

Characters used in the Key

Antennae

The antennae in most species are unspecialised; females have 12 segments and males 13. In the Ceropalinae the distal antennae segments are slightly wider than the proximal and the antennae appear indistinctly clubbed, a condition also found in male *Pompilus cinereus*. The antennae of female *Evagetes* are thickened and have the ventral surface flattened and covered with sensory areas distinct from the rest of the antenna. In male *Dipogon* the segments may be widened or crenulate medially depending on the species.

Two conditions, often visible to the naked eye but better measured using a graticule, are used to compare species. One is the length of segments relative to each other, usually the first flagellar segment compared to the scape or scape plus pedicel. The other is the relative thickness of particular segments, usually the third flagellar, comparing the length to the width. In this case the maximum length is used, so that in a female with coiled antennae the length is measured on the outside of the curve.

Tarsal claws

The tarsal claws have features important at generic and subgeneric level. In females of most species each of the claws is similar, although in the Ceropalinae the hind claws differ from the rest. In males the fore tarsal claws may be asymmetrical with respect to the other claws and/or asymmetrical to each other (i.e. the inner and outer claws have a different shape).

There are four general types: rectangularly bent; simple and evenly curved; toothed (a small triangular tooth, remote from the apex); or split (an long inner tooth close to and parallel with the apex). The latter form has sometimes been called bifid, a term not used here as it implies the tooth and claw to be equal in length. There is sometimes a thickened basal hair running from near the base towards the apex of the claw; this should not be confused with the split type.

Tarsal comb spines

As described earlier, females of some species have spines on the fore tarsus, used to excavate burrows. When the second fore tarsal segment has a median posterior spine as well developed as the apical posterior spine (and several such spines on the fore basitarsus) it has a comb. The spines of the comb are often quite long and flattened and they form a linear row. Sometimes these spines can be lost, but a distinct socket remains. The fore basitarsus often has well developed ventral spines too.

Wing venation

Wing venation is used quite frequently in the key. Care must be taken as this is subject to variation within species and, not infrequently, individual aberration. It is best to check the wings on both sides.

The number of submarginal cells is important. Most species have three but a few have two. Some authors include the distal cell in the count even though it is not closed, resulting in a count of three or four cells; this practice is not followed here.

Other characters used include the relative positions of two veins, or the comparative areas of two cells. The latter is usually used only where it is obvious without measurement.

Metapostnotal/metanotal ratio

The metanotum is a strip-like sclerite immediately behind the scutellum (and joining the posterior wing bases). Its posterior sclerite is the metapostnotum, lying immediately anterior to the propodeum. This can be so long as to be longer than the metanotum or so narrow that it is invaginated and the propodeum contacts the metanotum directly. The relative length of these two structures is useful at a species level, but it is neither completely constant nor easy to measure.

Surface sculpture and pubescence

The sculpture of the integument, sometimes of the head or clypeus, but more often of the propodeum, although somewhat variable, is often a useful character to separate similar species. In other species there are patterns on the tergites formed by the microscopic hairs there. In both cases the condition of the specimen and angle of the illumination are vitally important. Specimens with a covering of loose dust can sometimes be cleaned manually, but more often the problem is grease which fills the sculpture and mats the pubescence. Soaking in a solvent, such as ethyl acetate or acetone, for 24 hours can cure the problem. Good lighting on a microscope is more important than high magnification, and for looking at sculpture a fluorescent strip-light produces the best results. Ring type illumination eliminates shadows and so is less useful for looking at sculpture.

Male genitalia and subgenital plate

Males are frequently much easier to identify confidently than females because the terminalia are often highly specific. In the subgenital plate, the shape, the vestiture and the surface sculpturation are all important features. It is the ventral (exterior) surface that carries these features and so the plate is examined as viewed from below. In some species the characteristic features are situated at the very base of the plate and it is important to extrude it fully. Sometimes the preceding sternite also has specific characters. Male genitalia are also used in this key. They are internal and so must be extracted to be visible. It is possible to extract both the genitalia and the plate fully whilst retaining the attachment to the rest of the gaster, but an alternative is to remove them and mount them on a card attached to the specimen's pin.

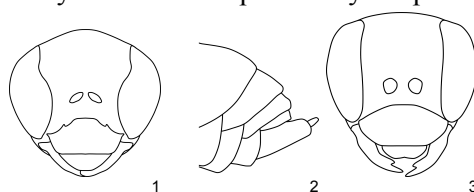
Keys

- 1 Antennae with 12 segments (scape, pedicel and 10 flagellar segments)
 Gaster with six visible tergites, often with visible sting.....**Females**
- Antennae with 13 segments (scape, pedicel and 11 flagellar segments)
 Gaster with seven visible tergites, without sting.....**Males**

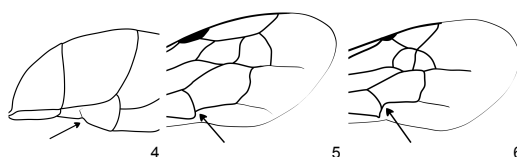
Females

Key to subfamilies

- 1 Eyes with inner margins strongly converging in lower half; face much narrower below antennal insertions than on vertex (Fig. 1)
 Sixth sternite longitudinally carinate or folded ventrally, apically spout-like, projecting distinctly beyond the sixth tergite (Fig. 2)
 Hind tarsal claws rectangularly bent and closely approximated, the pulvillus displaced ventrally.....**Ceropalinae**
- Eyes with inner margins parallel or slightly diverging ventrally (Fig. 3)
 Sixth sternite evenly curved, fitting closely against the sixth tergite at rest
 Hind tarsal claws evenly curved and separated by the pulvillus.....2



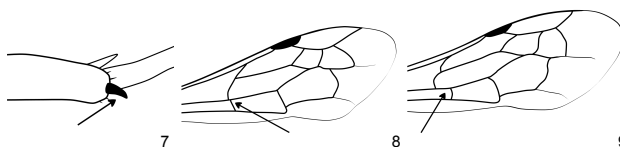
- 2 Second sternite with a well-defined transverse groove (Fig. 4)
 Mid and hind femora without dorsal preapical spines set in pits
 In forewing vein CuA1 not deflected posteriorly but leaving CuA at about a right angle, second discal cell without a ‘pocket’ (Fig. 5).....**Pepsinae**
- Second sternite without a transverse groove
 Mid and hind femora usually with dorsal preapical spines set in pits
 In forewing vein CuA1 abruptly deflected posteriorly at anterior end, forming a ‘pocket’ to second distal cell (Fig. 6).....**Pompilinae**



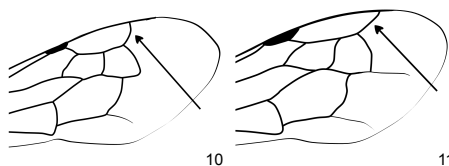
Pepsinae

Key to genera

- 1 Dorsal surface of hind tibia with a row of pronounced scale-like teeth and with spines (contrast with mid tibia)
 Ventral surface of the head without tufts of specialised hairs
 Anterior tergites almost invariably red.....2
- Dorsal surface of hind tibia smooth with spines only (like mid tibia)
 Ventral surface of head with specialised groups of long curved hairs
 All tergites black.....4
- 2 Fore tibia apically, dorsally with a stout curved spur (Fig. 7)
 In forewing, cross-vein cu-a almost opposite base of M (Fig. 8)
 Forewing bifasciate, with strong infuscation around inner cross-veins and again from marginal cell posteriorly to tornus, but apex only narrowly darkened.....
*Caliadurgus [fasciatellus]* (Spinola)
- Fore tibia apically, dorsally without a spur, just the usual row of short spines
 In forewing, cross-vein cu-a meets CuA about its own length from M (Fig. 9)
 Forewing evenly infuscate, or with darker border or with white spot in infuscation beyond closed cells of wing-tip.....3



- 3 Marginal cell apically rounded; vein Rs strongly curved towards costa and meeting it almost at a right angle (Fig. 10)
 Wings lightly infuscate with dark band round apex
 Propodeum posteriorly with strong, sharp, transverse rugae.....
*Cryptocheilus [notatus]* (Rossius)
- Marginal cell apically pointed, vein Rs meeting costa obliquely (Fig. 11)
 Wings either uniformly infuscate without darker border, or with area beyond closed cells infuscate with a paler spot just beyond vein 3rs-m
 Propodeum posteriorly usually smooth or transversely striate.....*Priocnemis*



- 4 Forewing evenly, lightly infuscate
 Last tergite with pygidial area flattened and polished, lacking hairs

Specialised hairs arising from mentum of labium; a forwardly-directed tuft arising from an elevated ridge in the mid-line of the head.....
*Auplopus* [*carbonarius* (Scopoli)]

— Forewing bifasciate

Last tergite bearing a group of dense, strong, posteriorly directed hairs arising from punctures

Specialised hairs arising from cardo of maxilla; two tufts, antero-laterally directed
*Dipogon*

Dipogon

Key to species

1 Propodeum strongly transversely rugose, any punctures present difficult to discern
*variegatus* (Linnaeus)

— Propodeum with surface smooth apart from superficial microreticulation, finely punctate, at least anteriorly.....2

2 First flagellar (third antennal) segment long, subequal to scape plus pedicel
*bifasciatus* (Geoffroy)

— First flagellar segment short, subequal to scape alone.....*subintermedius* (Magretti)

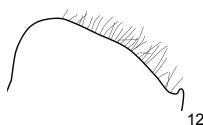
Priocnemis

Key to species

1 Propodeum laterally with substantial dark erect hair (Fig. 12)
 Forewing uniformly infusate.....2

— Propodeum usually without hair, sometimes with a few short, fine, pale erect hairs laterally

Forewing bifasciate, usually with a pale spot in the wing-tip just beyond closed cells.....4



2 Antennae relatively short and thick, first flagellar (third antennal) segment subequal in length to scape

Clypeal margin convex.....*coriacea* Dahlbom

— Antennae relatively long and thin, first flagellar segment subequal to scape plus pedicel

- Clypeal margin concave.....3
- 3 Fore femur with erect hairs ventrally
 Mid femur with erect hairs more or less equally numerous on both dorsal and ventral surfaces
 Metapostnotum interrupted medially by a triangular polished depression*perturbator* (Harris)
- Fore femur with almost no erect hairs ventrally
 Mid femur with erect hairs confined to dorsal surface
 Medial interruption of metapostnotum not triangular.....*sustera* Haupt
- 4 All tergites black
 Propodeum with transverse rugulose sculpture.....*propinqua* (Lepelletier)¹
- Anterior tergites red
 Propodeum smooth or weakly transversely striate.....5
- 5 Inner tooth of tarsal claw large; often taller than apical tooth and close to it (Fig. 13).....6
- Inner tooth of tarsal claw small; shorter than apical tooth and remote from it (Fig. 14).....7
- 13 14
- 6 Antennae shorter and thicker; third flagellar (fifth antennal) segment three times as long as thick
 Second submarginal cell subequal in width to third on Rs
 Frons densely punctured but with shining interspaces.....*hyalinata* (Fabricius)
- Antennae longer and thinner; third flagellar (fifth antennal) segment at least three and a half times as long as thick
 Second submarginal cell wider than third on Rs
 Frons densely punctured, interspaces strongly microreticulate, appearing dull*fennica* Haupt
- 7 [From this point on largely as Day (1988) – more work needed]
 Metapostnotum longer than metanotum
 Antennae longer; first flagellar (third antennal) segment at least four times as long as thick
 Vein M fairly distinct as far as wing margin.....*exaltata* (Fabricius)
- Metapostnotum equal to or shorter than metanotum

1 not seen in Britain since the 19th century.

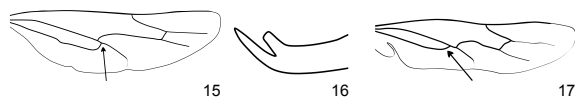
- Antennae shorter; first flagellar (third antennal) segment not more than 3.5 times as long as thick
 Vein M scarcely reaching half way from apex of third submarginal cell to wing tip
8
- 8 Metapostnotum equal to or shorter than metanotum, sometimes little more than half as long
 Forewing more or less uniformly infuscate, with at most a limited hyaline area in wing-tip beyond closed cells
 Propodeal dorsum reticulate
 Legs black.....*parvula* Dahlbom
- Metapostnotum about half as long as metanotum or less
 Forewing with a distinct hyaline spot towards apex
 Propodeal dorsum reticulate, striate or smooth
 Legs black, or sometimes hind femora or tibiae variously red-marked.....9
- 9 Margin of clypeus with a definite unpunctured, polished transverse area, at least as wide as length of terminal segment of maxillary palp
 Cross-vein 2rs-m sharply bent inwards adjacent to vein M
 Second submarginal cell much longer than third on vein Rs
 Legs variously red coloured, but hind femora and tibiae almost always so coloured
*agilis* (Shuckard)
- Margin of clypeus dull, if with a shining area then only centrally
 Cross-vein 2rs-m less sharply bent adjacent to M
 Second submarginal cell usually subequal to third on vein Rs
 Legs normally black, occasionally diffusely red; when, rarely, hind legs are markedly red, then propodeum is granular or smooth and shining, lacking transverse striae.....10
- 10 Propodeum lacks obvious transverse striae, usually appearing granular or smooth and shining
 Metapostnotum about half as long as metanotum, sometimes less, its posterior margin more or less transverse.....11
- Propodeum with obvious striae, at least on postero-lateral and posterior surfaces
 Metapostnotum less than half as long as metanotum, posterior margin of metapostnotum reflexed forwards somewhat, not always transverse.....12
- 11 Area of wing-tip outside closed cells large; distance from apex of marginal cell to wing-tip subequal to length of marginal cell
 Hind legs often with some red colour.....*gracilis* Haupt

- Area of wing-tip outside closed cells small; distance from apex of marginal cell to wing-tip subequal to length of marginal cell
Hind legs rarely red, often brownish.....*cordivalvata* Haupt
- 12 Propodeum markedly striate posteriorly, less so dorsally
Metapostnotum almost half as long as metanotum
Pronotal collar black anteriorly
Marginal cell relatively narrow.....*pusilla* Schiødte
- Propodeum striate posteriorly, hardly or not so dorsally
Metapostnotum very narrowly constricted medially
Pronotal collar red anteriorly
Marginal cell relatively broad.....*schioedtei* Haupt

Pompilinae

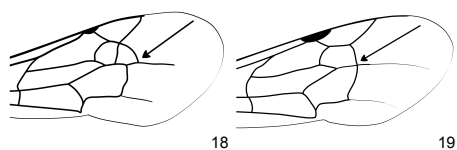
Key to genera

- 1 Propodeum normal, posterolaterally rounded, not extending posteriorly beyond articulation with gaster
Gaster black or with anterior tergites red.....2
- Propodeum with posterolateral corners produced posteriorly, extending back beyond articulation with gaster
Gaster black.....8
- 2 Sixth tergite bearing many backwardly-directed long, thick setae distinctly more robust than the setae of the sternites.....*Anoplius*
- Sixth tergite with any setae fine, not stouter than those of sternites.....3
- 3 Cross-vein cu-a of hindwing meeting CuA after the fork with M (Fig. 15)
Tarsal claws split, with inner tooth close to apex and blunt (Fig. 16)
Pronotum, propodeum and first tergite with a covering of adpressed, broad, flattened, silvery scale-like pubescence
Gaster usually with paired ivory spots on one or more tergites.....*Episyron*
- Cross-vein cu-a of hindwing meeting M+CuA before M forks (Fig. 17)
Tarsal claws edentate or with accessory tooth further from apex and sharp
Body without adpressed, flattened, silvery scale-like pubescence (but may have silvery unmodified hairs)
Gaster without paired, pale spots.....4



- 4 Antennal insertion distinctly above level of bottom of eyes
 In forewing, cross-vein closing last submarginal cell meeting M beyond the point where 2m-cu does (Fig. 18)
 Forewing usually with three submarginal cells, but occasionally with two.....5

- Antennal insertion level with bottom of eyes
 In forewing, cross-vein closing last submarginal cell meeting M before 2m-cu, or opposite it (Fig. 19)
 Forewing with two submarginal cells.....*Aporus* [*unicolor* Spinola]



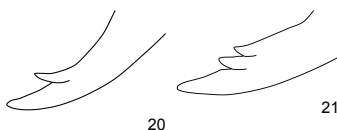
- 5 Gaster black.....6
 Gaster with anterior tergites red.....7

- 6 Last tarsal segment with a longitudinal ventral row of short, closely-spaced spines, similar to but shorter than those on preceding segments
 Mandible with a single subapical tooth
 Gaster black with dense grey pubescence forming posterior bands on tergites
 Clypeus black beneath dense silvery-grey pubescence.....
*Pompilus* [*cinereus* (Fabricius)]

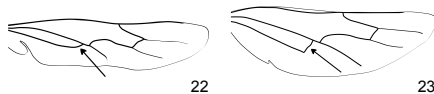
- Last tarsal segment entirely without a longitudinal row of spines beneath, in contrast to preceding segments
 Mandible with two subapical teeth (second tooth may be little more than an obtuse angle)
 Gaster uniformly black
 Clypeus often yellow-marked.....*Agenioideus*

- 7 Mandible with a single subapical tooth (Fig. 20)
 Antennae short and thick, third flagellar (fifth antennal) segment less than three times as long as wide, the ventral surface distinctly flattened.....*Evagetes*

- Mandible with two subapical teeth, teeth sometimes fairly small or abraded (Fig. 21)
 Antennae longer, third flagellar (fifth antennal) segment at least three times as long as wide, cylindrical.....*Arachnospila*



- 8 Head normal, convexly rounded posteriorly, separated from prothorax by a neck
 Propodeum produced posterolaterally as conical projections
 Vein cu-a of hindwing sinuous, contiguous with vein 1A (Fig. 22)
 Body black with extensive adpressed blue-grey pubescence, this forming distinct spots on the tergites.....*Aporinellus* [*sexmaculatus* (Spinola)]¹
- Head expanded posteriorly at vertex and temples, posterior surface concave, adapted closely to the front of the thorax
 Propodeum produced posterolaterally as vertical flanges closely fitting against base of first tergite
 Vein cu-a of hindwing straight, perpendicular to 1A (Fig. 23)
 Body with adpressed grey pubescence confined to extreme posterior margins of tergites, thorax sometimes reddish.....*Homonotus* [*sanguinolentus* (Fabricius)]



Agenioideus

Key to species

- 1 Fore tarsus without comb spines
 Mandible with one subapical tooth just behind apex and a second remote from it, the latter sometimes inconspicuous
 Clypeus and mandibles yellow-marked.....*cinctellus* (Spinola)
- Fore tarsus with long comb spines
 Mandible with two distinct subapical teeth close behind apex (Fig. 24)
 Clypeus and mandibles black.....*sericeus* (Vander Linden)



Anoplius

Key to species

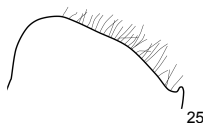
- 1 Anterior tergites partially red

¹ Channel Islands only.

- Fore tarsus with a tarsal comb; second segment with median posterior spine as long as apical posterior one.....2
- All tergites black
- Fore tarsus without a tarsal comb; second segment without a long median posterior spine.....3
- 2 Anterior tergites with red markings not reaching posterior margins and more or less interrupted medially with black
- Anterior sternites black
- Propodeum with substantial erect hair.....*viaticus* (Linnaeus)
- First two tergites and base of third entirely red, this not interrupted medially
- Anterior sternites red
- Propodeum with at most a few, very short, pale, erect hairs.....*infuscatus* (Vander Linden)
- 3 Fore basitarsus with two rows of three spines on outer surface, one posterodorsal and one posteroventral; posterodorsal row little more than short hairs, those of posteroventral row spinose but not as long as basitarsus is thick
- Third submarginal cell at least half as long on Rs as second
- Median tergites glossy black and without differentiated anterior transverse bands of silvery pubescence.....*caviventris* (Aurivillius)
- Fore basitarsus with at least one spine of posteroventral row longer than basitarsus is thick
- Third submarginal cell sometimes petiolate, sometimes long anteriorly
- Median tergites silky pubescent, with distinctly stronger anterior transverse silvery bands (often visible to the naked eye).....4
- 4 Third submarginal cell at least half as long as second on Rs, sometimes longer
- Fore basitarsal spines of posterodorsal row similar in length to those of posteroventral row, some in each row at least as long as basitarsus is thick
- Clypeus laterally and lower face with patches of silvery pubescence.....*concinus* (Dahlbom)
- Third submarginal cell sub-triangular to petiolate
- Fore basitarsal spines of posterodorsal row much shorter than those of posteroventral row, about half as long as basitarsus is thick
- Clypeus and lower face with only brown pubescence.....*nigerrimus* (Scopoli)

Arachnospila

- 1 Fore tarsus with a strong tarsal comb
 Labrum not exerted.....2
 — Fore tarsus without a tarsal comb
 Labrum clearly exerted.....6
- 2 Fore basitarsus with three comb spines
 Area of wing-tip beyond closed cells large; distance from apex of marginal cell to wing-tip at least 1.25x length of marginal cell
 Head and thorax normally with little erect hair (except *consobrina*).....3
 — Fore basitarsus with four comb spines
 Area of wing-tip beyond closed cells small; distance from apex of marginal cell to wing-tip subequal to length of marginal cell
 Head and thorax with substantial erect hair.....*rufa* (Haupt)
- 3 Head with little erect hair, face around antennal insertions practically bare
 Propodeum with at most a few long erect pale hairs.....4
 — Head with substantial dark erect hair, including on face around antennal insertions
 Propodeum with substantial long erect dark hair (Fig. 25)....*consobrina* (Dahlbom)



- 4 Propodeum with several long but fine erect hairs posterolaterally; often with characteristic coarse, reticulate-coriaceous surface sculpture
 Metapostnotum at least 0.75 times length of metanotum
 Eyes larger; head in side view with width of eye obviously greater than width of temple
 Pulvillar comb strong, with numerous (10-12) stout, somewhat flattened hairs
*anceps* (Wesmael)
 — Propodeum without fine erect hairs posterolaterally (a few semi-decumbent hairs sometimes present); usually with smoother, more superficial surface sculpture
 Metapostnotum less than 0.70 times length of metanotum
 Eyes smaller; head in side view with width of eye subequal to width of temple
 Pulvillar comb weaker, with fewer, finer hairs5
- 5 Apical area of forewing shorter; distance between apex of marginal cell and wing-tip less than twice the length of marginal cell
 Third submarginal cell greater in area than second, usually four-sided
 Third flagellar segment (fifth antennal) not more than three times as long as thick
*trivialis* (Dahlbom)

- Apical area of forewing longer; distance between apex of marginal cell and wing-tip about twice the length of marginal cell
Third submarginal cell not greater in area than second, often triangular or even petiolate
Third flagellar segment (fifth antennal) more than three times as long as thick
.....*wesmaeli* (Thomson)

- 6 Face broad, width clearly exceeding twice width of an eye
Third submarginal cell rectangular, longer than second on vein Rs.....*spissa* (Schjødte)

- Face narrow, with approximately twice width of an eye
Third submarginal cell usually triangular or subtriangular, much shorter than second on vein Rs.....*minutula* (Dahlbom)

Episyron

Key to species

- 1 Fore basitarsus with four comb spines
Basal sclerite of forewing, adjacent to tegula, often with ivory spot opposite base of subcosta.....*rufipes* (Linnaeus)
- Fore basitarsus with three comb spines
Basal sclerite of forewing completely dark.....*gallicum* (Tournier)

Evagetes

Key to species

- 1 Forewing with three submarginal cells (check both sides).....2
- Forewing with two submarginal cells.....*dubius* (Vander Linden)

- 2 Fore basitarsus with four comb spines, the three distal ones strongly flattened and as long as the basitarsus.....*pectinipes* (Linnaeus)
- Fore basitarsus with at most three comb spines, these only slightly flattened and none much more than half length of basitarsus.....3

- 3 Propodeum and femora without erect hairs
Propodeal declivity convex.....*crassicornis* (Shuckard)
- Propodeum and femora with substantial erect hair

Propodeal declivity slightly concave.....*siculus* (Lepeletier)¹

Ceropalinae

A single genus

Ceropales

Key to species

- 1 Mesonotum finely and densely punctate, superimposed with numerous deep shining punctures 2-3 times the diameter of the smaller ones
 First tergite black, usually with a pair of yellow spots, second tergite with an apical yellow band
 Propodeal declivity rough, with raised transverse surface sculpture
 Labrum black.....*maculata* (Fabricius)
- Mesonotum finely and densely punctate, with at most a few scattered slightly larger ones
 First tergite red, second tergite reddish with a pair of lateral yellow spots
 Propodeal declivity punctate and shining
 Labrum yellow.....*variegata* (Fabricius)

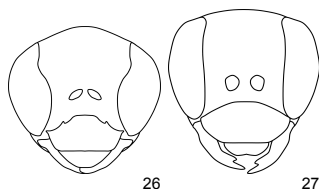
Males

Key to subfamilies

- 1 Eyes with inner margins strongly converging in lower half, face much narrower below antennal insertions than on vertex (Fig. 26)
 Extensively marked with yellow or ivory, including much of the lower face, a band on dorsal surface of pronotum, tergite 2 with spots or a band, and laterally on apical border of propodeum
 Subgenital plate short, not meeting opposing tergite all round but exposing genitalia
 Hind tarsal claws rectangularly bent and closely approximated, the pulvillus displaced ventrally.....**Ceropalinae**
- Eyes with inner margins parallel or slightly diverging ventrally (Fig. 27)
 Yellow markings absent or less extensive, propodeum never yellow-marked and pronotum nearly always black dorsally
 Subgenital plate long, closely applied to opposing tergite, the genitalia usually concealed

1 Channel Islands only.

Hind tarsal claws nearly always evenly curved; if (in *Auplopus*) rectangularly bent then separated by pulvillus.....2

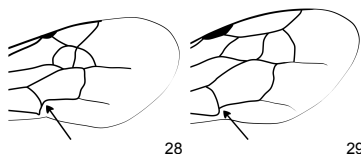


2 In the forewing, vein CuA1 abruptly deflected posteriorly at basal end, forming a 'pocket' to second distal cell (Fig. 28)

Mid and hind femora with dorsal preapical spines set in pits.....**Pompilinae**

— In the forewing, vein CuA1 not deflected posteriorly but leaving CuA at about a right angle, second discal cell without a 'pocket' (Fig 29)

Mid and hind femora lacking dorsal preapical spines set in pits.....**Pepsinae**



Pepsinae

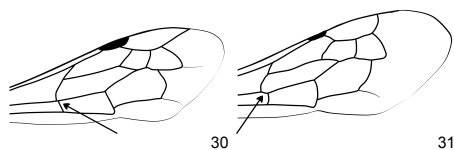
Key to genera

1 In the forewing, cross-vein cu-a meeting CuA opposite or very little after M (Fig. 30)

Gaster always black.....2

— In the forewing, cross-vein cu-a meeting CuA by a distance at least half its length from M (Fig. 31)

Gaster black or with red anteriorly.....3



2 Mandible with a single preapical tooth
 Forewing evenly lightly infusate
 Tibial spurs ivory-white, contrasting with tarsi
 Hind tibial spurs long, inner (longer) spur reaching at least three-quarters the length of the basitarsus
 Tergite 7 ivory, and clypeus often yellow-marked laterally.....
*Caliadurgus* [*fasciatellus* (Spinola)]

— Mandible broad with two preapical teeth

Forewing bifasciate with an infusate band across inner cross-veins and another from marginal cell to tornus

Tibial spurs black or brownish, concolorous with tarsi

Hind tibial spurs shorter, inner (longer) spur reaching to about half length of basitarsus

Tergite 7 and clypeus always black.....*Dipogon*

3 Face, clypeus and mandibles extensively yellow-marked

Subgenital plate with raised, sharp, longitudinal median keel, this keel without hairs.....*Auplopus* [*carbonarius* (Scopoli)]

— Face black or with small yellow maculae against eyes, clypeus black

Subgenital plate flat, or if with trace of a keel then this keel with long hairs.....4

4 Marginal cell apically truncate, vein Rs strongly curved towards costa and meeting it at close to a right angle (Fig. 32)

Wings lightly infusate with dark band round apex

Propodeum posteriorly with strong, sharp, transverse rugae

Face with small yellow maculae adjacent to eyes.....

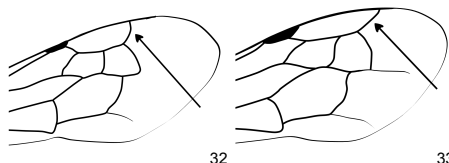
.....*Cryptocheilus* [*notatus* (Rossius)]

— Marginal cell apically pointed, vein Rs meeting costa obliquely (Fig. 33)

Wings infusate without darker border

Propodeum posteriorly smooth, coriaceous or transversely striate

Face black.....*Priocnemis*



Dipogon

Key to species

1 Antennal segments more or less cylindrical (Fig. 34)

Subgenital plate in lateral view deep anteriorly and with ventral margin concave to apex; ventral margin without noticeable hairs.....*bifasciatus* (Geoffroy)

— Antennae with ventral surface crenulate

Subgenital plate in lateral view with a fringe of hairs on ventral margin.....2

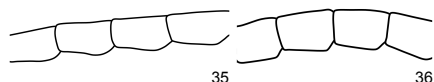


- 2 Middle antennal segments convexly rounded ventrally, widest just beyond one third from base (Fig. 35)

Subgenital plate with ventral margin very shallowly convex and with hair fringe longer than plate is deep.....*variegatus* (Linnaeus)

- Middle antennal segments angular ventrally, widest about one quarter from base (Fig. 36)

Subgenital plate with ventral margin strongly, deeply convex and with hair fringe less than half maximum depth of plate.....*subintermedius* (Magretti)

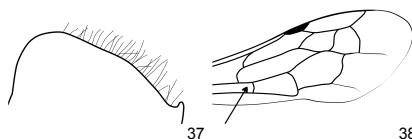


Priocnemis

Key to species

- 1 Face, temples and propodeum laterally (Fig. 37) with substantial erect dark hair
Length of CuA between M and cu-a at least 1.1 times the length of cu-a (Fig. 38).2

- Face, temples and propodeum with little or no erect hair
Length of CuA between M and cu-a less than 1.1 times length of cu-a.....4



- 2 Subgenital plate truncate apically
First flagellar (third antennal) segment short, subequal to scape
Scape with substantial erect hair, most hairs as long as the scape is wide.....*coriacea* Dahlbom

- Subgenital plate angularly incised apically
First flagellar segment longer, subequal to scape plus pedicel
If scape with erect hairs, these at most half as long as scape width.....3

- 3 Subgenital plate flat mediobasally, this area glabrous
Apical incision rather sharply angulate medially, posterolateral angles more rounded
Scape with a few erect hairs, about half as long as scape width
Sternites with numerous long erect hairs.....*susterai* Haupt

- Subgenital plate with mediobasal area raised into a low ridge, this area with short erect hairs
Apical incision more rounded medially, posterolateral angles more sharply pointed
Scape without erect hairs

- Sternites with very few, rather short, erect hairs.....*perturbator* (Harris)
- 4 Subgenital plate with a fringe of strong, bristle-like hairs on lateral and posterior margins, these longer and thicker than any fine hairs on surface.....5
 — Subgenital plate with margins almost devoid of hairs, any present fine and similar to those on surface.....8
- 5 Subgenital plate, in basal half, impunctate, finely transversely striate.....*pusilla* Schiødte
 — Subgenital plate with punctures across whole surface.....6
- 6 Subgenital plate heart-shaped, strongly expanded apically so that at its widest it is almost twice as wide as at base.....*cordivalvata* Haupt
 — Subgenital plate more regular, its widest point little wider than width at base.....7
- 7 Subgenital plate densely punctate; marginal bristles not longer than width of plate and with tips curved inwards forming a “basket”.....*gracilis* Haupt
 — Subgenital plate finely and sparsely punctate.....*schioedtei* Haupt
- 8 Inner tooth of tarsal claw large; often taller than apical tooth and close to it (Fig. 39)
 Tergites black, at most with a red band on the second
 Gonostylus shortened and terminating in three prongs.....9
 — Inner tooth of tarsal claw small; shorter than apical tooth and remote from it (Fig. 40)
 Gaster (?always) reddish basally
 ?Gonostylus simple.....10
- 39
40
- 9 Sixth sternite with hair tuft with some hairs longer than those on subgenital plate
 Gonostylus with inner ventral prong distinctly longer than lateral prong; curve connecting inner ventral and dorsal prongs lined with setae throughout.....*fennica* Haupt
 — Sixth sternite with all hairs shorter than those on subgenital plate
 Gonostylus with inner ventral prong scarcely longer than lateral prong; curve connecting inner ventral and dorsal prongs bare, setae confined to apices of prongs.....*hyalinata* (Fabricius)
- 10 Subgenital plate flat with evenly scattered hairs.....11

- Subgenital plate with a median row of long, erect hairs inserted on a slight median longitudinal ridge.....*agilis* (Shuckard)
- 11 Subgenital plate long, narrow and parallel-sided.....*parvula* Dahlbom
- Subgenital plate shorter with convex sides.....*exaltata* (Fabricius)
[Sternite 6, between lateral pits, smooth and polished, without hairs or surface sculpture; distally distinctly emarginate]

Pompilinae

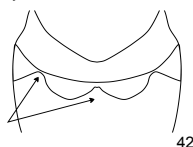
Key to genera

- 1 Propodeum normal, posterolaterally rounded, not extending posteriorly beyond articulation with gaster
Gaster black or with anterior tergites red.....2
- Propodeum with posterolateral corners produced posteriorly, extending back beyond articulation with gaster
Gaster black.....8

- 2 All tarsal claws split (Fig. 41).....3
- Mid and hind tarsal claws toothed or simple.....4



- 3 Pronotum, propodeum and first tergite with adpressed, flattened, silvery, scale-like pubescence
Metapostnotum constricted medially and again laterally (Fig. 42)
Tergites with ivory spots, last tergite often completely ivory.....*Episyron*
- Body without adpressed, flattened, scale-like pubescence
Metapostnotum not medially constricted, anterior and posterior margins parallel
Tergites without ivory markings; black or black and red.....*Anoplius*



- 4 Gaster black with anterior tergites red.....5
- Gaster all black, sometimes with an ivory spot on the last tergite.....6
- 5 Antennae very stout, first flagellar (third antennal) segment less than twice as long as thick
Pronotal hind margin gently angulate medially or even arcuate (Fig. 43)

- [Pulvillus narrow, pulvillar comb poorly developed].....*Evagetes*
 — Antennae less stout, first flagellar (third antennal) segment more than twice as long as thick

Pronotal hind margin strongly angulate medially (Fig. 44)

- [Pulvillus broad, pulvillar comb well developed].....*Arachnospila*



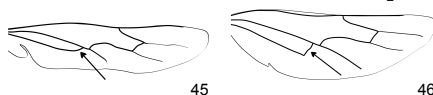
- 6 Forewing with two submarginal cells
 Antennae particularly stout, first flagellar (third antennal) segment) no longer than thick.....*Aporus* [*unicolor* Spinola]
 — Forewing with three submarginal cells
 Antennae thinner, first flagellar (third antennal) segment distinctly longer than thick.....7

- 7 Mandibles long and sickle-shaped, strongly crossing at apex
 Antennal flagellum subclavate, the distal segments wider than the proximal ones
 Fore basitarsus with two spines externally, each as long as segment is thick
*Pompilus* [*cinereus* (Fabricius)]

- Mandibles short and stout, meeting at apex
 Antennal flagellum filiform
 Fore basitarsus without strong spines.....*Agenioideus*

- 8 Head normal, convexly rounded posteriorly, separated from prothorax by a neck
 Propodeum produced posterolaterally as conical projections
 Vein cu-a of hindwing sinuous, contiguous with vein 1A (Fig. 45)
 Body black with extensive adpressed blue-grey pubescence, this forming distinct spots on the tergites.....*Aporinellus* [*sexmaculatus* (Spinola)]¹

- Head expanded posteriorly at vertex and temples, posterior surface concave, adapted closely to the front of the thorax
 Propodeum produced posterolaterally as vertical flanges closely fitting against base of first tergite
 Vein cu-a of hindwing straight, perpendicular to 1A (Fig. 46)
 Body with adpressed grey pubescence confined to extreme posterior margins of tergites.....*Homonotus* [*sanguinolentus* (Fabricius)]



1 Channel Islands only.

Agenioideus

Key to species

- 1 Subgenital plate longitudinally raised medially, carinate
Hind tibia with a dorsal sub-basal ivory spot
Upper part of face with a yellowish spot adjacent to inner eye margin.....*cinctellus*
(Spinola)
- Subgenital plate flat
Hind tibia completely black
Upper part of face completely black.....*sericeus* (Vander Linden)

Anoplius

Key to species

- 1 All tergites black.....2
- Second tergite with at least a narrow transverse band of red, more frequently wholly red together with part of first and third tergites.....4
- 2 Subgenital plate flat
Sternites 4 and 5 with pairs of hair-mats composed of backwardly-directed semi-erect hairs.....*caviventris* (Aurivillius)
- Subgenital plate folded longitudinally
Sternites without specialised hair-mats.....3
- 3 Third submarginal cell triangular or even petiolate above
Subgenital plate beak-shaped, apically pointed
Inner tooth of mid and hind claws truncate.....*nigerrimus* (Scopoli)
- Third submarginal cell at least half as long on Rs as second
Subgenital plate large, folded longitudinally, apically incised; when fully extended the lateral ‘wings’ are pale and translucent
Inner tooth of mid and hind claws pointed, very nearly as long as apical tooth
.....*concinus* (Dahlbom)
- 4 Posterior margin of sternite 5 with a large, square incision
Sternites 4 and 5 each with mats of fine, erect hairs.....*infuscatus* (Vander Linden)
- Posterior margin of sternite 5 evenly concave
Sternite 4 only with a mat of fine, erect hairs.....*viaticus* (Linnaeus)

Arachnospila

Key to species

- 1 Propodeum without long, dark, erect hairs, at most with a few scattered pale ones2
 — Propodeum (and face around antennal insertions) with substantial long, dark, erect hair.....6
- 2 Hind tibia distally with inner face abruptly swollen (Fig. 47)
 Subgenital plate flat, with slightly raised longitudinal keel bearing a row of widely spaced erect hairs, and lateral and distal borders with fringe of closely spaced stiff setae.....*minutula* (Dahlbom)
 — Hind tibia normal
 Subgenital plate otherwise.....3
-
- 3 Third submarginal cell clearly greater in area than second; longer on vein Rs than second
 Subgenital plate beak-like, strongly longitudinally folded and pointed at the apex; lateral edges with strong, closely spaced spines.....*spissa* (Schjødt)
 — Third submarginal cell not larger in area than second; shorter on vein Rs than second
 Subgenital plate otherwise.....4
- 4 Subgenital plate subterminally with a tuft of long, erect hairs, forming a 'hair-pencil'; this tuft as long as its distance from base of plate
 Outer margin of gonostylus with fringe of long and dense hairs.....*wesmaeli* (Thomson)
 — Subgenital plate without hair pencil, any erect hairs much shorter
 Outer margin of gonostylus with short and sparse hairs.....5
- 5 Subgenital plate gently, evenly convex, with cluster of erect hairs medially near apex, any other hairs much shorter and adpressed
 In genitalia, volsella and parapepial lobe subequal in length to aedeagus.....*anceps* (Wesmael)
 — Subgenital plate with slight raised median longitudinal ridge, with erect hairs shorter and more generally distributed than in *anceps*

In genitalia, volsella and parapenial lobes about two-thirds length of aedeagus
*trivialis* (Dahlbom)

6 Area of wing-tip beyond closed cells large; distance from apex of marginal cell to wing-tip at least 1.25x length of marginal cell

Subgenital plate longitudinally folded, in lateral view ventral margin largely straight

In genitalia, volsella subequal in length to aedeagus.....*consobrina* (Dahlbom)

— Area of wing-tip beyond closed cells small; distance from apex of marginal cell to wing-tip no greater than length of marginal cell

Subgenital plate with a strong longitudinal keel medially, in lateral view ventral margin strongly convex

In genitalia, volsella about three-quarters length of the aedeagus.....*rufa* (Haupt)

Episyron

Key to species

1 Median flagellar segments with a slight longitudinal keel above

Basal sclerite of forewing, adjacent to tegula, usually with an ivory spot opposite base of subcosta

Stigma of forewing about three times as long as broad

In dorsal view, head with temples very flat, sharply angled inwards immediately behind eyes

Fore femur without projecting hairs.....*rufipes* (Linnaeus)

— Median flagellar segments not keeled above

Basal sclerite of forewing without pale spot

Stigma of forewing about twice as long as broad

In dorsal view, head with temples more developed, extending posteriorly behind eyes before turning inwards

Fore femur with a few, pale projecting hairs.....*gallicum* (Tournier)

Evagetes

Key to species

1 Two submarginal cells

Subgenital plate with two strong spines at extreme base.....*dubius* (Vander Linden)

— Three submarginal cells

- Subgenital plate without strong spines at extreme base (one species with small nipples).....2
- 2 Subgenital plate flat
 Propodeum without strong, erect, dark hairs.....3
 — Subgenital plate with strongly raised median keel
 Propodeum with strong, erect, dark hairs.....*siculus* (Lepelletier)¹
- 3 Subgenital plate, when fully exposed, with a pair of longitudinal carinae at base
 Second flagellar (fourth antennal) segment twice as long as thick.....
*crassicornis* (Shuckard)
 — Subgenital plate, when fully exposed, with a pair of small, spine-like processes at base
 Second flagellar (fourth antennal) segment 1.5 times as long as thick.....
*pectinipes* (Linnaeus)

Ceropalinae

A single genus

Ceropales

Key to species

- 1 Mesonotum finely and densely punctate, superimposed with numerous deep shining punctures 2-3 times the diameter of the smaller ones
 First tergite black with a pair of yellow spots, second tergite with an apical yellow band
 Propodeal declivity rugose-reticulate
 Hind tarsi particularly long; second segment about equal to half length of basitarsus.....*maculata* (Fabricius)
 — Mesonotum finely and densely punctate, with at most a few scattered slightly larger ones
 First tergite mainly red, second tergite with lunate spots
 Propodeal declivity punctate, shining
 Hind tarsi not so long; second segment about equal to one third length of basitarsus.....*variegata* (Fabricius)

¹ Channel Islands only