

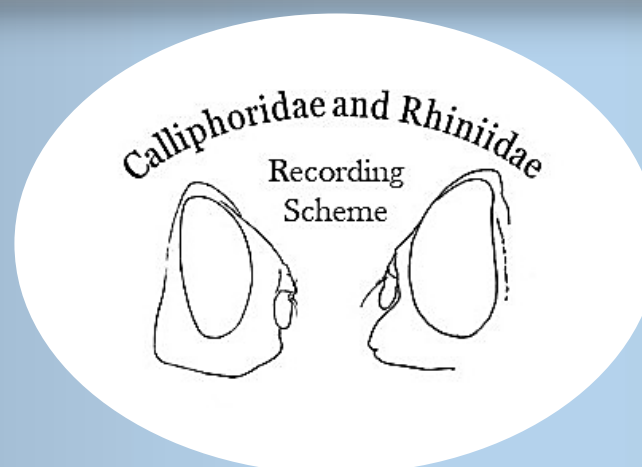
Blow flies (Diptera, Calliphoridae) of Great Britain. Identification key to subfamilies and species of forensic importance.

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The blow flies (family Calliphoridae) are a common and widespread group. 37 species from 6 subfamilies and 14 genera have been recorded in Britain. Although any calliphorid species has the potential to be found in a forensic context, some species are more likely to be encountered. These are flies from the genera *Calliphora*, *Cynomya*, *Lucilia*, *Phormia* and *Protophormia*. Their larvae develop in decomposing flesh and can be used to establish the minimum post-mortem interval, commonly known as the 'time since death'. These flies are labelled here as 'species of forensic importance'. Calliphorid species from other genera have a much lower potential of being useful in forensic investigations as they are not directly associated with cadavers. These are labelled as being 'of no forensic importance' and are not presented here in detail.

Accurate species identification is essential for forensic reconstruction. The following key has been developed as a tool for amateur entomologists as well as professionals. It focuses on characters that do not require special preparation, for example it avoids examination of genitalia. The characters selected for the key are well illustrated using drawings and stacked photographs.

The key is based on and uses features adapted from Rognes (1991), Erzinçioğlu (1996), Draber-Mońko (2004) and Whitworth (2006). The specimens that have been used come from the main collection of the Natural History Museum, London, the reference collection of the Angela Marmont Centre and from other private collections. The photographs were taken with a Canon 700D DSLR and MP-E 65mm lens with macro flash and the images were stacked using Helicon Focus software – all courtesy of the Angela Marmont Centre for UK Biodiversity.

IDENTIFICATION KEY TO SUBFAMILIES

1. 1a. Lower parafacialia with strong setae – **HELICOSCINAE** 1 species of no forensic importance: *Eurychaeta palpalis* 1b. Lower parafacialia without strong setae – 2

2. 2a. Thorax with golden crinkly hairs – **POLLENIINAE** - subfamily of no forensic importance 2b. Thorax without golden hairs – 3

3. 3a. Stem vein hairy above – **CHRY SOMYINAE** 3b. Stem vein bare above – 4

4. 4a. Lower calypter hairy above – **CALLIPHORINAE** 4b. Lower calypter bare – 5

5. 5a. Suprasquamal ridge with tuft of hairs. Flies shiny metallic green, bluish green or coppery reddish green – **LUCILIINAE** 5b. Suprasquamal ridge bare. Flies black, black with dusting or dark blue – 6

6. 6a. Body black, black with dusting or dark blue. Palpi dark, prementum short and stout – **MELANOMYINAE** – subfamily of no forensic importance 6b. Body black with weak brown sheen. Palpi yellow, prementum long and slender – *Bellardia pubicornis* – species of no forensic importance

SUBFAMILY CALLIPHORINAE

1. 1a. Parafrontal areas golden – genus *CYNOMYIA* 1 species: *Cynomya mortuorum* 1b. Parafrontal areas darker: orange or nearly black – 2

2. 2a. Parafacialia with long hairs over most of its length. Bend of vein M obtuse. Body black or green, rarely blue – *BELLARDIA* – genus of no forensic importance 2b. Parafacialia with fine hairs restricted to upper half or absent. Bend of vein M acute or right angled. Body blue, rarely green – **CALLIPHORA** – 3

3. 3a. Lower calypter mostly dark – 4 3b. Lower calypter white or creamy yellow – 7

4. 4a. Anterior thoracic spiracle orange (a), basicosta yellow (b) – *Calliphora vicina* 4b. Anterior thoracic spiracle infuscated (c), basicosta black (d) – 5

5. 5a. Postgena and lower parts of gena with orange hairs – *Calliphora vomitoria* 5b. Postgena and lower parts of gena with black hairs – 6

6. 6a. Parafacialia with black base colour, in upper part a shining white spot – *Calliphora loewi* 6b. Parafacialia with orange base colour – *Calliphora uralensis*

7. 7a. Scutellum with three marginal bristles each side – *Calliphora stelviana* 7b. Scutellum with four or five marginal bristles each side – *Calliphora subalpina*

SUBFAMILY LUCILIINAE, GENUS *LUCILIA*

1. 1a. Basicosta creamy white or yellow – 2 1b. Basicosta dark – 3

2. 2a. Two or more anterior-dorsal bristles on the middle tibia – *Lucilia richardsi* – species of no forensic importance 2b. One anterior-dorsal bristle on the middle tibia – *Lucilia sericata*

3. 3a. Subcostal sclerite without black setulae – 4 3b. Subcostal sclerite with black setulae – 5

4. 4a. Three postsutural acrostichal bristles. Palpi entirely brown, dark brown or black, end black – *Lucilia silvarum* 4b. Two postsutural acrostichal bristles. Palpi entirely pale brown – *Lucilia bufonivora* – species of no forensic importance

5. 5a. Coxopleural streak present – 6 5b. Coxopleural streak absent – *Lucilia ampullacea*

6. 6a. Male: frons distinctly narrower than parafacialia – *Lucilia caesar* 6b. Male: frons about as wide as parafacialia – *Lucilia illustris*

6a. Female: T6 with short marginal setae at dorsal and lateral-ventral sides, most of lateral part appearing bare; in lateral view medial-dorsal edge convex – *Lucilia caesar* 6b. Female: T6 with long marginal setae along the whole hind margin, no bare sections; in lateral view medial-dorsal edge straight – *Lucilia illustris*

SUBFAMILY CHRY SOMYINAE

1. 1a. Calypters dark brown – genus *PROTOPHORMIA*, 1 species: *Protophormia terraenovae* 1b. Calypters creamy white or weakly infuscated – 2

2a. 2a. Basicosta and anterior thoracic spiracle yellow. Presutural acrostichals hardly twice as long as ground vestiture. Upper calypter with white hairs on lateral half of upper surface – *PHORMIA*, 1 species: *Phormia regina* 2b. Basicosta and anterior thoracic spiracle dark. Presutural acrostichals approximately four times longer than ground vestiture. Upper calypter bare on upper surface – *PROTOCOLLIPHORA*, 1 species of no forensic importance: *Protophormia azurea*

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