

Introduction & Key to Common Flies

From: *Insect and Related Pests of Flowers and Foliage Plants*. Baker, J.R. ed. 1994 (revised). NC Coop. Ext. Service publication AG-136. <https://content.ces.ncsu.edu/insect-and-related-pests-of-flowers-and-foliage-plants>



Fungus gnat and shore fly (UC IPM)

Fungus gnats and shore flies occur nearly everywhere that greenhouse plants are grown. The adults of both groups are mostly nuisance pests but can carry around one or more important species of plant disease-causing agents. The fungus gnat has long antennae and legs, and the head is quite small in relation to the body. The shore fly adult resembles a small house fly (it is about the size of a fruit fly), the antennae are short, and the head is relatively large with red eyes. In addition, shore flies have small whitish spots on their wings.

Both insects can complete the egg to adult cycle in 25 to 30 days. Fungus gnat larvae are whitish, translucent with shiny black heads. They occur in the soil, or potting mix, and feed on fungi and healthy plant tissue. Shore fly larvae live in wet areas containing algae. Both adults and larvae feed on algae, not cultivated plants. Large numbers of shore flies can occur if there are algae growing on the potting mix, benches, plastic or glass, etc.

Yellow sticky traps will catch adults of both insect groups. Horizontal traps, placed face up on the potting mix or bench, are effective. Once caught, it is important to distinguish between the two insect groups. Once again, fungus gnats on sticky traps are distinctly different from shore flies. The importance of identification is related to how one approaches control.

Fungus gnats can be controlled with conventional or biorational insecticides, as well as biologically. Most applications are for control of larvae as drenches or heavy sprays. Conventional insecticides registered include chlorpyrifos (DuraGuard). Biorational products include azadirachtin (Azatin), *Bacillus thuringiensis* H-14 (Gnatrol), cyromazine (Citation), fenoxycarb (Precision), kinoprene (Enstar II) and diflubenzuron (Adept). Biological controls are insect-attacking nematodes (mostly *Steinernema feltiae*) and predatory mites in the genus *Hypoaspis*.

Although there are a few insecticides (actually the insect growth regulators Citation, Precision and Adept) registered for shore fly control, as well as suggested biological controls, results have been unspectacular and inconsistent. This is probably because shore flies live in very wet areas and do not feed on plant roots. Cultural and physical controls will help. Avoid potting mixes that promote the growth of algae. Clean algae from benches, walls, and floors. Do not have permanently wet areas in the greenhouse, especially containing fertilizer to promote algae.



Darkwinged fungus gnat (Whitney Cranshaw, Bugwood.org)



Shore fly (Jim Baker, Bugwood.org)

Key to Most Common Fly Pests found on Flowers and Foliage Plants

1. **Narcissus bulb fly:** Larger flies, 10 to 12 millimeters long; dense covering of long hairs that gives a furry look, resembling that of bees.
- 1.' Smaller flies, 6 millimeters long or shorter; hairs scattered or very short, flies not bee-like.....2
2. **Lesser bulb fly:** Flies about the size of a housefly, 5 to 6 millimeters long; body shiny under a dense covering of short hairs.
- 2.' Flies smaller, 3 millimeters long or less; body either dull colored or with scattered long hairs.....3
3. **Darkwinged fungus gnats:** Antennae elongate, as long as head and thorax; flies dull black with uniformly dark-colored wings.
- 3.' Antennae no longer than head; pattern usually present on body or wings.....4
4. ***Liriomyza* spp:** Flies shiny black and elow; wings clear.
- 4.' **Shore flies.** Flies dull; some species have patterned body or wings.



Darkwinged fungus gnat larva (Whitney Cranshaw, Bugwood.org)



Narcissus bulb fly larva (Whitney Cranshaw, Bugwood.org)

Key to the most common maggots found on flowers and foliage plants

1. **Darkwinged fungus gnats:** Larva with shiny black head capsule; body slender, white, smooth; found in decaying roots or stems or soil around them, rarely even on terminals; mostly in greenhouses.
 - 1.' Without head capsule, with a pair of downward curving mouth hooks; body a typical maggot, wider in middle and tapering to one or both ends, may have roughened skin or flesh filaments protruding from body.....2
2. ***Liriomyza* spp.:** Tiny yellow maggots, smooth; mining in leaves of plants.
 - 2.' Not yellow and not leafminers.....3
3. Larvae found in roots, rhizomes or bulbs.....4
 - 3.' **Shore flies:** Larvae found among algae or on wet surfaces, in hydroponic operations, filters, wet benches, etc.
4. **Narcissus bulb fly:** Mature larva large, more than 10 millimeters long; with only 1 pair of very short flesh filaments under the spiracular tube at end of body; spiracular tube about as long as wide.
 - 4.' **Lesser bulb fly:** Mature larva small, less than 10 millimeters long; with 3 pairs of flesh filaments around the spiracular tube; spiracular tube about twice as long as wide.

