

National Pest Alert



The corn delphacid

Peregrinus maidis (Ashmead, 1890) (Hemiptera: Fulgoroidea: Delphacidae)

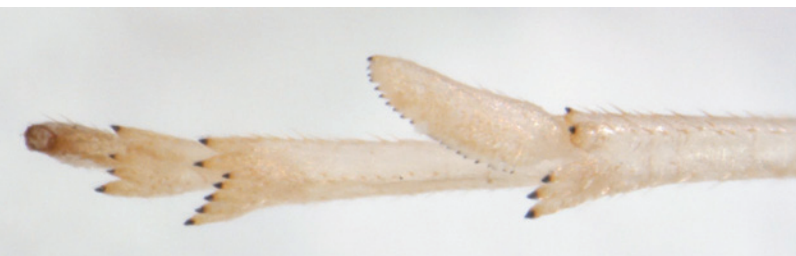


Short-winged adults feeding on corn seedling.

Peregrinus maidis is known to deposit eggs in non-host species. *Peregrinus maidis* is a vector of several corn pathogens including Maize mosaic virus (*Nucleorhabdovirus*), Maize stripe virus (*Tenuivirus*), “Maize line virus” and Maize Mal de Río Cuarto fivirus.

Distribution

This species is very widespread, although it is probably adventive over most of its range. The native range of this species is unclear, but is likely from the Neotropics—Mexico to Argentina and Chile, including the Caribbean. It is most abundant in tropical and warm temperate regions. In the U.S. it is reported throughout the southeast, north to New Jersey and Illinois and west to Texas and



The spur on the hind leg of the corn delphacid.

also California and Hawaii. This species is also found throughout central and southern Africa (from South Africa north to Senegal and Sudan), Madagascar, Australia, Indonesia, Malaysia, India, Sri Lanka, Philippines, Taiwan, Southern China, Vietnam and many islands.

Description

Like all delphacid planthoppers, this species has a large spur at the tip of the hind tibiae. Among delphacids, *Peregrinus maidis* is easy to recognize. It may occur as both long-winged (macropterous) and short-winged (brachypterous) forms. It is a relatively large species (long winged specimens exceeding 3 mm), with wings slightly patterned near the tip. The color is mostly brown, but contrastingly paler on the top of the head and thorax. In frontal view, the frons tends to be distinctly bicolored (pale toward the top of the head, darker below). The ridge (carina) on the midline of the face is conspicuous and distinctly forked on the face between the eyes.

Biology

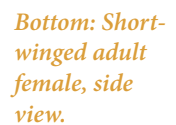
Peregrinus maidis is readily cultivated in the lab. *Peregrinus maidis* has a relatively quick life cycle, going from egg to adult in about 17 days in lab experiments (at 27°C, 12:12 (L:D)) on corn, although at 21°C they require closer to 30 days to reach adulthood. Females produce about 21 eggs a day on corn (range 15-25 eggs/day), and with an average lifetime production of 500-600 eggs (range ~300-900). Life



Top: Frontal view of *Peregrinus maidis*.



Middle: Short-winged adult female, top view.





Long-winged adult male corn delphacid.

expectancy for adult females varies from 10–40+ days. Oviposition occurs in a row mostly inserted into the upper surface of the leaf midrib, with 1-4 eggs produced per row and covered with a white waxy substance. Eggs are white, about 1 mm long, elongate, curved and cylindrical. Eggs hatch in 5–12 days and nymphs congregate in leaf whorls. Each instar requires 3–5 days at optimal conditions. Total nymphal period is 14–50 days, depending on temperature.

Peregrinus maidis has continuous, asynchronous generations, and the number of generations per year depends on latitude and field conditions. It appears that *Peregrinus maidis* overwinters as an adult, but does not successfully overwinter in the northern portions of its range.

At low populations, *Peregrinus maidis* adults will be mostly brachypterous (non-flying, short-winged). Short-winged adults have a shorter life cycle, greater longevity and higher egg production than long winged adults. At high populations, or when host plant quality declines, populations switch to long-winged dispersal forms. Anecdotal evidence suggests that long-winged forms may travel great distances, and large numbers of individuals may be found at lights.

Damage

On corn, aggregations occur inside the whorl, leaf sheath or underside of leaves. Damage occurs by direct feeding of nymphs and adults, and by the transmission of plant pathogens. *Peregrinus maidis* feeds by piercing the vascular tissues and sucking sap, primarily from leaves. Large quantities of honeydew or plant secretions are often on or near the sites of feeding aggregations causing stunting of the plant and sooty mould, the death of leaves and failure of ear emergence can occur. Planthopper feeding also causes a predisposition of the plant to moisture stress. On sorghum symptoms are very similar to those of corn with high populations.



Caudal view of male genitalia.

Natural enemies

A wide variety of natural enemies are reported to help control this species. Specialist natural enemies for delphacids include egg parasites from Eulophidae (*Aprostocetus* species) and Mymaridae (mostly *Paranagrus* species); parasitoids from Dryinidae (*Gonatopus* species; Hymenoptera), Pipunculidae (Diptera)



Long-winged adult male corn delphacid.

and Strepsiptera; as well as the generalist egg predators *Tytthus* (Miridae: Hemiptera). The egg predator *Tytthus* is well-known as an effective predator on the eggs of the sugarcane planthopper (*Perkinsiella saccharicida*), but its effectiveness in control of *Peregrinus maidis* has not been studied in North America. Natural populations of these parasitoids are usually too low to establish effective control.

For more information on the corn delphacid, visit our web site at ncipmc.org/action/alerts/corndelphacid.php

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

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Credits

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