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Palaeartic *Hoplitis* bees of the subgenus *Platosmia* (Megachilidae, Osmiini): biology, taxonomy and key to species

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Abstract

Platosmia, a subgenus of the osmiine bee genus *Hoplitis* (Megachilidae), contains ten species, which are confined to desertic and semidesertic areas of the Palaeartic region. Analysis of female pollen loads and field observations indicate that several *H. (Platosmia)* species are strictly oligolectic on *Reseda* (Resedaceae) and possibly Hedysareae (Fabaceae), while others are mesolectic on both *Reseda* and Fabaceae. The few data available so far suggest that preexisting cavities in stones and rocks serve as nesting sites of *H. (Platosmia)*. The taxonomic revision of *H. (Platosmia)* revealed the existence of an undescribed species from the Arabian peninsula, *H. arabiae* spec. nov. *Hoplitis incognita* Zanden, 1996 and *H. quarzazati* (Zanden, 1998) are newly synonymized with *H. maghrebensis* (Zanden, 1992) and *H. platalea* (Warncke, 1990), respectively. Identification keys for all *H. (Platosmia)* species are given including the hitherto unknown male or female sex of three species.

Key words: Apiformes, host-plant choice, Hymenoptera, nesting behaviour, *Reseda*

Introduction

Platosmia Warncke is a species-poor subgenus of the osmiine bee genus *Hoplitis* Klug (Megachilidae, Megachilinae, Osmiini) including ten species, which are confined to desertic and semidesertic areas of the Palaeartic region. Its distributional range encompasses northern Africa, the Levant, Turkey, Iran and the Arabian peninsula with one isolated species occurring in Mongolia. Within the genus *Hoplitis*, *H. (Platosmia)* belongs to a clade that contains as additional taxa the subgenera *Formicapis* Sladen, *Micreriades* Mavromoustakis, *Proteriades* Titus, *Robertsonella* Titus and *Tkalcua* Kocak & Kemal, the latter probably being the sister group of *Platosmia* (Sedivy *et al.*, 2013).

After the seminal publication of Warncke (1990) on the western Palaeartic *H. (Platosmia)* species, which clarified the taxonomy of most species and contained a number of new species descriptions, Zanden (1991, 1992, 1996, 1998) and Tkalcu (1995) published several new names, rendering a new revision of *H. (Platosmia)* including updated identification keys necessary.

In the present publication, the subgenus *Platosmia* is morphologically diagnosed, the current knowledge on its biology is summarized, the species are revised, one new species is described and identification keys are given including the hitherto unknown males of *H. gerofita* (Warncke, 1990) and *H. lucidula* (Benoist, 1934) and the unknown female of *H. inconspicua* Tkalcu, 1995. Morphological terminology and definitions for body measurements follow Michener (2007). Measurements to the nearest 0.1mm or 0.5mm (for body length) were taken using an ocular micrometer on an Olympus VNT stereomicroscope. Photomicrographs were taken with the digital microscope Keyence VHX-2000. To assess the pollen hosts of the species, scopal pollen contents of all available females were analysed by light microscopy, applying the method of Sedivy *et al.* (2008).

- 8 Second segment of labial palpus about 1.75x as long as first segment. Medioapical projection of sternum 6 consists of a cap-like basal part, which is formed by two short converging keels progressively detaching from the sternal surface, and a button-like apical part, which is haired and slightly extends beyond the apical sternal margin (Fig. 17). Apical third of gonostylus sharply narrowed and bent down at an angle of about 120°; at the transitional point between the basal two thirds and the bent apical third with a single long bristle (Fig. 14). Body length 6.5–7 mm. Morocco. *Hoplitis lucidula*
- 8* Second segment of labial palpus at most 1.5x as long as first segment. Medioapical projection of sternum 6 of other shape and formed by long converging keels (Fig. 8, 9). Gonostylus of other shape. 9
- 9 Longest hairs on underside of antennal segment 3 about half as long as segment width (Fig. 20). Medioapical projection of sternum 6 with small transverse plate at its apex (Fig. 18). Gonostylus beset with long bristles only at the inner side of its apical third. Apical fifth of gonostylus slightly narrowed, about three quarters as wide as maximal gonostylus width. Body length 5.5–7 mm. Morocco. *Hoplitis aristotelis*
- 9* Longest hairs on underside of antennal segment 3 as long as segment width (Fig. 21). Medioapical projection of sternum 6 without transverse plate at its apex (Fig. 19). Gonostylus beset with long bristles on the entire underside of its apical third; when seen from above, these bristles project beyond both sides of the gonostylus. Apical fifth of gonostylus distinctly narrowed, about half as wide as maximal gonostylus width. Body length 6–7 mm. Maghreb. *Hoplitis platalea*

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