

# Key to British genera of Asilidae

## References

Oldroyd H. (1969) Handbooks for the Identification of British Insects, Volume 9, part 4, Diptera Brachycera, section (a) Tabanoidea and Asiloidea.  
Geller-Grimm F. (2003) Fotoatlas und Bestimmungsschlüssel für die Raubfliegen Deutschlands (Diptera: Asilidae)

## Checklist (from Chandler 1998, 2020 update)

### Subfamily Asilinae

Genus ***Asilus*** Linnaeus, 1758)  
    ***crabroniformis*** Linnaeus, 1758)  
Genus ***Dysmachus*** Loew, 1860  
    ***trigonus*** (Meigen, 1804)  
Genus ***Eutolmus*** Loew, 1848  
    ***rufibarbis*** (Meigen, 1820)  
Genus ***Machimus*** Loew, 1849  
Genus ***Neoitamus*** Osten Sacken, 1878  
Genus ***Neomochtherus*** Osten Sacken, 1878  
    ***pallipes*** (Meigen, 1820)  
Genus ***Pamponerus*** Loew, 1849  
    ***germanicus*** (Linnaeus, 1758)  
Genus ***Philonicus*** Loew 1849  
    ***albiceps*** (Meigen, 1820)  
Genus ***Rhadiurgus*** Loew, 1849  
    ***variabilis*** (Zetterstedt, 1838)

### Subfamily Dasypogoninae

Genus ***Dasypogon*** Meigen, 1803  
    ***diadema*** (Fabricius, 1781)  
Genus ***Leptarthrus*** Stephens, 1829

### Subfamily Laphriinae

Genus ***Choerades*** Walker, 1851  
Genus ***Laphria*** Meigen, 1803  
    ***flava*** (Linnaeus, 1761)

### Subfamily Leptogastrinae

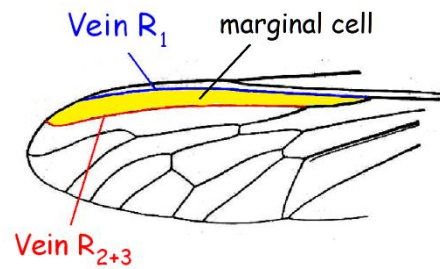
Genus ***Leptogaster*** Meigen, 1803

### Subfamily Stenopogoninae

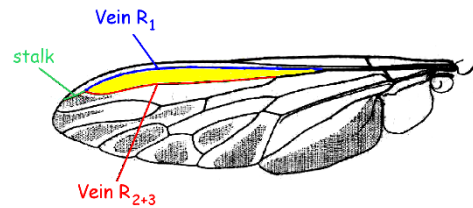
Genus ***Dioctria*** Meigen 1803  
Genus ***Lasiopogon*** Loew 1847



- 1 Marginal cell open so that veins  $R_1$  and  $R_{2+3}$  reach the wing margin separately. ....2



Marginal cell closed. Veins  $R_1$  and  $R_{2+3}$  join together and proceed as a single vein (stalk) to the wing margin. ....6



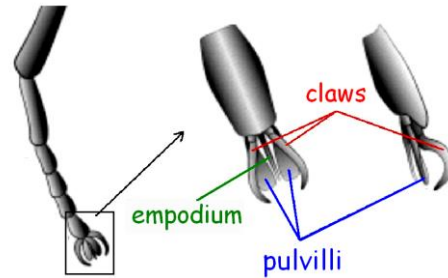
- 2 Pulvilli absent. Elongate slender flies with a cylindrical abdomen. 3<sup>rd</sup> antennal segment with an arista. ....

..... Genus *Leptogaster*

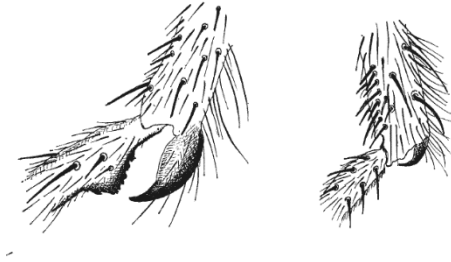
Subfamily Leptogastrinae



- Pulvilli present. Body not elongate and slender. ....3

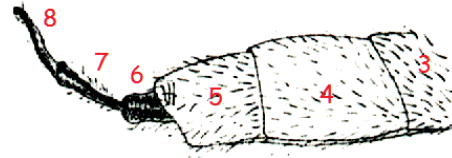
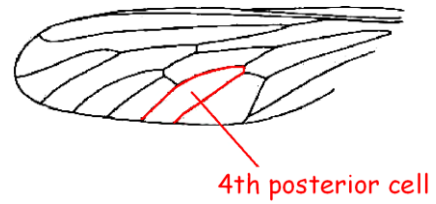


- 3 Front tibia with a curved spine at the tip. ...[4](#)  
Subfamily Dasypogoninae



Front tibia without an apical curved spine. ....[5](#)  
Subfamily Stenopogoninae

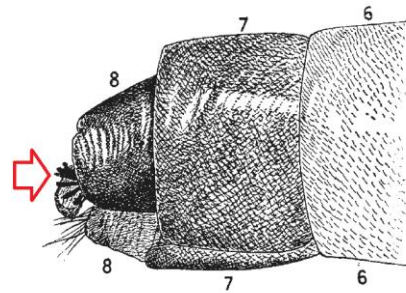
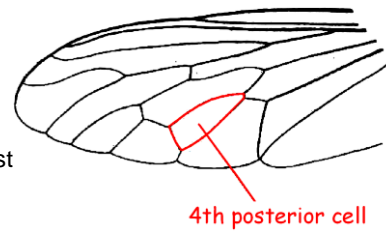
- 4 Fourth posterior cell open. Female with telescopic ovipositor. ....  
 ..... Genus *Leptarthrus*



Fourth posterior cell closed. Female with concealed ovipositor which bears a circlet of spines. ....

..... ***Dasypogon diadema***

This species has been collected on the odd occasion during the last century but it is probably not a breeding British species.

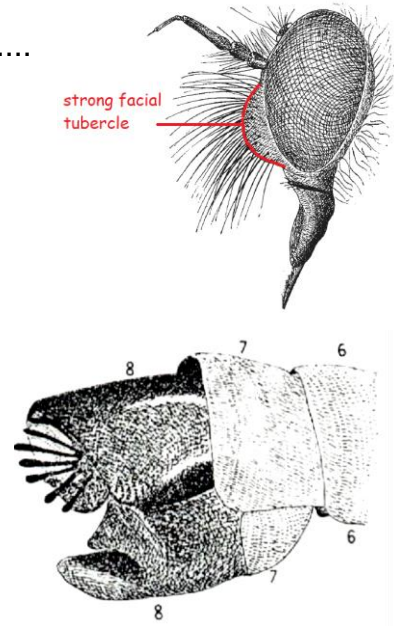


(C) Geller-Grimm  
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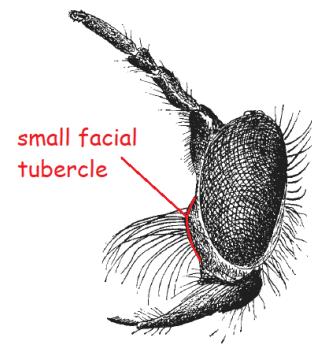
- 5 Hairy flies. Facial tubercle strong. Antennae relatively short. Ovipositor characteristic. ....  
 .... ***Lasiopogon cinctus***  
 Widespread but uncommon in England and Wales.



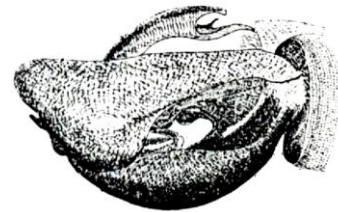
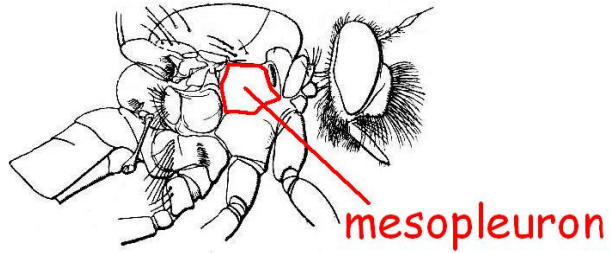
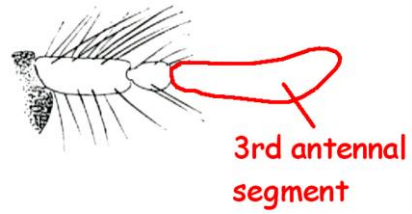
(C) Geller-Grimm (2006)  
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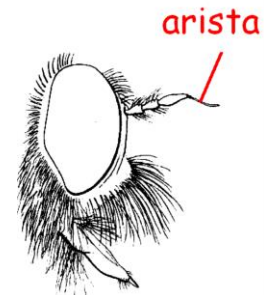
- Bare flies. Facial tubercle small. Antennae relatively long. Ovipositor simple. ....  
 .... ***Genus Dioctria***



- 6 Third antennal segment blunt at the tip.  
Mesopleuron with bristles on its posterior  
margin. Male genitalia inverted and boat  
shaped. ....7  
Subfamily Laphriinae



- Third antennal segment drawn out into an arista.  
Mesopleuron without bristles. Male genitalia not boat-  
shaped, but with paired forceps. ....8  
Subfamily Asilinae





- 7 A large robust, furry, black bee-like species (20 mm.), with golden pubescence on the upper surface of the abdomen and on the rear half of the thorax. ....

..... ***Laphria flava***

A speciality of the ancient **Caledonian pine forests of Scotland** especially within the Spey and Dee Valleys of the eastern Highlands. Adults may be seen resting on fallen pines. On the wing from late spring to late summer. Larvae develop in decaying pine stumps and fallen trunks from mature pines. They are predators of saproxylic longhorn beetles.



(C) Simon Eugster (2010)  
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Smaller (10-16 mm.), more elongate and much less furry owing to the hairs on the abdomen which more or less lay on the surface. Any golden hairs on the thorax are very short and inconspicuous. ....

..... **Genus *Choerades***

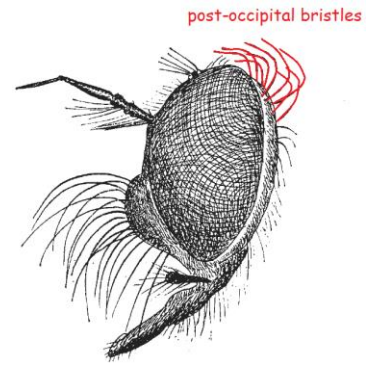
Two species, one of which is very rare, from **England south of the Humber**.



(C) Kim Abel, BioFokus  
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8 Post-occipital bristles sharply bent forwards. ....[9](#)



Post-occipital bristles not sharply bent forwards. ....[10](#)

- 9 Male with a characteristic milky white colour towards the base of the wings. Female with a short conical ovipositor. ....

..... ***Pamponerus germanicus***

A scarce species of the stabilised parts of coastal dunes in the west of Britain and eastern Scotland. Larvae develop as predators in sand.



(C) Fritz Geller-Grimm (2004)  
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Male without any milky white area of wing.  
Female with a telescopic ovipositor. ....

..... ***Genus Neoitamus***

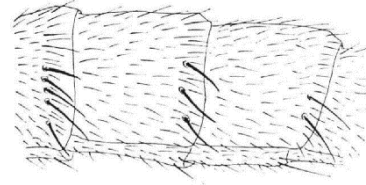
Two species, not associated with coastal dunes



(C) Jens Buurgaard Nielsen (2006)  
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- 10 No conspicuously longer bristles before the rear margins of the abdominal segments (except for the first). .....[11](#)  
One of the two species keying here is restricted to Scotland; the other is very large (over 20 mm) and is an occasional vagrant to southern England.

Abdomen with longer bristles close to the rear margins of the segments on some other segments besides the first. ....[12](#)



- 11 Facial lobe below the antennae bare and shining.  
Small brown and grey species, 12-15 mm. ....  
..... ***Rhadiurgus variabilis***  
Restricted to the Highlands of Scotland.



(C) Fritz Geller-Grimm  
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- Facial lobe dusted, not bare and shining. Large species,  
20-25 mm, with a yellow-marked abdomen. ....  
..... ***Asilus crabroniformis***  
A scarce and declining species of southern Britain.

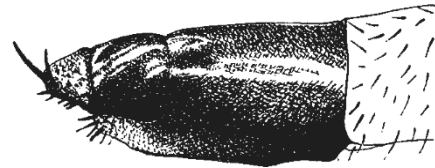
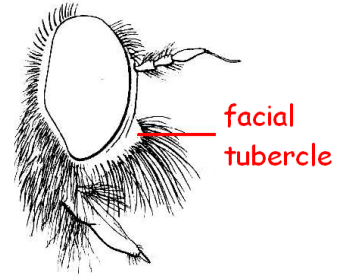


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12 Tubercle occupying only lower half of face. Male upper forceps strongly convex, especially when seen from above. Ovipositor with a cluster of upturned bristles at tip. Mesonotum without acrostichal or presutural dorsocentral bristles. ....

..... ***Philonicus albiceps***

A species of coastal fore-dunes from southern Scotland southwards.



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Tubercle occupying only the lower two-fifths of the face. Male upper forceps bent backwards, obtuse at the tips with black hairs. Mesonotum with the acrostichal and dorsocentral bristles always visible, more or less developed. Ovipositor without upturned terminal bristles. ....

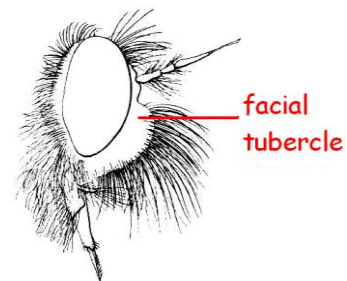
..... ***Neomochtherus pallipes***

First recorded as British from the south Devon coast in 1990 and then in Shropshire in 2016, both associated with warm grassland on sheltered slopes broken up with exposed rocks and boulders.



Image (C) Nigel Jones

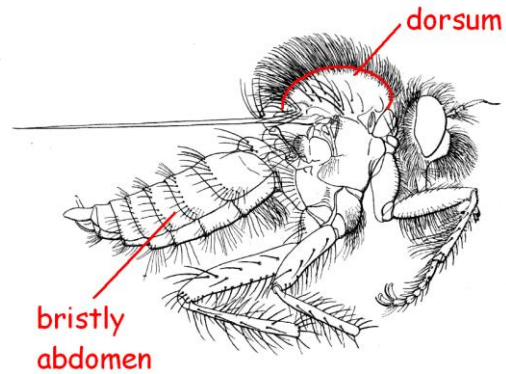
Tubercle occupying more than half of face. Male upper forceps closely applied to each other. Acrostichal and dorsocentral bristles always visible, more or less developed. ....13



- 13 Dorsum of thorax high, strongly convex and covered with dense hairs and bristles from front to rear. Abdomen and legs abnormally bristly with very long stiff bristles. Ovipositor with the anal lamella embedded in the 9<sup>th</sup> tergite. ....

..... ***Dysmachus trigonus***

Widespread and often common in sandy habitats such as heathland and coastal dunes.



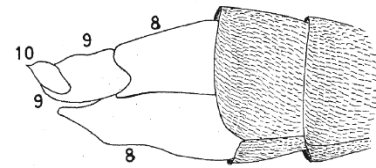
(C) Janet Graham (2012)  
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Dorsum of thorax lower and less convex (viewed from the side), much less bristly in front of the transverse suture, than behind it. Abdomen and legs with rather sparse, strong bristles. ....[14](#)

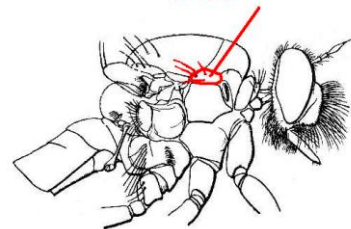
- 14 Ovipositor laterally compressed appearing very slender from above; anal lamellae (labelled 10) united into a single structure. At least three bristles on the notopleural area. ....

..... ***Eutolmus rufibarbis***

A scarce heathland species of SE England with strongholds in the East Anglian Breckland, Suffolk heaths, New Forest, Weald and the Dorset heaths.

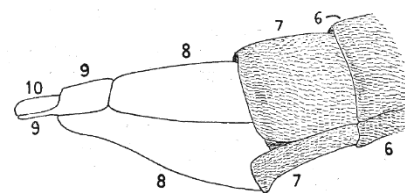


notopleural  
area



- Ovipositor with anal lamellae (labelled 10) separate from one another. Not more than two strong notopleural bristles. ....

..... [Genus Machimus](#)





# Genus *Choerades*

From Oldroyd (1969) HIBI 9(4), with amendments from Chandler (1998)

Genus *Choerades* Walker, 1851

*gilvus* (Linnaeus, 1758)

*marginatus* (Linnaeus, 1758)

- 1 Dense, short golden hairs pile on abdominal tergites 2-6, which lies on the surface. Rest of fly with only black and white hairs. Length 14-16 mm. ....

..... *Choerades gilvus*

Reputedly British before 1938; then frequent locally for a few years. Recent records from Windsor Forest and adjacent old woodlands; also Surrey and Sussex. July. Very rare.



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Recumbent yellow hairs conspicuous on abdominal segments 1-5, with short, erect, yellow hairs scattered over mesonotum, legs and beard. Moustache of black hairs surmounted by silky yellowish-white hairs which extend up to the bases of the antennae. Length 10-12 mm. ....

..... *Choerades marginatus*

Southern and central England. Local. June to August. July 2010 reported at Whisby, Lincolnshire, an area of recolonised gravel pits with no immediate ancient woodland; unimproved grassland with hawthorn hedges on well drained soils.



(C) Frank Vassen (2017)  
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# Genus *Leptogaster*

Genus *Leptogaster* Meigen, 1803

*cylindrica* (De Geer, 1776)

*guttiventris* Zetterstedt, 1842

- 1 Sides of the hind femur pale creamy-yellow towards the base with a black stripe which becomes broader in the apical third; upper and lower surfaces creamy-yellow towards the base and then becoming a more yellow-brown stripe between the black of the sides; pale-hairy. Hind tibia on upper and lower surfaces darkened towards the tip, without a clear ring; on front and back surfaces variably darkened. Abdomen usually with a distinct longitudinal dark stripe along the top surface, clearer on the first few segments. Fourth posterior cell usually stalked at base. ....

..... *Leptogaster cylindrica*

A widely recorded species in England, Wales and south-east Scotland. Dry meadows and scrub. June to August.



4th posterior cell stalk

Hind femur reddish, with a darker ring on the swollen apical half, black hairy; hind tibia pale in the basal part, then broadly darkened and then not as dark near the tip, thus there is a darker ring in the middle. Abdomen with indistinct segmental dark bands. Fourth posterior cell usually unstalked at the base. ..

..... *Leptogaster guttiventris*

Less frequently recorded species - about 10% of records of *Leptogaster* are this species, but more widespread, recorded from the Channel coast to northern Scotland. Damp meadows and scrub. June to July.



(C) B Schoenmakers at waameming.nl  
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# Genus *Leptarthrus*

Genus *Leptarthrus* Stephens, 1829

*brevirostris* (Meigen, 1804)

*vitripennis* (Meigen, 1820)

- 1 Wing with the apex slightly cloudy. Face projecting, shining black; moustache dense and black. Tibiae brownish-red at the base; femora, apex of the tibiae and tarsi black. Male with hind metatarsus elongated, spindly and flattened. ....

..... *Leptarthrus brevirostris*

Very local in lowland areas where it is possibly restricted to chalk downland, commoner in upland Britain.



(C) Janet Graham (2011)  
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Images (C) Fritz Geller-Grimm  
<http://www.robberflies.info/keyger/html/lepbre.html>

Wing base somewhat brownish. Face slightly or not at all projecting, silver dusted; moustache of fine, greyish-yellow hairs. Tibiae and tarsi brownish-red. Male with hind metatarsus thickened, but not elongated. ....

..... *Leptarthrus vitripennis*

Very much the rarer of the two species from widely scattered locations.



Images (C) Fritz Geller-Grimm  
<http://www.robberflies.info/keyger/html/lepvit.html>

# Genus *Dioctria*

## Genus *Dioctria*

*atricapilla* Meigen, 1804  
*baumhaueri* Meigen, 1820  
*cothurnata* Meigen, 1820  
*linearis* (Fabricius, 1787)  
*oelandica* (Linnaeus, 1758)  
*rufipes* (De Geer, 1776)

## Frequency

According to the records on the NBN maps, the commonest species are *rufipes* (32%), *atricapilla* (24%) and *baumhaueri* (23%). The next two species are more uncommon, *linearis* (13%) and *oelandica* (6%), leaving *cothurnata* the rarest with under 2% of the records.

1 All femora mainly or entirely orange-yellow. ....2

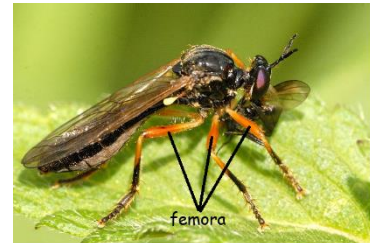


Image (C) James Lindsey at Ecology of Commanster, published on Wikimedia Commons

At least hind femora mainly black.....3

- 2 Wings dark brown. Mesonotum black, with little or no trace of stripes. Post-occipital bristles black. Large, shining species (15 mm.). .....

..... ***Dioctria oelandica***

Not infrequent in woodlands, widespread. Early May to July. Males appear to have darker wings than females.

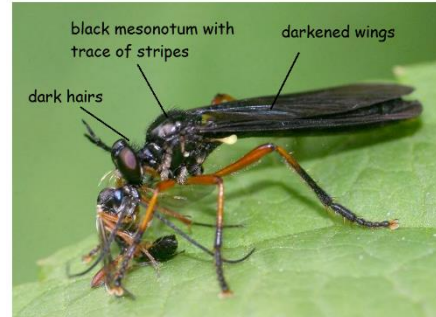


Image (C) Steve Nicholson,  
published on <http://www.diptera.info>

Wings clear. Mesonotum mainly covered with brassy tomentum, leaving two narrow, bare, shining black stripes, and broader lateral and posterior margins. Post-occipital bristles pale. Smaller, more patterned species (10 mm.). .....

..... ***Dioctria linearis***

Woodland species, fairly common northwards to Yorkshire. May to August.



Image (C) Pristurus, published on  
<https://commons.wikimedia.org>

- 3 Antennal tubercle large, rising well above level of ocelli. Front and middle femora entirely yellow-orange. ....

..... ***Dioctria rufipes***

Widespread throughout Britain, locally common, scrub and woodland on light soils. April to mid-July.



Uploaded to <http://www.diptera.info/> by hedy2411

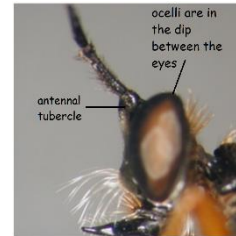


Image (C) Fritz Geller-Grimm,  
published at [www.robberflies.info](http://www.robberflies.info)

Antennal tubercle not rising above level of ocelli. Front and middle femora black, at most indistinctly yellowish below. ....4

- 4 Face parallel-sided, densely covered in yellowish tomentum, rising into a prominent antennal tubercle. Frons not strongly divergent. ....5

Face more square, with thin and inconspicuous tomentum, and with a bulge below the antennae; antennal tubercle present only as a vestige. Frons strongly divergent, bare and shining. ....

..... ***Dioctria cothurnata***

Rare and local with scattered records through England but may be found in numbers in some Scottish localities (Inverness-shire). May to June



(C) Geller-Grimm  
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(C) Geller-Grimm  
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- 5 Post-occipital bristles and beard black. Wings of male darkened in the basal half. ....

..... ***Dioctria atricapilla***

Widespread but local in southern and Midland England to Yorkshire; Welsh border and possibly Wales in suitable woodland locations. June to the middle of July.



(C) Geller-Grimm  
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Post-occipital bristles and beard pale. Wings pale in both sexes. ....

..... ***Dioctria baumhaueri***

Southern England as far as southern Lancashire and Yorkshire. Local. June to August.



Image (C) Janet Graham, published on commons.wikimedia.org

# Genus *Machimus*

Slender ashy-grey flies, usually with unpatterned wings, although often the tip and hind margin are greyish in the centres of the cells, as a result of microtrichiae. Distinctive characters are a well-developed facial tubercle, with dense moustache, hairs on the metanotal callosities, discal bristles on the abdomen, and a marked kink or step in the course of vein  $r_5$ .

Genus *Machimus* Loew, 1849

*arthriticus* (Zeller, 1840)

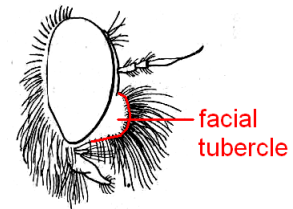
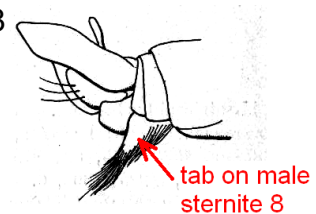
*atricapillus* (Fallén, 1814)

*cingulatus* (Fabricius, 1781)

*cowini* (Hobby, 1946)

*rusticus* (Meigen, 1820)

- 1 Facial tubercle strongly developed. Males with sternite 8 produced into a backwardly pointing tab. ....2



- Facial tubercle small. Male with sternite 8 not produced. ....3

- 2 A smaller, more blackish species (11-14 mm.).  
Femora black, with a red ring just before the tip which is extended into a posterodorsal stripe. Tibiae and tarsi all reddish-yellow, hind tarsi and tip of tibiae blackish. Abdominal tergites with dense tomentum, which is black, with a yellow posterior margin to each segment, but changes with shifting light. Most of tiny clothing hairs black. Male distinct from all other asilidae by forked process of eighth sternite. ....

..... ***Machimus atricapillus***

England south of the Lake District. Local in north, but frequent and common in the south. Particularly associated with limestone and chalk country.



(C) Geller-Grimm  
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(C) Geller-Grimm  
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A larger more yellowish species (16-20 mm.).  
Femora all black; tibiae and tarsi black with only a narrow red ring at base of each tibia.  
Abdominal tergites with dense yellowish tomentum, which shows scarcely any trace of darker spots in any light, and which is covered with yellow clothing hairs. Male with sternite 8 triangular, hardly formed into a prolongation. ....

..... ***Machimus rusticus***

Southern England, on downland and coasts from Gloucestershire to the IOW. Rare and local. August.



(C) Geller-Grimm  
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- 3 Femora entirely black. Moderately large species (17 mm.), yellowish-grey, with uniformly coloured abdomen. ....

..... ***Machimus arthriticus***

Known as British from only one female from Norfolk and one male from sand dunes in Somerset



(C) Geller-Grimm  
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Femora partly red. ....4

- 4 Femora extensively reddish behind. Smaller species (10-16 mm.), more slightly built. Male with hairs on sternite 1, but those on sternites 2-4 becoming more bristle-like. ....

..... ***Machimus cingulatus***

Widely distributed in England, Wales and Scotland, but only numerous in the south.



(C) Geller-Grimm  
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Femora black with an orange-red ring just before the tip. Larger, more robust species (>15 mm.). Male with the hairs on sternites 2-4 not differing from those on sternite 1. ....

..... ***Machimus cowini***

Isle of Man and the east coast of Ireland. July to August. One specimen caught near the Cumbrian coast in 2006, probably wind-blown from the IOM.



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## Genus *Neoitamus*

Genus *Neoitamus* Osten Sacken, 1878

*cothurnatus* (Meigen, 1820)

*cyanurus* (Loew, 1849)

- 1 Male: tergite 6 mostly tomentose, only shining on top; epandria short, more or less square.  
Female: sternite 7 with tomentose longitudinal stripes. ....  
..... *Neoitamus cothurnatus*



(C) Geller-Grimm  
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- Male: tergite mainly shining, the same as tergite 7;  
epandria more than twice as long as wide  
Female: sternite 7 entirely shining. ....  
..... *Neoitamus cyanurus*



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