

## Colorado Insect of Interest

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# Small Fruit Flies (Vinegar Flies)

**Scientific Name:** *Drosophila* spp.

**Order:** Diptera (True Flies)

**Family:** Drosophilidae (Small Fruit Flies, Vinegar Flies, Pomace Flies)

**Identification and Descriptive Features:** Small fruit flies are small flies, approximately 3 mm (1/8) long. They are stout bodied and with a tan-colored head and thorax. The abdomen is darker, often with bands. Most have bright red eyes.



**Figure 1.** Small fruit fly.

**Distribution in Colorado:** Various *Drosophila* species can be found statewide and several European species are now widely established throughout North America. [Present confirmed species in Colorado include *Drosophila melanogaster* Meigen, *D. buskii* Coquillett, and *D. funebris* (F.). ] They can become extremely abundant around sources of fermenting vegetable matter and sometimes breed indoors when suitable foods are present.

**Life History and Habits:** Larvae of small fruit flies feed on yeasts and other microorganisms that are associated with fermenting fruit, vegetables, other plant matter and animal manure. (Material decayed by the action of fungi or bacteria are not attractive.) Plant ooze produced from infections of trees are also commonly colonized. Indoors, small fruit flies sometimes develop large numbers in association overripe fruit or residues remaining in discarded containers of soft drinks or beer.



**Figure 2.** Small fruit fly larvae developing in fermenting banana.

Eggs may be laid directly on the food or around the edges and hatch within 1-2 days. The larvae feed on the surface. They are tiny legless maggots and have extended spiracles at the tip of the abdomen that allow them to acquire oxygen while feeding in semi-liquids. The larval life can be



**Figure 3.** Small fruit fly pupae in overripe banana.

flies are sometimes found within the home. Most similar in general size and body shape are phorid flies (Phoridae family), sometimes known as drain flies. These feed on decaying organic matter and most often develop high indoor populations in association with plumbing leaks. In close inspection their strongly arched prothorax and two dark, heavy veins along the fore edge of the wings can distinguish phorid flies.

Moth flies (Psychodidae family) also may be found indoors and similarly are associated with plumbing, developing on the bacterial gel that sometimes coats the interior of pipes. Their distinctive wings, held roof-like over the body and covered with fine hairs are characteristic of the moth flies. Fungus gnats also may occur indoors and are associated with the potting soil of houseplants



**Figure 4.** A simple trap for small fruit flies, baited with vinegar.

completed in about 5-6 days at summer temperatures. They then crawl away to pupate in a somewhat drier site. The entire life cycle can be completed in 8 days at 85<sup>0</sup>F.

**Related Species:** Although poorly collected within the state, several other genera of small fruit flies are also known or suspected of being present within the state, including *Chymomyza*, *Clastopteromyia*, *Scaptomyza*, and *Mycodrosophila*.

**Other Small Indoor Flies:** Several other small flies are sometimes found within the home. Most similar in general size and body shape are phorid flies (Phoridae family), sometimes known as drain flies. These feed on decaying organic matter and most often develop high indoor populations in association with plumbing leaks. In close inspection their strongly arched prothorax and two dark, heavy veins along the fore edge of the wings can distinguish phorid flies.

#### **Control of Small Fruit Flies in the Home:**

Infestations of small fruit flies in buildings almost invariably originate from breeding sources that should be identified and eliminated. Overripe fruit is a typical breeding site. Fruit flies may also breed in the residue remaining from incompletely washed soft drink and beer containers, on spilled material around garbage containers and incompletely sealed compost containers.

All such areas should be treated to deny further breeding, by discarding, washing, or better sealing areas to exclude flies. If this done thoroughly the number of flies should be seen to decline within a few days and the infestation can end when all remaining adult flies die, a period of about 2 weeks.

Small fruit flies can also be readily trapped. Vinegar, beer, or mashed fruit (banana, peaches) can be highly attractive and the flies can be directed into a simple trap with a funnel entrance (Figure 4).