A Key to the Species of Ants (Hymenoptera, Formicidae) Found in Britain

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Introduction

Recent changes in nomenclature and in some cases reassessment of actual species identity, have made existing keys to the British ants obsolete, including those both of Donisthorpe (1927) and of Sweeney (1950). In this paper, keys to the species found in Britain are accompanied by brief notes on nomenclature changes since Donisthorpe (op. cit.) as well as on their nesting habits and distribution.

Donisthorpe (1927) gave thirty-four species and eleven varieties as indigenous to the British fauna and this list with a few modifications and additions was more or less repeated by Sweeney (1950). The term variety has no validity in present day nomenclature and there are few British forms below specific rank that can be usefully separated from their parent species. Following the revisionary changes of recent authors, thirty-eight indigenous species are described here, together with several cosmopolitan species of frequent occurrence in heated premises.

The British Isles are unique in Europe in having no members of the world genus Camponotus, one species, C. herculeanus L., being widely distributed throughout the forests of N. Europe. Other wide ranging species yet to be found in Britain include Leptothorax muscorum Nyl. and Myrmica rugulosa Nyl. In general, however, the British fauna compares closely with that of neighbouring European areas and contains both boreo-alpine and Central European species.

The most important changes affecting the British fauna are those of Yarrow (1954, 1955) for the Formica fusca L. and F. rufa L. groups of species respectively. Donisthorpe, following Forel (1874) recognised five species and four poorly defined varieties or races in these groups. According to Yarrow (op. cit.) there are nine quite distinct British species, at least one of which has been completely overlooked by Donisthorpe. Wilson (1955) has reviewed the holarctic genus Lasius and has made certain changes in the L. umbratus Nyl. species-group. In the genus Myrmica, Yarrow (1955) has shown that M. rubra Linnaeus widely appropriated by recent authors to the species
M. ruginodis Nylander, is according to the available type specimen the species, commonly referred to as M. laevinodis Nyl.: which name therefore falls as a synonym of rubra L.

Supposed hybrid forms and names implying a hybrid origin have been shown by Yarrow (1955) in Formica, Wilson (1955) in Lasius and Brian and Brian (1949) in Myrmica to be either illusory, good independant species, phenotypic responses to unusual habitats or individual aberrations. The species of Strongylognathus, discovered by C. Diver in Dorset and described by Donisthorpe (1936) under the name dumeri, has been shown by Brown (1955) from examples from the same area to be within the normal range of the continental testaceus Schenck. These changes will be further noted where appropriate, when considering each species concerned. In the keys that follow the male and female castes are treated separately and the keys made as simple as possible consonant with accuracy of determination.

Males may be distinguished from workers and queens by their generally dark colour in coloured spp., the relatively small size of head and mandibles and the possession of an additional gastric segment together with the characteristic male external genitalia including the stipes or claspers which are clearly visible in most spp. The worker has a much reduced thorax; the body size is generally less than that of the queen and the head is comparatively large. In all British spp. the queens bear wings which are shed shortly after fertilisation.

The Formicidae differ from other petiolated Hymenoptera by the presence of one or two nodes on the petiole between thorax and gaster. There are four subfamilies in Britain which may be separated as follows:

**Keys to the Subfamilies**

1. Petiole two jointed. ...................... Myrmicinae Mayr (Fig. 2b)
   Petiole one jointed. ................................. 2

2. Gaster constricted between first and second segment, armed with a sting ................................. Ponerinae Mayr (Fig. 2a)
   Gaster not constricted, without a sting. ...................... 3

3. Ocelli present. Gaster five segmented above, with circular anal aperture fringed with hairs. ...................... Formicinae Lepeltier (Fig. 26)
   No ocelli. Gaster four segmented from above, with slit-like hairless aperture. ...................... Dolichoderinae Forel (Fig. 3)
Myrmicinae—Keys to Genera

Many are armed with thoracic spines in the female castes. All species have stings. Pupae are naked. Most of the British species are scavengers and predators. Only one, *Myrmica rubra* L. attends aphids with regularity.

**Males:**

1. Without wings ........................................................................ 2
   
   With wings ............................................................................. 3

2. Dull, pupa like; petiole very thick .................................. *Anergates* Forel
   
   Shining, worker like; petiole slender .................................. *Formicoxenus* Mayr

3. Antennae with ten segments ................................................. 4
   
   Antennae with more than ten segments ................................ 5

4. Mandibles sickle shaped without teeth ......................... *Strongylognathus* Mayr
   
   Mandibles normal with teeth ............................................. *Tetramorium* Mayr (Fig. 1a)

5. Mesonotum without Mayrian furrows ................................. 6
   
   Mesonotum with Mayrian furrows ...................................... 8

6. Antennae with twelve joints .............................................. *Solenopsis* Westwood
   
   Antennae with thirteen joints ............................................ 7

7. Epinotum unarmed ............................................................ *Monomorium* Mayr
   
   Epinotum bituberculate or toothed .................................... *Pheidole* Westwood

8. Petiole drawn out anteriorly into long stalk ....................... *Stenamma* Westwood
   
   Petiole not conspicuously elongated ................................ 9

9. Forewings with cubital cell partly divided by transverse nervure .................................................. *Myrmica* Latreille (Fig. 12)
   
   Forewings with cubital cell entire .................................... 10

10. Wings very dark ......................................................... *Myrmecina* Curtis

    Wings very pale ....................................................... *Leptothorax* Mayr

**Workers:**

1. Antennae with ten segments ............................................ *Solenopsis*
   
   Antennae with more than ten segments ................................ 2

2. Postpetiole with a spine beneath ................................. *Formicoxenus*
   
   Postpetiole without a spine beneath .................................. 3
3. Epinotum unarmed .......................... Monomorium
   Epinotum bispinose or toothed .................. 4
4. Mandibles narrow, sickle shaped........... Strongylognathus
   Mandibles with broad apical border .......... 5
5. Petiole drawn out anteriorly into long stalk, eyes very small ....... Stenamma (Fig. 7)
   Petiole not conspicuously elongate; eyes normal .......... 6
6. Petiole quadrangular, bituberculate above ........ Myrmecina (Fig. 6)
   Petiole otherwise ............................ 7
7. Shoulders angled; clypeus with raised posterior border ........ Tetramorium (Fig. 1b)
   Shoulders rounded; clypeal border not raised .......... 8
8. Last three segments shorter than rest of funiculus ........ Myrmica
   Last three segments as long as rest of funiculus ........ 9
9. Thorax strongly constricted between mesonotum and epinotum Pheidole
   Thorax not or scarcely constricted ............... Leptothorax

Queens:
1. Gaster with broad longitudinal channel ........ Anergates
   Gaster without a channel .......................... 2
2. Mandibles narrow, sickle shaped............... Strongylognathus (Fig. 2b)
   Mandibles with broad apical border ............ 3
3. Mandibles with one or two teeth .............. Pheidole
   Mandibles with four or more teeth ............. 4
4. Funiculus with large two jointed club ........ Solenopsis
   Funiculus otherwise ............................ 5
5. Epinotum unarmed ............................ Monomorium (Fig. 4)
   Epinotum bispinose or toothed .................. 6
6. Postpetiole with a spine beneath............... Formicoxenus
   Postpetiole without a spine ..................... 7
7. Petiole drawn out anteriorly into long stalk ........ Stenamma
   Petiole not conspicuously elongated ............. 8
8. Petiole quadrangular, bituberculate above .......... Myrmecina
   Petiole otherwise ............................... 9
Fig. 1a. *Tetramorium caespitum* L. ♂ in profile to show body proportions.
Fig. 1b. *Tetramorium caespitum* L. ♀ from above.
Fig. 1c. *Tetramorium caespitum* L. ♀ thorax from above.
9. Petiole wider than long, angled at sides............ _Tetramorium_ (Fig. 1c)
   Petiole longer than wide...................................10

10. Last three segments shorter than rest of funiculus........... _Myrmica_
    Last three segments longer than rest of funiculus........... _Leptothorax_

**Species**

_Anergates_

This is a workerless parasitic genus found in W. Europe and N. America
with one indigenous species.

_A. atratulus_ Schenck is only found within the nest of its host species
_T. caespitum_ Latr. The dingy coloured, pupoid male has very large pedicel
segments. The female is black with a deeply emarginate head and reduced
mandibles; the gaster becomes very swollen in mature specimens. Length:
♂ 2·3, ♀ 2·5 mm.

Distribution: Dorset, S. Hants. Rare.

_Strongylognathus_

This is a genus with several spp. found in Europe and Siberia living in
dependant dulotic association with _T. caespitum_ Latr. There is one indigenous
species.

_S. testaceus_ Schenck (_diveri_ Donis.) is found only within nests of its host.
It is easily distinguished by its pale colour, its pronounced occipital angles
and toothless, sickle shaped mandibles. Length: ♂ 3·2 - 4, ♀ 3·2 - 4·8,
♀ 2 - 3·5 mm.

Distribution: Dorset, S. Hants. Rare.

_Tetramorium_

This is a genus of world wide distribution and includes several cosmopolitan spp. There is one indigenous species.

_T. caespitum_ Latreille is an active brownish black ant nesting in the ground
and under stones in sandy places. The male in this genus has a very long
second funicular segment and both males and queens are large in relation
to the workers (Figs. 1a, b and c). Length: ♂ 6, ♀ 7·5 - 8, ♀ 2·5 - 4 mm.

Distribution: Locally abundant on heaths in S. England and with a wide
but scattered distribution along the coasts of Britain and S. Ireland.

_T. guineense_ Fabricius is a common tropicopolitan species often found in
hot houses in Britain. It is distinguished from _T. caespitum_ by its brighter
reddish colour and the very long frontal ridges which extend almost as far
as the back of the head. Length: ♂ 4·5 - 5, ♀ 5 - 5·5, ♀ 3·4 - 4 mm.

_T. similimum_ Smith is another common introduced species found in hot
houses. It is similar to _T. guineense_ but of much smaller size and paler
colour. Length: ♀ 1·8 - 2 mm.
Fig. 2a. *Ponera coarctata* Latr. ♀ from above to show ocelli, eyes, petiolar scale and gaster constriction.

Fig. 2b. *Strongylognathus testaceus* Sch. ♀ from above to show mandibles (sickle shaped), scape, wing insertions, petiole and postpetiole.

Fig. 3. *Tapinoma erraticum* Latr. ♂ profile to show pronotum, mesonotum, epinotum, petiolar scale, gaster and anal aperture.
Monomorium

This is a tropical and warm temperate genus with a few cosmopolitan spp., one of which is very common in Britain.

*M. pharaonis* Linnaeus is a frequent inhabitant of permanently heated buildings, including hospitals, hotels and bakehouses throughout Britain. It is a tiny yellow ant often occurring in very large numbers. Length: ♂ 3, ♀ 4 - 4.8, ♀ 2 - 2.4 mm.

Solenopsis

This is a tropical and warm temperate genus with a few palaearctic spp. There is one indigenous species.

*S. fugax* Latreille is a small yellow hypogaecic ant usually found nesting in association with larger *Formica* or *Lasius* spp. and feeding on the latter's brood. The sexuals are much larger than the workers. Length: ♂ 4 - 4.8, ♀ 6 - 6.5, ♀ 1.5 - 3 mm.

Distribution: Coast of S. England only from Cornwall to Essex. Very local.

Formicoxenus

This is a palaearctic genus found only in association with certain *Formica* spp. There is one indigenous species.

*F. nitidulus* Nylander is a small shining ant living as an inquiline within the large mound nests of *Formica exsecta* Nyl., *F. rufa* L. and related species. Length: ♂ 2.8 - 3, ♀ 3.5, ♀ 3 - 3.6 mm.

Distribution: England and Scotland from Dorset to Easterness. Local.

Myrmecina

This is a palaearctic and Indo-Malayan genus with one indigenous species.

*M. graminicola* Latreille is a sluggish deeply sculptered, dark ant nesting under deep stones in dry limestone pasture or open woodland. The alatae have dark pilose wings. The female castes have reddish mandibles and two sharp tubercules on the back of the epinotum in front of the spines. Length: ♂ 3.4 - 4, ♀ 4 - 4.2, ♀ 3 - 3.6 mm.

Distribution: S. England to Northants., S. Wales. Local.

Stenamma

This is a holarctic and African genus. There is one indigenous sp.

*S. westwoodii* Westwood nests in woodland in shade under deep stones or at the roots of oak trees. The female castes are pale red with small eyes and rather weak reticulate sculpture. Length: ♂ 3.5 - 4, ♀ 4.3 - 4.8, ♀ 3.5 - 4 mm.


Pheidole

This is a tropical and warm temperate genus with several cosmopolitan spp. The larger workers characteristically have enormously developed heads which bear large but toothless mandibles.
P. megacephala Fabricius is one of the commonest of the cosmopolitan species and has often been found in hot houses and other heated premises in Britain. The epinotal spines in this species are comparatively well developed and the size of the workers relatively large from 2-4 mm.

Leptothorax

This is a holarctic genus also extending into India and Africa. There are four British spp. which may be distinguished as follows:

**Key to Species**

**Males:**

1. Antennae with twelve segments; length 4·5 - 5 mm. ....................
   Antennae with thirteen segments; length 2·5 - 3 mm. .................. 2

2. Thorax smooth and shining between the Mayrian furrows............
   Thorax rough between the Mayrian furrows .......................... 3

3. Antennae with funiculus segments two to five clearly longer than broad
   Antennae with funiculus segments not longer than broad ...........
   ................................................................. interruptus Schenck

**Queens:** Length 3·6 - 4·8 mm.

1. Antennae with eleven segments ................................. acervorum
   Antennae with twelve segments .................................. 2

2. Antennal club pale ................................................ nylanderi
   Antennal club brownish black, darker than rest of funiculus .... 3

3. Middle of scutellum smooth and shining ........................ interruptus
   Thorax including scutellum longitudinally striate throughout.  tuberum

**Workers:**

1. Antennae with eleven segments; length 3·3 - 4·5 mm.............. acervorum
   Antennae with twelve segments; length 2·3 - 3·5 mm ............... 2

2. Thorax with distinct meso-epinotal impression; antennal club pale...
   Thorax with uninterrupted dorsal surface; antennal club darker than rest of funiculus ................................. 3

3. Epinotal spines long and curved ............................... interruptus
   Epinotal spines short and straight ................................ tuberum
L. acervorum Fab. is sometimes referred to the subgenus Mychothorax Ruzsky. Brown (1955) considers that it is not possible to separate this subgenus satisfactorily when other interlinking spp. are taken into consideration. This ant nests in tree stumps, under stones, among rocks and in peat. Its robust form and abundant appendage pilosity distinguish it immediately from the other British spp.


Fig. 4. Monomorium pharaonis L. ♂ epinotum and petiolar nodes in profile to show epinotum (unarmed), petiole and postpetiole.

Fig. 5. Formicoxenus nitidulus Nyl. ♀ petiolar nodes in profile to show epinotal spine and postpetiolar spine.

Fig. 6. Myrmecina graminicola Latr. ♀ petiolar nodes in profile.

Fig. 7. Stenamma westwoodii West. ♂ petiolar nodes in profile.

Fig. 8. Leptothorax nylanderi Först. ♂ thorax from above to show Mayrian furrows and scutellum.

L. nylanderi Först (Fig. 11) nests almost exclusively under bark and in tree stumps.

Distribution: S. England to Shropshire. Local.

L. tuberum Fab. (Fig. 9) nests under stones and in rocky clefts. British examples are paler on the average than the majority of those found on the
continent which are often referred to the dark form *nigriceps* Mayr. The various colour forms however intergrade evenly and there appear to be no structural differences. Bernard (1956) suggests that the name *tuberum* should be abandoned, since according to him the original species of Fabricius has not been identified with certainty, and the name was applied to a group of spp. all of which have now been split off. A revision of the nomenclature of this distinctive ant must however attend further evidence.

Distribution: Sea cliffs S. England to Bristol. Local.

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**Fig. 9.** *Leptothorax tuberum* Fab. ♀ thorax in profile.

**Fig. 10.** *Leptothorax interruptus* Sch. ♂ thorax in profile.

**Fig. 11.** *Leptothorax nylanderi* Först. ♂ thorax in profile to show meso-epinotal furrow.

*L. interruptus* Sch. (Fig. 10) nests in peat and under stones in heathland. It is easily distinguished from *tuberum* in the worker caste by the longer curved spines, characteristic dark areas to the front of the head and generally more slender form.


These spp. are distinct from each other and easily separated. Nevertheless, there has been some earlier confusion so that some at least of the inland
localities given by Donisthorpe (1927) for *tuberum* refer to *nylanderi*. *L. corticalis* Schenck has never been verified as a British species. The description of examples from Berks. by Crawley (in Donisthorpe, 1927, p. 181) would apply well to *nylanderi*. Odd examples of *tuberum* are occasionally seen with reddish antennal clubs but these are evidently not *corticalis*

![Diagram](image)

**Fig. 12.** *Myrmica rubra* L. ♂ fore-wing to show cubital cell, stigma and transverse nervure.

**Fig. 13.** *Myrmica sulcinodis* Nyl. ♀ head from above to show frontal triangle (striated).

**Fig. 14.** *Myrmica schencki* Em. ♀ head from above to show frontal ridges.

which is a rather rare bark-inhabiting ant in Central Europe. The “*unifasciatus*” of Saunders taken in Hayling Island and determined by Forel as “*affinis*” (Donisthorpe, *op. cit.* p. 173) is most probably *interruptus*. I have seen a worker of this species from the same locality, kindly sent by the late Mr. P. Harwood.

*Myrmica*

This is a holarctic genus. There are seven British spp. which may be distinguished as follows:
Key to Species

Males: Length 5·5 - 6·5 mm.

1. Antennal scapes curved, longer than half funiculus..................2
   Antennal scapes bent or angled, half or less the length of funiculus...4

2. Frontal triangle and petiole striate........ sulcinodis Nylander (Fig. 15)
   Frontal triangle shining, petiole without striae..................3

3. Hind tarsi with long semi-erect hairs..................rubra Linnaeus
   Hind tarsi with short semidecumbent hairs........... ruginodis Nylander

4. Scape longer than four following funiculus segments........5
   Scape not longer than three following segments...........6

5. Scape angled at base, slender, longer than five following funiculus
   segments........................................... lobicornis Nylander (Fig. 16)
   Scape somewhat bent, thick, length between four and five following
   segments........................................... sabuleti Meinert (Fig. 17)

6. Scape slender, clothed in short hairs; head with impression in front
   of median ocellus ................................... schencki Emery (Fig. 19)
   Scape thick, with long hairs which exceed its width; head without
   impression ........................................... scabrinodis Nylander (Fig. 18)

Queens: Length 5 - 6·5 mm. Workers: Length 3·5 - 6 mm.

1. Antennal scapes curved, not dilated near base..................2
   Antennal scapes angled, ridged or dilated near base...........4

2. Frontal triangle coarsely striate; scape abruptly curved near base..
   ........................................... sulcinodis (Fig. 15)
   Frontal triangle smooth and shining; scape gradually curved........3

3. Petiole in profile flattened dorsally and bluntly angled behind; Epinotal
   spines about as long as width between their tips............... ruginodis (Fig. 20)
   Petiole in profile peaked or rounded; epinotal spines distinctly shorter
   than the distance between their tips..........................rubra (Fig. 21)

4. Scape with transverse ridge at bend..........................5
   Scape simply angled or with lateral extension at bend...........6

5. Frons very narrow; postpetiole low and thick........... schencki (Fig. 14)
   Frons not conspicuously narrow; postpetiole high and narrow........ lobicornis

6. Scape with more or less massive extension at bend with a ridge running
   forwards from bend.................................. sabuleti (Fig. 17)
   Scape simply angled or with slight extension at bend............ scabrinodis (Fig. 18)
Fig. 15. *Myrmica sulcinodis* Nyl. a: ♂ antennal scape from above; b: ♀ antennal scape from above; c: ♀ antennal scape in side view.

Fig. 16. *Myrmica lobicornis* Nyl. a: ♂ antennal scape from above; b: ♀ antennal scape from above; c: ♀ antennal scape in side view.

Fig. 17. *Myrmica sabuleti* Mein. a: ♂ antennal scape from above; b: ♀ antennal scape from above; c: ♀ antennal scape in side view.

Fig. 18. *Myrmica scabrinodis* Nyl. a: ♂ antennal scape from above; b: ♀ antennal scape from above; c: ♀ antennal scape in side view.

Fig. 19. *Myrmica schencki* Em. a: ♂ antennal scape from above; b: ♀ antennal scape from above; c: ♀ antennal scape in side view.
M. sulcinodis Nyl. is restricted to dry moorland and heath in Britain. It is dark red and deeply sculptured with coarse sulcations running longitudinally over the whole surface of the thorax as well as the petiolar nodes in the female castes.

Distribution: England and Scotland from Dartmoor to Sutherland. Rather local.

M. ruginodis Nyl. is the most widely distributed of all British ants. The polygynous form, microgyna Brian and Brian (1949) is more abundant in the west of Britain than in the east but is not morphologically separable from the more generally distributed monogynous form macrogyna Brian and Brian. The larger queens in polygynous colonies are similar in size and appearance to those from monogynous colonies.

Distribution: Throughout Britain and Ireland from Cornwall to Shetland. Very common.

M. rubra L. (laevinodis Nyl.) is usually distinguished from M. ruginodis by its shorter, more broadly based spines and weaker sculpture. The typical form has transverse wrinkles on the epinotum above the spines but lacks the coarse striae in the space between their bases that are characteristic for ruginodis. These features are liable to some variation and a more reliable distinction is given by the shape of the petiole which is not flattened above as in ruginodis but always somewhat peaked or rounded and less massive.

Distribution: Throughout Britain and Ireland from Cornwall to Sutherland. Common.

M. scabrinodis Nyl. is almost as widely distributed and common as ruginodis and like that species nests in a great variety of situations but appears to tolerate more arid conditions than any of the other British spp.

Distribution: Throughout Britain and Ireland from Cornwall to Caithness. Very common.

M. sabuleti Mein. nests in warm stony situations. It is frequently abundant on hillsides in S. Britain, but elsewhere is restricted to sheltered localities. It is larger, more brightly coloured and has a much more massive development of the scape than scabrinodis in typical samples. The male is not only distinguished by its larger scape, but by its less abundant and shorter pilosity.

Distribution: Britain and Ireland from Cornwall to Sutherland. Common.

M. lobicornis Nyl. tends to be smaller and darker than the other spp. in Britain. The transverse ridge appears as a fine tooth in profile (Fig. 16), which is often very small in British examples. This ant is usually found in isolated colonies in stony pasture, heath and open woodland.

Distribution: England, Wales, Scotland to Sutherland. Rather local.
M. schencki Em. nests in the ground or in sandy banks and is relatively less often found under stones than the other spp. In appearance it is rather like a larger, paler lobicornis with a more massive antennal ridge (Fig. 19) and a less pronounced meso-epinotal furrow. The male has the second funiculas segment more than twice as long as broad and this and the impression on the vertex of the head distinguish it immediately from all other British spp.


Ponerinae

Ponera Latreille, a world wide genus, is the only one found in Britain. There is one indigenous species.

Fig. 20. Myrmica ruginodis Nyl. ♂ petiolar nodes in profile.
Fig. 21. Myrmica rubra L. ♂ petiolar nodes in profile.

P. coarctata Latreille is a slow moving ant living in small communities in warm semi-shade among stones and moss. Length ♂ 3.3 - 3.8, ♀ 4 - 4.5, ♀ 3 - 3.5 mm.

Distribution: S. England to Beds., S. Wales (Glamorgans.). Very local.
P. punctatissima Roger was considered by Donisthorpe (1946) to be indigenous since it has been taken in the open on several occasions in Kent, Glamorganshire, and more recently in Ireland (Dublin docks, 1948, A. W. Stelfox, pers. commun.). The majority of records are however from bake-houses and conservatories. It is distinguished from coarctata by its apertuous male, the thick adpressed pubescence on the gaster of the female, the eyes which are set close to the mandibles, and the more finely punctured head. Colonies may be very populous.

**Formicinace**

This subfamily includes the larger and more conspicuous ants to be found in Britain. Many of the species, especially of the genus Lasius and of the Formica rufa group, are aphidicolous. The pupae are normally protected by a cocoon. There are two indigenous genera and one introduced (Paratrechina) which may be separated as follows:

**Key to Genera**

**Males:**

1. Insertion of antennae not contiguous with clypeal border; genital armature very reduced ........................................Paratrechina Motschoulsky

2. Size much smaller than queen; external genitalia relatively small; first funicular joint broader than second ................Lasius Fabricius

3. Size nearly the same as queen; external genitalia large; first funicular joint about same width as second ...............Formica Linnaeus

**Queens and Workers:**

1. Scale low, bent forwards..................................Paratrechina

2. Funiculus joints two to five scarcely as long as succeeding ones; legs short in relation to body size ................................Lasius

3. Funiculus joints two to five somewhat longer than succeeding ones; legs long in relation to body size .......................Formica

**Paratrechina**

There are two common cosmopolitan species that have frequently occurred in hot houses in Britain. They may be distinguished as follows:

**Key to Species**

**Males:** Length 2 - 2.5 mm.

1. Head longer than broad ........................................longicornis Latreille

   Head not longer than broad ..................................vividula Latreille
Queens: Length 3.5 - 5 mm.
1. Size larger; scape hairless ........................................... longicornis
   Size smaller; scape with hairs ...................................... vividula

Workers: Length 2 - 3 mm.
1. Scape extending as far back as epinotum .................. longicornis
   Scape not extending beyond mesonotum .................. vividula

Both species are long-legged and agile and usually occur in very large numbers. P. longicornis has both thorax and antennae conspicuously elongated.

Lasius
This is a holarctic genus. There are seven British species. Following the revision of Wilson (1955), L. mixtus Nylander is treated as a synonym of L. umbratus Nyl. on the evidence that nest series showing intermediate characters occur too frequently to make a specific distinction possible. Another similar species L. rabaudi Bondroit is distinguished from L. umbratus.

Key to Species

Males: Length 3.3 - 5 mm.
1. Mandibles with five more or less distinct teeth .................. 2
   Mandibles with single large apical tooth .................. 3
2. Frontal area shining; frontal furrow distinct ........................................... rabaudi Bondroit (Fig. 23)
   Frontal area rugose; frontal furrow more or less indistinct ........................................... umbratus Nylander
3. Colour shining black; head strongly emarginate ............... fuliginosus Latreille
   Colour brownish black; head not strongly emarginate .................. 4
4. Scape and tibiae with outstanding hairs ........................................... niger Linnaeus
   Scape and tibiae hairless ........................................... 5
5. Frontal furrow indistinct ........................................... flavus Fabricius
   Frontal furrow distinct ........................................... 6
6. Wings clear ........................................... alienus Förster
   Wings smoky ........................................... brunneus Latreille

Queens: Length 6 - 9.2 mm.
1. Head at least as broad as thorax at widest point .................. 2
   Head narrower than thorax at widest point .................. 4
2. Colour shining black; scale rounded ........................................... fuliginosus
   Colour yellowish to dark brown ........................................... 3
3. Scape distinctly flattened; scale straight sided. \textit{rabaudi}
   Scape not flattened; scale with rounded sides. \textit{umbratus}

4. Underside of body yellowish; frontal furrow obscure. \textit{flavus}
   Colour otherwise; frontal furrow more or less distinct. \textit{5}

5. Scape and tibiae with standing hairs \textit{niger}
   Scape and tibiae hairless \textit{6}

6. Frontal triangle clearly defined, wings smoky. \textit{brunneus}
   Frontal triangle undefined; wings clear \textit{alienus}

\textit{Workers:} Length 2.2 - 6 mm.

1. Colour shining black; head cordate \textit{fuliginosus}
   Colour otherwise; head rounded to emarginate \textit{2}

2. Colour yellow; eyes small \textit{3}
   Colour pale brown to dark brown; eyes large \textit{5}

3. Scape and tibiae with standing hairs \textit{umbratus} or \textit{rabaudi}
   Scape and tibiae without standing hairs \textit{4}

4. Hairs on upper surface of gaster long \textit{flavus}
   Hairs on upper surface of gaster very short \textit{umbratus (mixtus)}

5. Scape and tibiae with standing hairs \textit{niger}
   Scape and tibiae hairless \textit{6}

6. Frontal triangle distinct; thorax paler than gaster \textit{brunneus}
   Frontal triangle not distinct; body unicolorous \textit{alienus}

\textit{L. fuliginosus} Latr. is a conspicuous shining black ant usually found nesting in trees and hedgerows and marching in files in the open. Its size and large heart shaped head distinguish it at once from other \textit{Lasius}.


\textit{L. rabaudi} Bond. is distinct from \textit{L. umbratus} in the queen caste by its flattened scape, long funiculus segments and straight sided scale. Males from British examples seen appear to be more neatly made and shining than larger examples of \textit{umbratus}. The mandibles and frontal furrow are very distinct. All castes have standing tibial hairs so should not be confused with what used to be known as \textit{mixtus}. Workers are not on present information distinguishable from hairy forms of \textit{umbratus}. From its known distribution, this appears to be a heath inhabiting species.

Distribution: Surrey, Berks., Hants., Glamorgans. Local.
L. umbratus Nyl. is, according to Wilson's diagnosis, a variable species embracing both the very hairy and hairless extremes formerly separated as umbratus and mixtus respectively. This ant nests deep in the ground or in the base of old trees and is seldom seen above ground.

Distribution: England, Wales, Ireland, Scotland to Easternness. Rather local.

L. flavus Fab. is a mound building species abundant in old pasture and hillsides.

Distribution: Britain and Ireland to Caithness. Very common.

L. niger L. is well known for its propensity to enter glass-houses and domestic premises during the summer.

Distribution: Britain and Ireland to Sutherland. Very common.

L. brunneus Latr. is a fugitive tree inhabiting species. It is distinctive among Lasius in having a clearly defined frontal triangle in all three castes.


L. alienus Först. inhabits dry pasture and heath in S. Britain. It is easily distinguished from small niger individuals of similar appearance by the absence of standing hairs on the tibiae and scape.


The above species are usually divided into subgenera as follows: Dendrolasius fuliginosus; Lasius niger, brunneus, alienus; Cautolasius (Wilson, 1955) flavus; Chthonolasius umbratus, rabaudi. These spp. have been discussed more fully elsewhere (Collingwood, 1957).

Formica

This is a holarctic genus of which eleven spp. have been recognised in Britain. Yarrow (1954, 1955) has dealt comprehensively with the F. fusca and F. rufa group spp. in Britain and these papers should be consulted for an understanding of the revised nomenclature used here as well as for more detailed keys to these spp. A subgeneric classification is sometimes used with Formica including the subgenera Raptiformica, Coptoformica, Formica and Serviformica, but their distinctions, particularly between the last two, are difficult to establish satisfactorily over their whole range and these names will not be used here. The eleven spp. may be keyed as follows:
Key to Species

**Males:** Length 6.5 - 11.5 mm.

1. Clypeus emarginate in front.................. sanguinea Latreille (Fig. 22)
   Clypeus smoothly rounded in front.................. 2

2. Head excised posteriorly.................. exsecta Nylander
   Head not excised.................. 3

3. Eyes with hairs.................. 4
   Eyes bare.................. 7

4. Cheeks hairless.................. rufa Linnaeus
   Cheeks with hairs.................. 5

5. Head and thorax matt; gaster dull.................. nigricans Emery
   Head and thorax not matt; gaster shining.................. 6

6. Cheeks with two or three hairs only; dorsum of gaster with few or none.................. aquilonia Yarrow
   Cheeks with abundant long hairs; dorsum of gaster with scattered erect hairs.................. lugubris Zetterstedt

7. Underside of head with one or two long hairs; gaster shining.................. transcaucasia Nasonov
   Underside of head without hairs; gaster not or scarcely shining.................. 8

8. Scale fringed with very short hairs only.................. fusca Linnaeus
   Scale with long bristles.................. 9

9. Scutellum and gaster somewhat shining.................. lemani Bondroit
   Scutellum and gaster dull.................. 10

10. Femora dark.................. rufibarbis Fabricius
    Femora reddish yellow.................. cunicularia Latreille

**Queens:** Length 8 - 12 mm.

1. Clypeus emarginate; scutellum red.................. sanguinea
   Clypeus entire; scutellum black.................. 2

2. Head deeply excised posteriorly.................. exsecta
   Head not excised.................. 3

3. Body unicolorous dark.................. 4
   Bicoloured with varying amounts of red.................. 6
Fig. 22. *Formica sanguinea* Latr. ♂ head from above to show emarginate clypeus.

Fig. 23. *Lasius rabaudi* Bond. ♂ head from above to show frontal furrow.

Fig. 24. *Formica lemani* Bond. ♀ middle femur.

Fig. 25. *Formica exsecta* Nyl. ♀ outline of petiolar scale.

Fig. 26. *Formica aquilonia* Yarrow. ♂ in profile to show scape, funiculus femur, tibia, tarsi and typical *Formica* body proportions.
4. Frontal triangle smooth and shining; underside of head with one or two long hairs ........................................transkaucasicas
Frontal triangle distinctly sculptured and rugose; underside of head without hairs ........................................5

5. Sides of pronotum and underside of middle femora with long hairs; scutellum brilliant ...................................lemani (Fig. 24)
Hairs on pronotum restricted to anterior face; middle femora without hairs except sometimes at proximal end only; scutellum moderately shining at most ........................................fusca

6. Frontal triangle rather dull; maxillary palps long ........................................7
Frontal triangle distinctly shining; palps short and very hairy ........................................8

7. Frontal triangle longer than wide; thorax mainly red ........................................rufibarbis
Frontal triangle wider than long; thorax mainly black ........................................cunicularia

8. Gaster and all dark surfaces matt ........................................nigricans
Gaster and dark surfaces shining ........................................9

9. Scale with long hairs on upper surface ........................................lugubris
Scale without hairs on upper surface ........................................10

10. Back of head and anterior face of gaster with short erect hairs ........................................aquilonia
Back of head and anterior face of gaster without hairs ........................................rufa

Workers: Length 3.8 - 9.5 mm.

1. Clypeus emarginate ........................................sanguinea
Clypeus entire ........................................2

2. Head and scale deeply excised ........................................exsecta (Fig. 25)
Head rounded, straight or slightly emarginate ........................................3

3. Body very shining, unicolorous brownish black ........................................transkaucasicas
Body scarcely or not shining, colour various ........................................4

4. Frontal triangle rugose and dull; maxillary palps long ........................................5
Frontal triangle shining; palps short and very hairy ........................................8

5. Gaster somewhat shining; body normally unicolorous dark grey to black ........................................6
Gaster closely sculptured and pubescent, dull; parts at least of thorax and cheeks pale brown to red ........................................7
6. Pronotum with numerous short bristles; underside of femora hairy. .......... femora
   Lemani
   Mid and hind femora bare; pronotum occasionally with one or two
   weak hairs ................................................................. fusca

7. Upper surface of scale and back of thorax with abundant hairs. ..rufibarbis
   Scale and thorax with two or three hairs occasionally at most. .cunicularia

8. Back of head without standing hairs; eyes bare or occasionally with a
   few minute hairs .......................................................... rufa
   Back of head and eyes conspicuously hairy. .............................. 9

9. Frons and dark areas matt ............................................ nigricans
   Frons somewhat shining; dark areas not matt ............................... 10

10. Thorax with abundant long hairs; frons with large punctures clearly
    visible under ordinary magnification ................................. lugubris
    Thorax with scattered short hairs; frons with dense microsculpture so
    that punctures not easily seen under ordinary magnification.......... aquilonia (Fig. 26)

*Formica sanguinea* Latr. is a large red ant well known for its habits as a
"slavemaker." It is normally found living in association with workers of one
of the *F. fusca* group spp. The characteristic clypeus, large head and com-
paratively narrow gaster distinguish it at once from bright coloured examples
of *F. rufa*.

Distribution: Dorset to Shropshire, Mid-Perth and Easternness. Local.

*F. exsecta* Nyl. nests in open woodland and heath constructing small mound
nests of heather shoots and other vegetable litter. It is immediately dis-
tinguishable from small individuals of the *F. rufa* group of spp. by its high
deply excised scale as well as the flattened excised head.

Distribution: S. Devon, Dorset, S. Hants, Mid-Perth, S. Aberdeens.,

*F. rufa* L. is the well known mound building wood ant of S. Britain where
it is a denizen of the better drained and more open woodlands.

Distribution: S. England to Northumberland; S. Wales. Common in
some southern counties. Rather local in the Midlands.
F. lugubris Zett. is the dark hairy wood ant of N. Britain. It resembles both F. rufa and F. aquilonia in habits but is immediately distinguished from the former by the conspicuous fringe of long hairs round the back of the head in the female castes.


F. aquilonia Yarrow is the common wood ant of many parts of Scotland. It tends to be smaller and exhibits less size dimorphism than F. lugubris. The much less abundant pilosity of the thorax of aquilonia in the worker caste usually distinguishes the two spp. adequately. This is subject to some variation however and odd isolated individuals may be distinguished by the sculpture of the frons which is considerably closer and finer in aquilonia.

Distribution: N. Ireland (Armagh one loc.), Scottish Highlands from Mull of Kintyre to Sutherland. Locally abundant.

F. nigricans Em. (pratensis of some authors) is now almost extinct in Britain. This species tends to nest in the open away from the immediate vicinity of trees but builds mound nests of twigs and leaf litter in a similar manner to F. rufa and the other wood ants. The typical form is immediately recognisable by the clearly defined matt, dark patch on the thorax and the very hairy eyes.

Distribution: Dorset. Very rare. Formerly also S. Hants.

F. transkaucasicca Nas. (picea Nyl.) is a specialised bog inhabiting species nesting in grass tussocks and sphagnum, often in permanently wet conditions. The whole body is smooth and shining in all castes. The worker has the pronotum and mesonotum clothed in long yellowish anteriorly curved hairs.


F. fusca L. is the common black ant of uncultivated territory in S. Britain where it nests in small colonies under stones and in tree stumps.

Distribution: S. England to Cumberland, Isle of Man, Wales, S. Ireland, SW. Scotland. Common in S. Britain.

F. lemani Bond. is similar to F. fusca in habits and appearance but has been shown by Yarrow (1954) to be a quite distinct species. It is distinguished from fusca in the worker caste by the hairy femora, bristled thorax, coarser sculpture and more griseus or sometimes reddish hue. It is a moorland and upland species overlapping with fusca over much of Central Britain.

Distribution: Throughout moorland Britain and Ireland from Cornwall to the Orkneys but not found in England east of Dorset to S. Lincs. Common.
F. cunicularia Latr. resembles F. fusca in habits but has a much more restricted distribution in Britain where it is found on heath, stony banks and sea cliffs. Until Yarrow (1954) this species was generally regarded as a variety of fusca and known as glebaria Nyl. or rubescens For. according to the degree of redness of the thorax. This is a very variable character and some examples are quite dark with only the articulations of the thorax pale brown.

Distribution: S. Wales, S. England to S. Lincs. Rather local.

F. rufiberbis Fab. is the most rufous of the F. fusca group of spp. It is less fugitive and more aggressive than the similar F. cunicularia from which it differs in the worker by the presence of copious bristles over the back of the thorax.

Distribution: Surrey. Very rare.

It will be seen that the F. rufa and F. fusca group spp. are of particular interest in that while the member spp. of each appear to have similar habits, their distributions are dissimilar and take the form of a series of north-west to south-east overlapping ranges.

Dolichoderinae

This subfamily has a low forward bent scale which permits great directional mobility of the gaster in many spp. The pupae are naked. Two genera are found in Britain, one introduced (Iridomyrmex) and one indigenous. They may be distinguished as follows:

Key to Species

Males:
1. Antennal scape not reaching posterior border of head...Iridomyrmex Mayr
   Antennal scape reaching beyond border of head......Tapinoma Förster

Queens and Workers:
1. Second joint of funiculus longer than first.................Iridomyrmex
   Second joint of funiculus shorter than first..............Tapinoma

Iridomyrmex

There is one introduced species which has occasionally been found nesting in heated buildings in Britain.

I. humilis Mayr is the notorious “Argentine ant.” It is a small species developing very populous interconnected polycalic colonies. It has spread over all the warm temperate regions of the world and by its successful colonisation has become a serious danger to the rarer elements of the local fauna in these areas. It is an agile pale bronze to bronze black ant with a deep meso-epinotal furrow in the worker caste which is accentuated by the high, almost angled epinotum. Length: ♂ 3, ♀ 4.5, ♀ 2.2 - 2.5 mm.
Tapinoma

There is one indigenous species and one cosmopolitan species of occasional occurrence in Britain.

*T. erraticum* Latreille is an inhabitant of dry heath where it often constructs temporary earth solaria. This dark, active little species is sometimes mistaken for *Lasius niger* from which it is readily distinguished by the gaster, which projects forward over the low decument scale, and the absence of any standing hairs. Length: ♀ 3·4 - 5, ♀ 4·5 - 5·8, ♂ 2·6 - 4·2 mm.

Distribution: S. Devon to Berks. Local.

*T. melanocephalum* Fabricius is a small ant sometimes recorded from heated premises in Britain. The worker is pale yellowish grey with a somewhat darker head. Length: ♀ 2 mm.

Emery (1925) described a small variety, *ambiguum* of *T. erraticum*, in which the lobes of the male subgenital plate are narrower than in the type. No differences have been recognised in the female castes, but if this feature is found to differ consistently, it may be necessary to regard this as a cryptic sibling species. Examples were recognised by Donisthorpe from British specimens and Sweeney (1950) gives a useful description and illustration of this form.

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References


