

ARTICLE

New *Camptopoeum* SPINOLA, 1843 records for the Arabian Peninsula with a key to the Arabian species (Hymenoptera: Andrenidae: Panurginae)

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Abstract

Two species of *Camptopoeum*, *C. (Camptopoeum) negevense* and *C. (Epimethea) subflavum*, are reported from the Arabian Peninsula for the first time. The specimen label data was obtained from the bee collection of the Natural History Museum, London. This increases the known number of Arabian *Camptopoeum* to three. A key to these Arabian species is proposed, and descriptions of specimens and their genitalia are given.

Keywords | *Camptopoeum (Camptopoeum) negevense* • *Camptopoeum (Epimethea) subflavum* • Natural History Museum, London

Nouvelles mentions de *Camptopoeum* SPINOLA, 1843 pour la péninsule Arabique avec une clef des espèces de la région (Hyménoptères : Andrenidae : Panurginae)

Résumé

Deux espèces de *Camptopoeum*, *C. (Camptopoeum) negevense* et *C. (Epimethea) subflavum*, sont reportées pour la première fois de la péninsule Arabique. Les données proviennent de spécimens des collections du Muséum d'Histoire Naturelle de Londres. Ces données portent le nombre d'espèces de *Camptopoeum* de la péninsule Arabique à trois. Une clé de détermination est proposée ainsi que la description des individus et leurs genitalia.

Mots-clefs | *Camptopoeum (Camptopoeum) negevense* • *Camptopoeum (Epimethea) subflavum* • Muséum d'Histoire naturelle, Londres

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INTRODUCTION

Camptopoeum SPINOLA, 1843 is a genus of relatively hairless, ground nesting Palearctic bees belonging to the tribe Panurgini (Andrenidae: Panurginae). The genus consists of two subgenera: *Camptopoeum* SPINOLA, 1843 and *Epimethea* MORAWITZ, 1876 (MICHENER, 2007; FIDALGO, 2021). A total of 31 species are found throughout Europe, North Africa, Central Asia and as far east as China (MICHENER, 2007; ASCHER & PICKERING, 2023). Of these species, 18 are recorded from the Western Palearctic (KUHLMANN, 2019). To date only one species, the minute *Camptopoeum (Epimethea) guichardi* PATINY (♂ ~4.5mm) is known from the Arabian Peninsula having been collected from Rostaq, Al Batinah South Governorate, Oman (PATINY, 1999; WOOD & CROSS, 2017). This species is only known from the single male type (B.M. Type HYM 17a. 3205).

Whilst reviewing the Panurginae collection of the Natural History Museum, London, specimens of Arabian *Camptopoeum* were noted: one male and two female specimens of *C. negevense* WARNCKE, 1972 and one male specimen of *C. subflavum* (WARNCKE, 1987). All specimens were collected by K. M. GUICHARD who's extensive western Palearctic collection of Apoidea is housed in the NHM's Hymenoptera collection.

In the present publication the newly recorded sexes are described, and a key is given for the three Arabian *Camptopoeum* species. Morphological terminology follows MICHENER (2007). The addition of the two *Camptopoeum* species increases the known Panurginae in the Peninsula to 13 species (table I).

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RESULTS

Table 1. List of Panurginae currently known from the Arabian Peninsula. Distribution data taken from ASCHER & PICKERING (2023) and specimens in the NHML collection.

Tribe	Species	Distribution within the Arabian Peninsula
Panurgini	<i>Camptopoeum (Camptopoeum) negevense</i> WARNCKE	Oman (New record)
Panurgini	<i>Camptopoeum (Epimethea) guichardi</i> PATINY	Oman
Panurgini	<i>Camptopoeum (Epimethea) subflavum</i> WARNCKE	Saudi Arabia (New record)
Panurgini	<i>Panurgus (Euryvalvus) pyropygus</i> FRIESE	Saudi Arabia
Panurgini	<i>Panurgus (Pachycephalopanurgus) nigriscopus</i> PÉREZ	Oman, United Arab Emirates
Panurgini	<i>Panurgus (Panurgus) calcaratus</i> (SCOPOLI)	Saudi Arabia
Panurgini	<i>Panurgus (Panurgus) dentatus</i> FRIESE	Saudi Arabia
Panurgini	<i>Panurgus (Panurgus) platymerus</i> PÉREZ	Saudi Arabia
Melitturgini	<i>Belliturgula najdica</i> ENGEL	Saudi Arabia
Melitturgini	<i>Borgatomelissa brevipennis</i> (WALKER)	Oman, Saudi Arabia, United Arab Emirates, Yemen
Melitturgini	<i>Borgatomelissa niveopilosa</i> PATINY	Saudi Arabia, Yemen
Melitturgini	<i>Meliturgula (Meliturgula) scriptifrons</i> (WALKER)	Saudi Arabia
Melitturgini	<i>Meliturgula (Popovmeliturgula) ornata</i> (POPOV)	Saudi Arabia

Camptopoeum (Epimethea) subflavum (WARNCKE, 1987)

Known distribution: Turkey.

New record: Saudi Arabia: Asir Province, Wadi Al Tarya, 1400 m, 05.IV.1980, leg. K. M. GUICHARD), 1 ♂. Deposited in the Natural History Museum, London (NHML).

Additional specimens held in the NHML: Turkey: Elazig, Hazar-See, 1100 m, 07.VI.1980, leg. M. SCHWARZ (male paratype); Siirt, 15 Km W Siirt, 650 m, 06.VI.1980, leg. M. SCHWARZ (female paratype).

Diagnosis: *Camptopoeum subflavum* is a small (♀ ~ 7 mm, ♂ ~ 6 mm) yellow and black species (figure 1) with the male extremely close in appearance to *C. guichardi* (figure 2) both



Figure 1. *Camptopoeum subflavum* male (scale bar 5mm).



Figure 2. *Camptopoeum guichardi* male (scale bar 5mm).

in colour pattern and morphology. *Camptopoeum subflavum* can be separated from *C. guichardi* by examination of the male genitalia (figures 3–4). In the former, the gonostyli are spatulate at the apex (figure 4), while in *C. guichardi* the apex is bifid (figure 3). Currently no females of *C. guichardi* have been recorded.

Description of the new male record

Head: Genal area, vertex, and frons black (figure 5). Face below the antennae ivory. Ivory colouration extends along the inner margin of the eyes and as a triangle up the frontal line. The frontal line is raised up as a strong ridge. Inner margin of the eye is slightly convex. Mandibles ivory with the apex black. Scape ivory, pedicel, and flagellum orange ventrally. Dorsally, the antennae are brown. Vertex is densely punctuated. Clypeus, paraocular and supraclypeal areas with abundant but evenly spaced punctures. Integument smooth between punctures.

Mesosoma: Pronotum, scutellum, metanotum and pronotal lobe yellow (figures 1–6). Scutum black. Parapsidal lines elongate. Propodeum black with a yellow line on the lateral edges. Punctures on the anterior and posterior of the scutum dense. More irregular, and sparse in the centre of the scutum. Lateral edge of the scutum carinate. Surface of the propodeum course with extensive microreticulation. A fringe of pale-yellow hairs is present along the lateral sides of the propodeum.

Metasoma: Basal colour of the metasoma yellow. Anterior half of each tergum yellow-brown, darkest on terga 4-6. T7



Figures 3–4. *Camptopoeum guichardi* (3) and *Camptopoeum subflavum* (4) male genitalia.



Figure 5. Face of male *Camptopoeum subflavum*.



Figure 6. *Camptopoeum subflavum* male (scale bar 5mm).

completely yellow with a dense brush of hairs at the apex. All sterna are yellow. Dense, shallow punctures are present throughout the whole of the metasoma.

Legs: Legs yellow, except for brown hind tarsi. Tarsal claws bifid with arolia present.

Genitalia: Genitalia yellow (figure 4). Gonostyli elongate with fringe of hairs along the inner margin.

***Camptopoeum (Camptopoeum) negevense*
WARNCKE, 1972**

Known distribution: Israel, Jordan.

New records: Oman: Al Batinah South, Rostaq, 350 m, 21-31.III.1976, leg. K. M. GUICHARD. Deposited in the NHML (2 ♀♀, 1 ♂).

Diagnosis: *Camptopoeum negevense*, is a medium sized species (♀ body length ~9 mm, ♂ ~ 10 mm) with females largely glabrous (figure 7). Males with more extensive pilosity on the vertex, mesepisternum and fore-femur and lateral edges of the propodeum (figure 8). Both sexes show similar black, brown and yellow markings. Male metasoma with darker brown stripes on the terga compared to the female. Both sexes show the characteristic clypeal protuberance of the subgenus *Camptopoeum* SPINOLA s. str. Mouthparts elongate in both sexes.

Unless stated the description of the male matches the description given for the female.

Head: *Female:* Genal area, vertex, black merging to dark reddish, brown on the frons. Paraocular area and upper clypeus yellow (figure 9). Antennae, clypeal border with labrum and labrum itself, ochre. Base of mandibles yellow before merging to ochre and then black at apex. Mandibles simple. Head viewed front on round. Clypeus strongly protuberant with regular, evenly spaced punctures. Labrum triangular at the base. Inner margin of the eyes almost straight. Lower edge of mandibles with a fringe of long golden hairs that curve and meet medially. Labrum with short golden hairs that point downwards. Glossa and galea elongate. *Male:* Labrum yellow, rounded at the base, lacking the triangular shape seen in the females (figure 10). Inner margin of the eye's curves slightly outwards in the lower half of the eyes.



Figure 7. *Camptopoeum negevense* female (scale bar 5mm).



Figure 8. *Camptopoeum negevense* male (scale bar 5mm).

Mesosoma: *Female:* Scutum and anterior half of scutellum black (figure 11). Posterior half of scutellum and metanotum yellow. Propodeum reddish brown. Metapostnotum with longitudinal wrinkles while the remainder of the propodeum densely punctate.

Metasoma: *Female:* Basal colour reddish brown, with unbroken yellow bands across each tergum. T5 completely yellow. Marginal zone of tergites reticulated. Prepygidial and pygidial fimbria golden. *Male:* Similar patterning except the basal colour of the tergites is a darker brown than in the females (figure 12).

Legs: *Female:* Legs orange, except dorsal side of the coxae, trochanters, and femurs brown. Scopa on the hind tibia is relatively sparse. Tarsal claws simple, arolia present. *Male:* Legs yellow except coxae, trochanters, and femurs brown both dorsally and ventrally. Tarsal claws bifid, arolia present.



Figure 9. Face of female *Camptopoeum negevense*.

Key to the known *Camptopoeum* species of the Arabian Peninsula

1. Medium sized species (♀ body length ~ 9 mm, ♂ ~ 10 mm). Clypeus protruding. Labrum triangular at the base in females (figure 9) **C. negevense**
 - Minute species (4-7 mm). Clypeus not protruding. Labrum delimited by a transverse carina at the base (figure 13) **2**
2. Genitalia reddish-brown (figure 3). Gonostyli clearly bifid. Marginal cell weakly truncated **C. guichardi**
 - Genitalia yellow (figure 4). Gonostyli rounded at the apex but not bifid. Marginal cell strongly truncated **C. subflavum**



Figure 10. Face of male *Camptopoeum negevense*.



Figure 11. *Camptopoeum negevense* female (scale bar 5mm).



Figure 12. *Camptopoeum negevense* male (scale bar 5mm).



Figure 13. Face of female *Camptopoeum subflavum*.

DISCUSSION

The current study extends the distribution of two species previously noted from Turkey (*C. subflavum*) and Israel and Egypt (*C. negevense*) down into southern Arabia. All new records occur in Arabia's two main mountain ranges, the Asir Mountains that run the length of western Saudi Arabia and Yemen, and the Hajar Mountains of northern Oman. These ranges are noted for their high levels of plant diversity and endemism (PATZELT, 2015; EL-SHABASY, 2016). To date 350 species and 61 genera are recorded from the Arabian Peninsula (unpublished and personal data of the author). The species richness is likely a vast underestimate due to the lack of collecting in most of the Peninsula outside of Saudi Arabia and the United Arab Emirates. However, the high number of genera highlights the extreme richness of the region. Further collecting will likely greatly increase the species checklist.

It is not surprising that further records of *Camptopoeum* species have been found in Arabia. Within the Western Palearctic, it is noted that the species richness for *Camptopoeum* is greatest in Turkey and the Near East

(WOOD & CROSS, 2017). Nevertheless, outside of Saudi Arabia (DALY, 1983; EBMER, 1984, 1985; ENGEL, 2004, 2008; ALQARNI *et al.*, 2012; HANNAN *et al.*, 2012; ALQARNI *et al.*, 2014a, b, c; ENGEL *et al.*, 2017; ENGEL *et al.*, 2017), and to a less extent the United Arab Emirates (DATHE *et al.*, 2009), the bee fauna of the Arabian Peninsula remains relatively unexplored (SHEBL *et al.*, 2021). This concerns species descriptions, but even more so for understanding the ecology and the role individual species play in pollination networks (MONKS, 2021). Further fieldwork and exploration within collections is needed to expand the knowledge base on Arabian bees.

Due to the age of many collections, including the Natural History Museum, London, (specimens dating back to the 17th century) collections, often contain specimens from regions that are hard to access in contemporary times. This makes them a vital resource for ecological studies (SALVADOR & CUNHA, 2020) as well as assessing species biogeography (LISTER *et al.*, 2011). Checking label data of even extensively used collections is an easy way of recording and expanding the knowledge of species distributions.

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