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# New records of wild bees from a spring expedition in Southern Türkiye, with six new species for the country (Hymenoptera: Apoidea: Anthophila)

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## Abstract

### Background

Bees (Anthophila) are key pollinators, yet major gaps persist in the knowledge of their diversity and distribution, particularly across Mediterranean biodiversity hotspots. Türkiye, located at the intersection of Europe and Asia, hosts amongst richest bee faunas in the Western Palearctic, with more than 1,800 recorded species. Despite previous faunistic work, the national fauna remains incompletely documented, as shown by numerous recent species descriptions and new country records. Additional sampling is therefore required to improve taxonomic and distributional knowledge and to support biodiversity research and conservation in this highly diversified region.

### New information

The dataset comprises 2,070 wild bee specimens collected in southern Türkiye, with 246 identified species. Among these, six species are recorded for the first time from Türkiye, and several additional noteworthy species of taxonomic, biogeographical or conservation interest are highlighted and illustrated. This dataset provides new, well-documented occurrence records contributing to an improved understanding of bee diversity in the region.

## Keywords

Anthophila, Biodiversity, Distribution, Occurrence, Türkiye, Wild Bees.

## Introduction

In recent decades, the growing awareness of threats to biodiversity in the Anthropocene has brought certain groups of living organisms, such as bees (Anthophila), to the forefront (Brown and Paxton 2009, Potts et al. 2010, Potts et al. 2016, Kammerer et al. 2021, Gekière et al. 2025). Through their major contribution to the pollination of wildflowers and crops, these insects represent a cornerstone of ecosystem sustainability and global food security (Klein et al. 2006, Devkota et al. 2024). However, even in the comparatively well-studied Western Palearctic region, several key elements are still missing about their distribution and taxonomy, thereby hindering conservation efforts (Marshall et al. 2024, Ghisbain et al. 2025, Michez et al. 2026). These knowledge gaps are even more pronounced in regions with highly diversified faunas, such as the Mediterranean basin (Marshall et al. 2024, Michez et al. 2026). Among these biodiversity hotspots, Türkiye occupies a special geographical position influenced by both the Asian and European faunas of wild bees, with a remarkably high level of endemism, benefiting from a wide diversity of habitats and climates (Şekercioğlu et al. 2011, Rasmont et al. 2021).

With over 1,800 bee species recorded, Türkiye is among the most diverse regions in the Western Palearctic and represents a center of diversity and a presumed region of origin for several bee groups (Wood 2020, Pisanty and Wood 2024, Straka et al. 2024, Ascher and Pickering 2025). Although the region has been partially covered by some earlier broad-scale revisions, the first detailed faunistic surveys were provided by Klaus Warncke who intensively and repeatedly collected across the country (e.g. Warncke 1965, Warncke 1974, Warncke 1975a, Warncke 1975b, Warncke 1984, Warncke 1988, Warncke 1992). More recently, a number of taxon-focused surveys at regional scale have kept updating our knowledge of the composition and distribution of the Turkish fauna (e.g. Kuhlmann and Özbek 2007, Dikmen et al. 2011, Güler et al. 2014, Hazir et al. 2014, Özbek 2014, Özbek et al. 2015, Özbek and Terzo 2016, Özbek and Dathe 2020). However, our knowledge remains broadly incomplete, as evidenced by the dozens of species that have been described or newly reported from the country over the last years (e.g. Scheuchl and Hazir 2012, Müller 2015, Pauly et al. 2015, Bogusch 2018, Dorchin and Praz 2018, Smit 2018, Dorchin 2019, Schwarz et al. 2019, Wood 2020, Wood 2021, Wood 2023, Aubert et al. 2024b, Pisanty and Wood 2024, Wood 2024a, Wood 2024b, Wood 2025). Therefore, renewed sampling efforts are required to further support ongoing taxonomic research and to achieve a more comprehensive understanding of Türkiye's remarkable bee diversity. This article presents the data associated with wild bee specimens collected during a 10-days sampling expedition across southern Türkiye in Spring 2025.

## Materials and methods

### Study area

The sampling was carried out across 42 sites distributed across southern Türkiye (Fig. 1): 38 were located in the Mediterranean Region (provinces: Adana, Antalya, Mersin, Osmaniye) and four in the south of the Central Anatolia Region (provinces: Karaman, Konya). A broad variety of habitats and vegetation types were therefore covered, such as mediterranean shrublands (Fig. 1a), steppe (Fig. 1b), marshes and halophilic grasslands (Fig. 1c), and subalpine and alpine grasslands (Fig. 1d).

The selection of sampling sites was done using searches in Google Maps for potential high-quality habitats (mainly sites surrounded by ample natural habitats), followed by on-site surveys to confirm the presence of a sufficient floral diversity for attracting a high diversity of bees.

### Sampling process

Wild bees were collected using hand nets, trying to prioritize the species diversity by sampling on a maximum diversity of flowering plants (no standardized sampling protocol). Samplings were generally carried on from 9 a.m. to 5 p.m. Specimens were killed with cyanid or ethyl acetate, and pinned in collection the same day. Each specimen was labeled with the main collection information (i.e., Locality, altitude, GPS coordinates, Date, Collector), and with a unique identification code added to the same label.

### Specimen identification and quality control

Species-level identification was performed in the lab by Thomas Brau (*Halictus*, *Seladonia*, *Thrincohalictus*), Frédéric Carion (*Nomada*), Achik Dorchin (*Eucera*), Simone Flaminio (*Ceylalictus*, *Lasioglossum*, *Rophites*), Guillaume Ghisbain (*Bombus*, *Dasypoda*), Sebastian Hopfenmüller (*Panurginus*), Michael Kuhlmann (*Colletes*), Romain Le Divelec (*Hylaeus*, *Sphecodes*), Anatole Maugendre (*Coelioxys*), Denis Michez (*Dasypoda*), Andreas Müller (*Chelostoma*, *Hoplitis*, *Osmia*), Pierre Rasmont (*Amegilla*, *Anthophora*, *Eupavlovskia*, *Habropoda*), Blandine Rigaut (*Dufourea*), Rémi Santerre (*Ammobatoides*, *Anthophora*, *Ceratina*, *Melitturga*, *Nomiapis*), Jakub Straka (*Nomada*, *Sphecodes*), Michaël Terzo (*Ceratina*, *Xylocopa*), Clément Tourbez (*Anthidiellum*, *Anthidium*, *Chelostoma*, *Heriades*, *Hoplitis*, *Megachile*, *Osmia*, *Protosmia*, *Pseudoanthidium*, *Rhodanthidium*, *Stelis*, *Stenoheriades*) and Thomas J. Wood (*Andrena*, *Camptopoeum*, *Panurgus*).

The geographical consistency of the identifications was first verified for each species using centralised resources (e.g. Rasmont 2014, Ascher and Pickering 2025, Müller 2025), then additional targeted documentation was sought and a double-check of the identifications was carried out by Rémi Santerre to confirm the validity of the outliers.

The species of particular interest that are highlighted below were illustrated through photographs taken with Olympus OM-D E-M1 Mark II equipped with a M.Zuiko Digital ED 60mm f/2.8 Macro lens, and stacked with Helicon Focus 8.2 (Helicon Soft Ltd, Kharkiv, Ukraine) (pictures with grey background). Additional close-up images (with white background) were captured through automatic stacking with Keyence VHX-970F digital microscope equipped with a VHX-7020 camera and a VH-Z20R/Z20T zoom lens.

## Data resources

The complete dataset is included as supplementary material (Suppl. material 1) and an updatable version is publicly available online at <https://doi.org/10.15468/jre3sd> (Santerre and Benrezkallah 2026).

## Summary of the taxa collected

The dataset covers 246 confidently identified species of wild bees, belonging to the six bee families present in the Palearctic region (Michener 2007): Andrenidae, Apidae, Colletidae, Halictidae, Megachilidae and Melittidae (Hymenoptera: Apoidea: Anthophila). It includes another seven taxa for which the uncertain species identity is marked by the notation 'cf.' (uncertain identification), 'aff.' (belongs to a taxon closely related, but distinct from the mentioned species) or 'gr.' (belongs to one of the species from the species-group mentioned). In addition, 112 specimens in this dataset remain unidentified in the genera *Amegilla* (7), *Andrena* (26), *Anthophora* (5), *Chelostoma* (11), *Eucera* (21), *Halictus* (29), *Lasioglossum* (12), and *Seladonia* (1) (Table 1).

## Species new for the fauna of Türkiye

### *Andrena igraeca* Pisanty & Wood, 2022

#### Materials

- a. country: Türkiye; stateProvince: Osmaniye; locality: Dereobasi; verbatimElevation: 1412 m; decimalLatitude: 36.97654; decimalLongitude: 36.32773; eventDate: 28/04/2025; sex: 5 females; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: E5B5D02E-DC36-5CB3-8251-7BA89D4DC432
- b. country: Türkiye; stateProvince: Osmaniye; locality: Dereobasi; verbatimElevation: 1926 m; decimalLatitude: 36.96265; decimalLongitude: 36.36852; eventDate: 28/04/2025; sex: 3 females, 1 male; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 22C706E5-CC4A-5307-BCAC-A0F7B3F505D4
- c. country: Türkiye; stateProvince: Osmaniye; locality: Dereobasi; verbatimElevation: 1346 m; decimalLatitude: 36.98222; decimalLongitude: 36.32254; eventDate: 28/04/2025; sex: 3 females, 1 male; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: BADB6FBD-1885-5C90-AFC0-1ADB7D98A3E7

**Distribution:** Levant (Pisanty et al. 2022).

**Notes:** *Andrena igraeca* (Fig. 2) is a recently described species whose presence in the Hatay province was presumed due to a record in north-west Syria (Pisanty et al. 2022). It is now confirmed to occur in Türkiye by the 13 specimens collected in three locations in Nur Mountains, near to the Hatay province (Fig. 1d).

## ***Anthophora dalmatica* Pérez, 1902**

### **Material**

- a. country: Türkiye; stateProvince: Mersin; locality: Anamur; verbatimElevation: 465 m; decimalLatitude: 36.07575; decimalLongitude: 32.63737; eventDate: 24/04/2025; sex: 2 males; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 9CCFBD45-A5B5-5C9F-962D-6250EB632A6D

**Distribution:** Southeastern Europe (Rasmont et al. 2025), Western Asia (Boustani et al. 2021), ? Central Asia (Ascher and Pickering 2025).

**Notes:** Although the boundaries of the distribution of *Anthophora dalmatica* (Fig. 3) are unclear due to the unresolved taxonomy of the species-group to which it belongs, its presence in Türkiye was likely as it occurs in the surrounding areas (Boustani et al. 2021, Rasmont et al. 2025). Existing records of *A. atroalba* Lepeletier from Türkiye (e.g. Grace 2010, Ascher and Pickering 2025) might actually pertain to this species. The two males were collected in a *Cistus*-rich shrubland near Anamur (Fig. 4a).

## ***Anthophora subterranea* (Germar, 1826)**

### **Material**

- a. country: Türkiye; stateProvince: Osmaniye; locality: Dereobasi; verbatimElevation: 1926 m; decimalLatitude: 36.96265; decimalLongitude: 36.36852; eventDate: 4/28/2025; sex: 1 female; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 221BEA6A-9FE7-5A50-A84E-E2FCA2D1A61A

**Distribution:** Circum-Mediterranean (Rasmont 2014, Ascher and Pickering 2025).

**Notes:** *Anthophora subterranea* (Fig. 5) is a polytypic species that has numerous synonymes (e.g. *canescens* Brullé, *lanata* Klug, *laticincta* Dours, *nigrocincta* Lepeletier, *procera* Costa), but despite being relatively common, none of these names has been reported yet from Türkiye to the best of our knowledge. The single female was collected in Nur Mountains, at the border with Hatay province (Fig. 1d).

## ***Eucera parnassia* Pérez, 1902**

### **Material**

- a. country: Türkiye; stateProvince: Antalya; locality: İbradi; verbatimElevation: 956 m; decimalLatitude: 37.13349; decimalLongitude: 31.47374; eventDate: 4/23/2025; sex: 5

females; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 74231601-7183-5B50-AA70-5D689D99F435

**Distribution:** Southeastern Europe (Risch et al. 2025a), Western Asia (Khodaparast and Monfared 2013, Boustani et al. 2021).

**Notes:** *Eucera parnassia* (Fig. 6), already known from several surrounding countries (including from neighboring Aegean islands), was likely to occur in Türkiye as well. The five females were collected in a Brassicaceae-rich meadow in a valley near İbradi (Fig. 4b).

## *Eucera parvicornis* Mocsáry, 1878

### Material

- a. country: Türkiye; stateProvince: Mersin; locality: Geçimli; verbatimElevation: 1235 m; decimalLatitude: 36.80418; decimalLongitude: 33.32723; eventDate: 4/30/2025; sex: 1 female, 4 males; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 05C290D4-8BD1-5D34-AEF2-EA02AB205CA7

**Distribution:** Eastern and Southeastern Europe (Risch et al. 2025b), Western Asia (Ascher and Pickering 2025).

**Notes:** *Eucera parvicornis* (Fig. 7) belongs to the small subgenus *E. (Cubitalia)*, composed of eight species of which most are primarily distributed in Western Asia (Risch 1999, Aubert et al. 2024a). It is oligolectic on Boraginaceae with preference for *Anchusa*, and is considered "Near Threatened" in Europe (Risch et al. 2025b, Michez et al. 2026). This species, already known from surrounding countries (including from neighboring Aegean islands) was likely to occur in Türkiye as well.

## *Osmia jason* Benoist, 1929

### Materials

- a. country: Türkiye; stateProvince: Adana; locality: Örcün; verbatimElevation: 107 m; decimalLatitude: 37.12593; decimalLongitude: 35.28524; eventDate: 4/27/2025; sex: 4 females; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 9848EAE0-9035-56AF-A0D5-1DB80EDC704E
- b. country: Türkiye; stateProvince: Adana; locality: Sarıçam; verbatimElevation: 140 m; decimalLatitude: 37.07968; decimalLongitude: 35.36758; eventDate: 4/27/2025; sex: 1 female; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 38A7485A-D8FB-5DEB-8C92-3FF23893B9B5

**Distribution:** South-eastern Europe, Western Asia (Müller 2022).

**Notes:** *Osmia jason* (Fig. 8) belongs to the subgenus *O. (Neosmia)*, whose members build their nests in empty snail shells. Its complex nesting behavior was described by Grozdanić (1971). The five females were collected on flower-rich grasslands in orchards from two locations near Adana (e.g. Fig. 4c)

## Species threatened in neighboring regions

### *Ammobatoides abdominalis* (Eversmann, 1852)

#### Material

- a. country: Türkiye; stateProvince: Antalya; locality: Güzelyalı; verbatimElevation: 148 m; decimalLatitude: 36.89485; decimalLongitude: 31.53827; eventDate: 2/05/2025; sex: 1 male; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: DC437936-45C3-5738-AB2D-DA8135AAABA7

**Distribution:** From Central Europe to Western China and Southern Siberia (Wood and Patiny 2025).

**Notes:** *Ammobatoides abdominalis* (Fig. 9a) is considered Vulnerable in Europe (Michez et al. 2026). Three specimens of *Melitturga syriaca* Friese, a presumed host (Wood and Patiny 2025) were found at the same localion.

### *Lasioglossum laeve* (Kirby, 1802)

#### Material

- a. country: Türkiye; stateProvince: Osmaniye; locality: Dereobası; verbatimElevation: 1926 m; decimalLatitude: 36.96265; decimalLongitude: 36.36852; eventDate: 28/04/2025; sex: 1 female; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: FF77BFCF-1902-5E21-B6CE-C336AF16122C

**Distribution:** Europe, Western Asia (Flaminio et al. 2025).

**Notes:** *Lasioglossum laeve* (Fig. 9b) is considered Vulnerable in Europe (Michez et al. 2026).

## Other remarkable taxa

### *Andrena etesiaca* Warncke, 1975

#### Material

- a. country: Türkiye; stateProvince: Konya; locality: Ereğli; verbatimElevation: 1112 m; decimalLatitude: 37.61552; decimalLongitude: 34.24594; eventDate: 29/04/2025; sex: 1 female, 3 males; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: C58B6830-DB74-521D-BB3E-A050A59080B3

**Distribution:** Türkiye (Pisanty and Wood 2024).

**Notes:** *Andrena etesiaca* (Fig. 10) is closely related to *A. bassana* Warncke of which it was formerly considered as a subspecies, the two being the only representatives of the subgenus *A. (Vellandrena)* (Pisanty and Wood 2024). *A. etesiaca* seems to be restricted to central Türkiye, where it is known from a very limited number of specimens (Hazir et al. 2014, Pisanty and Wood 2024).

## ***Ceratina denesi* Terzo, 1998**

### **Material**

- a. country: Türkiye; stateProvince: Antalya; locality: Alaçeşme; verbatimElevation: 782 m; decimalLatitude: 36.97435; decimalLongitude: 31.73537; eventDate: 23/04/2025; sex: 4 males; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: A0D3829F-3C36-502D-9EEE-2987F2F83FCC

**Distribution:** Türkiye (Özbek and Terzo 2016).

**Notes:** *Ceratina denesi* (Fig. 11) was described based on a single male specimen collected in Silifke (Mersin province) in 1995 (Terzo 1998). Later, one specimen collected near Antalya in 2002 was putatively identified as the still undescribed female (Özbek and Terzo 2016). No other record of this species had been published since then. The size of the four specimens collected near Alaçeşme (Fig. 4d) is similar to *C. loewi* Gerstaecker and *C. cypriaca* Mavromoustakis, therefore larger than the holotype. However, the shape of tergum 7, the absence of concavity on apical half of the clypeus and overall blue coloration separate it from the two later species (Terzo 1998).

## ***Ceratina rasmonti* Terzo, 1998**

### **Materials**

- a. country: Türkiye; stateProvince: Antalya; locality: Beydiğin; verbatimElevation: 478 m; decimalLatitude: 37.01694; decimalLongitude: 31.39717; eventDate: 23/04/2025; sex: 1 female; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: 59AB6CE2-7933-55A1-8985-3411835F198B
- b. country: Türkiye; stateProvince: Antalya; locality: İbradi; verbatimElevation: 956 m; decimalLatitude: 37.13349; decimalLongitude: 31.47374; eventDate: 23/04/2025; sex: 1 female; recordedBy: G. Ghisbain, D. Michez & R. Santerre; occurrenceID: B47FDD63-18D5-517A-8B74-CFB90BC9C8DC

**Distribution:** Türkiye (Özbek and Terzo 2016).

**Notes:** *Ceratina rasmonti* (Fig. 12) was only known from the four females constituting the type serie, collected in Erçek and Ağrı in Eastern Türkiye, at an altitude of around 1,800 m (Terzo 1998, Özbek and Terzo 2016). The finding of this species in Southwestern Türkiye, at 478 m near Beydiğin (Fig. 1a) and 956 m near İbradi (Fig. 4 b), was therefore unexpected.

The new specimens have the tibiae less extensively white-marked than the type specimens collected in eastern Türkiye (Fig. 13), and have been first misidentified as *C. dallatorreana* Friese, a related and much more common species.

The two species could be distinguished only after a second careful examination, *C. rasmonti* having sparser punctation on scutum and between ocelli, depressed ocello-occipital area, carinate occipital margin (Figs 13, 14) and less developed wax glands on sternum 3 than *C. dallatorreana* (Fig. 15) (Terzo 1998).

This suggests that this presumably rare species might be underrecorded due to the difficulty in detecting it among series of *C. dallatorreana*.

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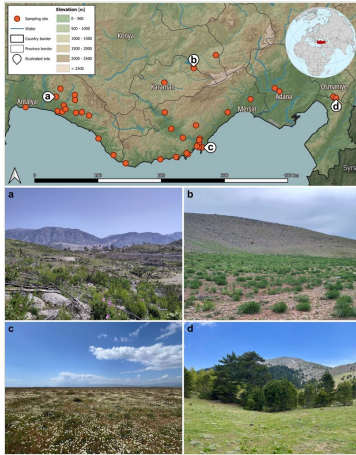


Figure 1.

Map of the sites where sampling was carried on. **a**: Mediterranean shrubland near Beydiğın (Antalya province). **b**: Steppe near Böğecik (Karaman province). **c**: Halophilic grassland near Sökün (Mersin province). **d**: Subalpine grassland in Nur Mountains (Osmaniye province). Photo credit D. Michez (a, b) & G. Ghisbain (c, d). Map compiled by J. Benrezkallah using QGIS v3.40. Boundaries: JRC (Urbano 2018). Topography: SRTM 90m (Reuter et al. 2007). Hydrography: Copernicus (European Union's Copernicus Land Monitoring Service information 2020); HDX (Humanitarian Data Exchange 2025). Projection: TUREF / TM33 (EPSG:5255).

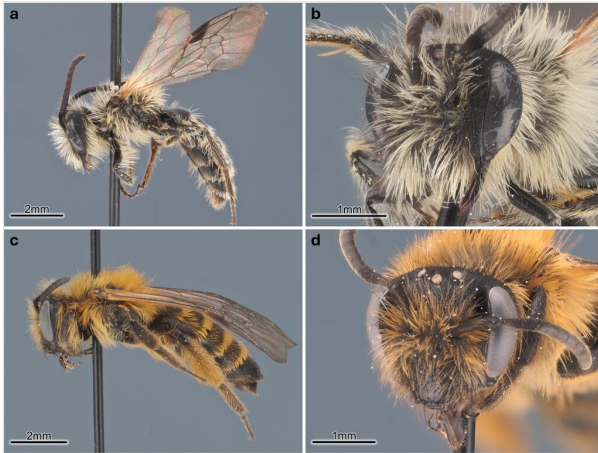


Figure 2.

*Andrena igraeca*. **a** Habitus ♂, lateral view; **b** Head ♂, oblique view; **c** Habitus ♀, lateral view; **d** Head ♀, oblique view. Photo credit R. Santerre.

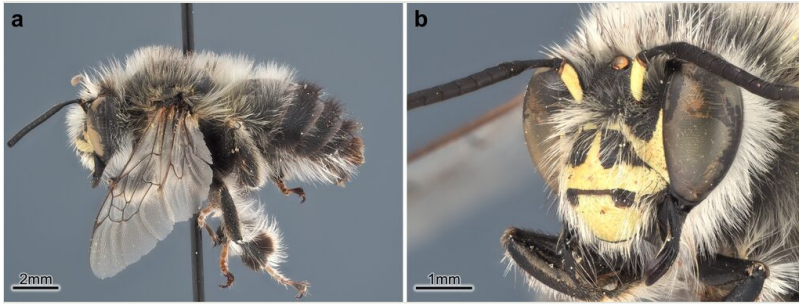


Figure 3.

*Anthophora dalmatica* ♂. **a** Habitus, lateral view; **b** Head, oblique view. Photo credit R. Santerre.

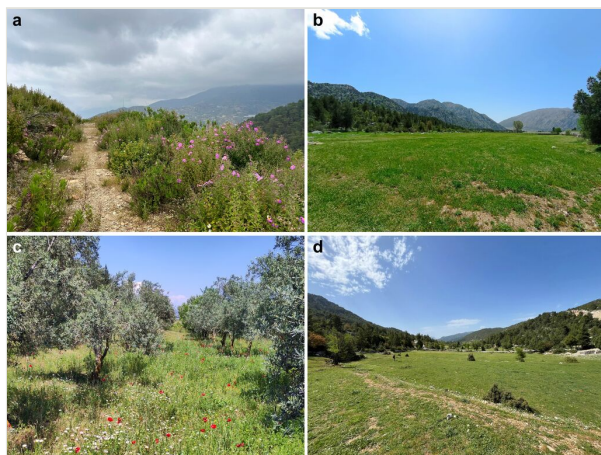


Figure 4.

Sampling sites. **a** Shrubland dominated by *Cistus* sp. near Anamur (Mersin province); **b** Meadow near İbradi (Antalya province); **c** Orchard near Adana (Adana province); **d** Meadow near Alaçesme (Antalya province). Photo credit G. Ghisbain (a, d), R. Santerre (b) & D. Michez (c).

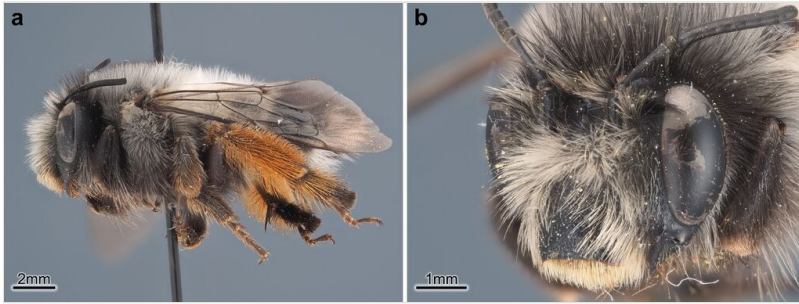


Figure 5.  
*Anthophora subterranea* ♀. **a** Habitus, lateral view; **b** Head, oblique view. Photo credit R. Santerre.

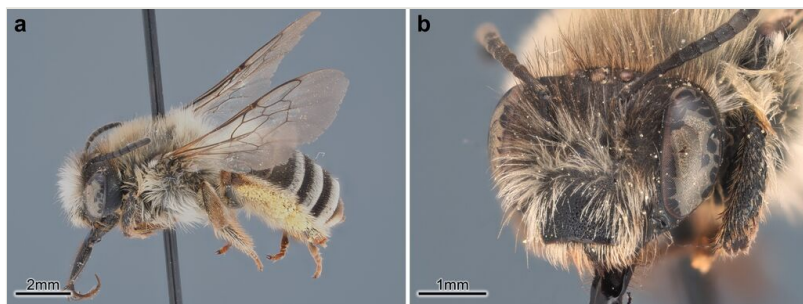


Figure 6.

*Eucera parnassia* ♀. **a** Habitus, lateral view; **b** Head, oblique view. Photo credit R. Santerre.

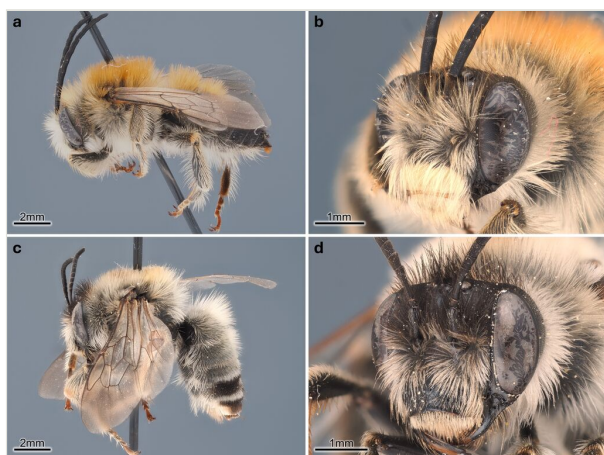


Figure 7.

*Eucera parvicornis*. **a** Habitus ♂, lateral view; **b** Head ♂, oblique view; **c** Habitus ♀, lateral view; **d** Head ♀, oblique view. Photo credit R. Santerre.

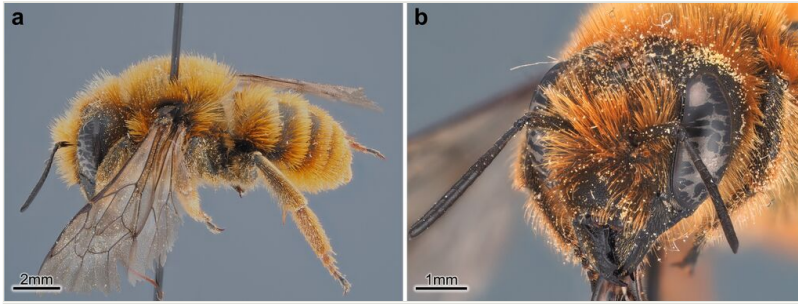


Figure 8.  
*Osmia jason* ♀. **a** Habitus, lateral view; **b** Head, oblique view. Photo credit R. Santerre.

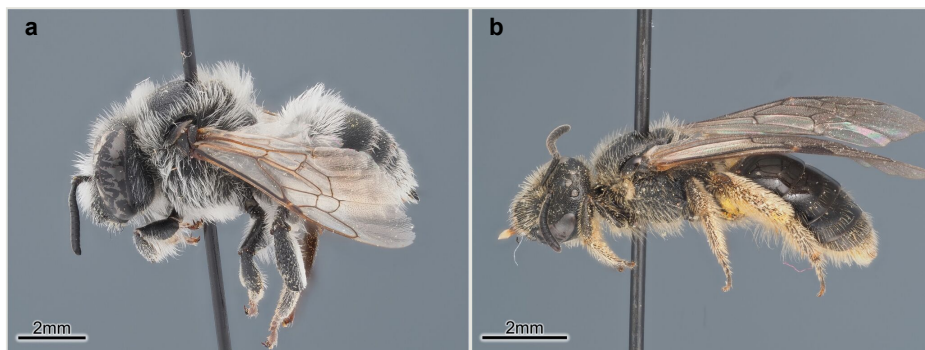


Figure 9.

Species considered threatened in Europe.

**a:** *Ammobatoides abdominalis* ♂ habitus, lateral view. Photo credit R. Santerre.

**b:** *Lasioglossum laeve* ♀ habitus, lateral view. Photo credit R. Santerre.



Figure 10.

*Andrena etesiaca*. **a** Habitus ♂, lateral view; **b** Head ♂, oblique view. **c**: Habitus ♀, lateral view. **d**: Head ♀, oblique view. Photo credit R. Santerre.

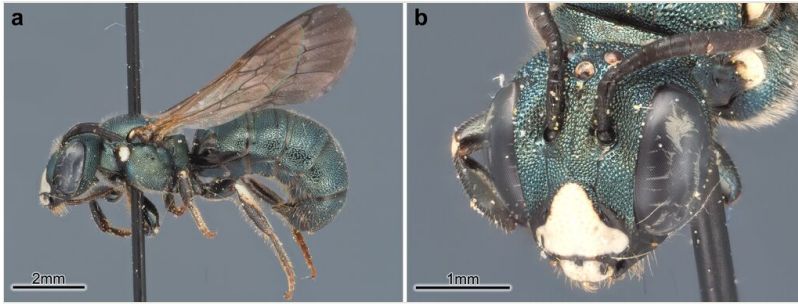


Figure 11.

*Ceratina denesi* ♂. **a** Habitus, lateral view. **b** Head, oblique view. Photo credit R. Santerre.

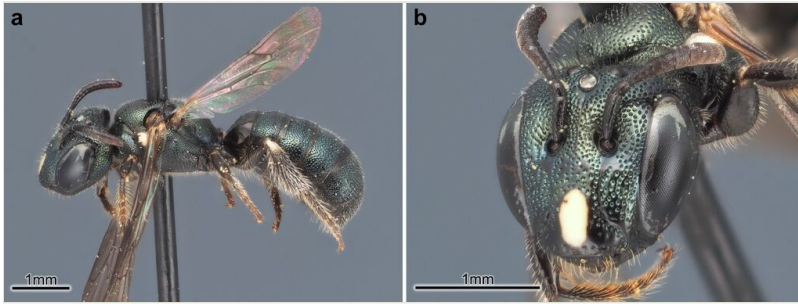


Figure 12.

*Ceratina rasmonti* ♀. **a** Habitus, lateral view; **b** Head, oblique view. Photo credit R. Santerre.

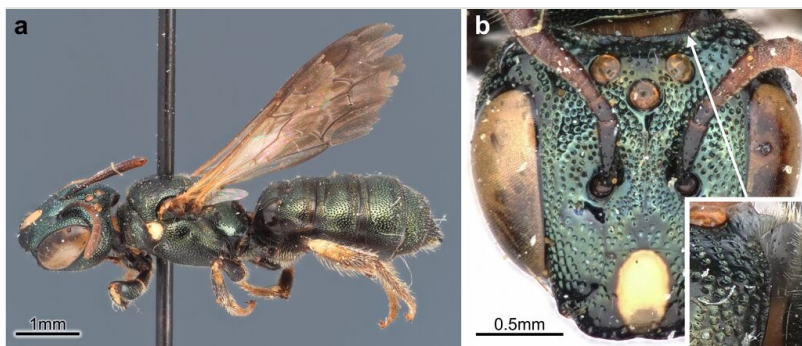


Figure 13.

Paratype of *Ceratina rasmonti* ♀. **a** Habitus, lateral view; **b** Head in front view, with close up on the occipital margin in lateral view. Photo credit R. Santerre.

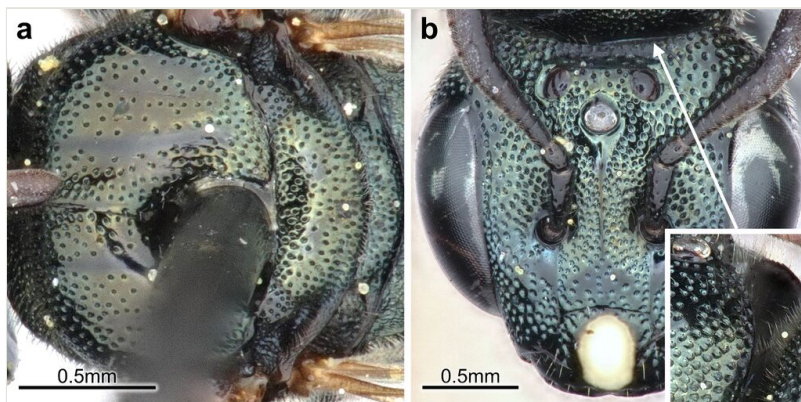


Figure 14.

*Ceratina rasmonti* ♀. **a** Scutum; **b** Head in front view, with close up on the occipital margin in lateral view. Photo credit R. Santerre.

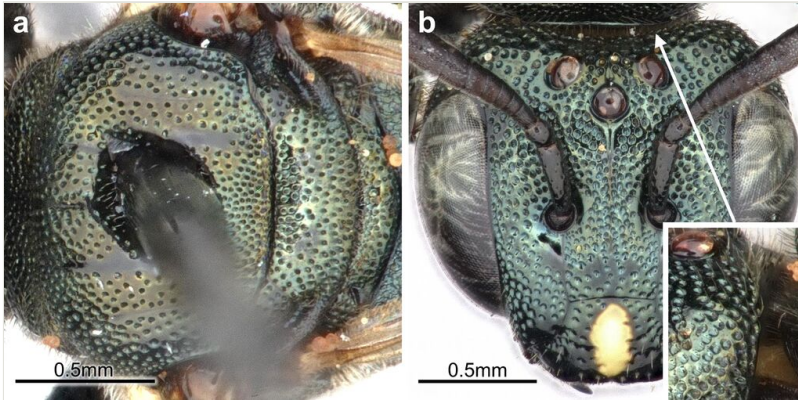


Figure 15.

*Ceratina dallatorreana* ♀. **a** Scutum; **b** Head in front view, with close up on the occipital margin in lateral view. Photo credit R. Santerre.

Table 1.

Summary list of the taxa and number of specimens collected. The nomenclature used follows that of Ghisbain et al. (2025) for the taxa that are shared with Europe, and the most recent expert-based knowledge for non-European species (marked by \*).

| Family                         | Genus          | Species                               | Number of specimens |
|--------------------------------|----------------|---------------------------------------|---------------------|
| Andrenidae                     | <i>Andrena</i> | <i>abbreviata</i> Dours, 1873         | 14                  |
|                                |                | <i>afzeliella</i> (Kirby, 1802)       | 1                   |
|                                |                | cf. <i>alfkenella</i> Perkins, 1914   | 8                   |
|                                |                | <i>alfkenelloides</i> Warncke, 1965   | 3                   |
|                                |                | <i>bisulcata</i> Morawitz, 1877       | 2                   |
|                                |                | <i>brumanensis</i> Friese, 1899       | 13                  |
|                                |                | <i>canohirta</i> (Friese, 1923)       | 1                   |
|                                |                | <i>cinnamonea</i> Warncke, 1975 *     | 1                   |
|                                |                | <i>combinata</i> (Christ, 1791)       | 6                   |
|                                |                | <i>cypria</i> Pittioni, 1950          | 1                   |
|                                |                | <i>etesiaca</i> Warncke, 1975 *       | 4                   |
|                                |                | <i>exquisita</i> Warncke, 1975        | 11                  |
|                                |                | <i>ferox</i> Smith, 1847              | 2                   |
|                                |                | <i>flavipes</i> Panzer, 1799          | 122                 |
|                                |                | <i>floricola</i> Eversmann, 1852      | 11                  |
|                                |                | <i>fulvitaris</i> Brullé, 1832        | 2                   |
|                                |                | <i>fuscosa</i> Erichson, 1835         | 2                   |
|                                |                | <i>gallinula</i> Warncke, 1975 *      | 50                  |
|                                |                | <i>glandaria</i> Warncke, 1975        | 39                  |
|                                |                | <i>helvola</i> (Linnaeus, 1758)       | 1                   |
|                                |                | <i>humilis</i> Imhoff, 1832           | 5                   |
|                                |                | <i>igraeca</i> Pisanty & Wood, 2022 * | 13                  |
|                                |                | <i>impunctata</i> Pérez, 1895         | 1                   |
| <i>kurda</i> Warncke, 1975 *   | 14             |                                       |                     |
| <i>labialis</i> (Kirby, 1802)  | 1              |                                       |                     |
| <i>labiata</i> Fabricius, 1781 | 5              |                                       |                     |
| <i>lamiana</i> Warncke, 1965   | 3              |                                       |                     |

|   |    |
|---|----|
| <i>lepida</i> Schenck, 1861             | 6  |
| <i>limata</i> Smith, 1853               | 1  |
| <i>magunta</i> Warncke, 1965            | 1  |
| <i>merula</i> Warncke, 1969             | 3  |
| <i>minutula</i> (Kirby, 1802)           | 3  |
| <i>monacha</i> Warncke, 1965            | 12 |
| <i>morio</i> Brullé, 1832               | 1  |
| <i>neocyprica</i> Mavromoustakis, 1956  | 10 |
| <i>nigroaenea</i> (Kirby, 1802)         | 6  |
| <i>optata</i> Warncke, 1975             | 7  |
| <i>paradoxa</i> Friese, 1921 *          | 10 |
| <i>pareklisiae</i> Mavromoustakis, 1957 | 3  |
| <i>pilipes</i> Fabricius, 1781          | 9  |
| <i>pulicaria</i> Warncke, 1975 *        | 21 |
| <i>pyropygia</i> Kriechbaumer, 1873     | 3  |
| <i>rotundilabris</i> Morawitz, 1878     | 10 |
| <i>rugothorace</i> Warncke, 1965        | 23 |
| <i>rugulosa</i> Stöckert, 1935          | 1  |
| <i>rusticola</i> Warncke, 1975 *        | 5  |
| <i>schlettereri</i> Friese, 1896        | 9  |
| <i>schmiedeknechti</i> Magretti, 1883   | 1  |
| <i>semirubra</i> Morawitz, 1876         | 1  |
| <i>sillata</i> Warncke, 1975            | 1  |
| <i>spreta</i> Pérez, 1895               | 90 |
| <i>taedium</i> Wood, 2023               | 7  |
| aff. <i>taraxaci</i> Giraud, 1861       | 31 |
| <i>toelgiana</i> Friese, 1921 *         | 2  |
| <i>tringa</i> Warncke, 1973             | 2  |
| <i>truncatilabris</i> Morawitz, 1877    | 2  |
| <i>tscheki</i> Morawitz, 1872           | 1  |
| aff. <i>unicincta</i> Friese, 1899 *    | 2  |

|                             |                      |  |    |
|-----------------------------|----------------------|--|----|
|                             |                      | <i>ventricosa</i> Dours, 1873            | 1  |
|                             |                      | <i>vetula</i> Lepeletier, 1841           | 1  |
|                             |                      | <i>viridescens</i> Viereck, 1916         | 6  |
|                             |                      | <i>volka</i> Warncke, 1969 *             | 1  |
|                             |                      | <i>wilhelmi</i> Schubert, 1995           | 5  |
|                             |                      | spp.                                     | 26 |
|                             | <i>Camptopoeum</i>   | <i>variegatum</i> (Morawitz, 1876)       | 4  |
|                             | <i>Melitturga</i>    | <i>syriaca</i> Friese, 1899              | 13 |
|                             | <i>Panurginus</i>    | <i>corpanus</i> (Warncke, 1972)          | 9  |
|                             | <i>Panurgus</i>      | <i>oblitus</i> Warncke, 1972             | 10 |
| Apidae                      | <i>Amegilla</i>      | <i>albigena</i> (Lepeletier, 1841)       | 2  |
|                             |                      | <i>quadrifasciata</i> (de Villers, 1789) | 5  |
|                             |                      | spp.                                     | 7  |
|                             | <i>Ammobatooides</i> | <i>abdominalis</i> (Eversmann, 1852)     | 1  |
|                             | <i>Anthophora</i>    | <i>agama</i> Radoszkowski, 1869          | 14 |
|                             |                      | <i>crinipes</i> Smith, 1854              | 54 |
|                             |                      | <i>dalmatica</i> Pérez, 1902             | 2  |
|                             |                      | <i>nigriceps</i> Morawitz, 1886          | 5  |
|                             |                      | cf. <i>plumipes</i> (Pallas, 1772)       | 23 |
|                             |                      | <i>rogenhoferi</i> Morawitz, 1872        | 13 |
|                             |                      | <i>rubricrus</i> Dours, 1869 *           | 1  |
|                             |                      | <i>subterranea</i> (Germar, 1826)        | 1  |
|                             |                      | spp.                                     | 5  |
|                             | <i>Bombus</i>        | <i>hortorum</i> (Linnaeus, 1761)         | 1  |
|                             |                      | gr. <i>terrestris</i> (Linnaeus, 1758)   | 43 |
|                             | <i>Ceratina</i>      | <i>bifida</i> Friese, 1900 *             | 2  |
|                             |                      | <i>bispinosa</i> Handlirsch, 1889        | 4  |
|                             |                      | <i>chrysomalla</i> Gerstaecker, 1869     | 3  |
|                             |                      | <i>cucurbitina</i> (Rossi, 1792)         | 2  |
|                             |                      | <i>dallatorreana</i> Friese, 1896        | 3  |
| <i>denesi</i> Terzo, 1998 * |                      | 4  |    |

|                     |   |    |
|---------------------|---|----|
|                     | <i>mandibularis</i> Friese, 1896        | 20 |
|                     | <i>moricei</i> Friese, 1899             | 3  |
|                     | <i>nigroaenea</i> Gerstaecker, 1869     | 5  |
|                     | <i>rasmonti</i> Friese, 1899 *          | 2  |
|                     | <i>schwarzi</i> Kocourek, 1998          | 2  |
| <i>Eucera</i>       | <i>albofasciata</i> Friese, 1895        | 12 |
|                     | <i>caerulescens</i> Friese, 1899        | 2  |
|                     | <i>cypria</i> Alfken, 1933              | 1  |
|                     | <i>dafnii</i> Dorchin, 2019             | 1  |
|                     | <i>dalmatica</i> Lepeletier, 1841       | 1  |
|                     | <i>digitata</i> Friese, 1896            | 24 |
|                     | <i>dimidiata</i> Brullé, 1832           | 2  |
|                     | <i>gaullei</i> Vachal, 1907             | 28 |
|                     | <i>kullenbergi</i> Tkalčú, 1978         | 5  |
|                     | <i>laxiscopa</i> Alfken, 1935           | 9  |
|                     | <i>mediterranea</i> Friese, 1896        | 2  |
|                     | <i>nigrescens</i> Pérez, 1879           | 3  |
|                     | <i>nigrilabris</i> Lepeletier, 1841     | 26 |
|                     | <i>pamassia</i> Pérez, 1902             | 5  |
|                     | <i>parvicornis</i> Mocsáry, 1878        | 5  |
|                     | <i>plumigera</i> (Kohl, 1905)           | 22 |
|                     | <i>pseudeucnemidea</i> Risch, 1997      | 5  |
|                     | <i>punctulata</i> Alfken, 1942          | 9  |
|                     | <i>seminuda</i> Brullé, 1832            | 4  |
|                     | <i>tricincta</i> Erichson, 1835         | 10 |
|                     | <i>vulpes</i> Brullé, 1832              | 11 |
|                     | spp.                                    | 21 |
| <i>Eupavlovskia</i> | <i>obscura</i> (Friese, 1895)           | 1  |
| <i>Habropoda</i>    | <i>tarsata</i> (Spinola, 1838)          | 4  |
| <i>Nomada</i>       | <i>basalis</i> Herrich-Schäffer, 1839   | 2  |
|                     | <i>cherkesiana</i> Mavromoustakis, 1955 | 1  |

|            |                 |   |    |
|------------|-----------------|---|----|
|            |                 | <i>flavoguttata</i> (Kirby, 1802)                   | 3  |
|            |                 | <i>fucata</i> Panzer, 1798                          | 2  |
|            |                 | <i>furvoides</i> Stöckhert, 1943                    | 1  |
|            |                 | <i>goodeniana</i> (Kirby, 1802)                     | 6  |
|            |                 | <i>guttulata</i> Schenck, 1861                      | 1  |
|            |                 | <i>lucidula</i> Schwarz, 1967                       | 1  |
|            |                 | <i>mutica</i> Morawitz, 1872                        | 1  |
|            |                 | <i>nobilis</i> Herrich-Schäffer, 1839               | 1  |
|            |                 | <i>pallispinosa</i> Schwarz, 1967                   | 1  |
|            |                 | <i>panzeri</i> Lepeletier, 1841                     | 9  |
|            |                 | <i>radoszkowskii</i> Łoziński, 1922                 | 5  |
|            |                 | <i>schmidti</i> Schwarz, Smit & Ockermüller, 2020 * | 4  |
|            |                 | aff. <i>sheppardana</i> (Kirby, 1802)               | 4  |
|            |                 | <i>striata</i> Fabricius, 1793                      | 2  |
|            | <i>Xylocopa</i> | <i>iris</i> (Christ, 1791)                          | 6  |
|            |                 | <i>pubescens</i> Spinola, 1838                      | 17 |
|            |                 | <i>violacea</i> (Linnaeus, 1758)                    | 10 |
| Colletidae | <i>Colletes</i> | <i>cariniger</i> Pérez, 1903                        | 2  |
|            |                 | <i>mlokossewiczii</i> Radoszkowski, 1891            | 2  |
|            |                 | <i>similis</i> Schenck, 1853                        | 1  |
|            | <i>Hylaeus</i>  | <i>brevicornis</i> Nylander, 1852                   | 1  |
|            |                 | <i>communis</i> Nylander, 1852                      | 1  |
|            |                 | <i>cornutus</i> Curtis, 1831                        | 2  |
|            |                 | <i>damascenus</i> (Magretti, 1890) *                | 3  |
|            |                 | <i>imparilis</i> Förster, 1871                      | 5  |
|            |                 | <i>incongruus</i> Förster, 1871                     | 26 |
|            |                 | <i>intermedius</i> Förster, 1871                    | 1  |
|            |                 | <i>leptocephalus</i> (Morawitz, 1870)               | 1  |
|            |                 | <i>lineolatus</i> (Schenck, 1861)                   | 1  |
|            |                 | <i>orientalicus</i> (Warncke, 1981)                 | 1  |
|            |                 | <i>punctatus</i> (Brullé, 1832)                     | 12 |

|                                    |   |  |                                    |   |
|------------------------------------|---|--|------------------------------------|---|
|                                    |   | <i>sidensis</i> (Warncke, 1981)        | 1                                  |   |
|                                    |   | <i>stellatus</i> (Warncke, 1992)       | 5                                  |   |
|                                    |   | <i>taeniolatus</i> Förster, 1871       | 5                                  |   |
|                                    |   | <i>trinotatus</i> (Pérez, 1895)        | 3                                  |   |
|                                    |   | <i>variegatus</i> (Fabricius, 1798)    | 1                                  |   |
| Halictidae                         | <i>Ceylalictus</i>                      | <i>variegatus</i> (Olivier, 1789)      | 9                                  |   |
|                                    | <i>Dufourea</i>                         | <i>cypria</i> Mavromoustakis, 1952     | 2                                  |   |
|                                    | <i>Halictus</i>                         | <i>cochlearitarsis</i> (Dours, 1872)   | 4                                  |   |
|                                    |   | <i>graecus</i> Blüthgen, 1933          | 2                                  |   |
|                                    |   | <i>quadricinctus</i> (Fabricius, 1777) | 1                                  |   |
|                                    |   | <i>resurgens</i> Nurse, 1903           | 16                                 |   |
|                                    |   | <i>sexcinctus</i> (Fabricius, 1775)    | 4                                  |   |
|                                    |   | <i>tetrazonianellus</i> Strand, 1909   | 7                                  |   |
|                                    |   | spp.                                   | 29                                 |   |
|                                    |   | <i>Lasioglossum</i>                    | <i>adaliae</i> (Blüthgen 1923) *   | 1 |
|                                    |   |  | <i>aegyptiellum</i> (Strand, 1909) | 3 |
|                                    | <i>aeratum</i> (Kirby, 1802)            |  | 1                                  |   |
|                                    | <i>bicallosum</i> (Morawitz, 1873)      |  | 2                                  |   |
|                                    | <i>bluethgeni</i> Ebmer, 1971           |  | 2                                  |   |
|                                    | <i>calceatum</i> (Scopoli, 1763)        |  | 7                                  |   |
|                                    | <i>clypeiferellum</i> (Strand, 1909)    |  | 1                                  |   |
|                                    | <i>cristula</i> (Pérez, 1896)           |  | 2                                  |   |
|                                    | <i>damascenum</i> (Pérez, 1910)         |  | 1                                  |   |
|                                    | <i>dolichocephalum</i> (Blüthgen, 1923) |  | 5                                  |   |
|                                    | <i>fallax</i> (Morawitz, 1874)          |  | 1                                  |   |
| <i>interruptum</i> (Panzer, 1798)  | 4                                       |  |                                    |   |
| <i>laeve</i> (Kirby, 1802)         | 1                                       |  |                                    |   |
| <i>laevigatum</i> (Kirby, 1802)    | 5                                       |  |                                    |   |
| <i>laticeps</i> (Schenck, 1870)    | 3                                       |  |                                    |   |
| <i>lativentre</i> (Schenck, 1853)  | 1                                       |  |                                    |   |
| <i>leucozonium</i> (Schränk, 1781) | 30                                      |  |                                    |   |

|              |                        |  |     |
|--------------|------------------------|--|-----|
|              |                        | <i>lineare</i> (Schenck, 1870)         | 14  |
|              |                        | <i>littorale</i> (Blüthgen, 1924)      | 19  |
|              |                        | <i>malachurum</i> (Kirby, 1802)        | 26  |
|              |                        | <i>marginatum</i> (Brullé, 1832)       | 223 |
|              |                        | <i>montifringillum</i> Warncke 1984 *  | 2   |
|              |                        | <i>obscuratum</i> (Morawitz, 1876)     | 2   |
|              |                        | <i>pallens</i> (Brullé, 1832)          | 1   |
|              |                        | <i>parvulum</i> (Schenck, 1853)        | 1   |
|              |                        | <i>pauperatum</i> (Brullé, 1832)       | 7   |
|              |                        | <i>pauxillum</i> (Schenck, 1853)       | 1   |
|              |                        | <i>pseudocaspicum</i> (Blüthgen, 1923) | 1   |
|              |                        | <i>pygmaeum</i> (Schenck, 1853)        | 2   |
|              |                        | <i>rupestre</i> (Warncke 1984) *       | 1   |
|              |                        | <i>tadschicum</i> (Blüthgen 1929) *    | 4   |
|              |                        | <i>transitorium</i> (Schenck, 1870)    | 6   |
|              |                        | <i>tricinctum</i> Ebmer 1972           | 8   |
|              |                        | <i>villosulum</i> (Kirby, 1802)        | 2   |
|              |                        | <i>xanthopus</i> (Kirby, 1802)         | 17  |
|              |                        | spp.                                   | 12  |
|              | <i>Nomiapis</i>        | <i>diversipes</i> (Latreille, 1806)    | 4   |
|              |                        | <i>monstrosa</i> (Costa, 1861)         | 2   |
|              | <i>Rophites</i>        | <i>nigripes</i> Friese 1902 *          | 3   |
|              | <i>Seladonia</i>       | <i>cephalica</i> (Morawitz, 1874)      | 3   |
|              |                        | <i>subaurata</i> (Rossi, 1792)         | 1   |
|              |                        | sp.                                    | 1   |
|              | <i>Sphecodes</i>       | <i>barbatus</i> Blüthgen, 1923         | 2   |
|              |                        | <i>monilicornis</i> (Kirby, 1802)      | 2   |
|              |                        | cf. <i>nomioidis</i> Pesenko, 1979     | 4   |
|              |                        | <i>zangherii</i> Noskiewicz, 1931      | 1   |
|              | <i>Thrincohalictus</i> | <i>prognatus</i> (Pérez, 1912)         | 2   |
| Megachilidae | <i>Anthidiellum</i>    | <i>strigatum</i> (Panzer, 1805)        | 4   |

|                            |  |    |
|----------------------------|--|----|
| <i>Anthidium</i>           | <i>cingulatum</i> Latreille, 1809          | 1  |
| <i>Chelostoma</i>          | <i>emarginatum</i> (Nylander, 1856)        | 2  |
|                            | <i>longifacies</i> Müller, 2012            | 5  |
|                            | <i>rapunculi</i> (Lepeletier, 1841)        | 1  |
|                            | sp.  | 11 |
| <i>Coelioxys</i>           | <i>afar</i> Lepeletier, 1841               | 1  |
|                            | <i>haemorrhoea</i> Förster, 1853           | 1  |
| <i>Heriades</i>            | <i>rubicola</i> Pérez, 1890                | 28 |
| <i>Hoplitis</i>            | <i>acuticornis</i> (Dufour & Perris, 1840) | 2  |
|                            | <i>annulata</i> (Latreille, 1811)          | 5  |
|                            | <i>antalyae</i> Tkalčú, 2000               | 6  |
|                            | cf. <i>corcyraea</i> (Tkalčú, 1979)        | 8  |
|                            | <i>limassolica</i> (Mavromoustakis, 1937)  | 9  |
|                            | <i>lysholmi</i> (Friese, 1899)             | 1  |
|                            | <i>pallicornis</i> (Friese, 1895)          | 12 |
|                            | <i>yemasoyiae</i> (Mavromoustakis, 1938)   | 11 |
| <i>Megachile</i>           | <i>lefebvrei</i> (Lepeletier, 1841)        | 1  |
|                            | <i>manicata</i> Giraud, 1861               | 1  |
|                            | <i>montenegrensis</i> Dours, 1873          | 4  |
|                            | <i>parietina</i> (Geoffroy, 1785)          | 2  |
| <i>Osmia</i>               | <i>andrenoides</i> Spinola, 1808           | 1  |
|                            | <i>bicornis</i> (Linnaeus, 1758)           | 5  |
|                            | <i>brevicornis</i> (Fabricius, 1798)       | 1  |
|                            | <i>caerulescens</i> (Linnaeus, 1758)       | 7  |
|                            | <i>cephalotes</i> Morawitz, 1870           | 1  |
|                            | <i>erythrogastra</i> Ferton, 1905          | 2  |
|                            | <i>hellados</i> van der Zanden, 1984       | 5  |
|                            | <i>jason</i> Benoist, 1929                 | 5  |
|                            | <i>ligurica</i> Morawitz, 1868             | 8  |
|                            | <i>mustelina</i> Gerstaecker, 1869         | 1  |
| <i>nana</i> Morawitz, 1873 | 4  |    |

|            |                        |   |      |
|------------|------------------------|---|------|
|            |                        | <i>rhodoensis</i> (van der Zanden, 1983)          | 3    |
|            |                        | <i>rufohirta</i> Latreille, 1811                  | 3    |
|            |                        | <i>scutellaris</i> Morawitz, 1868                 | 12   |
|            |                        | <i>spinigera</i> Latreille, 1811                  | 1    |
|            |                        | <i>subcornuta</i> Morawitz, 1875                  | 1    |
|            |                        | <i>submicans</i> Morawitz, 1870                   | 1    |
|            |                        | <i>sybarita</i> Smith, 1853                       | 3    |
|            |                        | <i>versicolor</i> Latreille, 1811                 | 2    |
|            |                        | <i>viridana</i> Morawitz, 1874                    | 2    |
|            | <i>Protosmia</i>       | <i>longiceps</i> (Friese, 1899)                   | 4    |
|            |                        | <i>tiflensis</i> (Morawitz, 1876)                 | 1    |
|            | <i>Pseudoanthidium</i> | <i>cribratum</i> (Morawitz, 1875) *               | 1    |
|            | <i>Rhodanthidium</i>   | <i>septemdentatum</i> (Latreille, 1809)           | 9    |
|            | <i>Stelis</i>          | <i>minuta</i> Lepeletier & Audinet-Serville, 1825 | 1    |
|            |                        | <i>nasuta</i> (Latreille, 1809)                   | 1    |
|            |                        | <i>signata</i> (Latreille, 1809)                  | 1    |
|            | <i>Stenoheriades</i>   | <i>coelostoma</i> (Benoist, 1935)                 | 28   |
| Melittidae | <i>Dasyroda</i>        | <i>tubera</i> Warncke, 1973 *                     | 35   |
| Total      |                        |   | 2070 |

## Supplementary material

### Suppl. material 1: Wild bees collected in southern Türkiye in spring 2025

**Authors:** Rémi Santerre, Jordan Benrezkallah

**Data type:** occurrences

**Brief description:** The dataset provides spatio-temporal information for 2,070 bee specimens (Anthophila) collected in southern Türkiye, during a field expedition carried out from 2025-04-23 to 2025-05-02.

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