body (Fig. 5) are visible. If eggs are present, the female body is shriveled toward the anterior end of the scale cover and a 'crawler flap' is evident at the posterior margin of the cover (Fig. 4g); if the eggs have hatched and the crawlers dispersed, only white paper-like egg cuticles, or 'shells', are evident. Females that have not begun egg production, and are therefore not shriveled, display more easily observed characters, such as the darker and shinier pygidium (Fig. 6h), and pronounced lateral abdominal lobes with prominently protruding 'gland spines' (Fig. 6i).

REFERENCES:

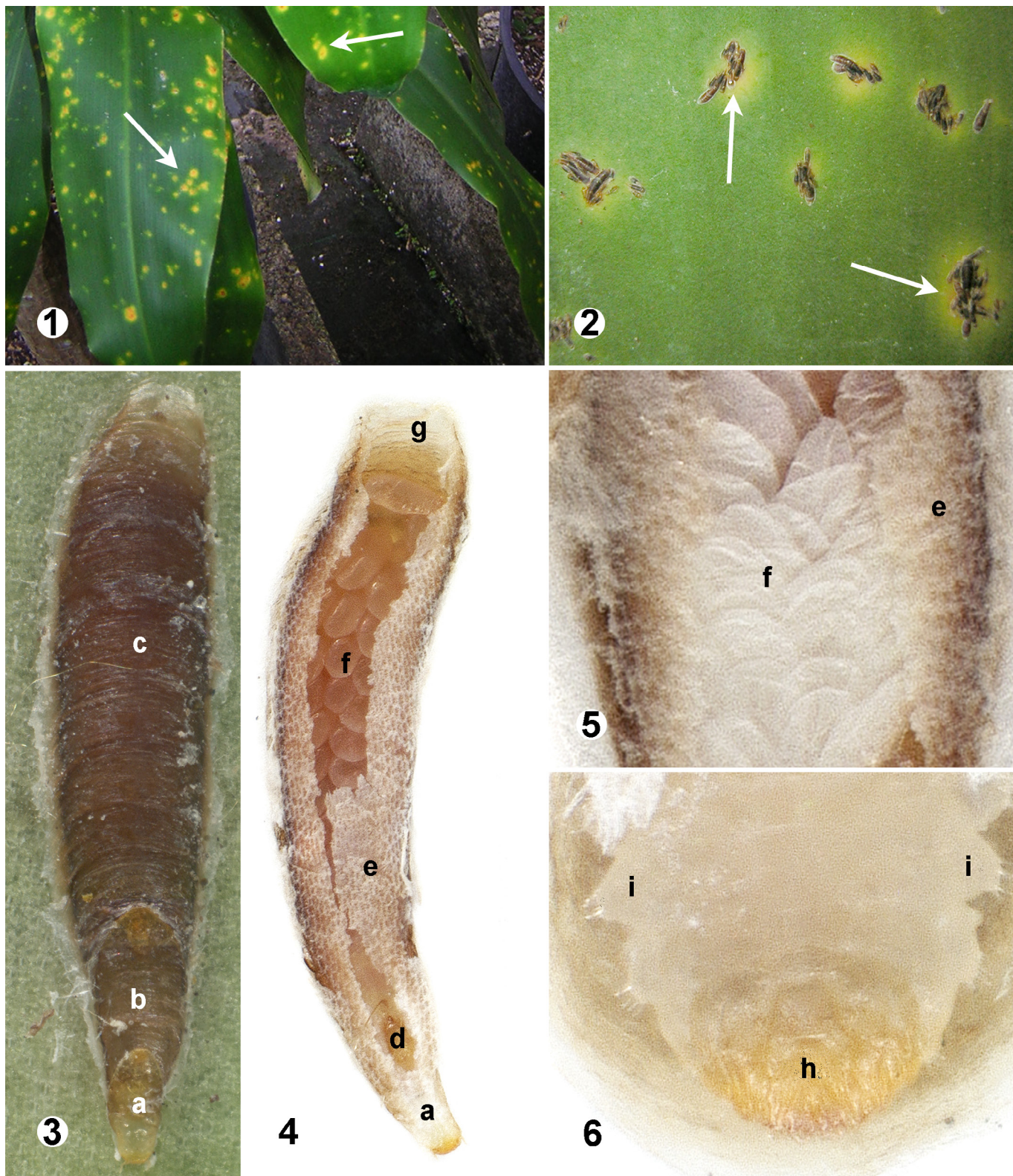
García Morales, M. B.D. Denno, D.R. Miller, G.L. Miller, Y. Ben-Dov, N.B. Hardy. 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Database. doi: 10.1093/database/bav118. <http://scalenet.info>.

Hamon, A.B. 1988. *Lepidosaphes laterochitinos* Green (Homoptera: Diaspididae). Entomology Circular No. 304, Florida Department of Agriculture and Consumer Services, Division of Plant Industry.

Stocks, I.C. 2014. Pest Alert. *Lepidosaphes chinensis* Chamberlin (Hemiptera: Diaspididae), an armored scale infesting Lucky Bamboo. FDACS-P-02017.



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Figs. 1 and 2. *Lepidosaphes laterochitinoso* (Green) on *Dracaena* sp. leaves. Photo credit: Lane Smith, FDACS-DPI. **Fig. 1.** Patches of variously sized chlorotic lesions resulting from feeding.

Fig. 2. Close-up of clusters of different age stages of female *L. laterochitinoso*.

Figs. 3–5. Close-up and details of the adult female and scale cover of *L. laterochitinoso*. Photo credit: Ian Stocks, FDACS-DPI.

Fig. 3. Dorsal view of the adult female *L. laterochitinoso* at the egg-production stage; **a.** Exuvial cuticle of the crawler, or first stage immature, forming the anterior end of the scale cover; **b.** Exuvial cuticle of second stage immature; **c.** scale cover of third stage, or adult female, formed from exudates and waxes.

Fig. 4. Ventral view of the adult female *L. laterochitinoso* at the egg-production stage; **a.** exuvial cuticle of the crawler; **d.** mouth parts of adult female; **e.** ventral wax layer of the scale cover, which was adhered to the leaf and bears the imprint of the leaf surface; **f.** rows of eggs filling the cavity beneath the dorsal scale cover; **g.** ‘crawler flap’, the posterior lip of the dorsal scale cover that allows for crawlers to disperse.

Fig. 5. Details of the ventral scale cover after hatching and dispersal of the crawlers; **e.** ventral wax layer **f.** egg cuticle, or ‘shell’, that remains after hatching.

Fig. 6. Close-up of female *L. laterochitinoso* prior to the egg-production stage; **h.** ventral pygidium; **i.** lateral abdominal lobes with projecting gland spines.