

## ***Time flies like an arrow***

### ***Fruit flies like a banana***

Groucho Marx (1890–1977)

Flies are everywhere and they get everywhere. Some bite, some carry diseases and some are just simply annoying. Perhaps that's why, along with the Common Wasp, they are among the most insufferable of insects. They have provoked the fly-swat, fly-spray, fly-paper, the 'fly in the ointment' and more.

Yet with 7,000 different species in Britain alone, large and minute, from the seashore to the tops of mountains, they are an indispensable part of our wildlife ecology. The billions of individual flies and their larvae are important for breaking-down and recycling organic material in the soil, as well as being a major source of food for other animals (and a few plants). Many are predators of other insects, and some are important pollinators, especially for our wild flora.

### **Flies on Shotover: early 20th Century**

The recording of Diptera (the True Flies) on Shotover has an interesting and chequered history. By 1939 over 700 species had been recorded specifically for Shotover Hill and 200 for Brasenose Wood (840 species overall) and these totals did not include other species that were widespread in Oxfordshire at that time.

This is a remarkable total for a site in the early 20th Century, and was all the more extraordinary for being almost entirely the work of one man - Albert Hamm (1861–1951). Furthermore, Shotover was only one of several sites around Oxford that attracted the attention of this very productive field worker.

Hamm was not just an exceptional field entomologist. From around the Oxford area he assembled important collections of predatory flies complete with the specific prey item caught, and his observational research into the courtship behaviour of flies was a major contribution to entomology.

Hamm retired from the Oxford University Museum in 1931. Then over the next 50 years the total number of individual flies recorded on Shotover was just two!

### **Flies on Shotover: recent recording**

Renewed recording began with *ad hoc* visits from dipterists during the 1980s and '90s. However, the recent work of Shotover Wildlife, in particular its use of Malaise and Vane traps, has greatly increased the known diversity and understanding of Diptera on Shotover, especially since 2012 thanks to support from the Heritage Lottery Fund.

During the period from 2000 to 2014, Shotover Wildlife has added 380 species of fly to the Shotover list (240 in 2013 alone) bringing the all-time total of known species for Shotover to over 1300 - nearly a fifth of the British Diptera. Even so, there are still 500 species of fly that have not been re-recorded since Albert Hamm was walking on the Hill (1897–1925).

The Hoverflies are the largest group of Diptera at Shotover, with over 100 species recorded in recent years. The next largest group is the Crane-flies, or 'Daddy-long-legs', with 90 species. Although most people are familiar with the big gangly 'Daddy-long-legs', some species are surprisingly small - as little as 3mm long.

## **The amazing Bee-fly**

A very noticeable and particularly fascinating creature is the Dark-edged Bee-fly (*Bombylius major*), more often referred to simply as the Bee-fly (pictured below). This fly is well named as, not only does it mimic a Bumblebee, its larvae are parasitic on Solitary Bees and are frequently seen on warm sunny days in prime bee habitat. Consequently, these delightful insects are a common sight on Shotover.



On closer inspection the appearance and behaviour of the Bee-fly is very distinctive. In flight it acts like a small hummingbird, hovering with great accuracy to insert its long proboscis into a flower for nectar.

When seen at rest, the 'picture wings' are beautifully marked with a dark-grey undulate pattern along the front edge.

For a long time it was thought that the Bee-fly could be seen laying its eggs in fine sandy soil, but it turns out that the female is actually collecting the sand in a special cavity under her tail. When the eggs are produced, they are coated with sand from the cavity (for camouflage and extra weight) and then flicked, using special abdominal spines, at the nests of bees - and speculatively at any other small dark object. This flick can be seen as the fly darts forward and back very quickly whilst hovering just above the ground. When the larvae hatch, they crawl to find and enter a bee's nest where they eat the bee larvae and complete their own life-cycle.

### Rare flies on Shotover

Two fly species which have been recorded recently on Shotover could hardly be more rare. The first was in 2006 from dead-wood habitat near Horspath, when four tiny flies were collected from a fungus top that was growing on a rotting Sycamore log. When these flies were compared with other examples from Britain and Hungary, they were found to be a new species to science and given the name *Leiomyza birkheadii*. The Horspath specimens are now kept at various museums around Britain as reference specimens for the species.

The second rare fly is *Ophiomyia skanensis*, a small leaf-mining fly which was caught in Long Marsh in 2013. This was the first ever record of this species in Britain.

The woodlands of Shotover are important for supporting a population of the rare Crane-fly *Tanyptera nigricornis* (below). This handsome fly is glossy red-and-black and about 2cm long, but is not often seen as it spends most of its life up in the oak trees. Although there are widespread records of this fly from across Britain, and it has been identified several times at Shotover, *T. nigricornis* is a rare fly of old woodlands.



### What are Diptera: the True Flies

Surely most people know that Butterflies and Dragonflies are not really flies! But then neither are the Sawflies, Mayflies, Blackflies, Whiteflies, Caddis-flies or Damselflies. However, included among the True Flies are Hoverflies, Houseflies, Crane-Flies, Blowflies, Soldierflies, Fruit-flies and Horseflies.

The difference is in the wings. Most flying insects use two pairs of wings for flight. Exceptions are the Beetles, which fly with the back pair - the front pair forming the hard shiny wing-cases. And the True Flies which fly with the front pair - the back pair being reduced to two tiny, but very important, stumps, called halteres. These act as vibrating stabilizers (see Crane-fly illustration) and the fly cannot fly without them.

**Shotover Wildlife** is an independent voluntary organisation founded to research and communicate the importance of Shotover Hill for wildlife

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### Related leaflet titles

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Cover: Common Awl Fly (Head)

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Illustrated by Jacqueline Wright

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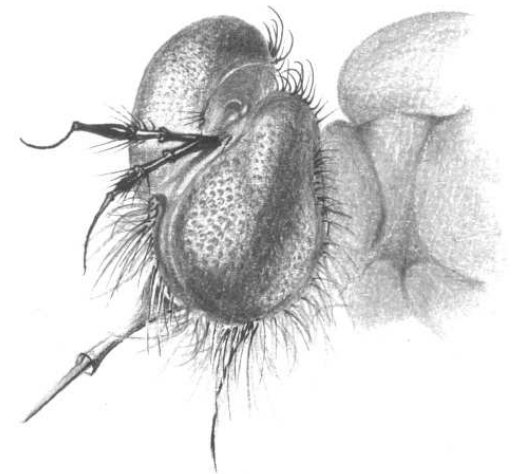
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# FLIES

## on SHOTOVER



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