

A Hover Fly, *Allograpta obliqua* (Say) (Insecta: Diptera: Syrphidae)¹

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction



Figure 1. An adult female hover fly, *Allograpta obliqua* (Say).
Credits: Roy Frye

One of the colorful and common little flies in Florida which is most often mistaken for a harmful fruit fly is *Allograpta*

obliqua (Say), a hover fly, flower fly, or syrphid fly. These flies can hover or fly backward, an ability possessed by few insects other than syrphid flies. Adults often visit flowers for nectar or may be seen around aphid colonies where they lay their eggs and feed on honeydew secreted by the aphids. The adults are considered important agents in the cross pollination of some plants. The larvae are important predators, feeding primarily on aphids that attack citrus, subtropical fruit trees, grains, corn, alfalfa, cotton, grapes, lettuce and other vegetables, ornamentals, and many wild plants. When larval populations are high they may reduce aphid populations by 70 to 100%.

Synonymy

Scaeva obliqua Say, 1823
Syrphus securiferus Macquart, 1942
Sphaerophoria bacchides Walker, 1849
Syrphus dimensus Walker, 1852
Syrphus signatus Wulp, 1867

Distribution

This hoverfly has been found in most of the continental United States from Washington to Maine and into Quebec, Canada, southward to California and Florida; also Hawaii, Bermuda, Mexico, and parts of the neotropical Americas, including the West Indies.

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Identification

The egg is creamy white, sculptured, elongate oval, about .84 mm in length and .25 mm in diameter. The full-grown larva is 8 to 9 mm in length, 2 mm in width, and about 1.2 mm in height. Larvae are elongate oval in shape, somewhat flattened on dorsum, with the anterior end drawn out to a point when the insect extends itself. The integument is finely papillose and transversely wrinkled. The fleshy conical elevations are surmounted with pale spines, colored green, with two narrow whitish longitudinal stripes flanking the dorsal vessel.



Figure 2. Egg of *Allograpta obliqua* (Say), a hover fly.
Credits: James F. Price, University of Florida



Figure 3. Egg shell of an emerged hover fly, *Allograpta obliqua* (Say).
Credits: James F. Price, University of Florida

Larvae of *A. obliqua* are almost indistinguishable from those of *A. exotica* (Wiedemann), which occurs uncommonly in Florida. The puparium is green; the two whitish larval stripes apparent for a day or two. As the true pupa inside takes on the black and yellow color of the adult, the

color of the puparium changes until all of the green disappears. The puparium averages 5.25 mm long, 2.5 mm wide, and 2.3 mm high. Posterior elevation is very gradual. The adult is 6 to 7 mm long. This species may be recognized by the generic characters -- yellow thoracic stripes and abdominal crossbands; on the fourth and fifth segments, four longitudinal, oblique, yellow stripes or spots; and yellow face lacking a complete median stripe. Eyes of the male are holoptic, those of the female dichoptic.



Figure 4. Larva of *Allograpta obliqua* (Say), a hover fly.
Credits: James F. Price, University of Florida

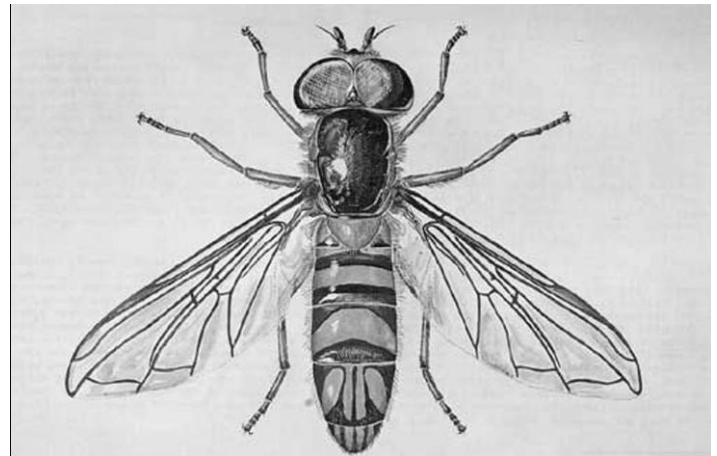


Figure 5. An adult male hover fly, *Allograpta obliqua* (Say).
Credits: Division of Plant Industry

Life History and Habits

Adults of *A. obliqua* occur throughout the year in northern Florida and have been taken in long series in Gainesville in mid-February, but they become much more abundant during spring and summer. In southern Florida they often are abundant even during the winter months. The life cycle varies from as little as three weeks in summer to nine weeks in winter. The eggs are laid singly on the surface of a leaf or twig which bears aphids. They hatch in two to three days

during the summer and within eight days in the winter in southern California (Campbell and Davidson 1924).

Wadley (1931) found that the larval stage took five days, with one larva consuming 242 *Toxoptera* and another 270. Jones (1922) found that larvae took nine days to develop. Miller (1929) reported a larval stage of 10 to 14 days and that the larvae ate an average of 34 aphids per day. Curran (1920) gave the length of the larval stage as 12 to 20 days and recorded one larva as having eaten 265 aphids, an average of 17 per day. The larva fastens itself to a leaf or twig when it is ready to pupate. The pupal stage takes eight to ten days in summer and 18 to 33 days in winter, according to Campbell and Davidson (1924). Wadley (1931) reported a range of six to 11 days with an average of 8.3 days, Miller (1929) six to eight days, Jones (1922) and Curran (1920) five to 17.

Hosts

Many species of aphids have been reported to be hosts of *A. obliqua*. Species of major economic importance listed by Campbell and Davidson (1924), Curran (1920), Davidson (1916), Heiss (1938), Metcalf (1912, 1916) and Thompson (1928) include: *Acythosiphon pisum* (Harris), *Aphis craccivora* Koch, *Aphis gossypii* Glover, *Aphis pomi* De Geer, *Aphis spiraecola* Patch, *Brevicoryne brassicae* (Linnaeus), *Chromaphis juglandicola* (Kaltenback), *Macrosiphum rosae* (Linnaeus), *Myzus cerasi* (Fabricius), (Sulzer), *Rhopalosiphum maidis* (Fitch), *Schizaphis graminum* (Rondani) and *Toxoptera aurantii* (Fonscolombe).

Other aphid hosts reported by those listed above are: *Ampiphora sonchi* (Oestlund), *Aphis cardui* Linnaeus, *Aphis lutescens* Monell, *Aphis rumicis* Linnaeus, *Aphis viburnicola* Gillette, *Capitophorus braggii* (Gillette), *Capitophorus fragaefolii* (Cockerell), *Hyalopterus artiplicis* (Linnaeus), *Macrosiphoniella sanborni* (Gillette), *Macrosiphum euphorbiae* (Thomas), *Myzocallis alhambra* Davidson, *Rhopalosiphum fitchii* (Sanderson) and *Theriothis bella* (Walsh). In addition to aphids, Aleyrodidae (whiteflies) have been reported to serve as hosts for the larvae of this syrphid.

Parasites

Allograpta obliqua larvae, and occasionally pupae, are heavily parasitized, even exceeding 50% some years. The hymenopterous parasites which attack *A. obliqua* as listed in Muesebeck et al. (1951, 1958, 1967) include the following species of Ichneumonidae: *Diplazon laetatorius* (Fabricius), *Diplazon scutellaris* (Cresson), *Ethelurgus syrphicola* (Ashmead), *Homotropus pacificus* (Cresson), *Syrphoctonus*

flavolineatus (Gravenhorst) and *Syrphoctonus fuscitarsus* (Provancher); one species of Pteromalidae: *Pachyneuron allograptae* Ashmead; and one species of Ceraphronidae: *Conostigmus timberlakei* Kamal.

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