

Pest Alert

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Parlatoria ziziphi (Lucas) (Hemiptera: Diaspididae): black parlatoria scale ziziphus scale

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INTRODUCTION: Black parlatoria scale (BPS) is one of the most widely distributed armored scale species and considered one of the most destructive, especially to citrus (Blackburn and Miller 1984; see summary at ScaleNet by Garcia Morales et al. 2016). Documented hosts occur in several families but are almost exclusively tropical or sub-tropical species. However, *Citrus* spp. (many species and varieties; Rutaceae) are the most prominent, widely documented and economically important hosts. Other potential hosts in Florida are *Glycosmis pentaphylla* (orange berry, gin berry; an uncommon plant in Florida), *Severinia buxifolia* (Chinese box-orange) and *Murraya* sp., all of which are in the family Rutaceae. Although *P. ziziphi* has been regarded—and in some regions is still regarded—as a potentially severe pest, BPS is associated with a wide assemblage of parasitoid wasps and beetle predators that may help check population size and impact.

In Florida, there is no evidence that BPS has ever become widely established, but it has been detected on several occasions. In 1917, specimens “... were found on Italian lemon taken in market and on oranges from Spain, taken by Mr. E.L. Gehry at Key West, Fla.” (Wilson 1917). In 1976, increased international movement of BPS and establishment by 1975 in Puerto Rico prompted the publication of an FDACS-DPI Entomology Circular (Dekle 1976) to serve as an advance warning about this pest. However, no specimens were collected in Florida until an infestation was detected in 1985–1987 (190 samples), 1995 (2 samples) and 1998 (1 sample), all from citrus in Miami-Dade County, and presumably each was eradicated or disappeared spontaneously. On 5 December 2016, an inspector with the USDA collected a sample from a heavily infested sour orange tree in a Miami residential neighborhood.

IDENTIFICATION: Black parlatoria scale is very distinctive and no other species in Florida resembles it (Figs. 1–5); the mature scale cover is a somewhat shiny-black or deep mahogany-brown color, parallel-sided, and has a clearly-visible and similarly colored, but smaller, ‘disc’ (second stage exuviae) attached at the anterior end; a papery white to tan ‘crawler flap’ is attached to the posterior end (Figs. 3–5, C). The leaves submitted were heavily infested with all stages and co-occurred with a small population of *Lepidosaphes* sp. scales side-by-side (Fig. 2). Although the heaviest infestation was on the axial (dorsal) leaf surface, many were present also on the abaxial (ventral) surface. Scales were distributed over the entire leaf surface, but most were positioned such that crawlers appear to preferentially settle adjacent to a major leaf vein (Fig. 1). Feeding results in chlorotic patches (yellowing), which under heavy feeding may eventually coalesce into extensive islands of chlorosis (Figs. 1 & 3). Although the level of parasitism, as indicated by parasitoid emergence holes, was extremely low, a few adult *Encarsia* sp. (Aphelinidae) parasitoids were observed. However, even if suppressed to low levels by parasitoids or predators, infestations of BPS on citrus fruit or foliage are so distinctive that it is unlikely an established population remained undetected in Florida for ~18 years. Since BPS is established throughout the Caribbean, the Hawai’ian Islands and many other regions, the present infestation is probably a re-introduced population associated with either infested citrus plants or fruit.



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

REFERENCES:

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Figs. 1-5. *Parlatoria ziziphi* (Lucas) armored scale (black parlatoria scale, BPS) infestation on *Citrus* sp. foliage.

Fig. 1. Mixed-age population of BPS (white arrows), with *Lepidosaphes* sp. females (black arrows); inset, BPS crawlers between adult female scales; note patches of chlorosis and orientation along major leaf veins.

Fig. 2. Close-up of BPS (white arrows) and *Lepidosaphes* sp. (black arrow), mixed-species and mixed-age population.

Fig. 3. Close-up of BPS feeding damage (white circle), showing tracks left by the mouthparts (black arrow), and egg-producing adult female scale-cover morphology (A: second exuviae; B: egg-producing adult female scale cover; C: crawler-flap, with crawler below).

Fig. 4. Same structures as Fig. 3, but older female as indicated by darker crawler-flap.

Fig. 5. Egg-producing adult female BPS, ventral surface (A: exuviae and wax fringe of second stage female; B: ventral and marginal scale cover; C: crawler-flap; D: body of adult female, actively ovipositing; E: rows of eggs; F: rows of egg cuticles remaining after the crawlers hatch. Photo credit: Ian Stocks, DPI.