Specimen

Number 73, 02 June 2026
https://doi.org/10.56222/28166531.2026.73

A first case of gynandromorphism in *Ceratina moricei* Friese, 1899 (Hymenoptera: Apidae)

Loïc ROCHET Laboratory of Zoology, Research Institute for Biosciences, University of Mons, Belgium; 230248@umons.ac.be
Guillaume GHISBAIN Laboratory of Zoology, Research Institute for Biosciences, University of Mons, Belgium; guillaume.ghisbain@umons.ac.be
Rémi SANTERRE Laboratory of Zoology, Research Institute for Biosciences, University of Mons, Belgium; remi.santerre@umons.ac.be

INTRODUCTION

Gynandromorphism is a condition in which an individual possesses both male and female body parts. There are three categories of gynandromorphs : bilateral if half the body is female and half the body is male according to the sagittal plane, transverse if one part of the body is female according to a transverse plane and the other part is male, and mosaic if sexual characteristics are randomly distributed on the body (Michez et al., 2009; Carion et al., 2025).

Many gynandromorphs have been described among bees (Anthophila) in six families, including several cases from the family Apidae (Wcislo et al., 2004; Michez et al., 2009). Most gynandromorphs from the subfamily Xylocopinae are from the genus *Xylocopa* Latreille (i.e. 26 cases from 19 species: Villamizar, 2020; Almada et al., 2022; Brau & Michez, 2025). In contrast, only eight cases from four species have been described so far in the genus *Ceratina* Latreille (Villamizar, 2020). Villamizar (2020) suggests that this difference of data between the two genera is due to less conspicuous sexual dimorphism in the genus *Ceratina*. Therefore, an increased attention appears to be needed to detect and describe gynandromorphs in *Ceratina*: we present here a discrete case in *Ceratina* (*Euceratina*) *moricei* Friese, 1899.

RESULTS AND DISCUSSION

Based on the two swollen areas with sparser punctation bordering the median ocellus antero-laterally (Figs 1, 2a, 3a), the gynander specimen collected in Potamia (district of Nicosia, Cyprus) can be recognised as a member of the species group including *C. moricei* Friese, *C. nigrolabiata* Friese, and *C. schwarziana* Terzo in the Western Palaeartic (Terzo 1998, 2000). It was identified as *C. moricei* based on its collection locality and morphological characters—i.e. terga 4 and 5 with metallic coloration, white marking on pronotal lobes, clypeus without apical emargination. However, it should be mentioned that the taxonomy of this group is unstable, with suspected cryptic diversity (Terzo, 2000).

The specimen studied is a mosaic gynandromorph (Michez et al., 2009). Its entire body exhibits female characters (Fig 1)—i.e. 12 antennal segments, scopa on the hind legs, 6 exposed terga, wax glands on sterna 2 and 3—except the left half of its clypeus which exhibits male morphology. The right part of the clypeus, which displays a female phenotype, is domed with a small white mark restricted to the median area (Figs 2, 3), whereas the left part is flatter with a broader white mark extending into the latero-apical lobes, thus shaped like half a T, which is typically a male phenotype (Figs 2, 3).

This example of a discrete gynandromorphism supports the suggestion of Villamizar (2020) that many similar cases of *Ceratina* gynandromorphs probably remain undetected. This new specimen should help improve our understanding of gynandromorphism (Carion et al., 2025).

MATERIAL

Specimen data available at https://doi.org/10.5886/dbbc6a

ACKNOWLEDGMENTS

We are grateful to Christodoulos Makris who collected the specimen. RS is funded by a doctoral scholarship from Wallonie-Bruxelles International (Excellence WBI.World).

REFERENCES

[1] Almada, V., Ramello, P. J., González, V. H., & Lucia, M. (2022). Descriptions of new gynandromorphs of *Xylocopa augusti* Lepeletier (Hymenoptera: Apidae: Xylocopini) from Argentina. *Papéis Avulsos De Zoologia, 62*, Article e202262058. https://doi.org/10.11606/1807-0205/2022.62.058

[2] Brau, T., & Michez, D. (2025). First report of gynandromorphism in *Xylocopa aeneipennis* (De Geer). *Specimen, 42*. https://doi.org/10.56222/28166531.2025.42

[3] Carion, F., Fiordaliso, W., Tourbez, C., Rosa, P., Michez, D., & Ghisbain, G. (2025). A new case of gynandromorphism in the parasitic bee *Nomada lathburiana* (Hymenoptera: Apoidea, Apidae). *Osmia, 13*: 61–68. https://doi.org/10.47446/OSMIA13.3

[4] Michez, D., Rasmont, P., Terzo, M., & Vereecken, N.J. (2009). A synthesis of gynandromorphy among wild bees (Hymenoptera: Apoidea), with an annotated description of several new cases. *Annales de la Société Entomologique de France (N S), 45*(3), 365–375. https://doi.org/10.1080/00379271.2009.10697621

[5] Terzo, M. (1998). Annotated list of the species of the genus *Ceratina* (Latreille) occurring in the Near East, with description of new species (Hymenoptera: Apoidea: Xylocopinae). *Linzer Biol Beitr, 30*(2), 719-743.

[6] Terzo, M. (2000). *Classification phylogénétique des Cératines du monde et monographie des espèces de la region ouest-paléartique de l'Asie Centrale (Hymenoptera, Apoidea, Xylocopinae:* Ceratina *Latreille)* [Unpublished doctoral dissertation]. University of Mons.

[7] Villamizar, G. (2020). A new case of gynandromorphism in *Xylocopa frontalis* (Olivier) (Hymenoptera:Apidae), with an updated review of records in Xylocopinae Latreille. *Revista Chilena De Entomología, 46*(2). https://doi.org/10.35249/rche.46.2.20.09

[8] Wcislo, W.T., Gonzalez, V.H., & Arneson, L. (2004). A review of deviant phenotypes in bees in relation to brood parasitism, and a gynandromorph of *Megalopta genalis* (Hymenoptera : Halictidae). *Journal Of Natural History, 38*(11), 14431457. https://doi.org/10.1080/0022293031000155322

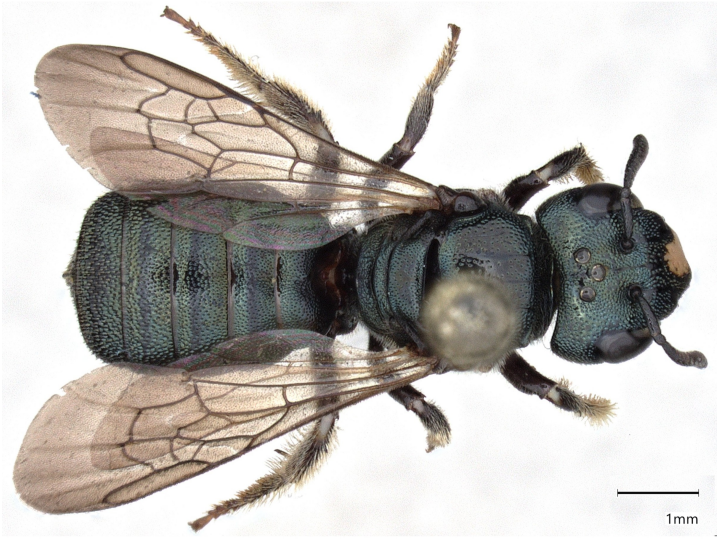

Figure 1: Studied *Ceratina moricei* gynandromorph (RS-25-2729) habitus in dorsal view.

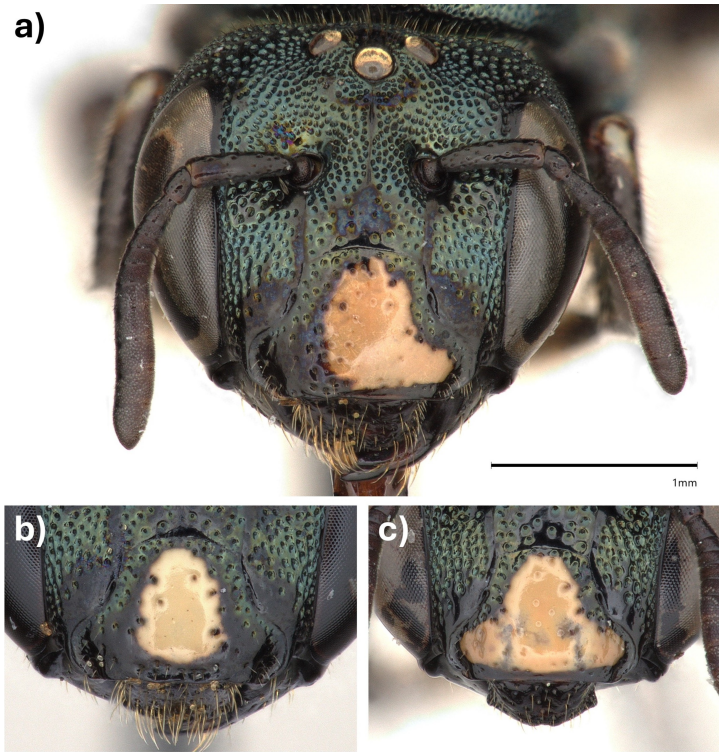

Figure 2: Phenotypic comparison of the head of the gynandromorph in frontal view, a male and a female of *Ceratina moricei* a) Gynandromorph. b) Female. c) Male.

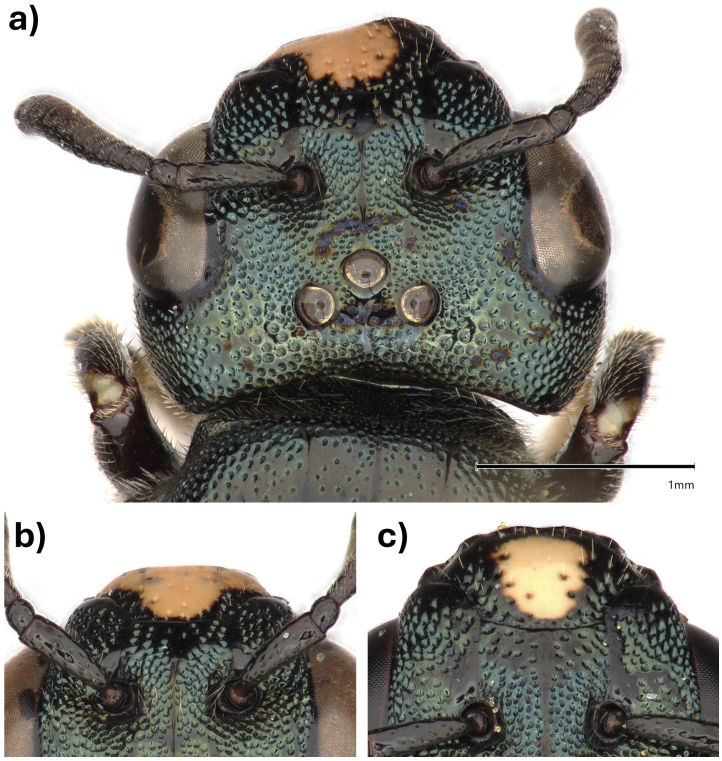

Figure 3: Phenotypic comparison of the head of the gynandromorph in dorsal view, a male and a female of *Ceratina moricei* a) Gynandromorph. b) Male. c) Female.