

## Bees of Anthophorini (Hymenoptera: Apoidea, Anthophoridae) from Eastern Turkey

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### S u m m a r y

Eighteen species of *Anthophora*, three species of *Ameqilla* two species each of the genera *Paramegilla* and *Habropoda* were recorded in eastern Anatolia. *Anthophora eastivalis* (Pz.), *A. atroalba* Lep., *A. borealis* Mor., *A. parietina* (F.), *A. retusa* (L.), and *A. robusta* Klug are common and frequent species in the study area.

*Anthophora acervorum* (L.), and *A. orientalis* Mor. are pollinators of some fruit trees. *A. aestivalis* (Pz.), *A. atroalba*, *A. parietina*, and *A. retusa* are important in the pollination of *Medicago sativa* L., *Onobrychis sativa* Lam., *Trifolium pratense* L., and *T. repens* L.

### Introduction

The family Anthophoridae is a large, somewhat heterogeneous and one of the most advanced groups of the Apoidea. Moderate to large-sized bees, most of them are fast-flying, therefore are very effective in the pollination of some plants.

The anthophorid fauna of Turkey has not been studied accurately so far. Özbek (1983) previously recorded 26 species of *Tetralonia* and 18 species of *Eucera* in eastern Turkey. In a other study Özbek (1980) also indicated the anthophorid bees pollinating red clover in eastern Anatolia.

The anthophorid fauna of Turkey has not been studied accurately so course of 9 years in Erzurum, Erzincan, Kars, Muş, Bitlis and Van provin-

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ces. The species in the list are arranged in alphabetical order within the genera.

## Results

*Anthophora acervorum* (L.): In April and May some specimens were collected on *Prunus armeniaca*, *P. domestica*, *Malus domestica* and *Salix* sp. in Olur and Tortum (Erzurum) other than those 2 ♀♀ 7.V.1976 Erzurum plain. It helps the pollination of these plants.

*Anthophora aestivalis* (Pz.): A frequent species; the most common of all the *Anthophora*, flies from the end of May to the end of August. It visits flowers of *Onobrychis sativa*, *Medicago sativa* and *Trifolium pratense*, a good pollinator for them.

*Anthophora agama* Rad.: 1 ♀ 6.VI.1972 Horasan (Erzurum), 1 ♀ 15.VII.1982 Dedek, Kemah (Erzincan), 5 ♀♀ 17.VII.1982 Alp, Kemah, 6 ♀♀ 7.VII.1982 Cevizli, Erzincan, *Arctium lappa*, *Cirsium* sp., *Salvia* sp.

*Anthophora atroalba* Lep.: Common on the fields of *O. sativa* and *M. sativa*, important in the pollination of them. The population is lower than *A. aestivalis*. It visits flowers of *Traxacum officinale* and *Anchusa* sp..

*Anthophora biciliata* Lep.: 20 ♂♂ 14.VI.1974 Erzurum *Onobrychis sativa*, 2 ♂♂ 20.VI.1974 Erzurum, *O. sativa*, 2 ♂♂ 26.VI.1973 *O. sativa*, 1 ♀ 26.VI.1980 Akdağ (Erzurum) 1 ♀ 29.VI.1980 Yazıören Tercan (Erzincan), 1 ♀ 29.VI.1980 Uzunoluk, Oltu (Erzurum), *Cirsium* sp..

*Anthophora borealis* Mor.: It is quite common on the flowers of *Centaurea* sp. at the farm of Agriculture Faculty in Erzurum in July and August.

*Anthophora caucasicus* Rad.: 2 ♂♂ 15.VI.1967 Erzurum, *Lamium album*, 1 ♂ 25.VI.1966 Oltu (Erzurum), *Salvia* sp., 1 ♂ 25.VI.1971 Erzurum.

*Anthophora crassipes* L.: 1 ♀ 16.VII.1976 Erzurum, 1 ♀ 27.VII.1978 Korkarsu (Bitlis) *Cirsium* sp..

*Anthophora crinipes* Sm.: 6 ♂♂ 1.VI.1972 Muş *Lepidium* sp., *Lonicera* sp., 1 ♂ 8.VI.1976 Erzurum, *Ajuca* sp..

*Anthophora fulvitaris* Brulle: 4 ♂♂ 1.VI.1972 Muş, *Malvea* sp., and *Lepidium* sp., 8 ♂♂ 4 ♀♀ 25.VI.1972 Tortum (Erzurum), *Salvia* sp., and *Cirsium* sp..

*Anthophora furcata* (Pz.): 5 ♀♀ 5.VIII.1977 Oltu (Erzurum), *Cirsium* sp., and *Arctium lappa*.

*Anthophora mucida* Grib.: 2 ♂♂ 31.V.1972 Erzurum, *Anchusa* sp., 1 ♂ 9.VI.1980 Nebihanları (Erzurum), 1 ♀ 23.VI.1974 Erzurum *Onobrychis sativa*, 1 ♀ 6.VII.1972 Karakoç, Hasankale (Erzurum).

*Anthophora orientalis* Mor.: 1 ♂ 30.IV.1974 Kağızman (Kars), *Prunus domestica*, 1 ♂ 9.V.1974 Akşar, Şenkaya (Erzurum), *Salix* sp., 10 ♂♂ 20.VI.1972 Başaklı, Oltu (Erzurum) *Salix* sp., 8 ♂♂ 25.V.1972 Tortum *Prunus armeniaca*, *P. cerasus*. Presumably it helps the pollination of above mentioned plants.

*Anthophora parietina* (F.): It is a common species in Erzurum and Kars provinces. It flies from the beginning of June to the end of July and visits *Onobrychis sativa*, *Trifolium pratense* and *T. repens* as cultural plants. Other than that it visits *Anchusa* sp., *Echium vulgare*, *Lamium album*, *Salvia* sp. and *Sinapis arvensis*.

*Anthophora pedata* Eversman.: 1 ♀ 25.V.1974 Erzurum, 3 ♀♀ 9.VI.1980 Nebihanları (Erzurum), 1 ♀ 17.VI.1971 Erzurum, 1 ♀ 18.II.1966 Erzurum, 1 ♀ 2.VII.1970 Erzurum.

*Anthophora retusa* (L.): A frequent species, it is common in Erzurum, Erzincan and Kars provinces. It flies from the beginning of May to the end of August. It is a good pollinator of *Medicago sativa*, *Onobrychis sativa*, *Trifolium pratense* and *T. repence*. It also visits the flowers of *Anchusa* sp., *Centaurea* sp., *Cirsium* sp., *Salvia* sp., *Taraxacum* sp.,

*Anthophora robusta* Klug: It is a common species but, the population is not high, flies from the end of June to the end of August. It visits *Onobrychis sativa*, *Anchusa* sp., and *Papaver* sp..

*Anthophora rogenhoferi* Mor.: 5 ♀♀ 1.VI.1972, Muş, *Malvea* sp..

*Amegilla albigena* (Lep.): 1 ♂ 5.VIII.1977 Ardahan (Kars) *Onopardum* sp..

*Amegilla salviae* Mor.: ♀ 28.VII.1979 Uzunoluk, Oltu (Erzurum) *Myosotis* sp..

*Amegilla quadrfaciata* Vill.: 1 ♀ 8.VII.1974 Erzurum, 8 ♀♀ 14.IX.1978 Oltu (Erzurum), 1 18.IX.1977 Oltu *Salvia* sp..

*Paramegilla fulvipes* Ev.: 1 ♀ 20.VI.1976 Erzurum, 1 ♀ 27.VII.1976 Erzurum, 2 ♀♀ 29.VII.1978 Van, 1 ♀ 30.VII.1978 Tatvan *Centaurea* sp., *Onopordum* sp., and *Salvia* sp..

*Paramegilla prshewalski* (Mor.): 1 ♀ 15.VII.1982 Dedek, Kemah (Erzincan), 1 ♀ 23.VII.1976 Karakurt, (Kars), *Centaurea* sp..

*Habropoda tarsata* (Spin.): 2 ♂♂ 21.VI.1979 Tortum (Erzurum).

*Habropoda zonatula* Sm.: 1 ♂ 15.VI.1971 İspir (Erzurum), 1 ♀ 6.VII.1972 Karakoç, Hasankale (Erzurum).

All of the specimens are deposited in the Museum of Plant Protection Department at Atatürk University, Erzurum, Turkey.

## Ö z e t

### Doğu Anadolu'da Anthophorini (Hymenoptera: Apoidea, Anthophoridae) arı türleri

Bu çalışmada *Anthophora* cinsine mensup 18, *Amegilla*'ya ait 3, *Paramegilla* ve *Habropoda* cinslerine ait ikişer tür tesbit edilmiştir. *Anthophora aestivalis* (Pz.), *A. atroalba* Lep., *A. borealis* Mor., *A. parietina* (F.), *A. retusa* L. ve *A. robusta* Klug diğerlerine oranla yaygın ve sık görülen türlerdir.

*Anthophora acervorum* (L.) ve *A. orientalis* Mor. meyve ağaçlarının tozlaşmasında *A. aestivalis* (Pz.), *A. parietina* ve *A. retusa*'da yonca, korunga, çayırçüğü ve aküçgülün tozlaşmalarında önemli olan türlerdir.

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