

# Diptera – Flies

Unlike the other insects, I had to learn about the Diptera taxonomy to understand what I was reading. Flies are divided into two suborders, 1) Nematocera, which are the lower order flies, and 2) Brachycera, which are the higher order flies and also the short-horned flies. The Nematocera are then divided into the aquatic families and the terrestrial families.

Diptera evolved from aquatic life histories and as some became terrestrial, their eggs remained aquatic for some portion of the egg development. Aquatic life has its benefits. Water circulates freely bringing food more easily to the aquatic larvae than those living in soil. The result is that soil dwellers take longer to develop.

Less than half of the flies in the world are known, described, and named; their larvae even less so, with an estimated 5% of them recognized.

Diptera larvae are extremely variable in their appearance. The variation is so great that there is no one characteristic or combination of characteristics that allows a person to differentiate them from other larvae experiencing the same type of metamorphosis. The one common character fly larvae have is the absence of jointed thoracic legs. Often if one finds a slender larvae moving in one direction, it could be in a Diptera.

Habitat is another highly variable element of Diptera larvae. There are aquatic ones living where water is present, regardless of whether it is fresh water or polluted. Terrestrial larvae can be found in living plants, galls, or decaying plant and animal matter. Some larvae are parasitic; some are predaceous.

Flies taste with their feet and smell with their antennae. When they land on plants, they are looking for the honeydew

left by other insects. Their darting and dashing about is in search of this sweet liquid.

Adult flies do not have chewing mouthparts and therefore are thought of as plant partners since they rarely damage the foliage, seeds, stems, or flowers. This cannot be stated for many fly larvae. Leaf-mining is damage to the leaf that looks like abstract channels grooved in the leaf. Leaf mines are usually the work of a fly larvae, a beetle larvae, or a moth caterpillar. It's also an easy way to identify the flies as leaf-miners are plant specific with a unique mining pattern.

If you haven't spent much time studying flies and bees, some can look very similar. There are fly mimics among bees and bee mimics among flies. A couple of easy ID traits to keep in mind are:

- 1) flies wings are out to their side when at rest; bees are folded over their body
- 2) flies have one set of wings; bees have two
- 3) Antennae on flies are short and stubby; bees are long

Male and female flies can be distinguished by their eyes. Males have large eyes that meet in the middle while female eyes are separate.

The evolution of flies has been rather slow until the 1850s. Since then, humans have been the strongest forces exerting change on our insects. We are altering the face of earth by destroying forests, cultivating prairies, spraying insecticides, and killing game animals faster than our ancestors could. This is a rather sobering statement!

Diptera are difficult to ID so I'm feeling pretty lucky to have some of the genera known even though they are unable to ID'd down to the species level. Many of them do not have a common name. Where I have found one, I have included it, otherwise they are listed by their genus and alphabetized as such.

### **Anisopodidae (Wood Gnats)**

*Sylvicola* (subgenus *Anisopus*) sp

### **Anthomyiidae (Root-Maggot Flies)**

*Pegomya* Group

### **Asilidae (Robber Flies)**

*Holcocephala* sp

*Laphria astur*

*Laphria sericea*-aktis complex

*Laphria thoracica*

*Tipulogaster glabrata*

### **Bombyliidae (Bee Flies)**

*Anthrax georgicus* – Black Bee Fly

*Geron* sp

*Hemipenthes sinuosa* – Sinuous Bee Fly

*Sparnopolius confusus*

*Systoechus* sp

*Systoechus vulgaris*

*Villa* sp

### **Calliphoridae (Blow Flies, Screwworms, and Cluster Flies)**

*Cochliomyia macellaria* – Secondary Screwworm

*Phormia regina* – Black Blow Fly

*Pollenia* sp – Cluster Fly

### **Cecidomyiidae (Gall Midges and Wood Midges)**

*Asphondylia* sp

### **Ceratopogonidae (Biting Midges)**

Biting Midge – *Culicoides* sp

### **Chironomidae (Non-Biting Midges)**

*Chironomus decorus*-like

*Cricotopus* subgenus *Isocladius*

### **Chloropidae (Grass Flies)**

*Thaumatomyia* sp

**Conopidae (Thick-headed Flies)**

*Myopa vesiculosa*

**Culicidae (Mosquitoes)**

*Aedes vexans* – Inland Floodwater Mosquito

**Dolichopodidae (Long-legged Flies)**

*Condylostylus siphon*

*Condylostylus* sp comatus group

*Gymnopternus* sp

**Drosophilidae (Vinegar Flies)**

*Drosophila* sp

**Empididae (Dance Flies)**

*Empis clausa*

*Rhamphomyia vittata*

**Heleomyzidae (Wombat and Cave Flies)**

*Amoebaleria helvola*

**Hybotidae (Hybotid Dance Flies)**

Hybotid Dance Fly – *Platypalpus* sp

**Limoniidae (Limonid Crane Flies)**

*Erioptera chlorophylla*

*Gnophomyia tristissima*

*Limonia annulata*

*Limonia immatura*

**Micropezidae (Stilt-legged Flies)**

*Rainieria antennaepes*

**Muscidae (House Flies and kin)**

*Mesembrina* sp

*Musca domestica*

*Stomoxys calcitrans*

**Mycetophilidae (Fungus Gnats)**

*Mycetophila* sp

### **Oestridae (Bot Flies)**

*Cuterebra abdominalis*

*Cuterebra fontinella* – Mouse Bot Fly

### **Psychodidae (Moth and Sand Flies)**

*Psychoda* sp

*Setomima* sp

### **Pyrgotidae (Scarab-killing Flies)**

*Pyrgota undata* – Waved Light Fly

*Sphecomyiella valida*

### **Rhageonidae (Snipe Flies)**

*Chrysopilus thoracicus* – Golden backed Snipe Fly

*Rhagio mystaceus* – Common Snipe Fly

### **Sarcophagidae (Flesh and Satellite Flies)**

Flesh Fly – *Sarcophaga* sp

### **Sciaridae (Dark winged Fungus Gnat)**

*Sciara* sp

### **Sciomyzidae (Marsh Flies)**

*Euthycera arcuata*

### **Sepsidae (Black Scavenger Flies or Antlike Scavenger Flies)**

*Sepsis* sp

### **Syrphidae (Flower Flies)**

*Chrysotoxum* sp

*Eristalinus aeneus*

*Eristalis arbustorum*

*Eristalis tenax* – Drone Fly

*Eristalis transversa* – Traverse Flower Fly

*Helophilus fasciatus*

*Sphaerophoria contigua*

*Spilomyia sayi*

*Syrphus ribesii*

*Toxomerus geminatus*

*Toxomerus marginatus*

*Toxomerus politus*

**Tabanidae (Horse & Deer Flies)**

*Chrysops cincticornis*

*Hybomitra* sp

**Tachinidae (Feather-legged Flies)**

*Archytas apicifer*

*Gymnoclytia* sp

*Phyllophilopsis* sp

*Tachinomyia* sp

*Trichopoda pennipes*

*Trichopoda* sp

*Winthemia* sp

*Zelia* sp

**Tephritidae (True Fruit Flies)**

*Euaresta festiva* – Festive Fruit Fly

*Eurosta solidaginis* – Goldenrod Gall Fly

**Tipulidae (Giant Crane Flies)**

*Nephrotoma alterna*

*Tipula abdominalis* – Giant Crane Fly

*Tipula bicornis*

*Tipula fuliginosa* – Sooty Crane Fly

**Ulidiidae (Picture-winged Flies)**

*Callopistromyia strigula*

*Chaetopsis* sp