

Genus *Eoanthidium* Popov (Fig. 30E)

Eoanthidium are large yellow and black bees with a juxtantennal carina. They are pollen collecting bees and the genus is widespread in the Old World.

Key to the subgenera of *Eoanthidium*

1. Fore coxa with distinct carina or lamella ***Eoanthidium (Clistanthidium)***
- 1'. Fore coxa not carinate or lamellate ***Eoanthidium (Eoanthidium)***

Subgenus *Eoanthidium (Clistanthidium)* Michener & Griswold

This subgenus is widespread in Africa, occurring though East Africa from Ethiopia to KwaZulu-Natal Province, South Africa, and inland to Shaba Province, Democratic Republic of the Congo and Namibia.

Subgenus *Eoanthidium (Eoanthidium)* Popov

In the Afrotropical Region this subgenus is only known from Kenya, and it also occurs from the South-East Mediterranean to South-West Asia.

Genus *Euasps* Gerstaecker (Fig. 31A)

In *Euasps* the head and mesosoma are black and the metasoma is orange, there is a distinct juxtantennal carina, the scutellum is produced posteriorly and overhangs the propodeum. It is a small Old World genus with three cleptoparasitic species that are widespread in Africa.

Genus *Gnathanthidium* Pasteels (Fig. 31B)

Gnathanthidium has a strongly carinate preoccipital ridge and a large hind basitarsus in the female. The genus is monotypic with a single pollen collecting species, *Gnathanthidium prionognathum* (Mavromoustakis) occurring in eastern and South Africa.

Genus *Icteranthidium* Michener (Fig. 31C)

In *Icteranthidium* the preoccipital carina behind the vertex is absent but well developed laterally. It is mostly Palaearctic, with some species in the Sahel and northern Kenya. It is a pollen collecting bee. This genus is widespread in the Old World, occurring across the northern region of the Afrotropical Region.

Genus *Larinostelis* Michener and Griswold

Larinostelis has strongly developed carinae mesal to the antennal sockets, on the pronotal lobe, omaulus, axilla, scutellum and basal zone of the propodeum. The single cleptoparasitic species is *Larinostelis scapulata* Michener & Griswold is only known from Kenya.

Genus *Pachyanthidium* Friese (Fig. 32A)

Pachyanthidium vary from black and yellow to black with an orange metasoma, have a lamellate scutellum and posteriorly pointed metasoma. The genus has four subgenera all of which occur in the Afrotropical Region. They are pollen collecting bees.

Key to the subgenera of *Pachyanthidium*

1. Eyes without hairs **2**
- 1'. Eyes hairy **3**
2. Arolia present *Pachyanthidium* (*Ausanthidium*)
- 2'. Arolia absent *Pachyanthidium* (*Pachyanthidium*)
3. Terga 3-5 with slender, lateral spines
. *Pachyanthidium* (*Trichanthidium*)
- 3'. Terga 3-5 without lateral spines . . *Pachyanthidium* (*Trichanthidioides*)

Subgenus *Pachyanthidium* (*Ausanthidium*) Pasteels

Ausanthidium is monotypic with *Pachyanthidium ausense* (Mavromoustakis) being the only species, and it is endemic to Namibia.

Subgenus *Pachyanthidium* (*Pachyanthidium*) Friese

This subgenus is widespread in Africa.

Subgenus *Pachyanthidium* (*Trichanthidioides*) Michener & Griswold

The only species is *Pachyanthidium semiluteum* Pasteels and it occurs in Kenya.

Subgenus *Pachyanthidium* (*Trichanthidium*) Cockerell

This subgenus is widespread in Africa, and also occurs in the Palearctic Region.

Genus *Plesianthidium* Cameron (Fig. 32B)

Plesianthidium mostly have no conspicuous carinae and no pallid maculation. They collect pollen. There are four subgenera, all of which occur in sub-Saharan Africa.

Key to the subgenera of *Plesianthidium*

1. Preoccipital carina behind vertex . . *Plesianthidium* (*Spinanthidiellum*)
- 1'. Preoccipital area without carina **2**
2. Female sternum 6 with distinct, longitudinal carina; black except for white pubescence on male face *Plesianthidium* (*Carinanthidium*)
- 2'. Female sternum 6 not carinate; pubescence brown, grey or white on face and venter **3**

- 3 Male tergum 7 trifold with median tooth exceeding the lateral ones, females hardly distinguishable from *Plesianthidium* s. str.
 ***Plesianthidium (Spinanthidium)***
- 3'. Male tergum 7 bifid, except minute median tooth may be visible
 ***Plesianthidium (Plesianthidium)***

Subgenus *Plesianthidium (Carinanthidium)* Pasteels

This subgenus is only known from the South African species *Plesianthidium cariniventre* (Friese).

Subgenus *Plesianthidium (Plesianthidium)* Cameron

Plesianthidium fulvopilosum (Cameron) from western South Africa is the only known species.

Subgenus *Plesianthidium (Spinanthidiellum)* Pasteels

This subgenus has two species that occur in western South Africa.

Subgenus *Plesianthidium (Spinanthidium)* Mavromoustakis

The subgenus *Plesianthidium (Spinanthidium)* is endemic to western South Africa.

Genus *Pseudoanthidium* Friese (Fig. 32C)

Pseudoanthidium have extensive pallid maculations, the metasomal bands broken and reduced to spots laterally. The subantennal suture is arcuate. They are pollen collectors. There are six subgenera in *Pseudoanthidium*, four occur in sub-Saharan Africa.

Key to the subgenera of *Pseudoanthidium*

1. Preoccipital carina behind gena **2**
- 1'. Preoccipital area behind gena rounded, without carina **3**
2. Preoccipital area behind vertex lamellate
 ***Pseudoanthidium (Micranthidium)***
- 2'. Preoccipital area behind vertex weakly carinate
 ***Pseudoanthidium (Semicarinella)***
3. Propodeum shagreened ***Pseudoanthidium (Tuberanthidium)***
- 3'. Propodeum shiny ***Pseudoanthidium (Exanthidium)***

Subgenus *Pseudoanthidium (Exanthidium)* Pasteels

There are four described species in this subgenus. One of them is known from Sudan, the others occur from the Mediterranean Basin to Central Asia.

Subgenus *Pseudoanthidium (Micranthidium)* Cockerell

This subgenus is widespread in tropical Africa.

Subgenus *Trachusa* (*Paraanthidium*) Friese

This subgenus is widespread in the Old World, but has only one sub-Saharan species, namely *Trachusa aquifilum* (Strand), that occurs in South Africa and Namibia.

Genus *Xenostelis* Baker (Fig. 33A)

Xenostelis is endemic to the island of Sokotra (Yemen) and is only represented there by one species, *Xenostelis polychroma* Baker.

8.5.2.4. Tribe Dioxyini

Genus *Aglaopis* Cameron (Fig. 33B-C)

Dioxyini have a unique, median, tubercular spine on the metanotum. They are all cleptoparasitic. *Aglaopis alata* (Michener) is the only Dioxyini that has been recorded from the Afrotropical Region. It occurs in South Africa.

8.5.2.5. Tribe Megachilini

The Megachilini is a large cosmopolitan tribe of bees. In sub-Saharan Africa there are two genera, *Coelioxys*, which are cleptoparasites, and *Megachile*, which are pollen collectors.

Genus *Coelioxys* Latreille (Fig. 33D-E)

Coelioxys are cleptoparasitic. Apparently they mostly parasitize *Megachile*. Pasteels (1968) recognized three subgenera; *Coelioxys*, *Hemicoelioxys* and *Liothyrapis*. Later he (Pasteels 1977) recognised four subgenera: *Coelioxita*, *Coelioxys*, *Hemicoelioxys* and *Liothyrapis*. Michener (2007) on the other hand has four subgenera that are different to Pasteels (1977). They are: *Allocoelioxys* (which includes *Coelioxita*), *Coelioxys*, *Liothyrapis* (which includes *Hemicoelioxys*) and *Torridapis*.

Key to the subgenera of *Coelioxys*

1. Eyes naked **2**
- Eyes hairy **3**

2. Female sternum 5 enlarged, exposed part much longer than exposed part of sternum 4; T6 without keel; male T6 without lateral tooth ***Coelioxys* (*Torridapis*)**
- Female with exposed parts of sternum 4 and sternum 5 similar in length; tergum 6 with mediolongitudinal keel ending in a spine; male tergum 6 with anterolateral tooth ***Coelioxys* (*Liothyrapis*)**

3. Transverse subocular carina joining preoccipital carina; male tergum 6 with eight teeth ***Coelioxys* (*Allocoelioxys*)**
- Transverse subocular carina absent or ending free; male tergum 6 with six teeth ***Coelioxys* (*Coelioxys*)**

Subgenus *Coelioxys* (*Allocoelioxys*) Tkalcù

This subgenus is widespread in the Old World and occurs throughout Africa. Pasteels (1977) recorded 21 African species.

Subgenus *Coelioxys* (*Coelioxys*) Latreille

This subgenus occurs throughout Africa, and is apparently cosmopolitan. Pasteels (1977) recorded 31 African species.

Subgenus *Coelioxys* (*Liothyrapis*) Cockerell

This subgenus occurs throughout Africa and is widely distributed in the Old World. Pasteels (1968) recorded 26 species from sub-Saharan Africa.

Subgenus *Coelioxys* (*Torridapis*) Pasteels

This subgenus is widespread in Africa and it is also widespread in southern Asia, the Pacific Islands and Australia. There are seven African species.

Genus *Megachile* Latreille (Fig. 34A-F)

Megachile are the only pollen collecting bees in the Megachilini. They were revised by Pasteels (1965), who recognised three distinct genera; *Chalicodoma* Lepelletier, *Creightonella* Cockerell and *Megachile* s. str. Michener (2007) grouped them into one genus, *Megachile*. This will not be the last word on the classification of *Megachile* s. lat. As Gonzalez (personal communication, 2008) wrote an impressive dissertation in which *Megachile* s. lat. is again divided into more than one genus. However, here we need to adhere to the latest revision, which is Michener (2007). There are 15 sub-Saharan subgenera: *Amegachile*, *Chalicodoma*, *Callomegachile*, *Creightonella*, *Cuspidella*, *Eutricharaea*, *Gronoceras*, *Heriadopsis*, *Largella*, *Maximegachile*, *Megella*, *Paracella*, *Platysta*, *Pseudomegachile* and *Stenomegachile*.

Key to the subgenera of *Megachile*

1. Fore and middle legs with aerolia (osmine in appearance) ***Megachile* (*Heriadopsis*)**
- 1'. Fore and middle legs without aerolia **2**
2. Fore tibia with three spines near distal end **3**
- 2'. Fore tibia with one or two spines near distal end **4**
3. Fore tibia with two distinct spines and a third, small spine hidden among denses, short hairs; occurring in Zanzibar ***Megachile* (*Largella*)**
- 3'. Fore tibia with three large, distinct, naked, spines near distal end ***Megachile* (*Gronoceras*)**
4. Female, antennal flagellum 10-segmented; metasoma 6-segmented **5**
- 4'. Male, antennal flagellum 11-segmented; metasoma 7-segmented **16**
5. Mandible enlarged, parallel sided or narrowest preapically; mandibular ridges smooth and shiny **6**

- 5'. Mandible not enlarged, narrowest basally; mandibular ridges rough and dull
.....7
6. Mandible four toothed **Megachile (Stenomegachile)**
- 6'. Mandible three toothed **Megachile (Maximegachile)**
7. Upper clypeus and entire supraclypeus tuberculate; this excludes tubercles
on lower clypeus margin **Megachile (Callomegachile)**
- 7'. Clypeus flat, if tuberculate with 2-3 tubercles on lower clypeal margin 8
8. Clypeus emarginate apicomediaally 9
- 8'. Clypeus not modified apicomediaally, except it may extend below base of
labrum, one species with three distinct tubercles and strongly emarginate
between tubercles on ventral clypeal margin, middle tubercle horn-like . . 10
9. Clypeus impunctate mediolongitudinally, weakly concave medioventrally,
with two small, indistinct tubercles, one on each side of emarginated area . .
..... **Megachile (Amegachile)**
- 9'. Clypeus broadly and deeply emarginate apicomediaally
..... **Megachile (Cuspidella)**
10. Clypeus distinctly overhanging base of labrum
..... **Megachile (Chalicodoma)**
- 10'. Clypeus level with or slightly lower than base of labrum 11
11. Mandible without recessed cutting edges between teeth
..... **Megachile (Pseudomegachile)**
- 11'. Mandible with recessed cutting edges (mostly appear like slightly recessed
knife edges between pointed teeth) in third and sometimes also second
inter-tooth areas 12
12. Mandible with dissimilar recessed cutting edges in interspaces between 3-5
dissimilar teeth 13
- 12'. Mandible with small, similar recessed cutting edges; 4-6 similar teeth
..... **Megachile (Creightonella)**
13. Mandible five-toothed, with upper two teeth close together, recessed cutting
edge between them (forth interspace) as well as a small cutting edge in
third interspace **Megachile (Platysta)**
- 13'. Mandible three to four-toothed, with recessed cutting edge in first and/or
second interspace 14
14. Mandible with recessed cutting edge in second and usually third inter
spaces **Megachile (Paracella)**
- 14'. Mandible with recessed cutting edge only in upper interspace 15
15. Mandible with basal and apical ends about equal in width, outer margin
slightly incurved **Megachile (Eutricharaea)**
- 15'. Mandible much broader apically, outer margin strongly concave.
..... **Megachile (Megella)**
16. Sternum 6 exposed; tergum 6 forming a well developed plate with distinct
lateral carina directed basally **Megachile (Creightonella)**

- 16'. Sternum 6 contracted; tergum 6 not plate-like, often with subapical carina but not a distinct lateral carina **17**
17. Mandible with ventral tooth near base **Megachile (Amegachile)**
- 17'. No ventral tooth on mandible **18**
18. Clypeus distinctly convex dorsally, pointed below, lower region densely pubescent; tergum 6 bilobed **19**
- 18'. Clypeus flat to slightly convex dorsally, truncate ventrally, uniformly pubescent, tergum 6 toothed, entire or weakly bilobed **21**
19. Front tibia with distinct longitudinal carina along outer posterior angle **Megachile (Stenomegachile)**
- 19'. Front tibia without longitudinal carina **20**
20. Tergum 6 strongly bilobed; mandible more or less parallel sided; black and white. **Megachile (Maximegachile)**
- 20'. Tergum 6 weakly bilobed; mandible broader basally, tapering apically; with some orange vestiture **Megachile (Callomegachile)**
21. Tergum 6 extended medioposteriorly into elongate, narrow, truncate plate with longitudinal median carina **Megachile (Cuspidella)**
- 21'. Tergum 6 not extended, without longitudinal median carina, sometimes ridged **22**
22. Metasoma gently convex and less than twice as long as wide (megachiliform); sternum 8 without lateral marginal hairs **23**
- 22'. Metasoma strongly convex and twice as long as wide (chalicodomiform); sternum 8 with lateral marginal hairs **24**
23. Subapical carina on tergum 6 short, about one-fifth width of tergum **Megachile (Platysta)**
- 23'. Subapical carina on tergum 6 wide, occupying most of tergum width **Megachile (Eutricharaea), Megachile (Paracella)**
24. Tergum 6 with mesally directed spine posterolaterally and medioposterior tooth **Megachile (Megella)**
- 24'. T6 with subapical carina dentate **25**
25. Fore coxa spinose **Megachile (Chalicodoma)**
- 25'. Fore coxa not spinose. **Megachile (Pseudomegachile)**

Subgenus *Megachile (Amegachile)* Friese

This subgenus is widespread in Africa and occurs through much of southern Asia through to Australia. They are large, conspicuous bees. There are nine African species.

Subgenus *Megachile (Callomegachile)* Michener

Megachile (Callomegachile) is widespread in Africa, and occurs through southern Asia, in northern Australia and on several Indian Ocean Islands. They are large bees. There are 26 species in Africa.

Subgenus *Megachile* (*Chalicodoma*) Lapeletier

Megachile (*Chalicodoma*) are large bees that occur throughout Africa, and much of the Old World. There are 20 African species.

Subgenus *Megachile* (*Creightonella*) Cockerell (Fig. 34C-D)

They occur throughout Africa, through much of southern Europe and Asia, the West Indies and northern Australia. Forty species occur in sub-Saharan Africa.

Subgenus *Megachile* (*Cuspidella*) Pasteels

This subgenus is only known from the Congolese species, *Megachile quadraticauda* (Pasteels).

Subgenus *Megachile* (*Eutricharaea*) Thomson (Fig. 34A-B)

These are the most common, most diverse and most difficult to identify leaf cutter bees. The subgenus is cosmopolitan, and has 120 sub-Saharan species.

Subgenus *Megachile* (*Gronoceras*) Cockerell

These bees are endemic to Africa and occur throughout the Region. There are 10 species.

Subgenus *Megachile* (*Heriadopsis*) Cockerell

These are small osmiform bees that have aerolia on the fore and middle legs. The subgenus is monotypic (*Megachile striatula* (Cockerell) being the only species) and it occurs in the Democratic Republic of the Congo, Malawi and Zimbabwe.

Subgenus *Megachile* (*Largella*) Pasteels

Megachile semivestita (Smith) is the only described species, although others apparently exist. It occurs naturally in Asia and Indonesia, and has been introduced into Zanzibar.

Subgenus *Megachile* (*Maximegachile*) Guiglia and Pasteels (Fig. 34E-F)

This subgenus is widespread in the Afrotropical Region and occurs in neighbouring parts of the Palaeartic Region. The only described species, *Megachile maxillosa* (Guérin), is large and black and white. The grotesque face of the female is easily recognisable. There are apparently one or two undescribed species in Africa.

Subgenus *Megachile* (*Megella*) Pasteels

This species occurs in West and Central Africa. There are two African species and one Asiatic species.

Subgenus *Megachile* (*Paracella*) Michener

This subgenus is widespread in sub-Saharan Africa, and has about 39 species. Undescribed species are also found in India and Indonesia.

Subgenus *Megachile* (*Platysta*) Pasteels

This subgenus has only two species, but they occur through much of tropical Africa, from Senegal to Botswana.

Subgenus *Megachile* (*Pseudomegachile*) Friese

This subgenus occurs through much of the Old World. There are apparently about 30 African species.

Subgenus *Megachile* (*Stenomegachile*) Pasteels

This subgenus occurs through greater East Africa, from Eritrea to Zambia, and in Madagascar. There are four African species.

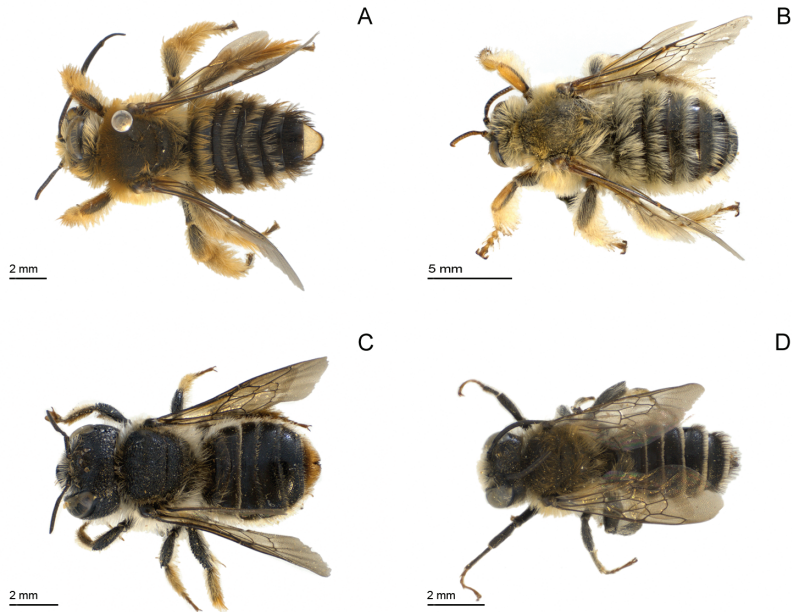


Fig. 25. A-B. *Fidelia braunsiana* Friese. A. Female; B. Male. C-D. *Lithurgus spiniferus* Cameron: C. Female; D. Male.

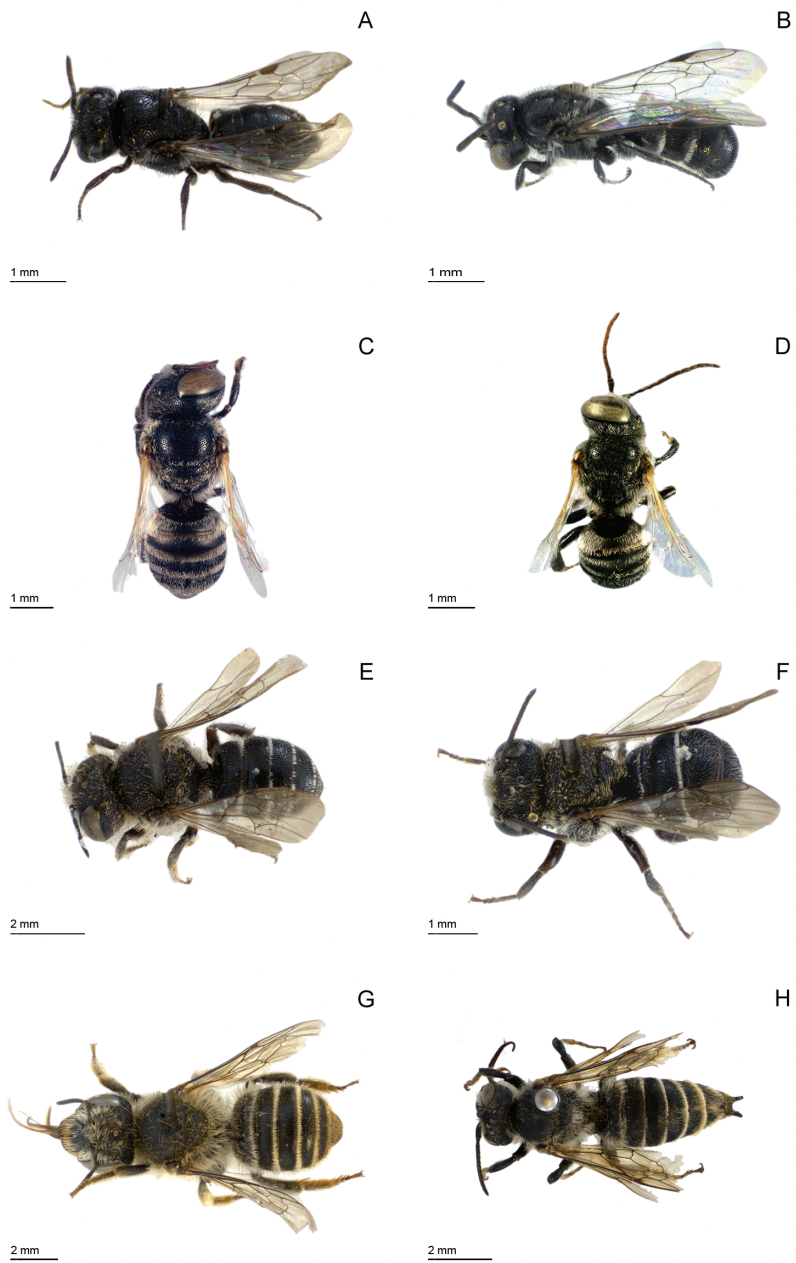


Fig. 26. A-B. *Afroheriades* sp. A. Female; B. Male; C-D. *Haetosmia circumventa* (Peters). C. Female; D. Male; E-F. *Heriades freygessneri* Schletterer; E. Female; F. Male. G-H. *Hoplitis similis* (Friese): G. Female; H. Male.

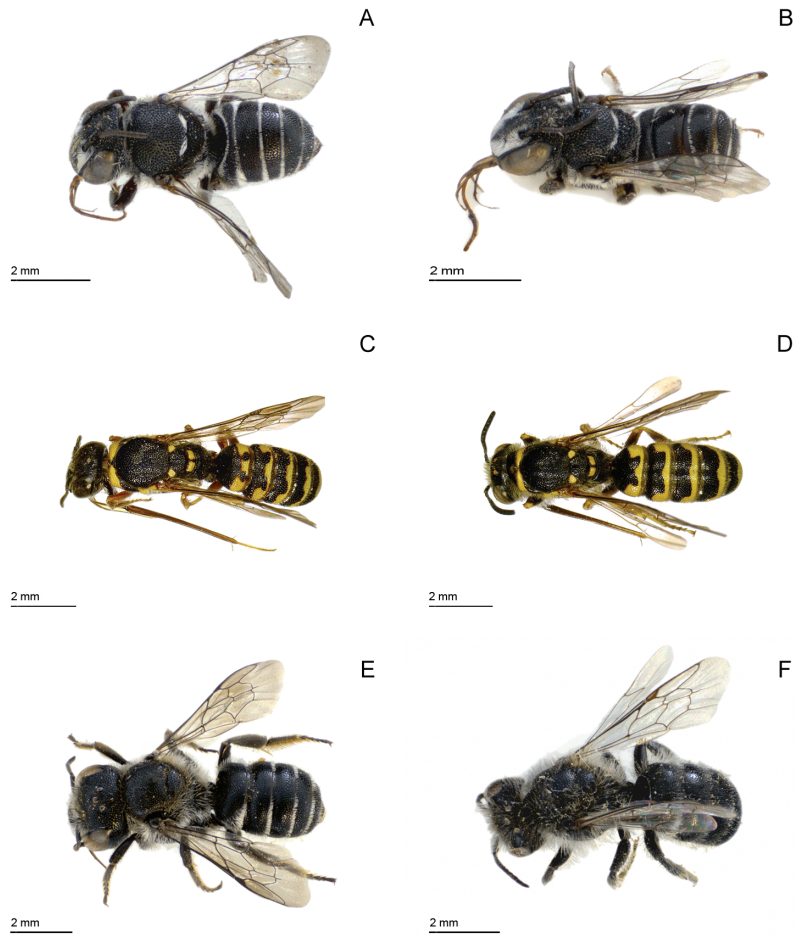


Fig. 27. A-B. *Noteriades* sp. A. female; B. Male. C-D. *Ochriades fasciatus* (Friese): C. Female; D. Male; E-F. *Othinosmia* sp; E. Female; F. Male.

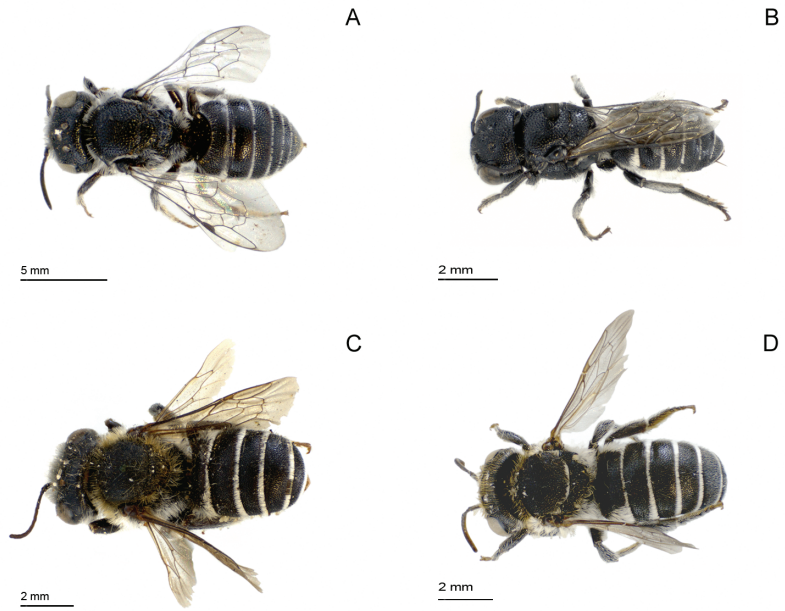


Fig. 28. A. *Pseudoheriades* sp., female; B. *Stenoheriades* sp., female; C-D. *Wainia* sp.: C. Female; D. Male.

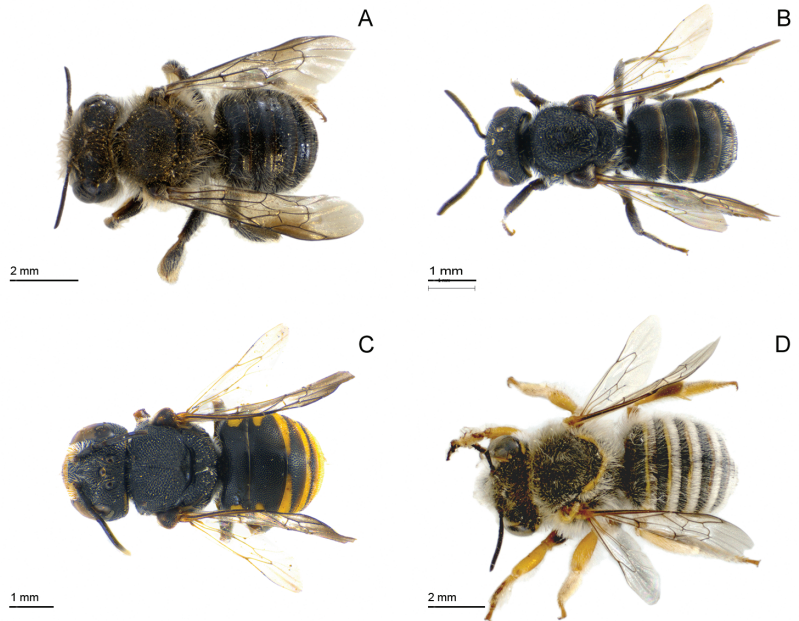


Fig. 29. A. *Afranthidium concolor* (Friese), female. B. *Afrostelis tegularis* Cockerell, female; C. *Anthidiellum absonulum* (Cockerell), female. D. *Anthidioma murinum* Pasteels, female.