

First record of *Chiasmognathus* from the Kingdom of Saudi Arabia (Hymenoptera, Apidae)

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Abstract

The cleptoparasitic bee genus *Chiasmognathus* Engel (Nomadinae: Ammobatini) is recorded from Saudi Arabia for the first time. *Chiasmognathus nearchus* Engel was previously known from specimens collected in the United Arab Emirates and Oman. Here we report and figure two individuals captured in central Saudi Arabia.

Keywords

Apodea, Anthophila, cleptoparasitism, cuckoo bees, biodiversity, Ammobatini

Introduction

The cleptoparasitic bee genus *Chiasmognathus* Engel comprises some of the smallest and most distinctive species of the tribe Ammobatini, and at lengths as low as 2 mm are among the tiniest of all Anthophila (Engel 2006, 2009). Species of *Chiasmognathus* are found in the east from Central Asia to Sri Lanka, extending from their westward through the Middle East into northern Africa and marginally in southeastern Europe (Engel 2006, 2007, 2008a, 2008b, 2009, 2010; Straka and Engel 2012; Engel and Packer 2013) (Map 1). The

largest species, *Chiasmognathus batelkai* Straka and Engel, is endemic to the Cape Verde Islands and also marks the westernmost occurrence of the genus as it is presently understood (Straka and Engel 2012) (Map 1). Where known, species are cleptoparasites of the equally diminutive bees of the tribe Nomiodini (Engel 2006, 2007, 2009; Rozen 2008; Straka and Engel 2012). Nomiodini are widespread throughout the Old World and it is likely that *Chiasmognathus* is similarly distributed, with its currently more restrictive range an artifact of sampling. Given that these cleptoparasites are in lower abundance than their hosts, minute in their proportions (even the giants of the genus are scarcely over 4 mm in total length), and frequently sampled only from nesting aggregations of their hosts. Accordingly, records of the genus are scant at present and much remains to be discovered about their systematics, diversity, biogeography, and biology. Rozen (2008) provided information on the immature stages and biology of *C. pashupati* Engel in Pakistan, and this remains the most extensive source of information regarding the genus.

During recent sampling efforts across Saudi Arabia two specimens of *Chiasmognathus* were captured, both from central Saudi Arabia near Riyadh. One female and one male of *C. nearchus* Engel, previously known from the United Arab Emirates and Oman and known to victimize *Nomioides rotundiceps* Handlirsch (Engel 2009). Herein we provide details on these new records, adding the genus to the list of supraspecific bee taxa occurring in the Kingdom, and drawing the attention of melittologists in the region to the species in the hopes of learning more about these minute and elusive cleptoparasites.

Material and methods

Material discussed herein was collected as part of general wild bee surveys underway by the authors throughout the Kingdom of Saudi Arabia, ongoing since 2011. Specimens were compared with the original type series of *C. nearchus* deposited in the Division of Entomology, University of Kansas Natural History Museum (Engel 2009). Photomicrographs were prepared with a Canon 7D digital camera attached to an Infinity K-2 long-distance microscope lens.

Systematics

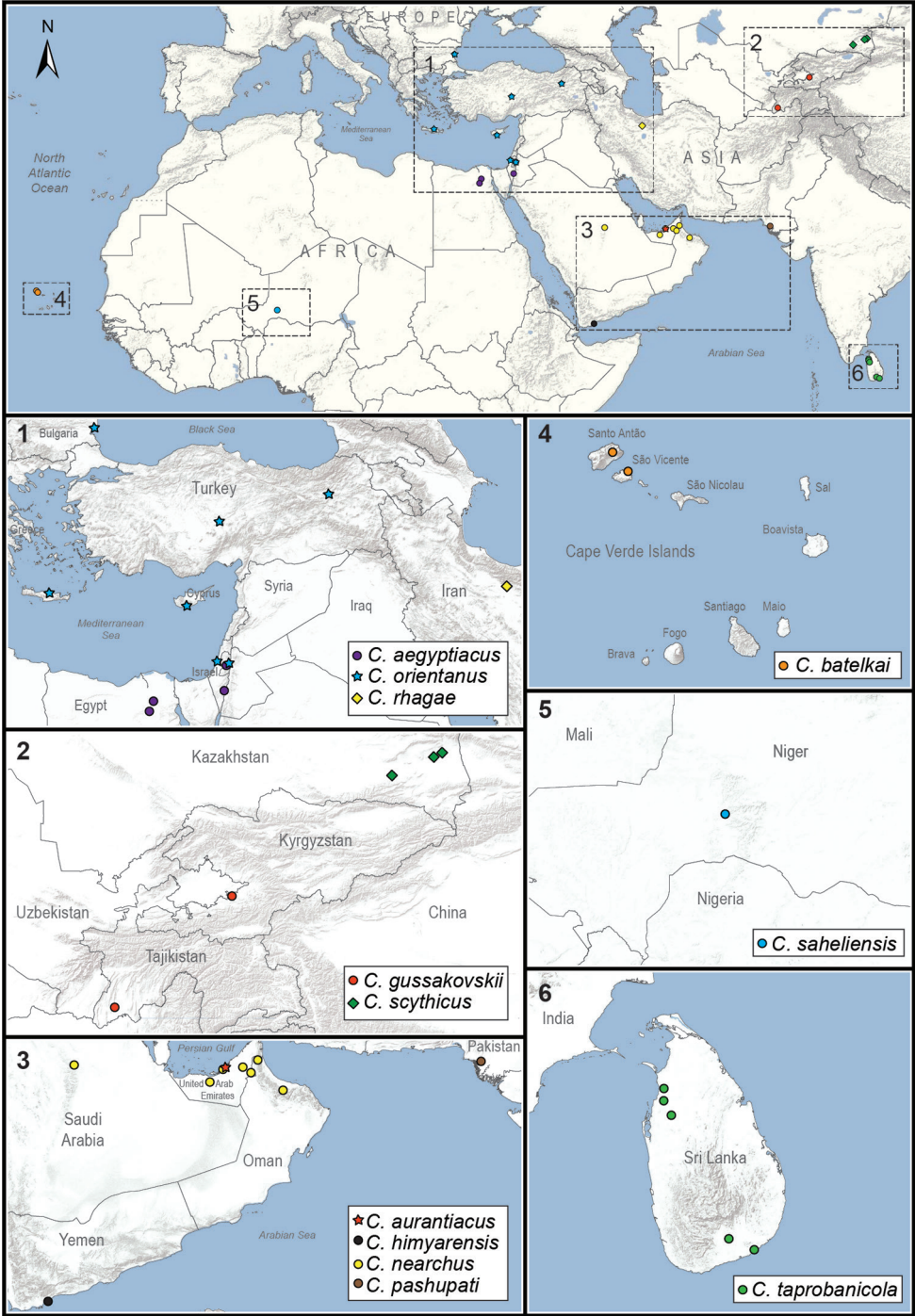
Genus *Chiasmognathus* Engel

Chiasmognathus nearchus Engel

http://species-id.net/wiki/Chiasmognathus_nearchus

Figs 1–10

Material. 1♀ (Figs 1–3), Saudi Arabia: Riyadh, Al Amariah, Majra [Mazra'ah], Al-Gasim [farm], 2.viii.2011 [2 August 2011], I. Naser; 1♂ (Figs 4–6), Saudi Arabia:



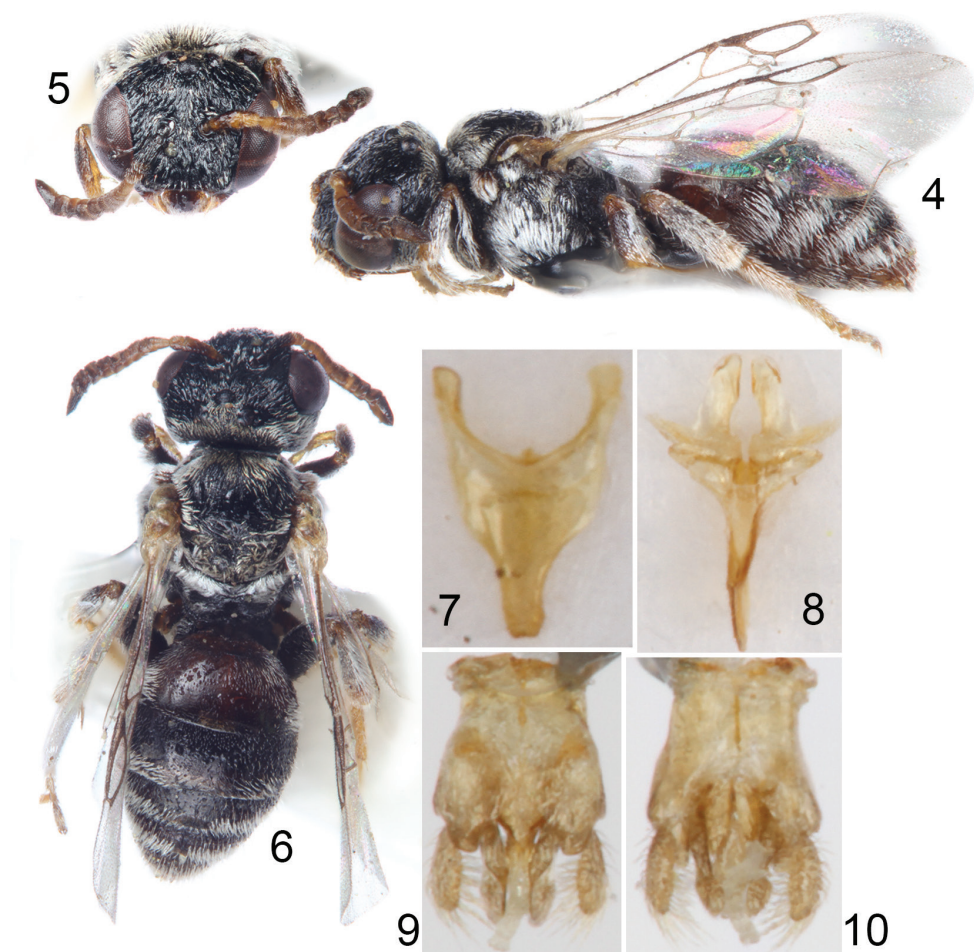
Map I. Distribution of currently described species of *Chiasmognathus* Engel (Ammobatini); numbered subsets refer to inserts in primary map at top.



Figures 1–3. Female of *Chiasmognathus nearchus* Engel from Amariah, Saudi Arabia. **1** Lateral habitus **2** Facial view **3** Dorsal habitus.

Riyadh, Honeybee Queen Breeding Station, Ministry of Agriculture, Namar, 9.x.2012 [9 October 2012], M.A. Hannan. The female is deposited in the King Saud University Museum of Arthropods, Plant Protection Department, College of Food and Agriculture Sciences, King Saud University, Riyadh, Kingdom of Saudi Arabia, while the male is deposited in the Division of Entomology, Snow Entomological Collections, University of Kansas Natural History Museum, Lawrence, Kansas, USA.

Comments. The new material does not differ in any significant manner from the diagnosis and description of the species as provided by Engel (2009). Unfortunately,



Figures 4–10. Male of *Chiasmognathus nearchus* Engel from Namar, Riyadh, Saudi Arabia. **4** Lateral habitus **5** Facial view **6** Dorsal habitus **7** Seventh metasomal sternum **8** Eighth metasomal sternum **9** Genital capsule, dorsal view **10** Genital capsule, ventral view.

the sole Saudi male is not preserved in the best condition, with some distortion of the antennae and much of the body matted resulting from the mode of collection and subsequent preparation (Figs 4–6). Nonetheless, it was suitable for dissection and the terminalia are presented here for the first time (Figs 7–10) and for comparison with those structures depicted for other species (*e.g.*, Engel 2006, 2007, 2010; Straka and Engel 2012; Engel and Packer 2013).

Presently there are only three species of *Chiasmognathus* recorded from the Arabian Peninsula: *C. aurantiacus* Engel from the United Arab Emirates, *C. himyarensis* Engel from southwestern Yemen, and *C. nearchus* from Oman, the United Arab Emirates, and now central Saudi Arabia. A key to these species was provided by Engel (2009). The new records presented herein push the distribution of *C. nearchus* and the genus

as a whole westerly into the central desert region of Saudi Arabia. This is not surprising given the broader distribution of the group as well as that of its hosts. Species of *Nomioides* Schenck and *Ceylalicetus* Strand are both present throughout the peninsula (Pesenko and Pauly 2009) and there is therefore every reason to suspect that with continued intensive sampling additional records will be forthcoming. Moreover, given that there are at least 20 species of Nomioidini present in the region it is possible that new species of *Chiasmognathus* may be recovered. Given the more varied habitats to the southwest, it is possible that endemic species of the genus may be found in the mountainous regions such as the Asir and Sarawat ranges south from Makkah (Mecca) and Taif, or in the low elevation plain of the Tihamah bordering the Red Sea. Unfortunately, at present none of the Saudi specimens have been collected in a context from which a positive host association can be made. Given that aggregations of *N. rotundiceps* are in the area, as well as other nomioidine species, it is possible that this is the host of the Saudi populations of *C. nearchus* just as is the case for those in the United Arab Emirates (Engel 2009).

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