Pollinator Academy

Genus: *Chelostoma*

Female

Male

Genus: *Chelostoma* Latreille, 1809

Clade: Anthophila

Family: Megachilidae

SubFamily: Megachilinae

Tribe: Osmiini

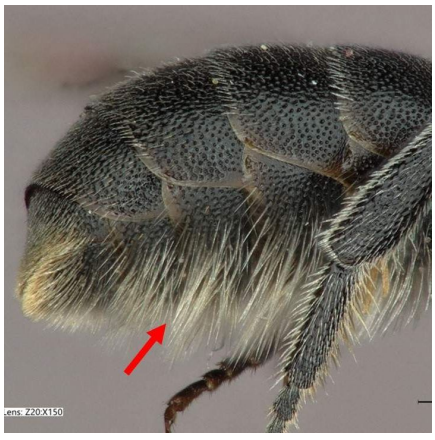
Number of species of this genus found in Europe: 24

Morphology & diagnosis

They are small to large sized black bees (4-15mm) with an elongated aspect. According to Müller & Trunz (2014), the main characteristic of the genus is that the third segment of the labial palpus continues the axis of the second segment, whereas the fourth segment projects laterally. Females often have mandibules with fringes of long hairs on the upper margin, a labrum without long erect hairs, a clypeus without sharp preapical ridge. Their last sternum does have distinct spine-like projection on the apical margin. The tergum 6 of the male does not have preapical ridge. The tergum 7 is visible with large basal depression or pit. The sternum 1 of the male is not prolonged and the sternum 2 has a variable median projection. The posterior margin of sternum 5 usually bears a comb of bristles.

Summary of distinctive traits

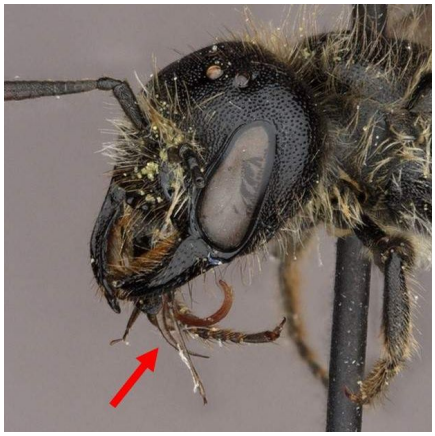
- 2 submarginal cells (a)
- Ventral scopa in females (b)
- Arolium present (c)
- Body elongate: scutal length equivalent to ITD (d)
- Segment 3 of the labial palpus continues the axis of segment 2, whereas segment 4 projects laterally (e)



(a) *Chelostoma distinctum* Female

(b) *Chelostoma campanularum* Female

(c) *Chelostoma rapunculi* Female



(d) *Chelostoma florisomne* Female

(e) *Chelostoma florisomne* Female

General comments on identification to species level

Females can be identified by the structure on the clypeus apex and labrum. It is recommended to make sure that the mouth part, labrum and clypeus free margin are visible. Identification criteria in males are located on the last terga, sterna and genitalia.

Morphologically similar genera, and how to distinguish them

- ***Chelostoma* - *Hofferia***

  Chelostoma species only has the fourth labial palpus projecting laterally. The mandibules of the females are usually fringed with long hairs along the upper margin. The sternum 6 of the females does not have any spine-like projection. The tergum 6 of the males does not have any preapical transverse ridge.

Hofferia species have both segments 3 and 4 of the labial palpus project laterally. The upper margin of females mandibules are glabrous. The sternum 6 of the female bears a spine-like projection medioapically. The tergum of the males has a transverse preapical ridge.

- ***Chelostoma - Protosmia***
  Chelostoma species have a propodeal triangle equal or longer than the metanotum. Females have no apical brush on the labrum. Males have visible T7 under T6.
  Protosmia species have a propodeal triangle shorter than the metanotum. Females have a labrum with an apical tuft of hairs. In males, T7 is entirely hidden by T6.

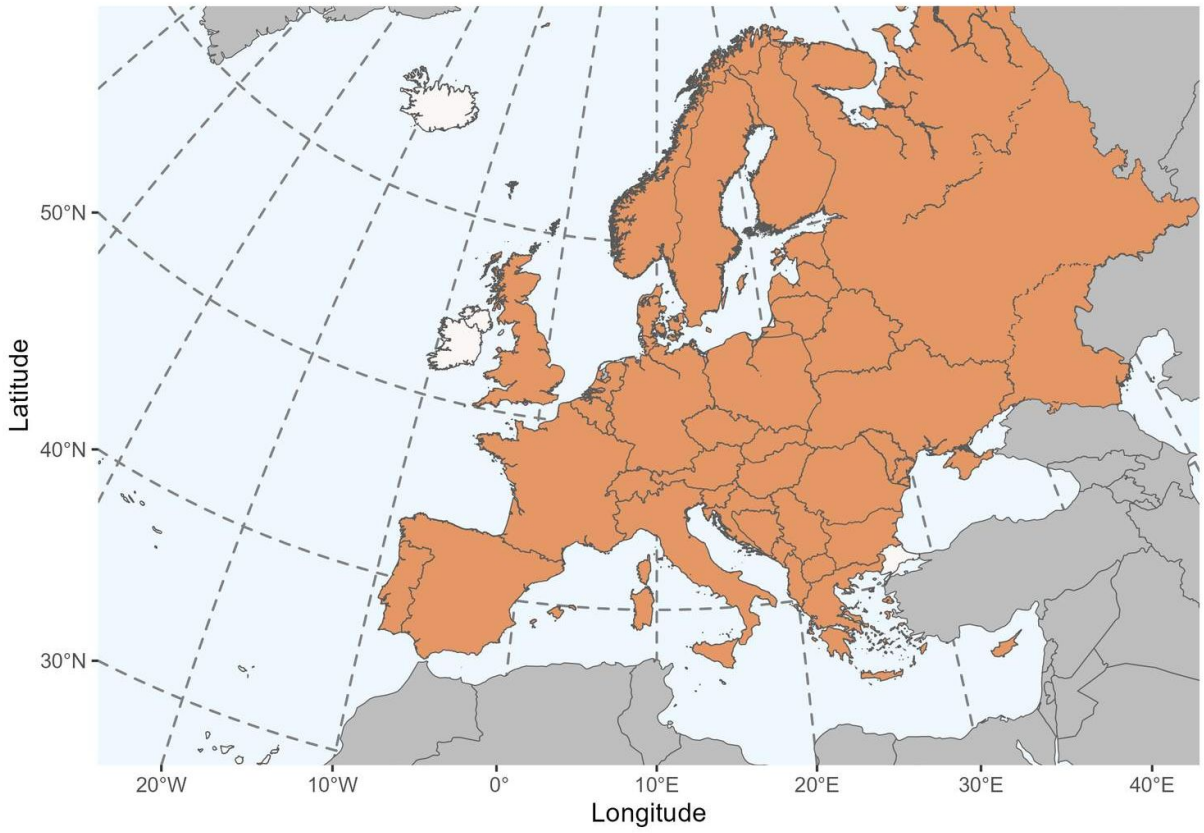
- ***Chelostoma - Heriades & Stenoheriades***
  Chelostoma species have no transverse carina between the vertical and horizontal areas of the T1.
  Heriades & *Stenoheriades* species do have a transverse carina between the vertical and horizontal areas of the T1.

- ***Chelostoma - Osmia, Hoplitis & Haetosmia***
  Chelostoma species have no long hairs at the apex of the labrum. Scutellum as long or longer than the ITD. Segment 3 of the labial palpus continues the axis of segment 2, whereas segment 4 projects laterally.
  Osmia, *Hoplitis* & *Haetosmia* species do have long hairs at the apex of the labrum. Scutellum often shorter than the ITD. Both segments 3 and 4 of the labial palpus project laterally.

Geographical distribution and global diversity

This genus shows a Holarctic distribution, being present in Europe, North Africa, Asia as South as Thailand and North America as South as Mexico. A total of 54 species have

been described so far, most of them in the Eastern Mediterranean and Middle East. This genus is subdivided in 5 subgenera.



Presence in Europe

Albania, Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom.

Biology

Seasonal life cycle

They fly in spring and summer and are univoltine.

Reproduction

Males patrol along the flying plants of the females or swarm around the nest sites.

Nesting

They are solitary and nest in pre-existing cavities in wood or hollow plant stems. The walls separating nest cells are made with mud or sand, probably mixed with glandular secretions and nectar. Between the brood cells there may also be empty cells which possibly serve as protection against natural enemies attacks on the brood cells behind them.

Parasites

Known bee cleptoparasites include bees of the genus *Stelis*.

Floral preferences

Most species are oligolectic with preferences differing between species. Host plants include members of the families Campanulaceae, Hydrophyllaceae et Ranunculaceae (Sedivy et al., 2008). Only two species of the genus have found to be polylectic.

Type species: *Apis maxillosa* Linnaeus, 1767 = *Apis florisomnis* Linnaeus, 1758, monobasic.

Synonyms: n/a

Etymology: the name comes from the Greek root ‘chel’, meaning ‘spine’, and ‘stoma’, meaning ‘mouth’, as a reference

to the large tooth that certain species show under the mandible

Common names: n/a

List of species found in Europe:

1. *Chelostoma (Gyrodromella) aegaeicum* Müller, 2012
2. *Chelostoma (Foveosmia) campanularum* Kirby, 1802
3. *Chelostoma (Chelostoma) comosum* Müller, 2012
4. *Chelostoma (Chelostoma) diodon* Schletterer, 1889
5. *Chelostoma (Foveosmia) distinctum* Stoeckhert, 1929
6. *Chelostoma (Chelostoma) edentulum* Pérez, 1895
7. *Chelostoma (Chelostoma) emarginatum* Nylander, 1856
8. *Chelostoma (Chelostoma) florisomne* Linnaeus, 1758
9. *Chelostoma (Foveosmia) forcipatum* Benoist, 1928
10. *Chelostoma (Foveosmia) foveolatum* Morawitz, 1868
11. *Chelostoma (Chelostoma) grande* Nylander, 1852
12. *Chelostoma (Gyrodromella) handlirschi* Schletterer, 1889
13. *Chelostoma (Foveosmia) hellenicum* Benoist, 1938
14. *Chelostoma (Foveosmia) incognitum* Müller, 2012
15. *Chelostoma (Foveosmia) laticaudum* Benoist, 1938
16. *Chelostoma (Foveosmia) longifacies* Müller, 2012
17. *Chelostoma (Chelostoma) lucens* Benoist, 1928
18. *Chelostoma (Chelostoma) mocsaryi* Schletterer, 1889
19. *Chelostoma (Gyrodromella) nasutum* Pérez, 1895
20. *Chelostoma (Gyrodromella) rapunculi* Lepeletier, 1841
21. *Chelostoma (Chelostoma) stefanii* Nobile, 1995
22. *Chelostoma (Foveosmia) styriacum* Schwartz & Gusenleitner, 1999

23. *Chelostoma (Chelostoma) transversum* Friese, 1897
24. *Chelostoma (incertae sedis) ventrale* Schletterer, 1889

Subgenera found in Europe:

- *Chelostoma* s.str. Latreille, 1809
- *Foveosmia* Warncke, 1991
- *Gyrodromella* Michener, 1997

References

Müller A., Trunz V. 2014. Palaearctic osmiine bees of the genera *Hofferia* and *Stenoheriades* (Megachilidae, Osmiini) : biology, taxonomy and key to species. *Zootaxa*, 3765(2) : 175-186.

Sedivy C., Praz C.J., Müller A., Dorn S. 2008. Patterns of host-plant choice in bees of the genus *Chelostoma* : the constraint hypothesis of host-range evolution in bees. *Evolution*, 62(10) : 2487-2507.

Torres F., Ornosa C., Ortiz-Sánchez F.J. 2012. Claves y datos nuevos de las especies ibéricas del género *Chelostoma* Latreille, 1809 (Hymenoptera, Megachilidae, Osmiini). *Graellsia*, 68(2) : 263-280.

Attributions

This factsheet was created by ORBIT and is one of the outputs from a network of European Initiatives dedicated to pollinators, such as the EU Pollinator Monitoring Scheme (EUPoMS), the Preparatory Action for EU Pollinator Monitoring Scheme and Indicators (SPRING project), the Horizon 2020 Europe research projects (POSHBEE,

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