BUG BIZ
Pest Management and Insect Identification Series
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Megaselia scalaris, Scuttle Fly

(Diptera: Phoridae)

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Description

Megaselia scalaris is a member of the family Phoridae, commonly known as scuttle flies. The species is widely distributed in warm regions around the world. Adults are 1/25 to 1/10 of an inch (1.0 to 2.5 mm) long. The common name "scuttle fly" refers to the erratic, rapid movements of the adult flies after landing on surfaces. They are dark brown to yellowish flies with a small, flattened head and a prominent, humpbacked, brown thorax. The abdomen tapers and is marked by darker cross bands. Adults have a pair of large compound eyes situated laterally that possess tiny hairs in rows among individual facets when examined using a microscope. Legs are well-developed, with a stout, enlarged, and flattened hind femora. Wings are large, with thicker veins along the front edge, and are fringed with short to long setae. The concentration of thickened wing veins along the front margin of the wings is an important diagnostic feature that distinguishes scuttle flies from pomace flies, which may also be present in the same circumstances. The antennae are small, three segmented, and located on the front of the head below the eyes. Female adults are larger than males. *M. scalaris* larvae are small, rarely over 1/5 of an inch (5.0 mm) as third stage (instar) larvae, and maggot-like in general appearance.

Life Cycle

Scuttle flies are holometabolous insects that undergo full metamorphosis. The life cycle consists of four stages: egg, larva, pupa and adult. The duration of these stages varies with temperature, with optimum development at 72 F to 75 F (22 C to 24 C). The life cycles can be completed in 10 days under these conditions. At 82.4 F (28 C), more than 20 days are required. Continued exposure to higher temperatures may induce sterilization or death. Males emerge two days before females, allowing sperm to mature in preparation for female emergence.



Megaselia scalaris adult (Charles Schurch Lewallen, Bugguide.org, Creative Commons license).

Megaselia scalaris larvae are omnivorous, feeding on a wide variety of fermenting and decomposing substances. Larvae have been recorded on rotting plants, invertebrate carrion, insects, vertebrate eggs, human foods, fungi, seeds, living plants and unusual substrates, including blue paint and shoe polish. Adults disperse and land sporadically on various surfaces, but usually concentrate near larval feeding substrates.

Ecological Significance and Pest Status

Megaselia scalaris is found in a variety of natural and human produced habitats. The rapid development and ability to survive on a wide variety of food substrates allow rapid population growth and spread. In Louisiana, this species is a common and annoying household pest, often persisting for extended periods of time despite the best efforts of homeowners. Scuttle fly infestations are often first noticed

when adults land on countertops, tables or exposed skin of residents. Bars and restaurants that serve alcoholic beverages often experience outbreaks of scuttle and pomace flies due to repeated spills that create pockets of moisture under counters and floor coverings. Unclean drains, residual moist litter in small animal cages, decomposing parts of house plants and moisture damaged food or pet products are common sources of infestations. Plumbing repairs that fail to remove old pipes with residual moisture and organic matter can sometimes result in persistent and difficult to diagnose scuttle fly infestations.

Megaselia scalaris is an important species in forensic entomology. The species can provide useful data in cases involving contamination of foods, establishment on corpses, and myiasis (infestation of live hosts by larvae). Reptiles appear to be particularly susceptible to myiasis by scuttle fly larvae. This species has also been cultured in laboratories as model organisms for genetic, development and bioassay studies. Biological control using scuttle flies against some agricultural pests such as fall armyworm (*Spodoptera frugiperda*) and southern green stinkbug (*Nezara viridula*) has been studied.

Control

Monitoring. Due to the omnivorous feeding habits of these flies, cleanliness, humidity control and removal of garbage containing moisture are important in preventing infestations and spread.

Physical control. As with all household insect pests, screens on open windows and tight seals around doorways and window openings can prevent initial entry of scuttle flies. Using indoor traps or sticky tapes can reduce the size of adult populations, but eliminating larval feeding substrates is critical to lasting control.

Chemical control. Insecticides are effective in controlling adult flies and may be effective against larvae if sources are located. Proper sanitation is a better option in the latter case. Always follow legally mandated label directions when using insecticides.

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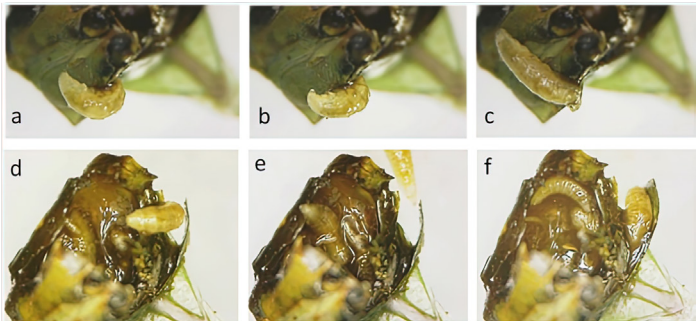
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Third-instar larvae of Megaselia scalaris emerging from the thorax of southern green stinkbug (Nezara viridula (L.)) (El-Hawagry MS, et.al. 2021, Creative Commons license).

Contact Us: For advice about arthropod identification or diagnosis, contact the LSU AgCenter Department of Entomology. Reach the department through the Contact Us webpage: https://bit.ly/36c4awm.

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