

SUGARCANE DELPHACID, PERKINSIELLA SACCHARICIDA KIRKALDY 1903

(HOMOPTERA:DELPHACIDAE)<sup>1</sup>

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**INTRODUCTION:** The sugarcane delphacid, Perkinsiella saccharicida Kirkaldy, is a serious sugarcane pest of Australian origin. It posed a serious threat to the Hawaiian sugarcane industry during the early 1900s. The first North American record of this insect was reported on 4 August 1982, from Canal Point, Palm Beach County, Florida. Surveys quickly revealed that this delphacid ranged throughout southern Florida. To date, little economic damage has been reported; however, if there is a population explosion of the delphacid, it can be extremely damaging because of its feeding and ovipositional activities. Furthermore, it is a known vector of the virus that causes Fiji disease. This disease has been troublesome in the Orient, southern Pacific, and Madagascar. Fortunately, Fiji disease has not been detected in Hawaii or Florida.

**DISTRIBUTION:** The sugarcane delphacid has been reported in Australia (native), Colombia, Comoro, Ecuador, Hong Kong, Indonesia, Java, Madagascar, Malaysia, Mauritius, Peru, Reunion, Ryukyu Islands, South Africa, southern China, Swaziland, Taiwan, Thailand, and USA (detected in Hawaii in 1900, Florida in 1982, and Georgia<sup>4</sup> in 1983).

**HOSTS:** Sugarcane is the preferred host of P. saccharicida, but it can be found on grasses, sedges, Hilo grasses, and Paspalum conjugatum. However, the host range of this pest has not been intensively studied.

**BIOLOGY:** The adult P. saccharicida is pale brownish in color, about 4.5-6.0 mm in length, with a long dark-smoky stripe on the middle of the front wing, near the apex. Adults usually have long wings (macropterous), but short-winged (brachypterous) males and females also occur in cooler seasons.

Females (Fig. 1A) deposit eggs beneath the leaf epidermis. Two to twelve eggs are laid in a cluster (Fig. 1B) in either side of the leaf, mainly along the midrib, leaf sheaths, and stalk internodes. The egg is 1.0 mm x 0.35 mm, elongate-cylindrical and slightly curved (Fig. 1B). The narrow end of the egg, just above the surface of the leaf, is covered with a white waxy material secreted by the female. The egg puncture (Fig. 1C) is covered with white wax, turns dark a few days later, and can become infected with red rot fungus, Colletotrichum falcatum Went.

A female can lay up to 300 eggs during her normal 30-day life span. The incubation period varies from 2-5 weeks, depending on temperature fluctuation. The newly hatched nymph is pale, wingless, and starts feeding shortly after hatching. The immature state (Fig. 1D) has 5 instars and lasts approximately 32 days at an average temperature of 25°C. These insects are more active at night, when copulation and oviposition take place. The macropterous form is attracted to light.

Damage is caused primarily by actions of the adults and nymphs feeding on the sap of the sugarcane, with subsequent reddening and desiccation of leaves. Additional damage results from impaired photosynthesis caused by growth of sooty mold on honeydew excreted by the insects and from ovipositional punctures.

**NATURAL ENEMIES:** There are several natural enemies of sugarcane delphacids, including predators, parasitoids, and pathogens; however, the most important enemy in Hawaiian fields is the predator, Tytthus mundulus (Breddin), an egg predator imported from Australia in 1920. In 1983, Tytthus mundulus was introduced into Florida in an effort to maintain the sugarcane delphacid population at the lowest level possible. Additionally, two biological control organisms, T. parviceps (Reuter) and Anagrus sp., have been found in association with sugarcane delphacid-infested fields in Florida.

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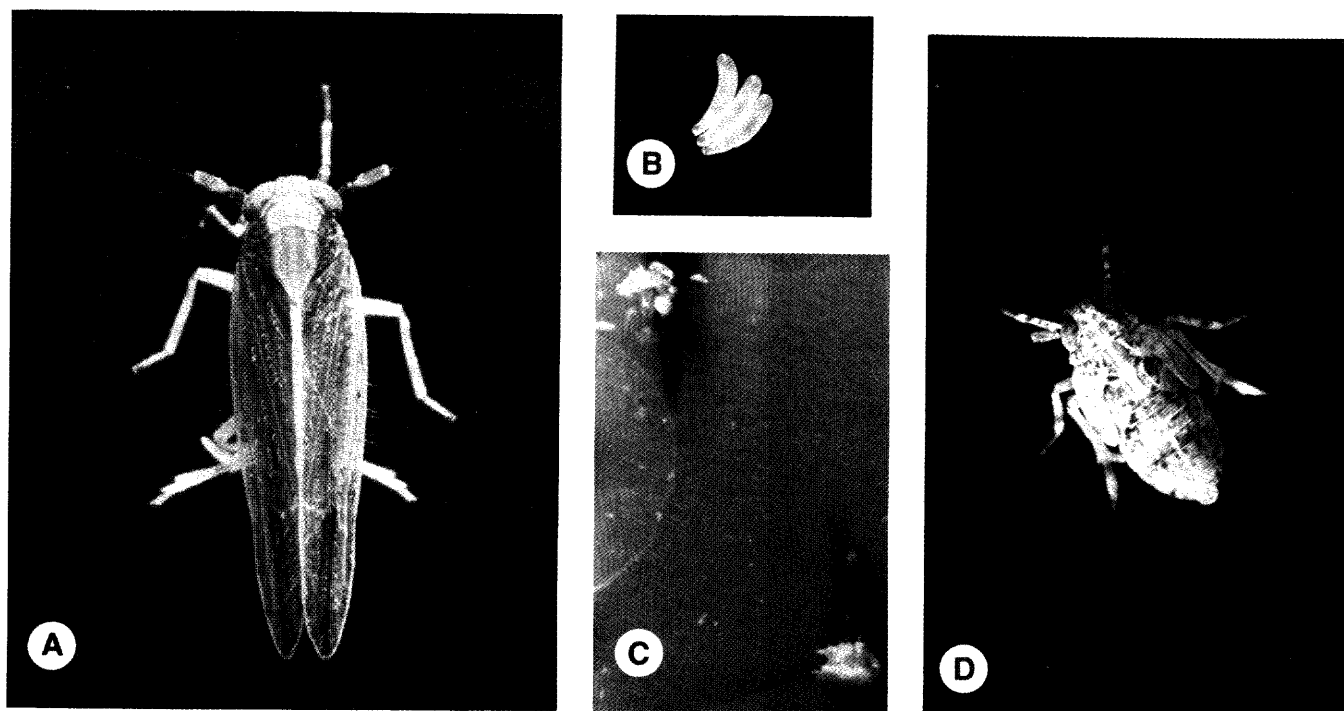


Fig. 1. *Perkinsiella saccharicida* Kirkalady. A) Adult (11 X). B) Egg cluster (11 X). C) Egg puncture (22 X). D) Nymph (11 X). Photos by V. Jane Windsor. (DPI Photo #702830-A-18, #702830-B-6, #702830-B-3, and #702830-A-B.)

**SURVEY AND DETECTION:** Although more abundant in the summer months, *P. saccharicida* can be found almost anytime during the year in southern Florida by examination of the sugarcane leaves and stalks, especially the whorl or growing region.

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