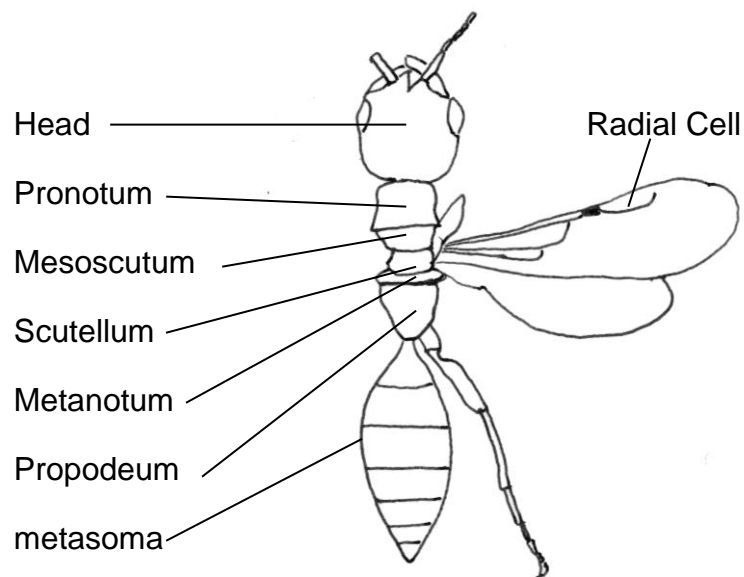


The use of Perkins (1976) to identify species of DEBs (Dryinidae, Embolemidae, Bethylidae) with extra Notes..... Michael Archer

Embolemidae

Parkins provide a key to two species: *Embolemus ruddii* Westwood and *E. antennalis* Kiefferr. These two species are now regarded as one species, *E. ruddii* (Westwood) which can be keyed by reference to the key to DEB families.

Names of Body Parts of a DEB



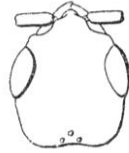
Bethylidae

Perkins gives a key to nine genera, missing *Scleroderma*. *S. domestica* Klug was recently found In London Natural History Museum by J.T. Burn. The genera *Goniozus*, *Pseudisobrachium*, *Pristocera* and *Scleroderma* only have one species each so can be keyed out with the other genera in the genera key,

Bethylus

The four species are keyed out by Perkins although the species *hyalinus* (Marshall) is now considered as part of the species *fuscicornis* (Jurine). J.T. Burn added *B. boops* during 1997 so now *Bethylus* has four species in the following key.

1A. Posterior ocellus separated from hind margin of head by, at most, its diameter. Clypeus with a very strong keel between the antennae. Antennal segment shorter, 3-5 not more than 1.5 times as long as broad. Head somewhat shining, with weaker granulate sculpture,2

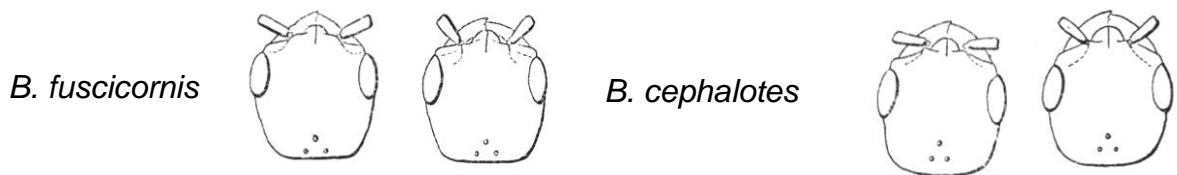


Dorsal view of had of *B. dendrophilus*

1B. Posterior ocellus separated from hind margin of head by a distance greater than its diameter. Clypeus with keel between the antennae less strong. Antennal segment longer, 3-5 at least twice as long as broad. Head dull with strong granulate sculpture.3

2A. Eyes hairy.**boops** (Thomson)
 2B. Eyes not hairy.**dendrophilus** Richards

3A. Posterior ocelli separated from hind margin of head by a distance 0.4 to 0.6 (usually 0.5) in female and 0.4-0.5 in male. Female sometimes, male rarely with wings shortened. Mesopleuron viewed dorsally, little convex centrally.**fuscicornis** (Jurine)



Dorsal view of female and male heads

3B. Posterior ocelli separated from hind margin of head by a distance 1.25 to 2.5 in female and 1.0 to 1.5 in male. Female rarely short-winged and these have the hind ocelli closest to hind margin of head. Mesopleuron viewed dorsally, conspicuously swollen centrally.**cephalotes** (Förster)

Cephalonomia

Perkins keys the five species although *gallicola*, *tarsalis* and *waterstoni* are Warehouse species as follows.

1A. Female mainly pale brownish-yellow; without wings; propodeum widening from base to posterior lateral angles.
 Males with more-or-less pale brownish-yellow markings; fully winged, in part darkened or wingless; wingless specimens have the mesoscutellum undifferentiated from mesoscutum.**gallicola** (Ashmead)
 1B. Female and male brownish except sometimes with markings on legs and antennae; fully winged or with scale-like wings, wings transparent; mesoscutellum always differentiated from mesoscutum; female with dorsal surface of propodeum with parallel sides or narrowing posteriorly.2

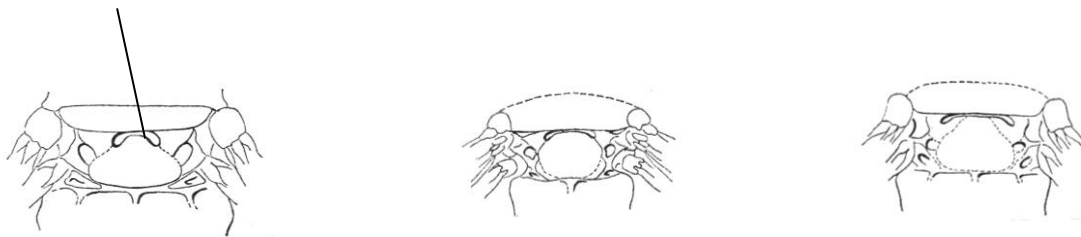
2A. Propodeum with distinct, central, longitudinal keel; fovea of mesoscutellum conspicuous, deepened laterally into a pit; sides of the head, behind the eyes considerable converging and only a little longer than eyes.**tarsalis** (Ashmead)
 2B. If the propodeum has an indication of a central, longitudinal, keel then the fovea of mesoscutellum only represented by lateral pits.3

3A. Larger species, 1.8mm; antennae yellow with first segment brown; head distinctly rounded posteriorly; fovea of mesoscutellum represented by a pair of lateral pits separated by 5-6 times diameter of one of them; propodeum granulate throughout.**hammi** Richards
 3B. Smaller species, less than 1.6 mm; antennae brown to black, entirely so in male, at most 2-4 segments yellow in female.4

4A. Propodeum evenly and rather coarsely granulate; fully winged.
 Male scape shorter, as long as antennal segments 2+3; sides of head more converging behind.
 Female fovea of mesoscutellum represented by lateral pits separated by twice the diameter of one of them; sides of head in front of eyes about 0.5 length of eye.
**waterstoni** Gahan

4B. Propodeum with a pair of shiny areas in female, whole area is shiny in male before the posterior sloping area. Sometimes both sexes with wings represented by small scales
 Male scape longer, nearly as long as antennal segments 2+3+4, sides of head less converging behind.
 Female fovea of mesoscutellum conspicuous and little deepened latterly into inconspicuous pits; sides o head in front of eyes about 0.3 length of eye.
**formiciformis** Westwood

Mesoscutellar Fovea



Mesoscutellum of *C. tarsalis*, female *C waterstoni*, female *C. formiciformis*

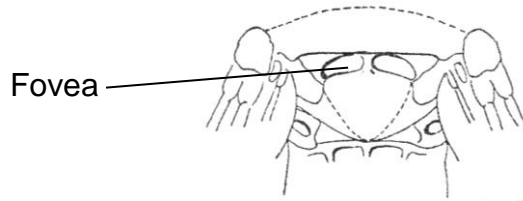


Female dorsal view of head of *C. tarsalis*, female *C. waterstoni*

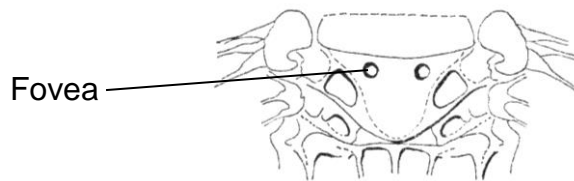
Epyris

Perkins keys the two species as follows.

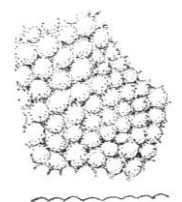
1A. Head and pronotum dorsally densely granulate and dull. Lateral ocelli separated from hind margin of head by a distance approximately equal to distance between them. Eyes of female hairy. Fore tarsus of female with segments 2-3 subcylindrical and 4 heart-shaped. Fovea of scutellum represented by an interrupted groove. Mid-tibia only hairy.**niger** Westwood



1B. Head and pronotum dorsally weakly granulate and shiny. Lateral ocelli separated from hind margin of head by distance equal to 0.75 between them in male, 0.5 in female. Eyes of female almost bare. Segments of female fore tarsus heart-shaped. Fovea of scutellum represented by lateral pits. Mid-tibia spinose.**bilineatus** Thomson



Subcylindrical-shape Heart-shape
tarsal segments



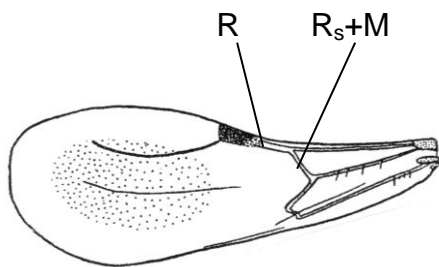
Granulate pattern

Holepyris

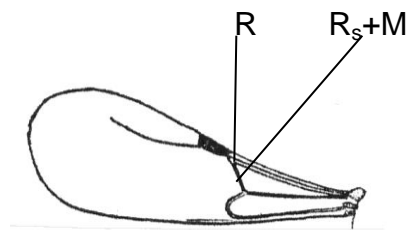
Perkins keys two species although *hawaiiensis* (Ashmead) is now known as *glabratus* as follows.

1A. Notauli (oblique longitudinal lines on mesoscutum) deep posteriorly becoming very faint or absent anteriorly. Female propodeum anteriorly with three longitudinal discal keels and sculpture finely wrinkled; fore-wing transparent, with R_s+M meeting R close to base of pterostigma; eyes with extremely short scattered hairs, only visible at high power.***sylvanidis*** (Brethes)

1B. Notauli absent. Female propodeum with five longitudinal discal keels and the sculpture striate; fore-wing with a dark discal spot and R_s+M meeting R well before the pterostigma; eyes strongly hairy.***glabratus*** (Fabricius)



H. glabratus



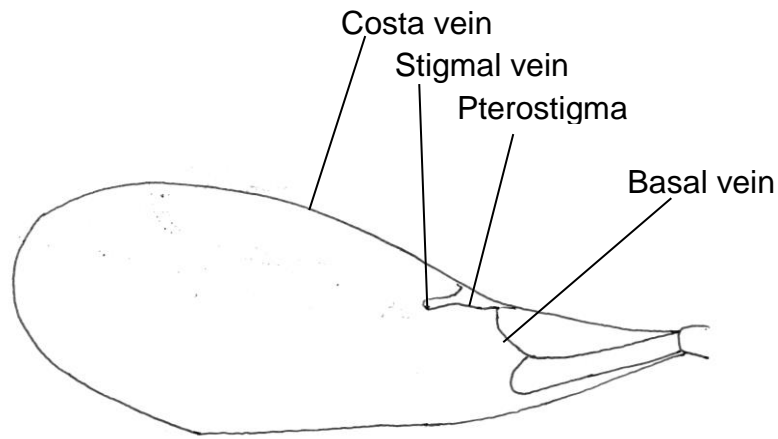
H. sylvanidis

Laelius

Perkins only list one species *L. microneurus* (Kieffer) now known as *L. femoralis* (Förster). There is also a second species, *L. pedatus* (Say), an indoor species, added recently by Notton *et al.* (2014). The two species are separated as follows.

1A. Stigmal vein straight or almost straight, barely or not widened apically; pterostigma brown, slightly darker than basal vein, and without a long hair which is longer than the nearby long hairs on the costal vein; propodeum with discal longitudinal keels slightly converging posteriorly, disc of fore wing hyaline.***femoralis*** (Förster)

1B. Stigmal vein curved and apically broadened; pterostigma as pale as basal vein and with dorsal long hair longer than the nearby long hairs on the subcostal vein; propodeum with discal longitudinal keels slightly diverging posteriorly, furthest apart at about 2/3; disc of fore wing infuscate.***pedatus*** (Say)



Fore wing of *Laelius pedatus*

Plastanoxus

Perkins keys three species although two species *P. westwoodi* (Kieffer) and *P. munroi* Richards are Warehouse species.

1A. Length at most 1.5mm. Cell R not enclosed.
 Head and dorsal mesosoma, except propodeum, shiny.
 Propodeum granulate, with a pair of smooth areas posteriorly, sometimes joined, before the transverse keel.
 Male with anterior ocellus behind line of hind margin of eyes.....***westwoodi*** (Feiffer)

1B. Length about 2.0mm. Cell R not enclosed by pigmented veins.
 Head and dorsal mesosoma, except propodeum, shiny.
 Granulation of propodeum extending further back than in *westwoodi*.
 Head wider compared with its length.***chittendenii*** (Ashmead)

1C. Length about 1.75mm. Cell R enclosed by pigmented veins.
 Head and dorsal mesosoma, except propodeum, conspicuously granular throughout.
 Propodeum conspicuously granular throughout.
 Male with anterior ocellus level with line of hind margin of eyes. ... ***munroi*** Richards

Dryinidae

Perkins divides the Dryinidae into four subfamilies with 16 genera: Aphelopinae with one genus *Aphelopus*, Anteoninae with four genera (*Mystrophorus*, *Prenanteon*, *Anteon*, *Chelogyne*), Dryinae with two genera (*Mesodrinus*, *Dryinus*) and Gonatopdinae with nine genera including *Monogonatopus*.

At present there are five subfamilies with *Mystrophorus* in a new subfamily Bocchinae with one genus *Mystrophorus*, Aphelopinae still retain one genus *Aphelopus*, Anteoninae with two genera (*Prenanteon* now known as *Lonchodryinus* and *Anteon* with *Chelogyne* combined and now known as *Anteon*), Dryinae with one genus (*Mesodrinus* and *Dryinus* combined and now known as *Dryinus* and Gonatopdinae with two genera (*Monogonatopus* now known as *Haplogonatus* and

the remaining eight genera now combined as *Gonatopus*. Thus the 16 genera have been reduced to seven genera. The genus key only considers these seven genera.

I acknowledge M Olmi for his help, particularly with genera *Anteon* and *Gonatopus* with his many papers and books and personal correspondence.

Aphelopus

Perkins gives female and male keys for five species. A sixth species, *A. quercus* Olmi is absent as it was only introduced recently by J.T. Burn during 1995. The following keys follow closely Perkins but also include *A. quercus*.

Females

- 1A. Head with mandibles, clypeus and a more or less conspicuous frontal surface white or brownish-yellow.2
- 1B. Head with at most clypeus and mandibles white or brownish-yellow.3

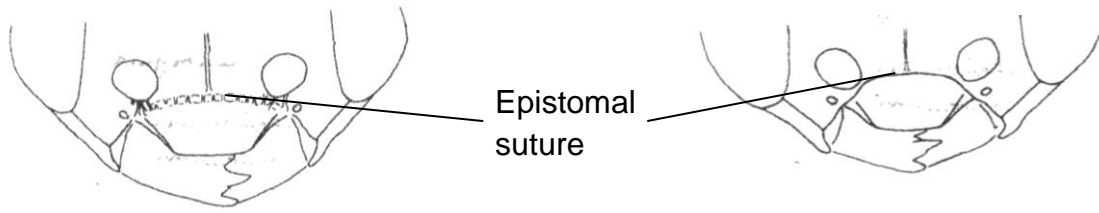
- 2A. Frons with U-shaped white or brownish-yellow mark, enclosing bases of antennae, with arms lying along inner margin of eyes; frons rarely with only a few small white or brownish-yellow spots near base of clypeus and mandibles. Notauli (grooves) reaching approximately 0.5 length of mesoscutum. Antennae more thickened distally.***melaleucus*** (Dalman)
- 2B. Frons with only the lower face white or brownish-yellow; occasionally frons with a U-shaped white or brownish-yellow mark, enclosing bases of antennae, with arms lying along inner margin of eyes for only a short distance. Notauli reaching approximately 0.60-0.75 length of mesoscutum. Antennae less thickened distally.***quercus*** Olmi



Dorsal view of heads of *A. melaleucus* and *A. quercus*

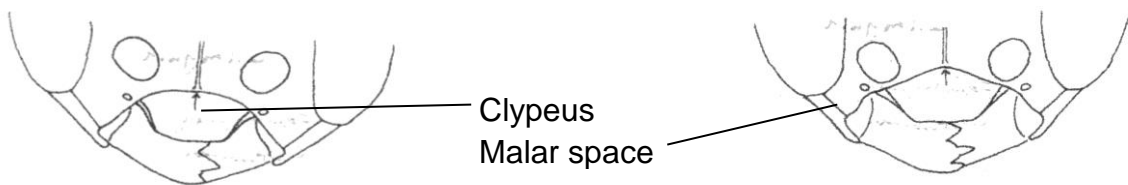
- 3A. Head with only mandibles white or brownish-yellow; clypeus black or uniformly dark.4
- 3B. Head with clypeus and mandibles white or brownish-yellow; clypeus occasionally partly dark, never uniformly dark.6

- 4A. Epistomal suture and subantennal areas distinctly sculptured.***nigriceps*** Kieffer
- 4B. Epistomal suture and subantennal areas smooth and polished. ***atratus*** (Dalman)



Frontal view of heads of *A. nigriceps* and *A. atratus*

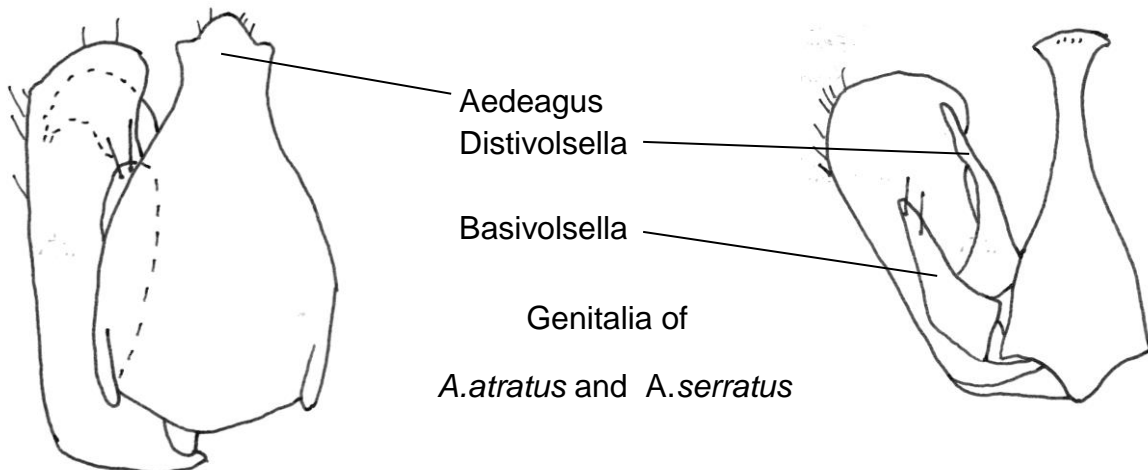
- 6A. Epistomal suture medially straight. Notauli reaching beyond 0.75 length of mesoscutum; occasionally reaching posterior margin of mesoscutum. Width of the malar space (distance between the eye and the mandible) at its narrowest point equal to, or greater than, median height of clypeus.**serratus** Richards
- 6B. Epistomal suture medially curved. Notauli reaching approximately 0.65 length of mesoscutum. Width of the malar space at its narrowest point distinctly less than median height of clypeus.**camus** Richards



Frontal view of heads of *A. serratus* and *A. camus*

Males

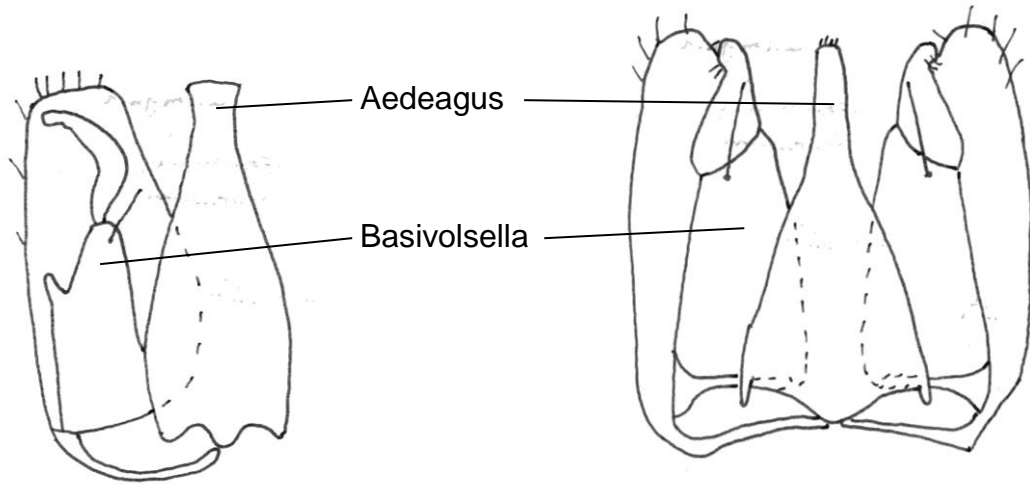
- 1A. Aedeagus distally tridentate.**atratus** (Dalman)
- 1B. Aedeagus distally not tridentate.2
- 2A. Distivolsella in the form of a long straight rod. Basivolsella long and narrow, pointed distally.**serratus** Richards
- 2B. Distivolsella differently formed. Basivolsella broader.3



Genitalia of
A. atratus and *A. serratus*

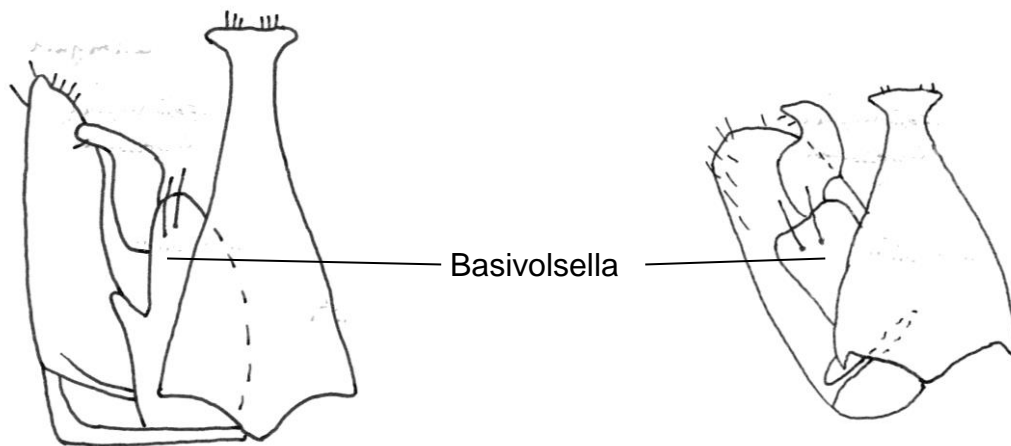
- 3A. Basivolsella with 1 subdistal bristle.4
- 3B. Basivolsella with 2 subdistal bristle.5

- 4A. Aedeagus with distal apex trumpet-shaped.**camus** Richards
- 4B. Aedeagus with distal apex not trumpet-shaped.....**melaleucus** (Dalman)



Genitalia of *P. camus* and *P. melaleucus*

- 5A. Basivolsella with an outer basal process.**querceus** Olmi
- 5B. Basivolsella without an outer basal process.**nigriceps** Kieffer



Genitalia of *P. querceus* and *nigriceps*

Anteon

Perkins keys out the females and males of ten species. The *Anteon* genus of Perkins is divided into three species groups. Three species are in the *brevicornis* group which are now synonyms of *A. jurineanum* Latreille. The three species of the *flavicorne* group are *jurineanum*, *flavicorne* (Dalman) and *subflavicorne* Haupt which is now a synonym of *flavicorne*. The *brachycerum* contain the single species of *brachycerum* (Dalman)

The *Chelogyne* genus of Perkins contain the species of *scapularis* (Haliday), *infectum* (Haliday), *luteleicornis* (Kieffer) (now a synonym of *infectum*), *fulviventre* (Haliday), *kieffer* (Chitty) (now a synonym *tripartitum* Kieffer), *aibidocollis* Kieffer (now a sunonym of *ephippiger* (Dallman), *lucidus* (Haliday) (now a synonym of *pubicornis* (Dalman), *rufulocollis* (Chitty) and *cameroni* (Kiffer) (now as synonymns of *gaullei* Kieffer) and *Gaullei* (Kieffer). This is a confusion situation so proceed as follows,

Currently *Anteon* consists of 14 species. The additional species are *arcuatum* Kieffer, *exiguum* (Haupt), added by Burn 1995, *faciale* (Thomson), added by Burn (1990) as *pseudohilare* and *reticulatum* Kieffer, added by Olmi (1989).

The following keys of females and males represent 14 species.

Females

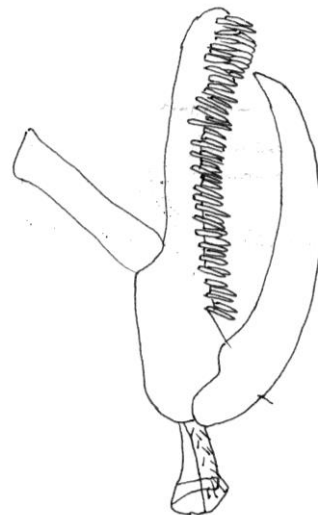
- 1A. Segment 4 of fore tarsus at most 0.5 as long as segment 1. Segment 5 of fore tarsus with basal part longer than distal part. Fore tarsal segment 3 or 4 produced into a hook.2
- 1B. Segment 4 of fore tarsus as long as, or longer than, or little shorter than segment 1 (in the last case, at least 0.66 as long as segment 1) Segment 5 fore tarsus with basal part as long as or shorter than distal part. Usually fore tarsal segment 2 produced into a hook.6
- 2A. Posterior surface of propodeum without longitudinal keels.
.....*jurineanum* Latreille
- 2B. Posterior surface of propodeum with two longitudinal keels.3
- 3A. Frons without a thin keel centrally, occasionally with a short keel visible near anterior ocellus. Antennae black or with segment 1 brownish-yellow.
.....*brachycerum* (Dalman)
- 3B. Frons keeled centrally, median keel complete or reaching at least mid-length of frons, rarely absent or reduced to a trace, but then antennae wholly yellow (in *A. flavicorne*).4
- 4A. Head fully strongly reticulate rugose (wrinkled); front tarsal segment 4 and occasionally also segment 3 of fore tarsus produced into a hook. *reticulatum* Kieffer

- 4B. Head not or partly reticulate rugose; front tarsal segment 3 produced into a hook.
.....5
- 5A. Antennae at least partly black or brown.**arcuatum** Kieffer
5B. Antennae wholly yellow.**flavicornes** (Dalman)
- 6A. Posterior surface of propodeum with median area shining, mostly smooth and without sculptures, only partly rugose (rarely median area granulated).7
6B. Posterior surface of propodeum with median area dull completely rugose (wrinkled), approximately rugose, approximately as rugose as lateral regions.9
- 7A. Head, pronotum, mesoscutum and mesoscutellum yellow or reddish.
.....**ephippiger** (Dalman)
7B. Head and mesosoma completely black, at most clypeus and frons partly brownish-yellow.8
- 8A. Species usually very small, less than 2.5mm long, rarely longer than 3.0 mm. Head finely punctate and completely smooth; frons smooth, without keels or areolae (small circles). Segment 5 of fore tarsus with 1 row of lamellae.**pubicornes** (Dalman)
8B. Species large, more than 3.0 mm long. Head strongly punctate, frons with keels or areolae. Segment 5 of fore tarsus with 2 rows of lamellae.10
- 9A. Antennal segments 2 + 3 at least 1.5 times as long as 1.**scapulare** (Haliday)
9B. Antennal segments 2 + 3 as long as 1 or a little longer than segment 1.
..... **infectum** (Haliday)
- 10A. Pronotum with posterior surface transverse, more than twice as broad as long.
.....**exiguum** (Haupt)
10B. Pronotum with posterior surface approximately as long as broad; occasionally broader than long, but never more than twice as broad as long.11
- 11A. Ocellar triangle delimited by keels joining ocelli, lateral keels occasionally slightly visible, posterior keel always visible. Head and mesosoma black.
.....**tripartitum** Kieffer
11B. Ocellar triangle not delimited by keels. Head and mesosoma black or differently coloured.12
- 12A. Head, mesosoma and propodeum completely black, occasionally brown, occasionally brown or with cupreous(coppery) tinges; head brownish-yellow. Head punctate without sculpture among punctur.....**pubicornes** (Dalman)
12B. Head, mesosoma and propodeum partly or completely yellow, or brownish-yellow, or reddish, or dark-reddish; occasionally completely dark-brown, or almost wholly or wholly black, but then head partly rugose, or punctate and granulated among punctures.13

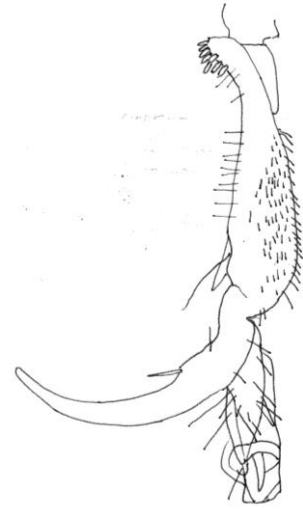
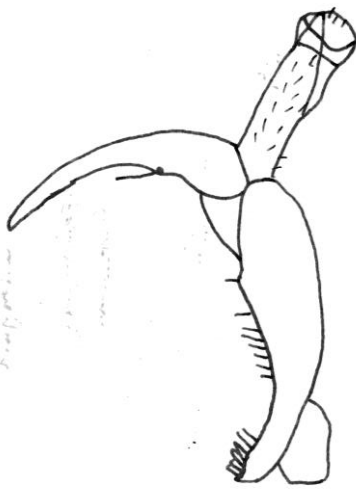
- 13A. Head wholly black; mesoscutum completely or mainly black, pronotum reddish, or yellow, or brownish-yellow. Segment 5 of fore tarsus with 2 rows of lamellae.
**gaullei** Kieffer
- 13B. At least head partly yellow, or reddish, or brownish-yellow; occasionally head and mesoscutum dark brown or black, but then the pronotum dark brown, or black. Segment 5 of fore tarsus with 1 - 2 rows of lamellae.14
- 14A. Head dull, always clearly and strongly granulated. Antennal segment 1 approximately twice as long as segment 4.**fulviventre** (Haliday)
- 14B. Head at least partly smooth, shining, punctate, without sculpture among punctures or very weakly granulated. Antennal segment 1 approximately as long as or less than twice as long as segment 4.15
- 15A. Mesoscutellum and metanotum convex.**faciale** (Thomson)
- 15B. Mesoscutellum flat and metanotum convex.**ephippiger** (Dalman)

The chela (see key to the genera) consists of an enlarged fifth hind tarsal segment, an enlarged claw (a small second claw may be present), and an enlarged arolium. The Fifth segment may have laminae besides hairs.

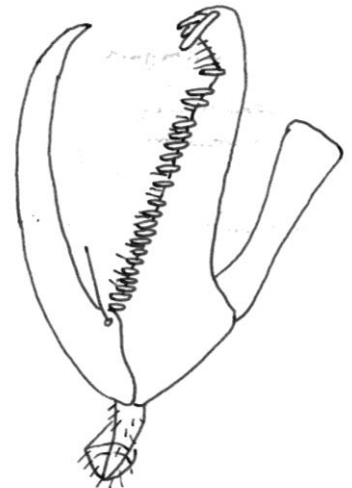
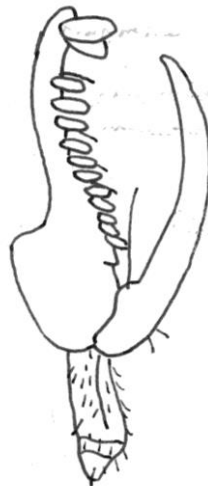
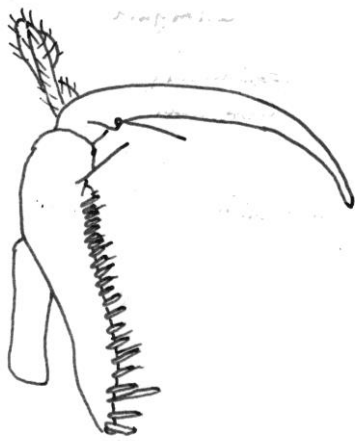
The male genitalia (see key to the genera) consists of the outer Parameres and the central Aedeagus. Between the Parameres and the Aedeagus are the Volsella, each with a basal (Dasi) and apical (Disi) parts.



Chela of *Anteon scapulare*



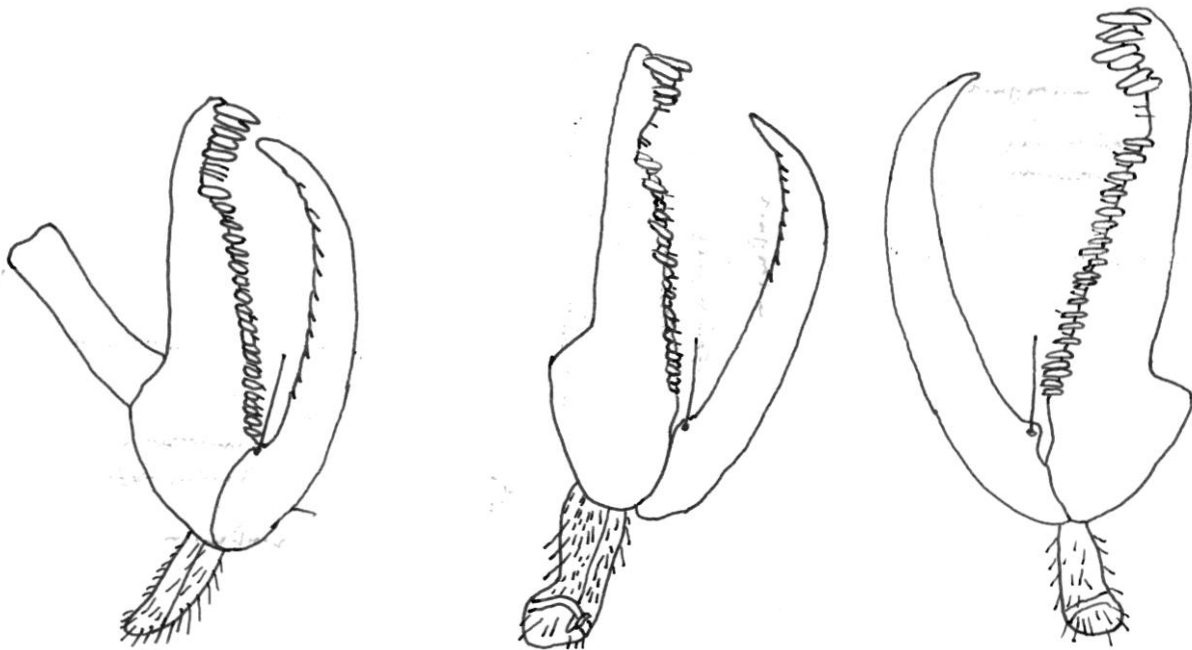
Chela of *A. brachycerum*, *A. arcuatum* and *A. flavicorne*



Chela of *A. ephippiger*, *A. exiguum* and *A. fulviventre*



Chela of *A. gullei*, *A. infectum* and *A. jurineanum*

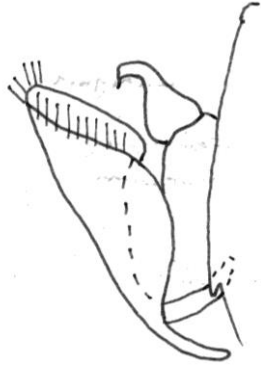


Chela of *A. pubicorne*, *A. tripartitum* and *A. faciale*

Males

- 1A. Posterior surface of propodeum without longitudinal keels.2
1B. Posterior surface of propodeum with two longitudinal keels..3
- 2A. Parameres with a distal inner pointed process.**pubicorne** (Dalman)
2B. Parameres with no distal inner pointed process**jurineanum** Latreille
- 3A. Parameres with no distal inner more or less pointed process.4
3B. Parameres with a distal inner pointed more or less process.8
- 4A. Posterior surface of propodeum with median area shining and almost completely smooth, not rugose.5
4B. Posterior surface of propodeum with median area dull and rugose (wrinkled). ..7
- 5A. Hind femora completely black or brown.6
5B. Hind femora fully brownish yellow.**scapulare** (Haliday)
- 6A. Frontal line complete.**reticulatum** Kieffer
6B. Frontal line incomplete. **infectum** (Haliday)
- 7A. Mesoscutellum punctate, without sculpture among punctures, not granulated.
.....**reticulatum** Kieffer
7B. Mesoscutellum granulated, or with anterior half strongly reticulate rugose and with posterior region strongly punctate.**jurineanum** Latreille
- 8A. Genitalia with no dorsal membranous band. Head granulated, not punctate; antennae and legs mostly brown or black.**brachycerum** (Dalman)
8B. Genitalia with a more or less large dorsal membranous band; sculpture of head and colour of antennae and legs variable.....9
- 9A. Distal inner process of parameres extended medially and with inner margin excavated.10
9B. Distal inner process of parameres extended apically and with inner margin convex or straight, rarely slightly excavated.11
- 10A. Legs brownish-yellow; at most hind legs with coxae, femora and tibiae partly brown.**flavicorne** (Dalman)
10B. Legs brownish-yellow, with coxae, and clubs of femora brown or dark.
.....**arcuatum** Kieffer

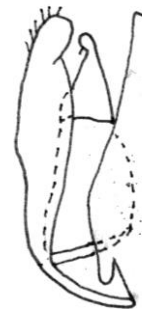
- 11A. Legs completely yellow or brownish-yellow, occasionally with proximal extremities of hind coxae brown; occasionally stalks of hind femora brown; occasionally hind legs completely brown.12
- 11B. Legs more or less completely brown or blackish, with at least mid and hind coxae and femora brown or blackish.17
- 12A. Head strongly granulated, smooth, not punctate; rarely with irregular keels. ..13
- 12B. Head strongly or finely punctate, without sculpture among punctures, occasionally weakly granulated, or alutaceous (minute cracks), or partly rugose, but then always with distinct punctures.14
- 13A. Head smooth, completely granulated.**fulviventre** (Haliday)
- 13B. Head granulated and sculptured by irregular keels, not smooth.
.....**tripartitum** Kieffer
- 14A. Mesoscutellum and metanotum convex.**faciale**(Thomson)
- 14B. Mesoscutellum and metanotum flat or little convex.15
- 15A. Genitalia with dorsal membrane very short; head in part weakly granulated, in part rugose, in part punctate, occasionally alutaceous, with sculpture usually slightly distinct.**exiguum** (Haupt)
- 15B. Genitalia with dorsal membrane very long; head punctate, without sculpture among punctures; rarely weakly granulated among punctures; head surface never alutaceous.16
- 16A. Head more strongly punctate, without sculpture among punctures or very weakly granulated, with a short or long median frontal line.**gaullei** Kieffer
- 16B. Head finely punctate, smooth, without sculpture among punctures or very weakly granulated, usually with no median frontal line.**ephippiger** (Dalman)
- 17A. Head strongly granulated, occasionally with areolae (network of small areas) and irregular keels.**tripartitum** Kieffer
- 17B. Head punctate, without sculpture among punctures or very weakly slightly granulated.**pubicorne** (Dalman)



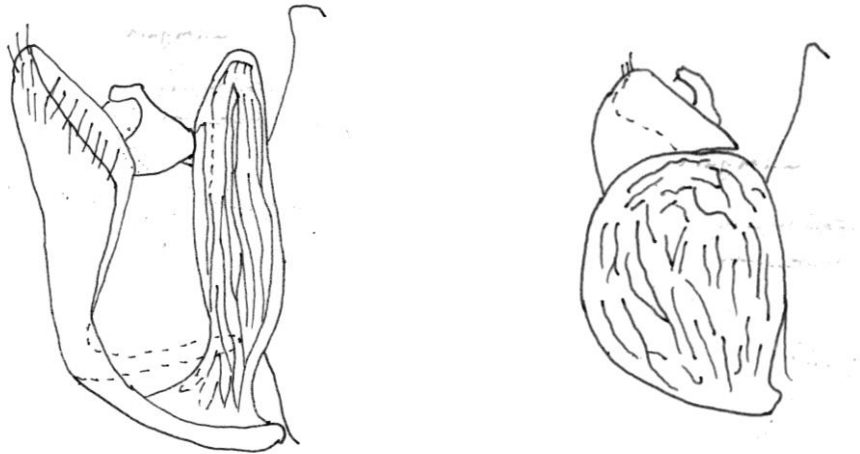
Male genitalia (right half removed) of *A. arcuatum*, *A. brachycerum* and *A. ephippiger*



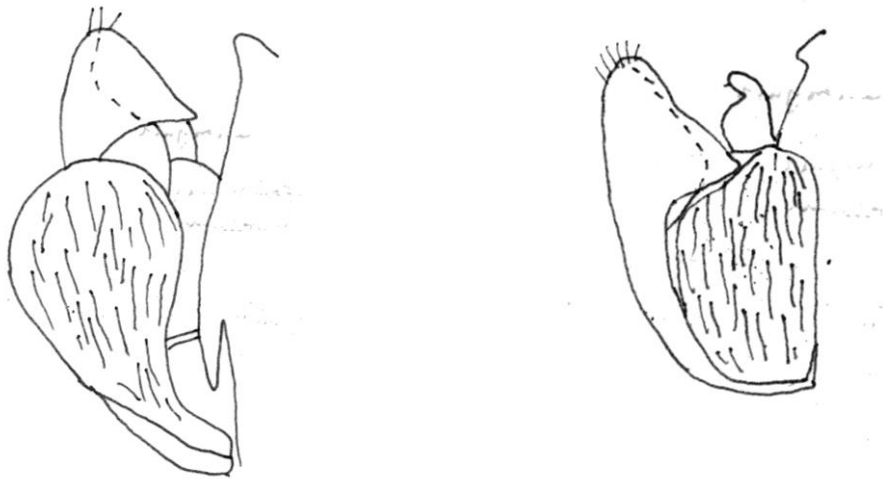
Male genitalia (right half removed) of *A. exiguum*, *A. fulviventre* and *A. gaullei*



Male genitalia (right half removed) of *A. infectum*, *A. jurineanum* and *A. reticulatum*



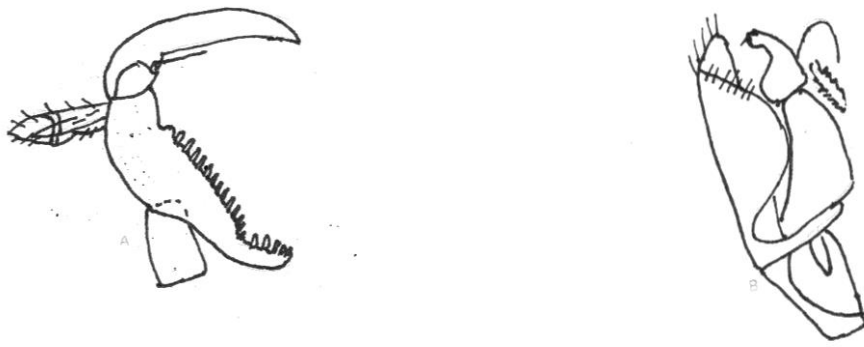
Male genitalia (right half removed) of *A. scapulare* and *A. pubicorne*



Male genitalia (right half removed) of *A. Male tripartitum* and *A. flavicorne*

Lonchodryinus

There is only one species in this genus, *L. ruficornis* (Dalman) and is considered in the genera key. Perkins deals with this species in the genus *Prenanteon* Kieffer describing five variations including one variation with very short wings so causing a problem in the genera key.

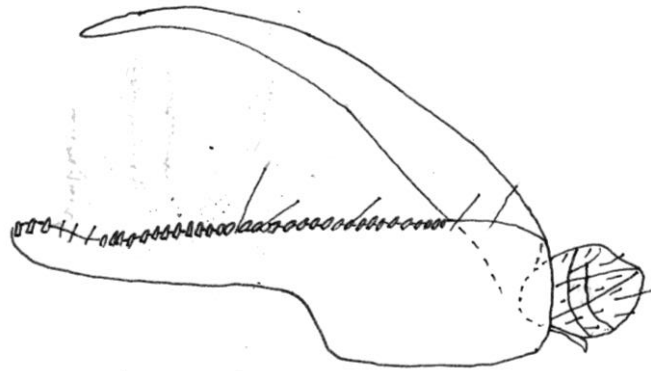


Chela and male genitalia (right half removed) of *L. ruficornis*

Mystrophorus

There is only one species in this genus, *M. formicaeformis* Ruthe and is considered in the genera key. Perkins deals with this species from a single male.

Chela of *M. formicaeformis*



Dryinus

Perkins deals with the two species in two genera, *Mesodryinus niger* and *Dryinus formicarius* Latreille, now known as *collaris*. The following key combines the two species into one genus *Dryinus* (Linnaeus)

- 1A. Notauli not developed. ***niger*** Kieffer
- 1B. Notauli complete, extending from anterior margin of the mesoscutum to scutellum. ***collaris*** (Linnaeus)

Gonatopus

There are ten species, of which Perkins deals with nine species. The tenth species is *G. helleni* which was added by J.T. Burn during 1997. Perkins gives a female key to nine species and a male key based on Richards (1939) to five species. Perkins refers to these five species but probably only associates them with their female species. The males of the other four species were unknown.

Perkins genera are associated with following species:

Dicondylus with *G. bicolor*

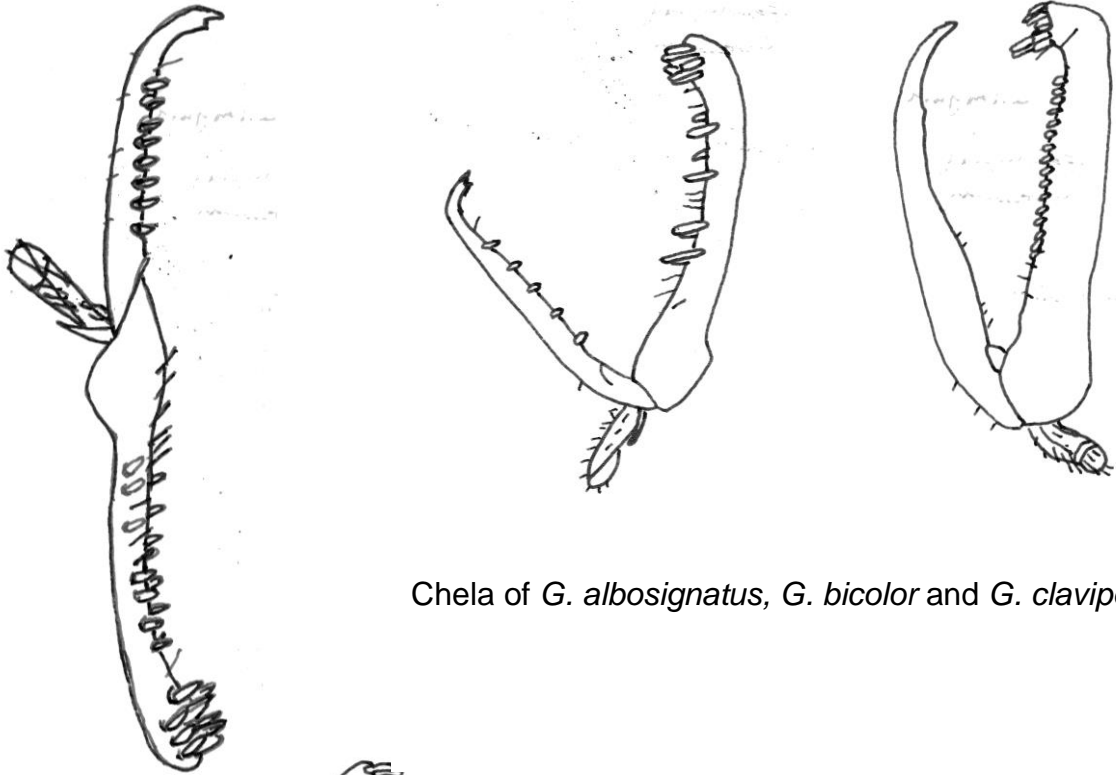
Donisthorpina with *G. formicicolus*
Agonatopoides with *G. striatus*
Pseudogonatopus with *G. distinctus* and *P. separatus* Richards which is a synonym
of *G. albosignatus*
Plectrogonatopus with *P. richardsi* Móczá which is a synonym of *G. striatus*
Tetradontochelys with *G. pedestris*
Neogonatopus with *G. distinguendus* and *G. lunatus*
Gonatopus with *G. claviceps*

Key to the species of ***Gonatopus*** Ljungh, 1810. Ten species.

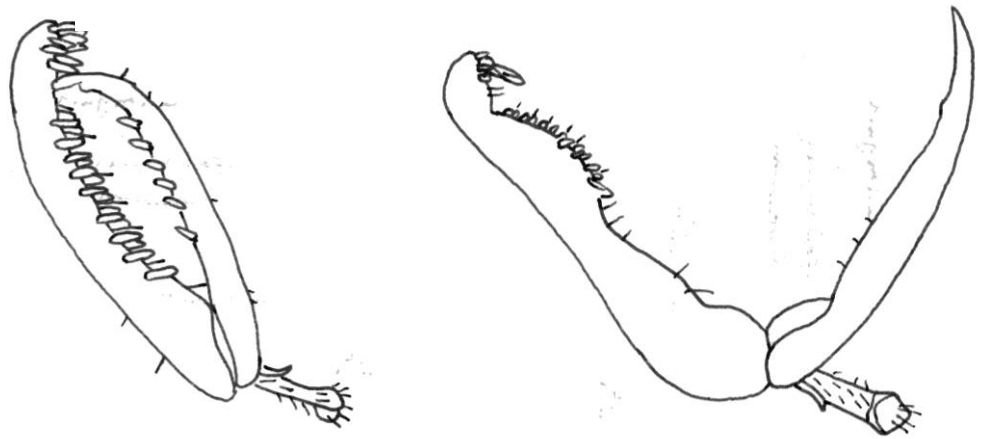
Females

- 1A. Enlarged claw with a subapical tooth.2
1B. Enlarged claw with without a subapical tooth.6
- 2A. Pronotum not crossed by a strong transverse impression or very weakly
impressed.3
2B. Pronotum crossed by a strong transverse impression.4
- 3A. Mesoscutellum, metanotum and propodeum reddish or yellow-reddish.
.....***helleni*** Raatikainen
3B. Mesoscutellum, metanotum and propodeum black.
.....***bicolor*** (Haliday)
- 4A. Maxillary palps 5-segmented.***formicicolus*** (Richards)
4B. Maxillary palps less than 5-segmented.5
- 5A. Sides of metanotum prominent and often pointed.***albosignatus*** Kieffer
5B. Sides of metanotum rounded.***distinctus*** Kieffer
- 6A. Pronotum not crossed by a strong transverse impression or weakly impresses.
.....***peditris*** Dalman
6B. Pronotum crossed by a strong transverse impression.7
- 7A. Segment 5 of fore tarsus with lamellae situated on a distinct prominence.
.....***distinguendus*** Kieffer
7B. Segment 5 of fore tarsus with lamellae not situated on a distinct prominence. ...8
- 8A. Meso-metapleural suture obsolete.***lunatus*** Klug
8B. Meso-metapleural suture distinct at least proximally.9
- 9A. Segment 5 of fore tarsus serrate proximately.***striatus*** Kieffe

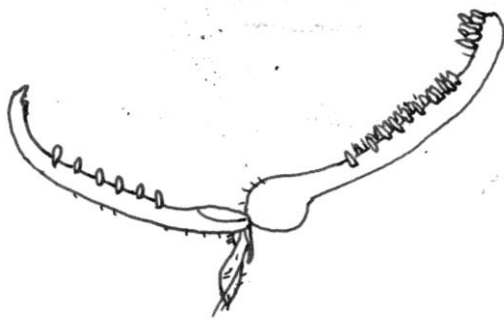
9B. Segment 5 of fore tarsus not serrate proximally.**clavipes** (Thunberg)



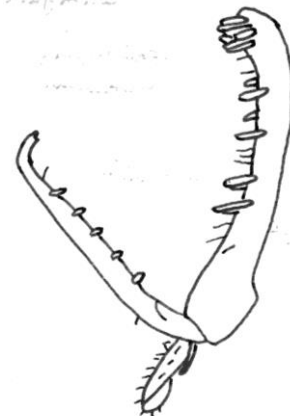
Chela of *G. albosignatus*, *G. bicolor* and *G. clavipes*

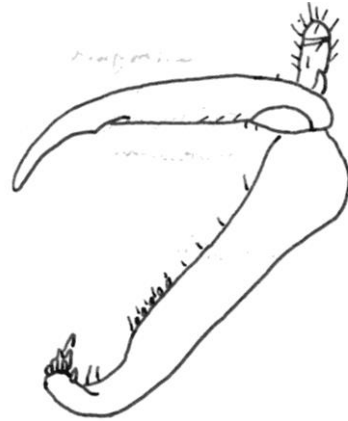
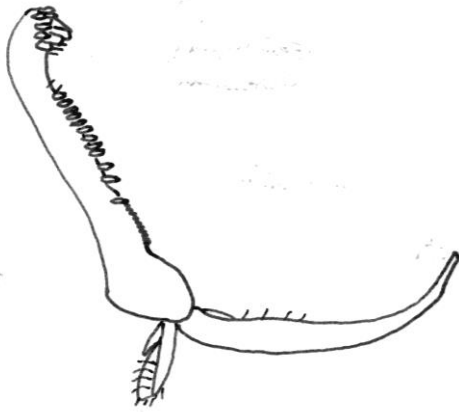


Chela of *G. distinctus* and *G. distinguendus*

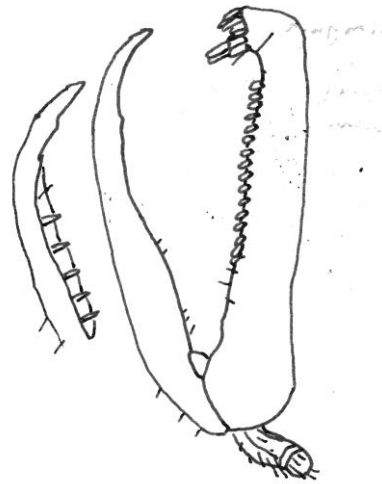


Chela of *G. formicicolus* and *G. helleni*





Chela of *G. lunatus* and *G. pedestris*



Chela of *G. striatus*

Males

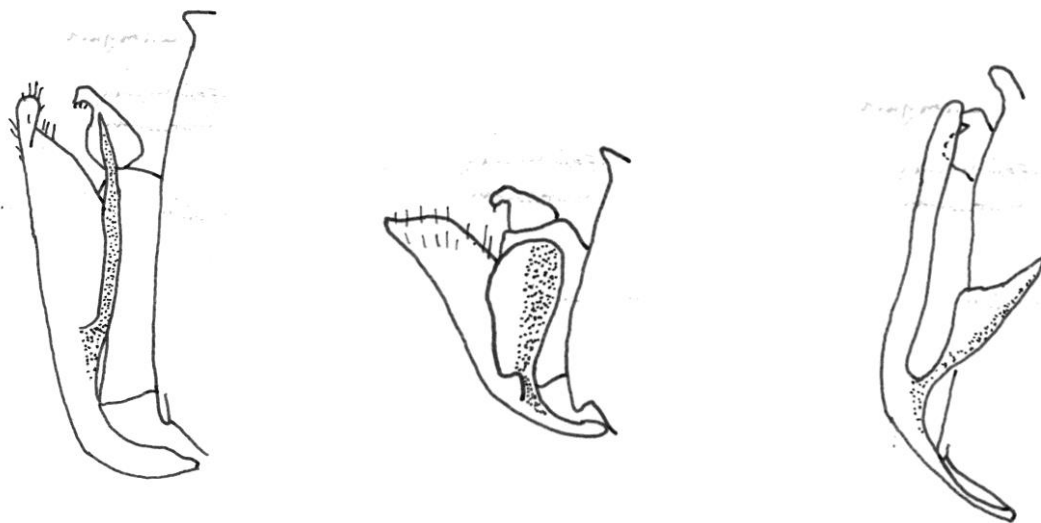
- 1A. Antennae very slender, segment 3 four or more than four times as long as broad.2
- 1B. Antennae less slender, with segment 3 less than three and half times as long as broad.6

- 2A. Dorsal process of parameres very reduced or very short.**formicicolus** (Richards)
- 2B. Dorsal process of parameres very reduced or very long.3

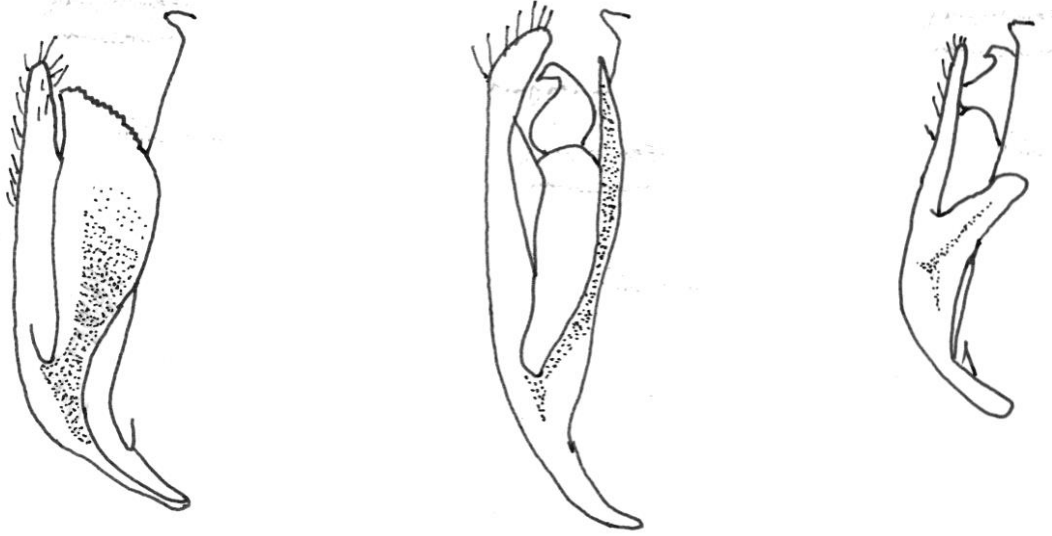
- 3A. Dorsal process of parameres with apical and inner margins serrate.**distinctus** Kieffer
- 3B. Dorsal process of parameres with apical and inner margins not serrate.4

- 4A. Dorsal process of parameres slender with distal apex pointed. **pedestris** Dalman
- 4B. Dorsal process of parameres less slender with distal apex broadened and rounded.5

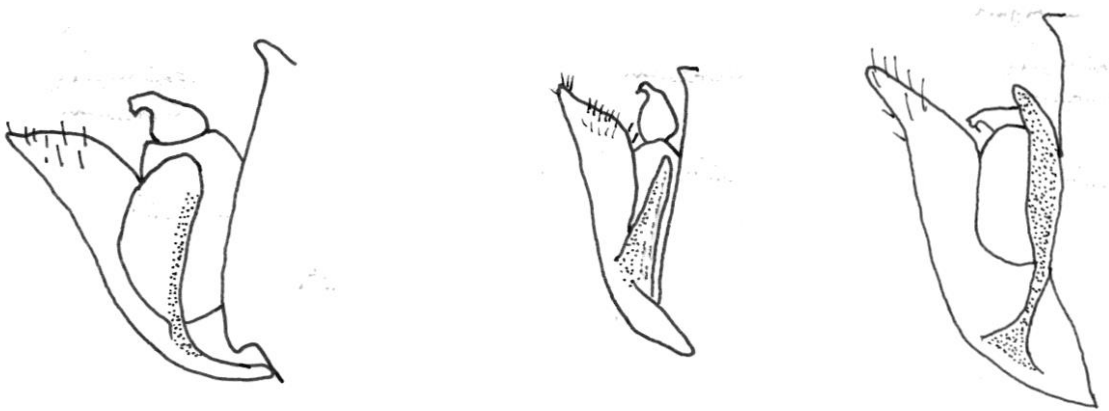
- 5A. Minimum distance between notauli approximately as long as breath of ocelli.
**bicolor** (Haliday)
- 5B. Minimum distance between notauli shorter than breath of ocelli.
**helleni** Raatikainen
- 6A. Notauli incomplete.7
 6B. Notauli complete.8
- 7A. Dorsal process of parameres transverse. Head without a prominent apophysis
 on sides of posterior ocelli.**clavipes** (Thunberg)
- 7B. Dorsal process of parameres long and slender, not transverse. Head with a very
 prominent apophysis on sides of posterior ocelli.**albosignatus** Kieffer
- 8A. Notauli more separated posteriorly, minimum distance between notauli
 approximately as long as antennal segment 2.**distinguendus** Kieffer
- 8B. Notauli closer or joined posteriorly, minimum distance between notauli much
 shorter than antennal segment 2.9
- 9A. Head with a very prominent apophysis on sides of posterior ocelli.10
 9B. Head without a very prominent apophysis on sides of posterior ocelli.....11
- 10A. Head black, with only the mandibles brownish-yellow.**lunatus** Klug
- 10B. Head black, with mandibles and clypeus brownish-yellow,
 occasionally also malar space brownish-yellow.
**albosignatus** Kieffer
- 11A. Dorsal process of parameres transverse.**clavipes** (Thunberg)
- 11B. Dorsal process of parameres not transverse.**striatus** Kieffer



Male genitalia (right half removed) of *G. striatus*, *G. bicolor* and *G. clavipes*



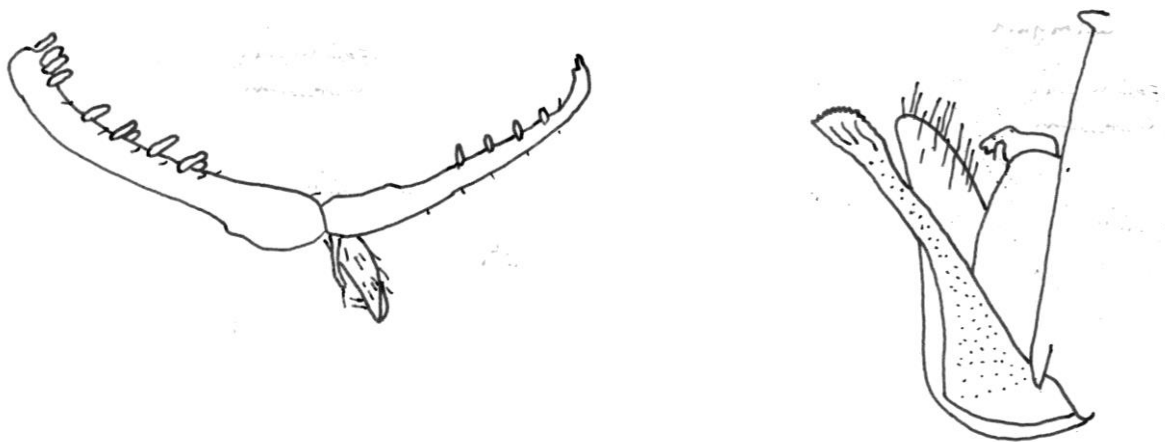
Male genitalia (right half removed) of *G. distinctus*, *G. distinguendus* and *G. formicicolus*



Male genitalia (right half removed) of *G. helleni*, *G. lunatus* and *G. pedestris*

Haplogonatopus

There is only one species in this genus, *H. oratorius*, Westwood and is considered in the genus key. Perkins deals with this species under the genus *Mongonatopus*.



Chela and male genitalia (right half removed) *Haplogonatopus oratorius*

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