

Persimmon Psylla, *Trioza diospyri* (Ashmead) (Insecta: Hemiptera: Psyllidae)¹

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Introduction

The persimmon psylla, *Trioza diospyri* (Ashmead), occasionally causes moderate to severe damage to the leaves of wild and cultivated persimmon trees.

Distribution

The persimmon psylla is a common and widely distributed insect in Florida and the southeastern United States, and possibly Mexico. The psyllid is apparently found throughout the range of its native host.

Description

Adult: The adults ranges in length from 3.5 to 4.5 mm. Its color is generally shining black except that the middle and hind tibiae, all tarsi, genal processes, and antennae except for the tip, are whitish. Key characters include the hind tibiae with three inner apical spines, antennae distinctly longer than width of head, top of head and thorax sparsely covered with long pubescence, black color, and the medial cell of forewing much larger than cubital.

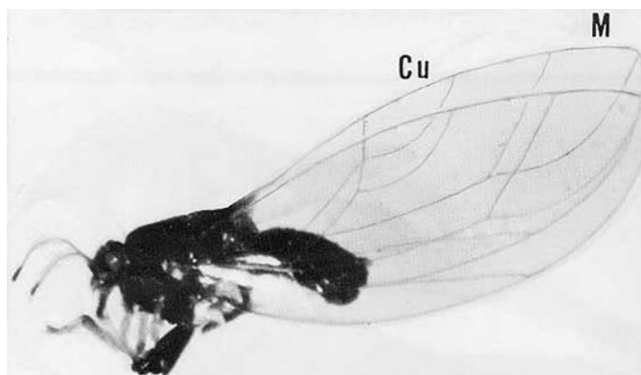


Figure 1. Adult persimmon psylla, *Trioza diospyri* (Ashmead). Credits: Jerry A. Payne, USDA; www.insectimages.org

Nymph: The nymph is fringed on the margins with long hairs as in other species of *Trioza*. It is covered with a white powder (Mizell and Brinen 2005). The fifth instar nymph was described and figured by Ferris (1926). Identification of nymphs without supplementary host data is difficult.

Life History

The original discussion by Ashmead (1881) is the most thorough account of the persimmon psylla life history. He noted that in the summer of 1879 at

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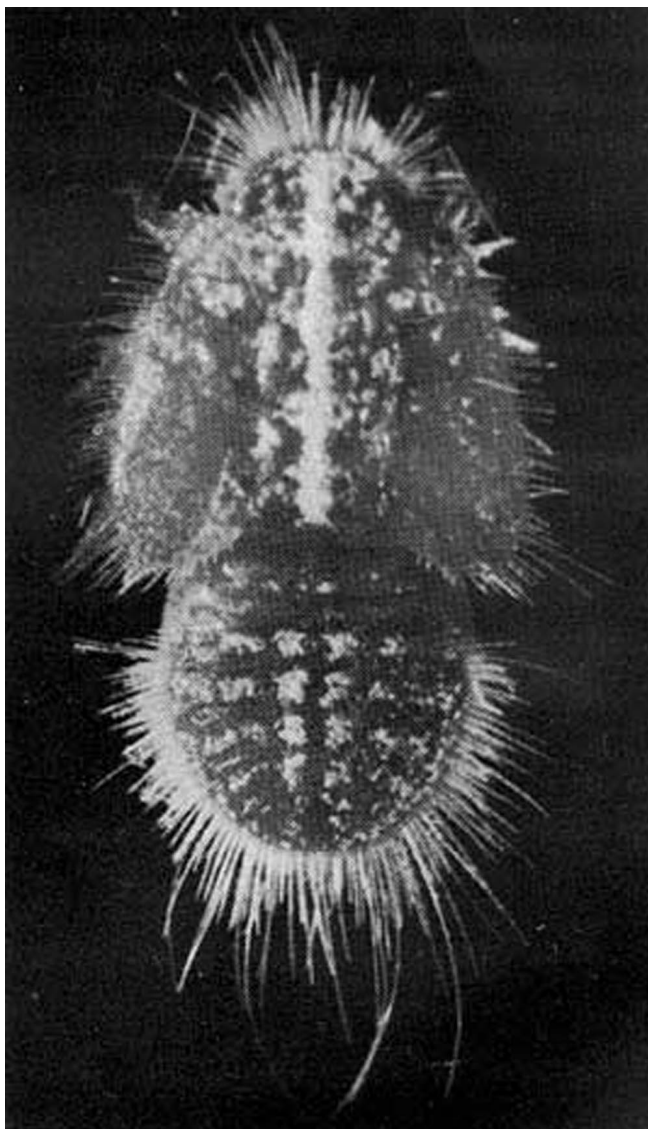


Figure 2. Nymph of the persimmon psylla, *Trioza diospyri* (Ashmead). Credits: Division of Plant Industry

Jacksonville, Florida, leaves of young persimmon trees were very much discolored, curled, and distorted. Under the curled and twisted parts of the leaves, he found numerous small, flattened nymphs arranged in rows and covered with a fine mealy or powdery substance. When disturbed, the nymphs secreted large, watery globules, the color of milky water. Further studies resulted in the following account: "By the middle of April this [the persimmon psylla] is found in considerable numbers on the leaves of the young trees, with beaks inserted, almost standing on their head, and swaying from side to side like the motion of a vessel in a stormy sea. This motion is evidently intended to assist either in inserting the beak or in pumping up the juices of the tree.

At this time they are also caught copulating, soon after which the female begins depositing her eggs. These are very minute, 0.01 inch in length, elongate ovate, pale greenish in color, with a wavy beak beneath at thick end, and a long filament at tip of smaller end, nearly the length of the egg, and extending backwards over it. These are laid along the margin of the leaf, without regard to regularity, the female first preparing for their reception by secreting a thread-like, transparent, gummy substance along the extreme edge of the leaf; she then fastens them in place by the beak, which adheres securely to the gummy substance.

These hatch in from five to six days (actual observation) and the leaf from their punctures curls completely over them; under this they reside until just before the final transformation. The pupa then comes forth, attaches itself to a leaf or twig, and changes into the perfect fly, escaping through a longitudinal slit in the head and thorax. The young take from four to five weeks to mature and breed throughout the whole summer.



Figure 3. Distorted leaf of persimmon and nymph of the persimmon psylla, *Trioza diospyri* (Ashmead), at opening of curled leaf distortion. Credits: Division of Plant Industry

"Like the Fig Psylla, the fall brood probably lay their eggs in crevices of the bark and twigs; these hatch at the first breath of spring, feed on the tender new shoots and leaves, and are those found fully matured by the first and second week in April."

Precise data on number of broods per year are lacking. It would seem that the number of broods would be partially correlated with the occurrence of

new growth flushes that provide the proper substrate for the nymphs in the form of young meristematic leaves and shoots. Most Division of Plant Industry records list nymphs and adults in May, June, and July. Four records for August and two for September pertain to nymphs. Adults probably have emerged in late summer, but have been overlooked by collectors.

Hosts

The Division of Plant Industry has records of the persimmon psylla attacking native persimmon, *Diospyros virginiana* L., and the Japanese or oriental persimmon, *Diospyros kaki* L. The wild persimmon, *D. virginiana*, and its varieties are found from southern Florida to Connecticut, west to Iowa, and southwest to Texas. At least two authorities on trees do not list *D. virginiana* in Mexico. However, *D. texana* Scheele is listed for Texas and northeastern Mexico. Possibly, the persimmon psylla breeds on *texana* or on one or more of the ten other species of *Diospyros* listed for Mexico, if not on *D. virginiana*. Miss Louise M. Russell (personal correspondence June 1966) reported specimens of *Trioza diospyri* from Mexico, but did not list true host plants. Dr. J.S. Caldwell (personal correspondence June 1966) stated that he and others on two Mexican trips, which included a thorough sampling of Morelos, did not collect *T. diospyri*, although admittedly several states of Mexico were not visited. Precise data are needed on *T. diospyri* and its host plants in the Texas-Mexico region, especially.

Economic Importance and Damage

Cultivated Japanese persimmons are important dooryard fruits in Florida, especially from the Tampa area northward. Camp and Mowry (1948) listed a total of about 22,750 bearing and non-bearing trees in Florida. The total number of trees should be greater now. In the early 1960s, a Jefferson County nursery sold 50,000 nursery trees of persimmon.

The persimmon psylla causes leaves and shoots to become stunted, twisted, and curled. The female psylla lay eggs at the margin of the underside of the leaf. When the nymphs hatch they feed and inject toxins which cause the leaf to curl (pocketing) around them, making control difficult (Miller and Crocker 1994). Nymphs are found in the pocketings,

together with white waxy filaments, cast skins, and "honeydew" which ants will often feed on.



Figure 4. Damage to common persimmon, *Diospyros virginiana*, caused by infestation of the persimmon psylla, *Trioza diospyri* (Ashmead). Credits: Jerry A. Payne, USDA; www.insectimages.org

Although a light infestation would have little effect on tree vigor, homeowners would become concerned, especially if the infestation became moderate to severe. Perhaps the most dollar loss occurs to nurserymen who either apply preventive sprays or find tree values lowered when leaves of these trees become infested and distorted.

Management

Older trees are not plagued by psylla, perhaps because they have less succulent growth. Generally, psylla are detrimental to establishment of young trees (Miller and Crocker 1994).

When the leaves become badly distorted and curled, it is too late to apply control measures as the arger nymphs in the pockets of twisted leaves are much more protected and difficult to contact with

sprays. Control with conventional pesticides should be timed to the bloom stage (Mizell and Brinen 2005). Sprays should be directed at adults on trees to reduce or stop egg laying and against early instar nymphs before the leaves are distinctly damaged.

For more information see the Insect Management Guide for Persimmon (<http://edis.ifas.ufl.edu/IG096>).

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