

Sapote Fruit Fly, Serpentine Fruit Fly, *Anastrepha serpentina* (Wiedemann) (Insecta: Diptera: Tephritidae)¹

H. V. Weems, Jr.²

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

The sapote fruit fly, *Anastrepha serpentina* (Wiedemann), sometimes called the serpentine fruit fly, is intercepted frequently in United States ports of entry in various hosts from several countries. It is an important pest species in Mexico because its larvae infest sapote, sapodilla, willowleaf lucuma, and related fruits.

Synonyms

Dacus serpentina Wiedemann (1830)

Leptoxys serpentina (Wiedemann) (1843)

Urophora vittithorax Macquart (1851)

(*Trypeta*) *Acrotoxa serpentina* (Wiedemann) (1873)

Acrotoxa serpentina (Wiedemann)

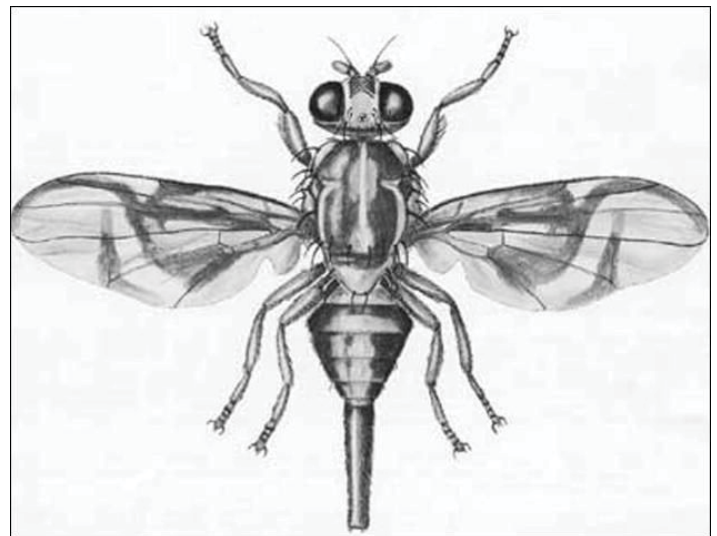


Figure 1. Adult female.

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Distribution

This species is one of the most widely distributed in the genus *Anastrepha*. Its range extends from northern Mexico south to Peru and northern Argentina, and is recorded from Trinidad, Tobago, and Curaçao. It has also been trapped in southern Texas in the US, but it is uncertain whether it has breeding populations there (Norrbon 2003).

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2. H. V. Weems, Jr. (retired), Florida Department of Agriculture and Consumer Services, Division of Plant Industry; UF/IFAS Extension, Gainesville, FL 32611.

If *Anastrepha serpentina* were introduced into southern Florida, it could possibly become a serious pest of the tropical fruits grown there.

Description

Adult

The adult is a medium sized, dark brown fly, with pale yellow and orange-brown markings. The dorsum of the thorax is dark brown with yellow markings. The wing is 7.25–8.5 mm (0.29–0.33 in) long. Wing bands are predominantly dark brown, and the costal and S bands are rather broadly coalescent. On the wing, the hyaline areas to each side of the juncture rarely touch the vein R4+5, with no distal arm to V band. The proximal arm is slender and entirely separated from the S band. The dorsum of the abdomen is marked with dark brown, brownish yellow, and orange. Leg color varies from pale yellow to brownish yellow, or brown on one side and pale yellow on the other.

The ovipositor sheath of the female is 3.0–3.9 mm (0.12–0.15 in) long, orange-brown, rather stout basally and depressed apically. The spiracles are about 1.2 mm (0.05 in) from its base. The ovipositor itself is 2.8–3.7 mm (0.11–0.15 in) long, with the tip slightly more than apical half minutely serrate.

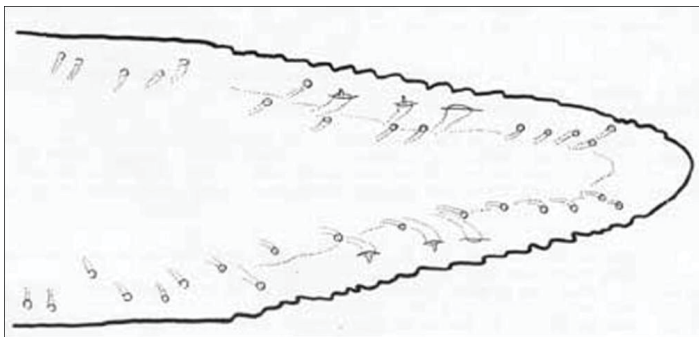


Figure 2. Ovipositor tip.
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Larva

The mature larva is relatively large for fruit flies, 9–10 mm (0.35–0.39 in) long and 1.5 mm (0.06 in) in diameter, with the usual elongate shape. Anterior respiratory organs have the external parts somewhat fan-shaped, but nearly flat across the top, with 17 to 19 small, thick, short tubules. For detailed larval characters, see Phillips (1946).

Anastrepha serpentina, the type of the genus, is one of a group of four species that differ noticeably in color pattern from other species in the genus. As illustrated by Stone (1942), *Anastrepha anomala* Stone has the wing pattern as in *Anastrepha serpentina*, but has a longer ovipositor and a

reduced dark pattern on the pleura and abdomen. *Anastrepha ornata* Aldrich has the costal and V bands separated, and *Anastrepha pulchra* Stone has a large black spot in the disk of the wing.

Life Cycle and Biology

Females may oviposit up to 600 eggs in about one and a half months. Mature green fruits apparently are preferred. Females have been observed to continue oviposition over periods extending from 21 to 29 weeks under laboratory conditions.

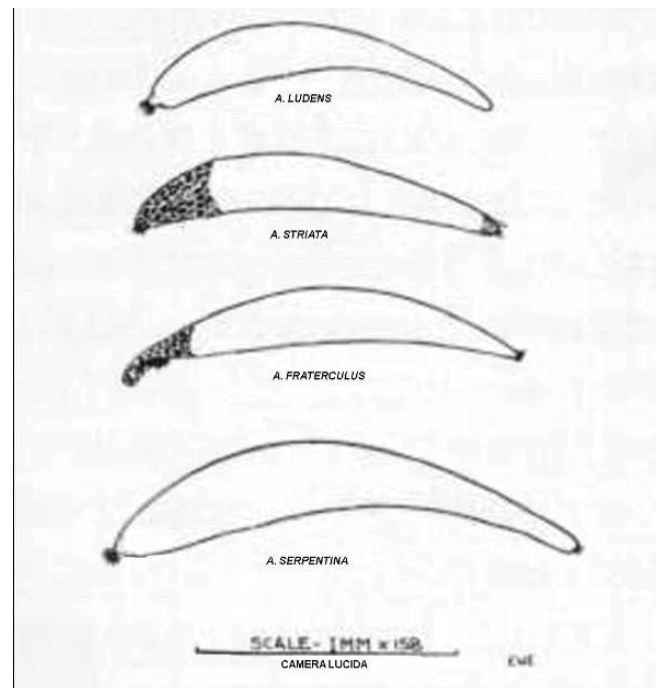


Figure 3. Egg of the sapote fruit fly, *A. serpentina*, compared with other common *Anastrepha* species.
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Hosts

The preferred food plants are members of the family Sapotaceae, especially star-apple, *Chrysophyllum cainito*, and sapodilla, *Manilkara zapota*. Other hosts include:

- *Annona glabra*, pond-apple
- *Citrus mitis*, calamondin; *Citrus paradisi*, grapefruit; *Citrus sinensis*, sweet orange
- *Cydonia oblonga*, quince
- *Dovyalis hebecarpa*, 'Ceylon gooseberry'
- *Ficus* spp.
- *Malus sylvestris*, European wild apple
- *Mammea americana*, mammee apple
- *Mangifera indica*, mango

- *Mimusops coriacea*, monkey's apple
- *Persea americana*, avocado
- *Pouteria lucuma*, 'lucuma'; *Pouteria sapota*, mamey sapote
- *Prunus persica*, peach
- *Psidium guajava*, common guava
- *Pyrus communis*, European pear
- *Sideroxylon palmeri* and *Sideroxylon tempisque*, bully trees
- *Spondias mombin*, jobo or hog plum

Also, larvae have been reared experimentally from tomato, *Lycopersicum esculentum*.

Damage

Infestations in tree-ripe fruits frequently are so high that in parts of Mexico, especially in Veracruz, growers pick the fruits green and ripen them artificially to avoid infestation. Fruits so ripened, however, are inferior to tree-ripened fruits.

Selected References

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