

# National Pest Alert



## Sugarcane Planthopper

*Perkinsiella saccharicida* (Kirkaldy, 1903) (Hemiptera: Delphacidae)



*Nymph of Perkinsiella saccharicida on sugarcane*

The sugarcane planthopper is an adventive species, first reported in the western hemisphere in Ecuador in 1966, and in the continental US in 1982. The species has since become broadly distributed in the sugar-growing regions of North, Central, and South America. The sugarcane planthopper had previously become established in Hawaii where it substantially impacted Hawaiian sugar production and was ultimately brought under control through the introduction of natural enemies. The sugarcane planthopper vectors sugarcane Fiji disease, but this disease has not been reported in the western Hemisphere.

The genus *Perkinsiella* consists of 35 species, mostly in the Indomalayan ecozone. Eight species in the genus are known to occur on sugarcane, but only one of these, *Perkinsiella saccharicida*, is widespread.

### Distribution

*Perkinsiella saccharicida* appears to be native to Australia and probably the Indomalayan region, including Malaysia, Indonesia, Philippine Islands, Papua New Guinea, India, Sri Lanka, Taiwan, and southern China. It is adventive in southern Africa, Madagascar, and numerous islands. It was recorded in Hawaii in 1900, and first recorded in the Americas in Ecuador in 1966 (evidently from Hawaii), Peru in 1967, and Florida in 1982. It has since been recorded in Georgia, Louisiana, Texas, Mexico, Costa Rica, Columbia, and Cuba, but is undoubtedly present throughout the sugar-growing regions of North, Central and South America.

### Description

Delphacid planthoppers can be recognized by the presence of a large, flattened spur on the apex of the hind tibiae. Adult *Perkinsiella*



*Frontal view of Perkinsiella saccharicida.*



*Top view of Perkinsiella saccharicida.*

*saccharicida* are about 4.5–6.0 mm in length (large for a delphacid, which are mostly less than 4 mm). Their antennae are flattened, their face distinctly bicolored, and their wings with diffuse smoky markings, becoming stronger apically. The male terminalia have rather flattened parameres and bear a pair of projections just in front of the parameres.



*Side view of Perkinsiella saccharicida.*

### Biology

Females deposit, elongate-cylindrical, slightly curved eggs (1.0 × 0.35mm) in small groups of 2–12 (average 4.5) on either side of the leaf, mainly along the midrib, sheaths, and stock internodes beneath the leaf surface, with the apex of the egg protruding. The eggs are covered by a white waxy material, which turns dark a few days later. Females can lay up to 300 eggs over an approximately 30 day adult lifespan. Eggs incubate 2–5 weeks before hatching. There are 5 immature instars, lasting approximately 32 days at

Regional  
IPM  
Centers



United States  
Department of  
Agriculture

National Institute  
of Food and  
Agriculture



Spur on hind leg of *Perkinsiella saccharicida*.

25°C average temperatures. There are multiple generations per year. Populations were reported highest in October and November in Louisiana, and during the ‘summer months’ in Florida, but the species may be found throughout the year. Adults are usually fully winged (macropterous), but adults with short, non-functional wings can be common. Flying adults are very mobile and may be attracted to lights in large numbers.

## Damage

Adult feeding activities cause damage to the plant, with subsequent reddening and desiccation of the leaves. Damage may also be caused by growth of sooty mold on honeydew excreted by the planthoppers and from ovipositional punctures. *Perkinsiella saccharicida* is a vector of Sugarcane Fiji disease virus Fijivirus (Fiji disease, Fiji leaf gall) (Reoviridae) (FDV), but this disease has not been reported in the Americas. This disease has been reported distribution Australia, Fiji, Madagascar, Papua New Guinea, New Hebrides, Philippines, Samoa, Thailand. Sugarcane infected with Fiji disease shows leaf distortion and galls, stunting and death of meristematic tissue, resulting in severe yield reductions. Fiji disease is managed by host plant resistance and vector management

## Natural enemies

Natural enemies have been effective in controlling *Perkinsiella saccharicida*. The control of this species in Hawaii mark one of the early biocontrol success stories. Specialist natural enemies for delphacids particularly include Mymaridae, Dryinidae (Hymenoptera), Pipunculidae (Diptera), and Strepsiptera; however, the egg predator *Tytthus mundulus* (Breddin) (Miridae) is credited with being highly effective at reducing *Perkinsiella* populations in many places where it has been problematic, including Hawaii. In 1983, *Tytthus mundulus* was introduced into Florida to keep populations of *Perkinsiella saccharicida* at the lowest possible level. Other natural enemies reported from Florida include other *Tytthus* species and egg parasites in the genus *Anagrus* (Hymenoptera:



View of male genitalia.

Mymaridae). Other parasitoids reported for *Perkinsiella saccharicida* are *Aprostocetus beatus* (Perkins) and *A. formosanus* (Timberlake) (Hymenoptera: Eulophidae) and the dryinids *Acrodontochelys vitiensis* (Perkins), *Gonatopus krombeini* Olmi, and *Pseudogonatopus hospes* Perkins.

The entomophagus fungi *Metarhizium anisopliae* (Metsch.) Sorokin has been observed controlling adults.

## Survey

*Perkinsiella saccharicida* can most often be found on leaves and stalks, especially in the whorl or growing region, by inspection.

---

For more information on the sugarcane planthopper, visit our web site at [ncipmc.org/action/alerts/perkinsiella.php](http://ncipmc.org/action/alerts/perkinsiella.php)

---

For information about the Pest Alert program, please contact Laura Iles, co-director of the North Central IPM Center, at [ljesse@iastate.edu](mailto:ljesse@iastate.edu).

## 1862 Land-Grant Universities

Auburn University University of Alaska University of Arizona University of Arkansas University of California Colorado State University University of Connecticut University of Delaware University of the District of Columbia University of Florida University of Georgia University of Guam University of Hawaii University of Idaho University of Illinois Purdue University Iowa State University Kansas State University University of Kentucky Louisiana State University University of Maine University of Maryland University of Massachusetts Michigan State University University of Minnesota Mississippi State University University of Missouri Montana State University University of Nebraska University of Nevada University of New Hampshire Rutgers New Mexico State University Cornell University North Carolina State University North Dakota State University Ohio State University Oklahoma State University Oregon State University Pennsylvania State University University of Puerto Rico University of Rhode Island Clemson University South Dakota State University University of Tennessee Texas A&M University Utah State University University of Vermont University of the Virgin Islands Virginia Polytechnic Institute & State University Washington State University West Virginia University West Virginia State University University of Wisconsin University of Wyoming.

## Credits

**Author:** Charles Bartlett (University of Delaware, Dept. Entomology)

**Photos:** Kimberley Shropshire (University of Delaware; specimen photos); Robert Magarey (BSES Limited, Indooroopilly Queensland, Australia; nymph, live adult, Fiji gall)

**Funding:** This work is supported by the Crop Protection and Pest Management Program (2014-70006-22486) from the USDA National Institute of Food and Agriculture.

Regional  
IPM  
Centers



United States  
Department of  
Agriculture

National Institute  
of Food and  
Agriculture