

Bombini and Halictidae (Hymenoptera: Apoidea) Fauna of Afyonkarahisar Province of Turkey

Yasemin GÜLER¹

A. Murat AYTEKİN²

Fatih DIKMEN²

¹Plant Protection Central Research Institute, Gayret Mah., Fatih Sultan Mehmet Bulvarı, No: 66, 06172, Yenimahalle, Ankara/TURKEY, yaseminguler@gmail.com

²Hacettepe University, Faculty of Science, Department of Biology, 06800, Beytepe, Ankara/TURKEY, ama@hacettepe.edu.tr; dikmen@hacettepe.edu.tr

ABSTRACT

The faunistic study was conducted in 17 boroughs belonging to Afyonkarahisar province between 2006 and 2009. A total number of 809 bee specimens were examined. 80 species belonging to the Bombini (11) and Halictidae (69) were identified. 49 of the determined species are reported for the first time for the Aegean Region and 67 species of which are also reported for the first time for Afyonkarahisar province. The presence of *Evylaeus politus* (Schenck, 1853), *Nomiapis armata* (Olivier, 1812), *N. bispinosa* (Brullé, 1832), *N. squamata* (Morawitz, 1895), *Seladonia confusa* (Smith, 1853), *S. semitica* (Blüthgen 1955) and *S. vestita* (Lepeletier, 1841) in Turkey are documented in detail for the first time.

Key words: Apoidea, Bees, Fauna, Afyonkarahisar, Turkey

INTRODUCTION

Bees (Anthophila) are members of the superfamily Apoidea which contains also Spheciform wasps (Grimaldi & Engel, 2005). Apidae, Megachilidae, Colletidae, Andrenidae, Halictidae and Melittidae can be counted as the Palaearctic bee families (Michener, 2000). Bees in general have very important role in pollination of angiosperms and the greatest amounts of commercial crops are pollinated with the help of them (Dias *et al.*, 1999; Michener, 2007; Engel, 2001). Michener (2007) indicated that the total number of bee species in the world could have been 20,000. Moreover, by careful inspections this number would become higher than 30,000 (Michener, 2007). According to current data, Halictidae includes 3,500 species (Pesenko, 2007), while Bombini approximately 300 species (Aytekin *et al.*, 2007) in the world.

The faunistic studies on the pollinator bees of Turkey are limited. Because of that, there are no updated checklists of the bee fauna of Turkey except a web based atlas of bumblebees (Rasmont *et al.*, 2009). Moreover, the distribution data of the currently known species are insufficient. It is estimated that there are nearly two thousand bee species in Turkey (Özbek, 2002). However, these numbers were not confirmed by latest studies except for the Bombini and Megachilidae. The majority of the literatures

data on the Apidae groups of Turkey deal with honeybees (*Apis mellifera* L.). On the other hand, the systematic and faunistic studies on the fauna of *Bombus* Latreille are fairly satisfactory (Rasmont *et al.*, 2009). The studies that focused on the other bee families are much rarer. The fauna of Halictidae was reviewed by Warncke (1975, 1984) and Özbek (1979), but needs to be updated.

Afyonkarahisar is a province in the western Turkey (37°45'N, 39°17'N; 29°40'E, 31°43'E). It has very rich flora and very large agricultural areas (487.262 ha) where many crops such as sour cherry, sweet cherry, apple, opium poppy and potato are cultivated (Anonim, 2006). The diversity in the flora and the crops might be a clue to the bee diversity of this region. However, the bee fauna of Afyonkarahisar province have never been studied. The main aim of this study is to contribute to better knowledge of the bee fauna of Afyonkarahisar. Therefore, the basic data have been obtained necessary for the studies such as the conservation and the monitoring of pollinators.

MATERIALS AND METHODS

Field studies were performed in Afyonkarahisar province between 2006 and 2009, including 17 boroughs (Başmakçı, Bayat, Bolvadin, Central, Çay, Çobanlar, Dazkırı, Dinar, Emirdağ, Hocalar, İhsaniye, İscehisar, Kızılören, Sandıklı, Sinanpaşa, Sultandağı, Şuhut) and covered a total area of 14,570km² (Fig. 1). All the specimens were caught on plants by sweep-net and aspirators while they were searching for nectar or pollen. The specimens were pinned and labelled according to current taxonomic rules and were examined with stereoscopic binocular microscope.

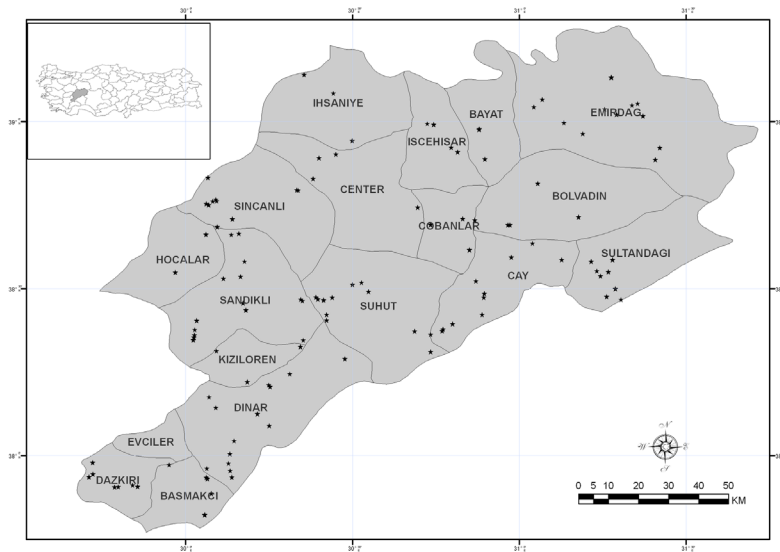


Fig. 1. The localities of collected bees in Afyonkarahisar province during 2006 and 2009.

The identification of the species were made according to Prys-Jones & Corbet (1987) for *Bombus*; Ebmer (1969), Pesenko (1978, 1984, 1985, 1986), Pesenko *et al.*

(2000), Amiet *et al.* (2001) and by comparing the specimens with the bee collections of the Natural History Museum of Vienna, Austria (NHMW), Oberösterreichisches Landesmuseum-Biologiezentrum of Linz, Austria (OLML) and Polish Institute of Zoology (ZIN) for the Halictidae.

All the collected specimens were deposited in the Plant Protection Museum of the Plant Protection Central Research Institute of Turkey and Department of Biology, Faculty of Science, Hacettepe University, Ankara (Turkey).

The species are listed below in the alphabetical order within families and genera.

Abbreviations: ♀: Female (Queen), ♂: Male, ♀: Worker, NP: Natural Park.

RESULTS

Family: APIDAE

Tribe: Bombini

Bombus (s.str.) lucorum (L., 1761)

Distribution: The Soviet Union (Skorikow, 1928), Finland (Hänninen, 1962) Afghanistan (Tkalcu, 1968), England, Scotland (Alford, 1975), Bulgaria (Atanassov, 1975), Alaska (Heinrich, 1979), Denmark, Norway, Sweden (Pekkarinen, 1979), Iberian Peninsula, Greece, Turkey, Transcaucasia (Rasmont, 1983), Yugoslavia (Stevanovic & Demajo, 1985), The Netherlands (Blom, 1989), Switzerland, France (Scholl *et al.*, 1990), Ireland, The Wales, Shetland Islands (Pekkarinen & Teräs, 1993), Corsica (Rasmont & Adamski, 1995), Germany (Cölln & Schlüter, 1996), Estonia (Mänd *et al.*, 1996), Poland (Pawlikowski, 1996), Turkey: Bursa, Bolu, Kastamonu, Trabzon, Bayburt, Erzurum, Çanakkale, Ardahan, Ankara (Rasmont *et al.*, 2009).

Material examined: 21. VI. 2006, Sandıklı, Akdağ NP, 1462m, 1♂.

Bombus (s.str.) terrestris (L., 1758)

Distribution: Scotland, England (Alford, 1975), Bulgaria (Atanassov, 1975), Poland (Anasiewicz & Warakomska, 1977), Denmark, Sweden, Czechoslovakia, Romania (Pekkarinen, 1979), Italy, The Iberian Peninsula, Turkey, Greece, North Africa, Caucasia (Rasmont, 1983), The Netherlands (Blom, 1989), France (Scholl *et al.*, 1990), Tasmania (Semmens *et al.*, 1993), Germany (Cölln & Schlüter, 1996), Slovenia (Gogala, 1999), Turkey: Bursa, Kastamonu, Zonguldak, Ordu, Rize, Çanakkale, Isparta, Burdur, Antalya, Konya, Niğde, Aksaray, Erzurum, Artvin, Trabzon, Gümüşhane, Giresun, Tokat, Amasya, Çorum, Samsun, Sinop, Çankırı, Kırklareli, Kırşehir, Ankara, Eskişehir, Kütahya, Bolu, Bilecik, Yalova, İstanbul, Tekirdağ, Balıkesir, Manisa, İzmir, Aydın, Muğla, Afyon, Karaman, Nevşehir, İçel, Adana, Osmaniye, Hatay, Gaziantep, Kahramanmaraş (Rasmont *et al.*, 2009). This species also commercially distributed several other countries including Japan, Chili, Mexico, Tasmania, Brazil and New Zealand.

Material examined: Başmakçı, Ovacık, 1250m, 07. VI. 2006, 5 ♀♀, 1♂; Bayat, İmrallı, 1355m, 19. VI. 2006, 1♀; Dinar, Pınarlı, 1308m, 21. VI. 2006, 1♀; Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 2, ♀♀, 1♂; Dinar, Çamlıköy, 1411m, 21. VI. 2006, 1♀, 1♂; Şuhut, Tekke- İlyaslı, 1381m, 22. VI. 2006, 4 ♀♀; Dazkırı,

Örtülü, 1013m, 03. VII. 2006, 3 ♀♀, 1 ♂; Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 1 ♀, 7 ♀♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 4 ♀♀, 1 ♂; Dinar, Yıprak, 1453m, 3 ♀♀, 04. VII. 2006, 1 ♂; Kızılören, Soğucak, 1540m, 05. VII. 2006, 2 ♀♀; Sandıklı, Akdağ NP, 1117m, 05. VII. 2006, 7 ♀♀; Sandıklı, Akdağ NP, 1494m, 5 ♀♀, 16. VIII. 2006, 1 ♂; Çay, Armutlu, 1011m, 27. VI. 2007, 2 ♀♀; Sinanpaşa, Tazlar Göleti, 1590m, 24. VII. 2007, 3 ♀♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 1 ♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 9 ♀♀; Başmakçı, Çığırı, 1144m, 05. VI. 2008, 2 ♀♀; Çay, Cumhuriyet, 1011m, 19. VI. 2008, 2 ♀♀; Dinar, Körpeli, 1548m, 16. VII. 2008, 2 ♀♀; Dinar, Pınarlı, 1013m, 16. VII. 2008, 1 ♀; Çay, Çayıryazı, 1014m, 17. VII. 2008, 2 ♀♀.

Bombus (Megabombus) argillaceus (Scopoli, 1763)

Distribution: The Soviet Union (Skorikow, 1928), Bulgaria (Atanassov, 1975), France, Italy, Austria, Hungary, Iran, Spain, Caucasia (Rasmont, 1983), Poland (Pawlikowski, 1996), Slovenia (Gogala, 1999), Turkey: Konya, Zonguldak, Bursa, Karabük, Kastamonu, Çankırı, Van, Yozgat, Kayseri, Çanakkale, Nevşehir, Isparta, Burdur, Antalya, Niğde, Erzurum, Ankara (Rasmont *et al.*, 2009).

Material examined: Sultandağı, Yeşilçiftlik, 1006m, 22. V. 2006, 1 ♀; İhsaniye, Susuzosmaniye, 1098m, 08. VI. 2006, 2 ♀♀; İscehisar, Karakaya, 1304m, 19. VI. 2006, 1 ♀; İhsaniye, Yukarı Tandırı, 1144m, 20. VI. 2006, 1 ♀; Sinanpaşa, Çukurca, 1654m, 20. VI. 2006, 1 ♀; Dinar, Çamlıköy, 1411m, 21. VI. 2006, 1 ♀, 4 ♀♀; Sultandağı, Dereçine, 1279m, 22. VI. 2006, 1 ♀, 1 ♀♀; Çay, Armutlu, 1011m, 27. VI. 2006, 1 ♂, 5 ♀♀; Dazkırı, Örtülü, 1013m, 03. VII. 2006, 1 ♀; Dinar, Yıprak, 1453m, 04. VII. 2006, 3 ♂♂; Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 3 ♀♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 3 ♀♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 1 ♀; Sandıklı, Akdağ NP, 1117m, 05. VII. 2006, 6 ♀♀; Sinanpaşa, Yörükmezari, 1295m, 14. VIII. 2006, 1 ♂; Sandıklı, Akdağ NP, 1494m, 16. VIII. 2006, 3 ♂♂; Sultandağı, Taşköprü, 983m, 01. V. 2007, 1 ♀; Sultandağı, Dereçine, 990m, 04-09. V. 2007, 1 ♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 1 ♀; Sandıklı, Daylık, 985m, 26. VI. 2007, 1 ♀; Sultandağı, Dereçine, 1279m, 26. VI. 2006, 1 ♀; İhsaniye, Hacıbeyli, 1039m, 25. VI. 2007, 1 ♀; Sultandağı, Yeşilçiftlik, 998m, 25. VII. 2007, 1 ♀; Sinanpaşa, Yörükmezari, 1716m, 27- VII-2007, 1 ♂; İscehisar, Alanyurt, 1386m, 15. VII. 2008, 4 ♀♀; Dinar, Akgün, 1028m, 17. VII. 2008, 2 ♀♀; Çay, Çayıryazı, 1014m, 17. VII. 2008, 1 ♀.

Bombus (Melanobombus) lapidarius (L., 1758)

Distribution: Finland (Hänninen, 1962), England, Scotland, The Wales (Alford, 1975), Bulgaria (Atanassov, 1975), Poland (Anasiewicz & Warakomska, 1977), Sweden (Pekkarinen, 1979), Caucasia, Turkey, Belgium, France, Ireland, Iran, Italy, Spain, Portugal, Island, Germany, The Netherlands, Switzerland, Czechoslovakia, Austria, Hungary, Romania, Greece, Yugoslavia (Rasmont, 1983), Norway, Denmark, Russia (Pekkarinen & Teräs, 1993), Turkey: Kastamonu, Ardahan, Erzurum (Rasmont *et al.*, 2009).

Material examined: Sinanpaşa, Çukurca, 1654m, 20. VI. 2006, 1 ♀; İscehisar, Çukurca, 1637m, 14. VIII. 2006, 3 ♂♂; Sinanpaşa, Yörükmezari, 1295m, 14. VIII. 2006, 4 ♀♀, 4 ♂♂; Sinanpaşa, Tazlar, 1380m, 14. VIII. 2006, 8 ♀♀; İscehisar, Eskieğmir, 15. VIII. 2006, 7 ♀♀; İscehisar, Alanyurt, 15. VIII. 2006, 3 ♀♀; Çay, Armutlu, 1011m, 27. VI. 2007, 5 ♀♀; Sinanpaşa, Tazlar Göleti, 1590m, 24. VII. 2007, 7 ♀♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 3 ♀♀; Sultandağı, Dereçine, 990m, 17-23. V. 2007, 1 ♀; Şuhut, Başören, 1624m, 07. VI. 2006, 1 ♀; İscehisar, Alanyurt, 1372m, 24. VII. 2007, 1 ♀♀; Sinanpaşa, Yörükmezari, 1716m, 27. VII. 2007, 3 ♀♀.

Bombus (Psithyrus) maxillosus Kluger, 1817

Distribution: Southwest Europe, Caucasia (Popov, 1931), The Balkans (Pittioni, 1938; 1939), Poland (Pawlikowski, 1996; 1999), Corsica (Rasmont & Adamski, 1995), The Czech Republic (Urbanova *et al.*, 2004), Iran (Monfared *et al.*, 2007), France (Iserbyt *et al.*, 2008), Turkey: Kayseri (Rasmont *et al.*, 2009).

Material examined: Bayat, İmrallı, 1355m, 19. VI. 2006, 1 ♀; Emirdağ, Bademli, 1112m, 28. VI. 2007, 1 ♀.

Bombus (Sibiricobombus) niveatus (Kriechbaumer, 1870)

Distribution: Turkey, Caucasia, Iran (Rasmont, 1983), Turkey: Konya, Bolu, Van, Eskişehir, Yozgat, Çorum, Kayseri, Antalya, Niğde, Erzurum, Ankara (Rasmont *et al.*, 2009).

Material examined: Şuhut, Tekke-Ilyaslı, 1381m, 22. VI. 2006, 1 ♀; Şuhut, Balçıkhisar, 1834m, 22. VI. 2006, 1 ♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 2 ♀♀, 1 ♀; Sinanpaşa, Tazlar Göleti, 1590m, 24. VII. 2007, 3 ♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 2 ♀; Central, Çavdarlı, 1005m, 25. VI. 2007, 1 ♀; Şuhut, Başören, 1880m, 26. VII. 2007, 1 ♀, 1 ♀; Sinanpaşa, Yörükmezarı, 1716m, 27- VII-2007, 1 ♀; Dinar, Cumhuriyet, 1109m, 05. VI. 2008, 1 ♀; İscehisar, Alanyurt, 1386m, 15. VII. 2008, 4 ♀♀; Sandıklı, Başören, 1884m, 16. VII. 2008, 2 ♀♀.

Bombus (Subterraneobombus) fragrans (Pallas, 1771)

Distribution: The Soviet Union (Skorikow, 1928), The Balkans (Pittioni, 1938), Austria, The Czech Republic, Poland, Hungary, Turkey, Caucasia, Iran, West China, North Mongolia (Rasmont, 1983), Turkey: Çankırı, Van, Kayseri, Niğde, Erzurum (Rasmont *et al.*, 2009).

Material examined: İhsaniye, Susuzosmaniye, 1098m, 08. VI. 2006, 1 ♀; Bayat, İmrallı, 1355m, 19. VI. 2006, 4 ♀♀; İhsaniye, Yukarı Tandırı, 1144m, 20. VI. 2006, 1 ♀; Sandıklı, Kumalar Mountain, 2192m, 22. VI. 2006, 1 ♀; Dinar, Yıprak, 1453m, 04. VII. 2006, 1 ♀; Sandıklı, Alagöz, 1024 m, 26. VI. 2007, 1 ♀, 3 ♀♀; Çay, Armutlu, 1011m, 27. VI. 2007, 1 ♀, 10 ♀♀; İhsaniye, Oğulbeyli, 1112m, 25. VI. 2007, 4 ♀♀; Central, Çavdarlı, 1005m, 25. VI. 2007, 2 ♀♀; İhsaniye, Hacibeyli, 1039m, 25. VI. 2007, 1 ♀; Emirdağ, Davulga, 987m, 04. VI. 2008, 2 ♀♀.

Bombus (Thoracobombus) muscorum (L., 1758)

Distribution: Russia (Radoszkowski, 1884), Europe, Caucasia, Siberia (Skorikow, 1928), Turkey: Afyon, Ankara, Artvin, Bayburt, Bitlis, Bolu, Bursa, Erzincan, Erzurum, Kastamonu, Kocaeli, Samsun, Sinop, Sivas, Tokat (Rasmont *et al.*, 2009).

Material examined: Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1 ♀.

Bombus (Thoracobombus) pascuorum (Scopoli, 1763)

Distribution: The Soviet Union (Skorikow, 1928), Ost- Triol (Austria) (Pittioni, 1937), The Balkan Peninsula (Pittioni, 1938; 1939), Poland (Banaszak, 1969), England, Channel Islands, Ireland, Scotland, The Wales (Alford, 1975), Finland (Pekkarinen & Teräs, 1977), Denmark, Sweden (Pekkarinen, 1979), Italy, Southern Iberian Peninsula, France, Southern Switzerland, Belgium, Southern Alps, The Netherlands, Turkey, Caucasia, Iran (Rasmont, 1983), Korea (Ito, 1985), Poland (Pawlikowski & Pajak, 1995), Germany (Cölln & Schlüter, 1996), Slovenia (Gogala, 1999), Turkey: Afyon, Bursa, Bolu, Kastamonu, Rize, Trabzon, Balıkesir, Elazığ, İstanbul, Çanakkale, Adapazarı, Zonguldak, Ankara, Sinop, Tokat, Ordu, Giresun, Artvin, Bolkar Mountains (Konya- Mersin), Düzce, Balıkesir, Manisa, Amasya, Ardahan, Çankırı, Erzincan, Erzurum, Kars, Samsun (Rasmont *et al.*, 2009).

Material examined: Sultandağı, Dereçine, 1279m, 22. VI. 2006, 1 ♀; Sinanpaşa, Yörükmezarı, 1295m, 14. VIII. 2006, 1 ♂; Şuhut, Arızlı, 1110m, 16. VIII. 2006, 1 ♂, 3 ♀♀; Çay, Çayır yazı, 1014m, 17. VII. 2008, 1 ♀♀.

Bombus (Thoracobombus) sylvarum (L., 1761)

Distribution: Ost- Triol (Austria) (Pittioni, 1937), The Balkan Peninsula (Pittioni, 1938; 1939), Seaford- Sussex (England), Ireland (Alford, 1975), Finland (Pekkarinen &

Teräs, 1977), Denmark, Northern Germany, Poland, Turkey, Caucasia, France, Spain, Belgium, Italy, from eastern Europe until The Ural mountains (Rasmont, 1983), The Netherlands (Blom, 1989), Slovenia (Gogala, 1999), Turkey: Konya, Bayburt, Erzurum, Ağrı, Van, Kayseri, Ankara, Afyon, Balıkesir, Bolu, Çankırı, Denizli, Eskişehir, Isparta, İstanbul, İzmir, Kastamonu, Konya, Ordu, Samsun, Sinop, Adana, Antalya, Ardahan, Artvin, Bayburt, Bingöl, Bitlis, Erzincan, Gümüşhane, Iğdır, İçel, Kars, Kırşehir, Malatya, Muş, Niğde, Rize, Sivas, Tokat, Tunceli, Yozgat, Sivas, Kırıkkale (Rasmont *et al.*, 2009).

Material examined: Sinanpaşa, Tazlar, 1365m, 05. VI. 2006, 1♀; İncehisar, Karakaya, 1304m, 19. VI. 2006, 1♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 3♀♀; Sinanpaşa, Yörükmezarı, 1295m, 14. VIII. 2006, 1♂; Şuhut, Arızlı, 1110m, 16. VIII. 2006, 1♀; Sinanpaşa, Tazlar Göleti, 1590m, 24. VII. 2007, 1♂; İhsaniye, Oğulbeyli, 1112m, 25. VI. 2007, 1♀.

Bombus (Thoracobombus) zonatus (Smith, 1854)

Distribution: The Balkan Peninsula (Pittioni, 1938; 1939), Hungary, Southern Soviet Union, Caucasia, Turkey, Northern Iran (Rasmont, 1983), Turkey: Konya, Bursa, Zonguldak, Kastamonu, Çankırı, Çorum, Ağrı, Van, Kayseri, Nevşehir, Aydın, Gümüşhane, Ordu, Niğde, Elazığ, Isparta, Burdur, Erzurum, Kars, Bitlis, Ankara, Adana, Adıyaman, Aksaray, Amasya, Antalya, Ardahan, Artvin, Bayburt, Bilecik, Denizli, Erzincan, Eskişehir, Hakkari, Iğdır, Hatay, İçel, Karaman, Yozgat, Kırıkkale, Malatya, Muş, Nevşehir, Sivas, Kırşehir (Rasmont *et al.*, 2009).

Material examined: Şuhut, Başören, 1880m, 26. VII. 2007, 4♀♀; Sandıklı, Başören, 1884m, 16. VII. 2008, 2♀♀.

Family: HALICTIDAE

Subfamily: HALICTINAE

Tribe: Halictini

Evylaeus aeratus (Kirby, 1802)

Distribution: Western Palaearctic (Pesenko *et al.*, 2000), Turkey: Kayseri, Adapazarı, Ankara, Konya, Bolu, Çorum, Ardahan, Kars, Muğla, Antalya, Hatay, Erzurum, Ağrı (as *Halictus viridiaeneus* in Warncke, 1975).

Material examined: Sultandağı, Dereçine, 982m, 23. V. 2006, 3♀♀.

Evylaeus albipes (Fabricius, 1781)

Distribution: Austria, Belgium, Britain, The Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Macedonia, Poland, Slovakia, Slovenia, Spain, Switzerland, East Palaearctic, North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: İstanbul, Bursa, Ankara, Artvin, Ardahan, Kars, Erzurum, Hakkari (Warncke, 1975), Bayburt, Erzincan (Özbek, 1979).

Material examined: İhsaniye, Susuzosmaniye, 1098m, 08. VI. 2006, 1♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 1♀.

Evylaeus anellus (Vachal, 1905)

Distribution: Northwest Russia, Near East (Polaszek, 2004 - Fauna Europaea), Azerbaijan, Bosnia, Bulgaria, Caucasus, Croatia, Greece, Iran, Israel, Jordan, Macedonia, Syria, Turkey (Pauly, 2007 - Atlas Hymenoptera), Turkey: Mersin, İzmir,

Kayseri, Tekirdağ, İstanbul, Adana, Hatay, Urfa, Ankara, Konya, Nevşehir, Bilecik, Denizli, Kahramanmaraş, Tunceli, Erzurum (Warncke, 1975), Sinop (Özbek, 1979).

Material examined: Sandıklı, Akdağ NP, 1480m, 26. IV. 2007, 1♀.

***Evylaeus buccalis* (Pérez, 1903)**

Distribution: Austria, The Czech Republic, France, Germany, Hungary, Italy, Macedonia, Romania, Northwest Russia, Slovakia, Slovenia, Spain, Switzerland, Ukraine (Polaszek, 2004 - Fauna Europaea), Balkans, North Greece, Turkey, Iran, Southern Urals, Turkestan, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan (Pauly, 2007 - Atlas Hymenoptera), Turkey: Erzurum, Van (Warncke, 1984)

Material examined: Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 1♀.

***Evylaeus calceatus* (Scopoli, 1763)**

Distribution: Palaearctic (Pesenko *et al.*, 2000; Polaszek, 2004 - Fauna Europaea), Turkey: İstanbul, Bursa, Bolu, Kastamonu, Gümüşhane, Rize, Ardahan, Erzurum (Warncke, 1975), Kars, Erzincan (Özbek, 1979).

Material examined: Şuhut, Başören, 1880m, 26. VII. 2007, 1♀.

***Evylaeus convexiusculus* (Schenck, 1853)**

Distribution: Austria, Belgium, The Czech Republic, France, Germany, Greece, Hungary, Italy, Poland, East and Northwest Russia, Slovakia, Spain, Switzerland, North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: Ankara, Karaman, Nevşehir, Sivas, Erzurum (Warncke, 1975).

Material examined: Central, Saadet, 1176m, 20. VI. 2006, 20♀♀; Emirdağ, Kılıçlar, 915m, 23. VI. 2007, 1♀; Bolvadin, Güneyköy, 1238m, 24. V. 2006, 1♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 1♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 10♀♀; Çobanlar, Central, 991m, 28. V. 2007, 2♀♀; Emirdağ, Kılıçlar, 911m, 04. VI. 2008, 1♀; Emirdağ, Davulga, 987m, 04. VI. 2008, 1♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀; Dinar, Avşar, 1115m, 17. VI. 2008, 1♀.

***Evylaeus crassepunctatus* (Blüthgen 1923)**

Distribution: Mediterranean and Asian steppes; Austria, Azerbaijan, Bulgaria, Croatia, Cyprus, France, Greece, Hungary, Iran, Israel, Italy, Jordan, Macedonia, Romania, Russia, Spain, Serbia, Slovakia, Turkey and Ukraine (Pauly, 2007 – Atlas Hymenoptera), Turkey: Mersin, Trabzon, Adapazarı, Ankara (Warncke, 1975).

Material examined: Çay, Orhaniye, 984m, 27. VI. 2007, 1♀.

***Evylaeus elegans* (Lepelletier, 1841)**

Distribution: Austria, France, Hungary, Italy, Macedonia, Northwest Russia, Slovakia, Spain, Switzerland, East Palaearctic, North Africa (Polaszek, 2004 - Fauna Europaea), Iran (Pauly, 2007 - Atlas Hymenoptera), Turkey: Sivas (Warncke, 1975).

Material examined: Dazkırı, Çiftlik, 1145m, 04. VII. 2006, 1♀.

***Evylaeus interruptus* (Panzer, 1798)**

Distribution: Palaearctic and Nearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Ankara, Kayseri, Bursa, Tekirdağ, İzmit, Adapazarı, Diyarbakır, Konya, Nevşehir, Bilecik, Bolu, Tunceli, Van (Warncke, 1975), Kars, Erzurum (Özbek, 1979)

Material examined: Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 1♀; Central, Saadet, 1176m, 20. VI. 2006,

1♀; Başmakçı, Çiğrı, 1144m, 05. VI. 2008, 1♀; Sandıklı, Hüdai Thermal Springs, 1007m, 05. VI. 2008, 1♀; Dinar, Akgün, 1028m, 17. VII. 2008, 1♀.

***Evylaeus linearis* (Schenck, 1868)**

Distribution: Widely distributed in Palaearctic, except for the north, and south-western Asia (Pesenko *et al.*, 2000), Turkey: Bursa, Amasya, İzmir, Tekirdağ, Mersin, Adana, Urfa, Ankara, Karaman, Konya, Kırıkkale, Nevşehir, Çankırı, Samsun, Ardahan, Afyon, Erzurum (Warncke, 1975), Muş (Özbek, 1979).

Material examined: Bolvadin, Hamidiye, 990m, 24. V. 2006, 1♀; Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1♀; Şuhut, Central, 1147m, 22. VI. 2006, 1♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 1♀; Emirdağ, Kılıçlar, 910m, 06. VII. 2006, 1♀.

***Evylaeus lucidulus* (Schenck, 1861)**

Distribution: Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Edirne, Adapazarı, Konya, Nevşehir, Ankara, Samsun, Denizli, Erzurum (Warncke, 1975), Erzurum, Kars (Özbek, 1979).

Material examined: Sultandağı, Dereçine, 982m, 23. V. 2006, 2♀♀; Çay, Çayırpınar, 1015m, 01. V. 2007, 1♀.

***Evylaeus malachurus* (Kirby, 1802)**

Distribution: Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Ankara, Antalya, Edirne, Tekirdağ, İstanbul, Bursa, Mersin, Adana, Hatay, Diyarbakır, Konya, Bolu, Amasya, Samsun, Kütahya, Tunceli, Ağrı, Erzurum (Warncke, 1975).

Material examined: Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 1♀; Çay, Çayırpınar, 1015m, 01. V. 2007, 1♀; Çobanlar, Central, 991m, 28. VI. 2007, 1♀; Çay, Orhaniye, 28. IV. 2008, 1♀; Sinanpaşa, Güneyköy, 20. IV. 2008, 1♀; Çay, Armutlu, 1031m, 25. IV. 2009, 1♀.

***Evylaeus marginatus* (Brullé, 1832)**

Distribution: The Czech Republic, France, Germany, Greece, Hungary, Italy, Poland, Russia Northwest, Slovakia, Slovenia, Spain, Switzerland, East Palaearctic, Near East (Polaszek, 2004 - Fauna Europaea), Israel, Armenia, Pakistan, Nepal (Pauly, 2007 - Atlas Hymenoptera), Turkey: Ankara, Bursa, İstanbul, Adapazarı, Muğla, Balıkesir, Antalya, Nevşehir, Bursa, Samsun, Gümüşhane, Uşak, Bilecik, Karaman, Kayseri, Sivas, Erzurum (Warncke, 1975).

Material examined: Sultandağı, Dereçine, 982m, 23. V. 2006, 1♀; Bolvadin, Güneyköy, 1238m, 24. V. 2006, 7♀♀; Bolvadin, Hamidiye, 990m, 24. V. 2006, 1♀; Sultandağı, Yakasenek, 1086m, 30. IV. 2007, 3♀♀; Dinar, Yelalan, 1012m, 14. V. 2008, 1♀; Dinar, Tekin, 893m, 19. IV. 2008, 1♀.

***Evylaeus marginellus* (Schenck, 1863)**

Distribution: Europe, common in steppes (Pesenko *et al.*, 2000), East Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Kayseri, Konya, İstanbul, Ankara, Adapazarı, Nevşehir, Ağrı (Warncke, 1975), Erzurum, Kars (Özbek, 1979).

Material examined: İhsaniye, Susuzosmaniye, 1098m, 08. VI. 2006, 2♀♀; Sultandağı, Yazıçayır, 988m, 23. V. 2006, 1♀; Dazkırı, Örtülü, 1002m, 17. VI. 2008, 1♀.

***Evylaeus minutissimus* (Kirby, 1802)**

Distribution: Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Erzurum, Antalya (Warncke, 1975)

Material examined: Sultandağı, Yakasenek, 1086m, 30. IV. 2007, 1♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀; Çay, Armutlu, 1031m, 25. IV. 2009, 1♀.

***Evylaeus morio* (Fabricius, 1793)**

Distribution: The most common species of *Evylaeus* in Europe (Pesenko *et al.*, 2000), Northwest and South Russia, North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: Adana, Antalya, Bursa, İstanbul, Ankara, Konya, Niğde, Nevşehir, Denizli, Burdur, Erzurum (Warncke, 1975).

Material examined: Sultandağı, Dereçine, Kavaklı, 982m, 23. V. 2006, 1♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀.

***Evylaeus nigripes* (Lepelletier, 1841)**

Distribution: Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Ankara, Konya, Nevşehir, Amasya, Artvin, Denizli, Ağrı (Warncke, 1975).

Material examined: İhsaniye, Gazlıgöl, 1056m, 08. VI. 2006, 3♀♀; Sandıklı, Gürsu, 1000m, 27. VII. 2007, 1♀; Emirdağ, Kılıçlar, 911m, 04. VI. 2008, 1♀.

***Evylaeus nitidiusculus* (Kirby, 1802)**

Distribution: Western Palaearctic (Pesenko *et al.*, 2000), Northwest Russia (Polaszek, 2004 - Fauna Europaea), Turkey: Adapazarı, Ankara, Kayseri, Niğde, Kars, Tunceli, Erzurum (Warncke, 1975).

Material examined: Kızılören, Yenibelkavak, 1148m, 05. VI. 2008, 1♀.

***Evylaeus obscuratus* (Morawitz, 1876)**

Distribution: Eurasian, most common in steppes and deserts (Pesenko *et al.*, 2000), East Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Amasya, Antalya, Edirne, Urfa, Konya, Nevşehir, Niğde, Tunceli (Warncke, 1975), Erzincan, Kars (Özbek, 1979).

Material examined: Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1♀; Bolvadin, Central, 985m, 23. VI. 2006, 2♀♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 4♀♀; Kızılören, Soğucak, 1578m, 05. VII. 2006, 2♀♀; Şuhut, Efeköy, 1010m, 29. IV. 2007, 1♀; Sultandağı, Yakasenek, 1086m, 30. IV. 2007, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 3♀♀; Çay, Armutlu, 1031m, 25. IV. 2009, 1♀.

***Evylaeus pauxillus* (Schenck, 1853)**

Distribution: Austria, Belgium, Great Britain, The Czech Republic, France, Germany, Greece, Hungary, Italy, Lithuania, Luxembourg, Macedonia, Poland, Slovakia, Slovenia, Spain, Switzerland, East Palaearctic, North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: Adapazarı, Bursa, Adana, Hatay, Ankara, Kırıkkale, Konya, Karaman, Nevşehir, Bolu, Zonguldak, Amasya, Samsun, Ardahan, Tunceli, Erzurum (Warncke, 1975), Erzincan, Kars (Özbek, 1979).

Material examined: Bolvadin, Hamidiye, 990m, 24. V. 2006, 1♀; Emirdağ, Kılıçlar, 910m, 06. VII. 2006, 1♀.

***Evylaeus politus* (Schenck, 1853)**

Distribution: Austria, Belgium, The Czech Republic, France, Germany, Greece, Hungary, Italy, Macedonia, Poland, Northwest Russia, Slovakia, Slovenia, Spain, Switzerland, Near East, North Africa (Polaszek, 2004 - Fauna Europaea), Turkey, Israel, Egypt, Iran, Turkestan (Pauly, 2007 - Atlas Hymenoptera), Turkey: First detailed record.

Material examined: Emirdağ, Dereköy, 1058m, 06. VII. 2006, 2♀♀; Sinanpaşa, Yörükmezarı, 1295m, 14. VIII. 2006, 1♀.

***Evylaeus pygmaeus* (Schenck, 1853)**

Distribution: West Palaearctic, to Afghanistan in the east (Pesenko *et al.*, 2000), North Africa-(Pauly, 2007 - Atlas Hymenoptera), Turkey: İstanbul, Kayseri, Konya, Hatay, Adapazarı, İzmir, Nevşehir, Bursa, Bilecik, Amasya, Afyon, Denizli, Kütahya, Tunceli (as *Halictus distinctus* ssp. *patulus* in Warncke, 1975).

Material examined: Dazkırı, Çiftlik, 1145m, 04. VII. 2006, 3♀♀; Kızılören, Soğucak, 1540m, 05. VII. 2006, 1♀.

***Evylaeus setulellus* (Strand, 1909)**

Distribution: Steppes of Eurasia, Mediterranean Europe, from Spain, Southwestern France, Sicily, to Russia, Turkey, Iran, Syria (Pauly, 2007 - Atlas Hymenoptera), Turkey: Erzurum, Kars, Kayseri, Konya (Warncke, 1984).

Material examined: Dazkırı, Örtülü, 1013m, 03. VII. 2006, 1♀; Şuhut, Güneytepe, 1134m, 16. VIII. 2006, 1♀; Bolvadin, Hamidiye, 975m, 28. VI. 2007, 1♀.

***Evylaeus tricinctus* (Schenck, 1874)**

Distribution: A rare, mostly steppous species (Pesenko *et al.*, 2000), Austria, The Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Macedonia, Poland, Northwest Russia, Slovakia, Slovenia, Spain, Switzerland, Near East (Polaszek, 2004 - Fauna Europaea), Ukraine, Greece, Turkey, Azerbaijan, Iran (Pauly, 2007 - Atlas Hymenoptera), Turkey: Artvin, Erzurum (Warncke, 1975), Kars (Özbek, 1979).

Material examined: Sultandağı, Yeşilçiftlik, 1006m, 22. V. 2006, 1♀; Sandıklı, Akdağ NP, 1472m, 18. VI. 2008, 1♀.

***Halictus alfkenellus* Strand, 1909**

Distribution: Italy, Greece, Russia, Kazakhstan, Turkmenistan, Iran (Pauly & Pesenko, 2007 - Atlas Hymenoptera), Turkey: Ankara, Konya, Kütahya, Mersin (Warncke, 1975).

Material examined: Emirdağ, Kılıçlar, 915m, 23. VI. 2006, 1♀, 1♂; Sandıklı, Alagöz, 915m, 26. VI. 2007, 1♀; Sinanpaşa, Yörükmezarı, 27. VII. 2007, 1716m, 3♀♀; İncehisar, Alanyurt, 1386m, 15. VII. 2008, 1♀.

***Halictus asperulus* Pérez, 1895**

Distribution: Spain, Ukraine, Austria, Israel, Cyprus, Turkey, Syria, Georgia, Armenia, Azerbaijan and Iran (Pesenko, 2005), Turkey: Ağrı, Ankara, Antalya, Balıkesir, Bitlis, Erzincan, Gümüşhane, Hatay, Konya, Niğde, Karaman (OLML), Adana (NHMW).

Material examined: Emirdağ, Dereköy, 1058m, 06. VII. 2006, 1♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 1♀; Dazkırı, Hasandede, 1108m, 26. VII. 2007, 1♂; Şuhut, Başören, 1880m, 26. VII. 2007, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♂; Şuhut, İsalı, 1078m, 13. V. 2008, 1♀; Çay, Çayırıyazı, 1014m, 17. VII. 2008, 1♀.

***Halictus brunnescens* (Eversmann, 1852)**

Distribution: Morocco, Egypt, Tunisia, Spain, Austria, The Czech Republic, Israel, Georgia, Armenia, Azerbaijan, Iran, Afghanistan, Pakistan, Kazakhstan, Uzbekistan, Turkmenistan, Kirghizstan, Northern China and Northern India (Pesenko, 2005), Turkey: İstanbul, Ankara, Hatay, Konya, Eskişehir, Afyon, Erzincan, Erzurum (as *H. ssp. aegyptiacus*, NHMW).

Material examined: Sandıklı, Akdağ NP, 1490m, 16. VIII. 2006, 2♂♂; Bayat, Dođlat, 1219m, 24. VII. 2007, 1♂; Emirdađ, Bademli, 1112m, 28. VI. 2007, 1♀.

***Halictus cochlearitarsis* (Dours, 1872)**

Distribution: West Palaearctic (Polaszek, 2004 - Fauna Europaea) Ukraine, (Pesenko, 2005), Turkey: Konya, Edirne, İstanbul, Antalya, Ankara, Çankırı (Warncke, 1975), Erzurum (Özbek, 1979).

Material examined: Sandıklı, Akdağ NP, 1490m, 16. VIII. 2006, 1♀; Şuhut, Başören, 1880m, 26. VII. 2007, 1♀; Şuhut, Aydın, 1138m, 16. VI. 2008, 1♀; İscehisar, Alanyurt, 1386m, 15. VII. 2008, 1♀.

***Halictus compressus* (Walckenaer, 1802)**

Distribution: Widely distributed in Palaearctic especially from Atlantic to Baikal (Pesenko *et al.*, 2000), Turkey: Hakkari (as *H. senex* spp. *lunatus* in Warncke, 1984), Ankara (Dikmen & Çađatay, 2007).

Material examined: Bolvadin, Central, 983m, 23. VI. 2006, 1♀; Hocalar, Devlethan, 1036m, 27. VII. 2007, 1♀; Central (Çay), 970m, 15. VIII. 2006, 1♂.

***Halictus luganicus* Blüthgen, 1936**

Distribution: Black Sea Region, Georgia, Azerbaijan, Turkey (Pesenko, 2005), Ukraine (Ebmer, 1975), Turkey: Mersin, Çanakkale (Ebmer, 1975), Kayseri, Ankara (Dikmen & Çađatay, 2007)

Material examined: Bolvadin, Central, 985m, 23. VI. 2006, 2♀♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 1♀; Dazkırı, Yukarı Yenice, 876m, 17. VI. 2008, 2♀♀; Başmakçı, Akkoyunlu, 954m, 17. VI. 2008, 1♀; Dazkırı, Arıköy, 900m, 16. VII. 2008, 17♂♂; Dazkırı, Körpeli, 1548m, 16. VII. 2008, 2♀♀; Dinar, Akgün, 1028m, 17. VII. 2008, 1♂.

***Halictus maculatus* Smith, 1848**

Distribution: Widely distributed in Western Palaearctic from Spain to Eastern Kazakhstan (Pesenko *et al.*, 2000), Turkey: Adana, Ankara, Kütahya, İstanbul, Edirne, Konya, Karaman, Bursa, Trabzon, Afyon, Tunceli, Erzurum, Ağrı (Warncke, 1975).

Material examined: Sultandađı, Akbaba, 915m, 06. VI. 2006, 1♀; Şuhut, Balçıkhisar, 1834m, 22. VI. 2006, 1♂; Emirdađ, Kılıçlar, 915m, 23. VI. 2006, 1♀; Sandıklı, Akdağ NP, 1480m, 26. VI. 2007, 2♂♂; Çobanlar, Central, 990m, 28. VI. 2007, 1♀.

***Halictus patellatus* Morawitz, 1874**

Distribution: France, Belgium, Slovakia, Slovenia, Italy, Austria, Macedonia, Azerbaijan, Israel, Lebanon, Russia, Caucasus (Polaszek, 2004 - Fauna Europaea), Morocco, Syria, Northern Iran, Turkey and Southwest Turkmenistan (Pesenko, 2005), Turkey: Karaman, Kütahya, Erzurum (Warncke, 1975), Erzurum (Özbek, 1979) Ardahan, Hakkari, Niğde (Pesenko, 2005), Ankara (Dikmen & Çađatay, 2007).

Material examined: Şuhut, Başören, 1880m, 26. VII. 2007, 1♀.

***Halictus pentheri* Blüthgen, 1923**

Distribution: Turkey (Warncke, 1975), Greece (Grace, 2010), Turkey: Kayseri, İzmir, Ankara, Konya, Nevşehir, Samsun, Sivas, Erzurum, Ağrı (as *H. tetrazonius* ssp. *pentheri* in Warncke, 1975), Ağrı, Erzincan, Erzurum, Muş, Ardahan, Bayburt, Sinop (as *H. tetrazonius* ssp. *pentheri* in Özbek, 1979), Kayseri (NMHW).

Material examined: Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 1♀; Şuhut, Güneytepe, 1134m, 16. VIII.

2006, 1♀; Bayat, Doğlat, 1219m, 24. VII. 2007, 3♀♀; Emirdağ, Davulga, 987m, 04. VI. 2008, 1♀; Dazkırı, Yukarı Yenice, 876m, 17. VI. 2008, 1♀; Bayat, Central, 1213m, 15. VII. 2008, 1♀.

***Halictus quadricinctus* (Fabricius, 1776)**

Distribution: Transpalaeartic, from Finland to Northern China (Pesenko, 2005), Turkey: İstanbul, Samsun, Trabzon, Artvin, Kars, Erzurum, Erzincan, Nevşehir, Ankara, Konya, Karaman, Hatay, Afyon, Denizli (Warncke, 1975), Gümüşhane, Ağrı (Özbek, 1979).

Material examined: Bolvadin, Güneyköy, 1238m, 24. V. 2006, 1♀; Çobanlar, Central, 988m, 24. V. 2006, 1♀; Sandıklı, Akdağ NP, 1387m, 21. VI. 2006, 1♀; Emirdağ, Kılıçlar, 915m, 23. VI. 2006, 5♀♀; Dinar, Yıprak, 1453m, 04. VII. 2006, 1♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 10♀♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 7♀♀; Sandıklı, Akdağ NP, 1117m, 05. VII. 2006, 2♀♀; Emirdağ, Dereköy, 1058m, 06. VII. 2006, 2♀♀; İscehisar, Alanyurt, 1386m, 15. VII. 2006, 2♀♀; Sandıklı, Akdağ NP, 1490m, 16. VIII. 2006, 1♀; Sandıklı, Alagöz, 1024m, 26. VI. 2007, 5♀♀; Sandıklı, Alagöz, 1024m, 26. VI. 2007, 5♀♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 2♀♀; Çobanlar, Central, 991m, 28. VI. 2007, 1♀; Bayat, Doğlat, 1219m, 24. VII. 2007, 5♀♀; Emirdağ, Gömü, 955m, 24. VII. 2007, 2♀♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 2♀♀; Sultandağı, Train station, 976m, 25. VII. 2007, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 3♀♀; Sandıklı, Gürsu, 1000m, 27. VII. 2007, 2♀♀; Emirdağ, Bademli, 1042m, 04. VI. 2008, 3♀♀; Emirdağ, Central, 1009m, 16. VI. 2008, 1♀; Bayat, Central, 1213m, 15. VII. 2008, 7♀♀; Bayat, Central, 1213m, 15. VII. 2008, 1♂; Dinar, Burunkaya, 1020m, 16. VII. 2008, 1♀; Dinar, Körpeli, 1548m, 16. VII. 2008, 1♀; Dinar, Pınarlı, 1013m, 16. VII. 2008, 4♀♀; Dinar, Akgün, 1028m, 17. VII. 2008, 3♀♀.

***Halictus resurgens* Nurse, 1903**

Distribution: Northeast Africa to Central Asia (Pesenko, 2005), Turkey: Şırnak (NHMW).

Material examined: İhsaniye, Gazlıgöl, 1056m, 08. VI. 2006, 1♀; Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 1♀; Çay, Koçbeyli, 1453m, 04. VII. 2006, 1♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 4♀♀; Sandıklı, Akdağ NP, 1117m, 05. VII. 2006, 2♀♀; Emirdağ, Dereköy, 1058m, 06. VII. 2006, 16♀♀; Emirdağ, Dereköy, 1058m, 06. VII. 2006, 1♂; İscehisar, Alanyurt, 1386m, 15. VIII. 2006, 2♀♀; Sinanpaşa, Tazlar Gölet Yolu, 1326m, 14. VIII. 2006, 1♀; Sinanpaşa, Tazlar Gölet Yolu, 1380m, 14. VIII. 2006, 1♀; İhsaniye, Eskişehir, 15. VIII. 2006, 4♀♀, 2♂♂; Sandıklı, Akdağ NP, 1490m, 16. VIII. 2006, 2♀; Sandıklı, Gürsu, 1000m, 27. VI. 2007, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 1♀; Çay, Orhaniye, 984m, 27. VI. 2007, 7♀♀; Çobanlar, Central, 991m, 28. VI. 2007, 1♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 1♀; Sultandağı, Train station, 976m, 25. VII. 2007, 1♀; Hocalar, Devlethan, 1036m, 27. VII. 2007, 6♀♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♀; Sinanpaşa, Yörükmezari, 1716m, 27. VII. 2007, 1♀; Sandıklı, Hüdai Thermal springs, 1007m, 05. VI. 2008, 1♀.

***Halictus saji* Blüthgen, 1923**

Distribution: Austria, Slovenia, Germany, Hungary, Italy, East Palaeartic (Polaszek, 2004 - Fauna Europaea), Turkey: Adana, Ankara, Konya, Giresun, Ardahan, Erzurum, Ağrı (Warncke, 1975), Erzurum (Özbek, 1979), Antalya, Van, Hakkari, Şırnak (Warncke, 1984).

Material examined: Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1♀; Emirdağ, Kılıçlar, 915m, 23. VI. 2006, 1♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 1♀; Emirdağ, Dereköy, 1058m, 06. VII. 2006, 1♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 2♀♀; Sinanpaşa, Yörükmezari, 1716m, 27. VII. 2007, 1♀; Başmakçı, Akkoyunlu, 954m, 17. VI. 2008, 1♀.

***Halictus scabiosae* (Rossi, 1790)**

Distribution: All Europe and North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: Bursa, İstanbul (Warncke, 1975), Erzurum, Kars, Iğdır (Özbek, 1979), Ankara (Dikmen & Çağatay, 2007).

Material examined: Dazkırı, Çiftlik, 1145m, 104. VII. 2006, ♀; Emirdağ, Dereköy, 1058m, 06. VII. 2006, 1♀; Sandıklı, Akdağ NP, 1490m, 16. VIII. 2006, 1♀; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 1♀.

***Halictus sexcinctus* Fabricius, 1775**

Distribution: All Europe, Israel, Turkey, Armenia, Iran and Georgia (Pesenko, 2005), Turkey: Afyon, Ankara, Antalya, Bursa, Balıkesir, Erzurum, Karaman, Kars, Kayseri, Kahramanmaraş, İstanbul, Samsun (Warncke, 1975).

Material examined: İhsaniye, Gazlıgöl, 1056m, 08. VI. 2006, 1♀; Dazkırı, Çiftlik, 1218m, 04. VII. 2006, 5♀♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 5♀♀; Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 10♀♀, 6♂♂; Sandıklı, Akdağ NP, 1117m, 05. VII. 2006, 1♀, 3♂♂; Kızılören, Soğucak, 1540m, 05. VIII. 2006, 1♀; Emirdağ, Kılıçlar, 910m, 06. VII. 2006, 3♀♀, 1♂; Sinanpaşa, Yörükmezari, 1295m, 14. VIII. 2006, 1♂; İhsaniye, Eskieğmir, 15. VIII. 2006, 1♀, 1♂; Şuhut, Güneytepe, 1134m, 16. VIII. 2006, 1♀; Çay, Armutlu, 1011m, 27. VI. 2007, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 1♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀; Çobanlar, Central, 991m, 28. VI. 2007, 9♀♀; Bayat, Doğlat, 1219m, 24. VII. 2007, 1♀, 3♂♂; Çay, Aydoğmuş, 1046m, 25. VII. 2007, 2♀♀; Şuhut, Başören, 1880m, 26. VII. 2007, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♂; Sinanpaşa, Yörükmezari, 1716m, 27. VII. 2007, 1♀; Sandıklı, Gürsu, 1000m, 27. VII. 2007, 2♀♀; Başmakçı, Akkoyunlu, 954m, 17. VI. 2008, 1♀; Emirdağ, Kılıçlar, 901m, 15. VII. 2008, 1♀; Sandıklı, Dutağacı, 1525m, 16. VII. 2008, 2♂♂; Sandıklı, Başören, 1884m, 16. VII. 2008, 1♂.

***Halictus simplex* Blüthgen, 1923**

Distribution: Western Palaearctic, from Spain to Eastern Kazakhstan (Pesenko *et al.*, 2000), Turkey: Erzurum (Özbek, 1979), Hakkari (as *H. marchali* in Warncke, 1984), Ankara (Dikmen & Çağatay, 2007)

Material examined: Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1♀.

***Halictus squamosus* Lebedev, 1910**

Distribution: Turkey, Lebanon, Turkmenistan, Iran (Pauly & Pesenko, 2007 - Atlas Hymenoptera), Turkey: Ankara, Konya, Kahramanmaraş (Warncke, 1975), Urfa (Warncke, 1984).

Material examined: Çay, Aydoğmuş, 1046m, 25. VII. 2007, 1♂.

***Halictus tetrazonianellus* Strand, 1909**

Distribution: North Russia, Turkey, Azerbaijan, Caucasia, Lebanon (Polaszek, 2004 - Fauna Europaea), Turkey: İstanbul, İzmir, Adana, Hatay, Karaman, Denizli (Warncke, 1975), Erzurum (Özbek, 1979), Urfa (Warncke, 1984), Ankara (Dikmen & Çağatay, 2007).

Material examined: Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 2♀♀; Şuhut, Arızlı, 1110m, 16. VIII. 2006, 2♀♀; Bolvadin, Derekarabağ, 972m, 28. VI. 2007, 1♀; Hocalar, Devlethan, 1036m, 27. VII. 2007, 1♀; Emirdağ, Davulga, 987m, 04. VI. 2008, 1♀; Dinar, Avşar, 1115m, 17. VI. 2008, 1♀; Dinar, Burunkaya, 1020m, 16. VII. 2008, 1♀; Dinar, Pınarlı, 1013m, 16. VII. 2008, 1♀.

***Halictus tetrazonius* Klug, 1817**

Distribution: Northwest Italy, East Austria, Slovenia, Croatia, Macedonia, Hungary, Romania, Bulgaria, Greece, Moldova, Ukraine, Israel, Georgia, Iran, Southeast Turkey (Pesenko, 2005), Turkey: Ankara, Konya, Antalya, Erzurum, Hakkari, Kahramanmaraş, Nevşehir, Kars, Kayseri (OLML).

Material examined: Bolvadin, Central, 985m, 23. VI. 2006, 1♀; Dazkırı, Örtülü, 1013m, 03. VII. 2006, 1♀; Bolvadin, Hamidiye, 975m, 28. VI. 2007, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♂.

***Lasioglossum aegyptiellum* (Strand, 1909)**

Distribution: Asia Minor, Iran, Iraq, Israel, Egypt (Pauly, 2007 - Atlas Hymenoptera), Turkey: Hatay, İzmir, Manisa, Antalya, Mersin, Adana, Urfa (as *Halictus morbillosus* ssp. *aegyptiellus* in Warncke, 1975).

Material examined: Başmakçı, Akkoyunlu, 970m, 04. VII. 2006, 1♀; Sandıklı, Alagöz, 1024m, 26. VI. 2007, 1♀; Dinar, Yapağılı, 1110m, 26. VII. 2007, 1♀; Dazkırı, Yukarı Yenice, 876m, 17. VI. 2008, 1♀; Dinar, Körpeli, 1548m, 16. VII. 2008, 1♀.

***Lasioglossum costulatum* (Kriechbaumer, 1873)**

Distribution: West Palaearctic, mostly in warm and temperate zones (Pesenko *et al.*, 2000), from Denmark to Irkutsk, from Morocco to Iran and Israel (Pauly, 2007 - Atlas Hymenoptera), Turkey: Kayseri, Konya (Warncke, 1975).

Material examined: Dinar, Akgün, 1028m, 17. VII. 2008, 1♀.

***Lasioglossum discum* (Smith, 1853)**

Distribution: Corsica, Sardinia, Israel, Asia Minor, Afghanistan, Northwest Africa, from Morocco to Tunisia, Spain, Sicily and Calabria, South France (Pauly, 2007 - Atlas Hymenoptera), Turkey: Bursa, Bilecik, Edirne, İstanbul, Yalova, Balıkesir, Ankara, Konya, Karaman, Nevşehir, Çankırı, Samsun, Afyon, Tunceli, Van (as *Halictus morbillosus* ssp. *morbillosus* in Warncke, 1975).

Material examined: İhsaniye, Gazlıgöl, 1056m, 08. VI. 2006, 1♀; İhsaniye, Susuzosmaniye, 1098m, 08. VI. 2006, 1♀; Central, Saadet, 1176m, 20. VI. 2006, 3♀♀; Başmakçı, Yukarı Beltarla, 959m, 04. VII. 2006, 1♀; Emirdağ, Kılıçlar, 910m, 06. VII. 2006, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 11♀♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀; Bolvadin, Hamidiye, 975m, 28. VI. 2007, 1♀; Çobanlar, Central, 991m, 28. VI. 2007, 9♀♀; Sultandağı, Yeşilçiftlik, 998m, 25. VII. 2007, 1♂; Hocalar, Devlethan, 1036m, 27. VII. 2007, 1♀; Sandıklı, Gürsu, 1000m, 27. VII. 2007, 1♀; Dinar, Akgün, 1028m, 17. VII. 2008, 1♀.

***Lasioglossum fallax* (Morawitz, 1873)**

Distribution: European Russia to the Caucasus, Georgia, Turkey, Iran, Turkmenistan, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, Mongolia (Pauly, 2007 - Atlas Hymenoptera), Turkey: Eskişehir (OLML), Kayseri, Erzurum (Warncke, 1975).

Material examined: Sultandağı, Yakasenek, 1086m, 30. IV. 2007, 1♀.

***Lasioglossum laevigatum* (Kirby, 1802)**

Distribution: All around Europe and southwestern Asia (Pesenko *et al.*, 2000), Turkey: Ankara, Ardahan, Artvin, Aydın, Gümüşhane, İstanbul, Kayseri, Konya, Mersin, Sakarya, Sivas (Warncke, 1975).

Material examined: İncehisar, Karakaya, 1173m, 19.VI.2006, 1♀.

***Lasioglossum lativentre* (Schenck, 1853)**

Distribution: Widely distributed in South and Central Europe to South Sweden and St. Petersburg in the north, Turkey and Iran (Pesenko *et al.*, 2000), Turkey: Edirne, Balıkesir, Muğla (Warncke, 1975), Erzurum, Ardahan (Özbek, 1979).

Material examined: Bolvadin, Hamidiye, 990m, 24. V. 2006, 3♀♀; Central, Saadet, 1176m, 20. VI. 2006, 3♀♀; Sinanpaşa, Tazlar, 1365m, 05. VI. 2006, 1♀; Dinar, Cumhuriyet, 1109m, 05. VI. 2008, 1♀; Dinar, Tekin, 878m, 17. VI. 2008, 1♀.

***Lasioglossum leucozonium* (Schrank, 1781)**

Distribution: Holarctic (Pesenko *et al.*, 2000), Turkey: Ankara, İstanbul, Adapazarı, Antalya, Adana, Konya, Nevşehir, Bolu, Aydın, Denizli, Erzurum, Kars, Ardahan (Warncke, 1975), Ağrı, Erzurum, Kars, Muş (Özbek, 1979).

Material examined: Başmakçı, Ovacık, 1228m, 07. VI. 2006, 1♀; Dinar, Akgün, 1028m, 17. VII. 2008, 1♀.

***Lasioglossum quadrinotatum* (Kirby, 1802)**

Distribution: Widely distributed in West Palaearctic region to West Kazakhstan and Uzbekistan in the east (Pesenko *et al.*, 2000), Turkey: Edirne, Erzurum (Warncke, 1975).

Material examined: Dinar, Karabedir, 1164m, 19. IV. 2008, 1♀.

***Lasioglossum sexnotatum* (Kirby, 1802)**

Distribution: European and West Asian, to Mongolia in the east (Pesenko *et al.*, 2000), Turkey: Bursa, İstanbul, Adapazarı, Nevşehir, Afyon, Erzurum (Warncke, 1975), Muş, Ardahan (Özbek, 1979).

Material examined: Sandıklı, Akdağ NP, 1462m, 21. VI. 2006, 1♀.

***Lasioglossum subfasciatum* (Imhoff, 1832)**

Distribution: South and Central Europe, Caucasus, Iran (Pesenko *et al.*, 2000), Turkey: İstanbul, Antalya, Kayseri, Erzurum (Warncke, 1975).

Material examined: Şuhut, Efeköy, 1010m, 29. IV. 2007, 1♀.

***Lasioglossum xanthopus* (Kirby, 1802)**

Distribution: Widely distributed in warm and temperate parts of West Palaearctic region, to East Kazakhstan and West Mongolia (Pesenko *et al.*, 2000), Turkey: Ankara, Samsun, Afyon, Karaman, Erzurum (Warncke, 1975).

Material examined: Şuhut, Demirbel, 1134m, 19. IV. 2008, 1♂; Dinar, Tekin, 893m, 19. IV. 2008, 1♂; Dinar, Cumhuriyet, 1109m, 05. VI. 2008, 1♀.

***Seladonia cephalica* (Morawitz, 1873)**

Distribution: Greece, Turkey (Pauly, 2007 - Atlas Hymenoptera), Bulgaria, Cyprus (Polaszek, 2004 - Fauna Europaea), Turkey: Ardahan (Özbek, 1979), Ağrı, Artvin, Erzincan, Erzurum, Gaziantep, Hakkari, Hatay, İstanbul, Mersin, Niğde, Samsun, Sivas, Şanlıurfa, Tunceli, Van (OLML).

Material examined: Başmakçı, Yukarı Beltarla, 959m, 4. VII. 2007, 2♀♀; Şuhut, Uzunpınar, 1250m, 16. VIII. 2006, 1♀.

***Seladonia confusa* (Smith, 1853)**

Distribution: Holarctic (Pesenko *et al.*, 2000), Turkey: First detailed record.

Material examined: Sandıklı, Akdağ NP, 1472m, 18. V. 2008, 1♀.

***Seladonia kessleri* (Bramson, 1879)**

Distribution: From Pyrenees to east of Turkey (Pauly, 2007 - Atlas Hymenoptera), Turkey: Ankara, Samsun (Warncke, 1975)

Material examined: Sultandağı, Train station, 976m, 25. VII. 2007, 2♀♀; Şuhut, Uzunpınar, 1250m, 16. VIII. 2006, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♀; Başmakçı, Ovacık, 1228m, 07. VI. 2006, 1♀.

***Seladonia pollinosa* (Sichel, 1860)**

Distribution: Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: İstanbul, Adana, Urfa, Diyarbakır, Ankara, Konya, Nevşehir, Samsun, Kütahya, Mersin, Erzurum, Ağrı (Warncke, 1975), Erzincan, Kars (Özbek, 1979).

Material examined: Emirdağ, Kılıçlar, 915m, 23. VI. 2006, 3♀♀; Çay, Koçbeyli, 1453m, 04. VII. 2006, 1♀; Emirdağ, Kılıçlar, 910m, 06. VII. 2006, 1♀; Emirdağ, Emirin, 976m, 15. VIII. 2006, 1♀; Central, Gözsüzlü, 983m, 27. VI. 2007, 3♀♀; Çay, Orhaniye, 984m, 27. VI. 2007, 1♀; Bolvadin, Derekarabağ, 972m, 28. VI. 2007, 1♀; Bolvadin, Hamidiye, 975m, 28. VI. 2007, 1♀; Çobanlar, Central, 991m, 28. VI. 2007, 7♀♀; Şuhut, Başören, 1880m, 26. VII. 2007, 1♀; Hocalar, Yağcı, 1404m, 27. VII. 2007, 1♀; Dazkırı, Yenice, 876m, 17. VI. 2008, 1♀; Bayat, Central, 1213m, 15. VII. 2008, 1♀; İscehisar, Alanyurt, 1386m, 15. VII. 2008, 1♀; Dinar, Burunkaya, 1020m, 16. VII. 2008, 1♂.

***Seladonia seladonia* (Fabricius, 1794)**

Distribution: Steppes of Eurasia; from Portugal to Kyrgyzstan (Pauly, 2007 - Atlas Hymenoptera), East Palaearctic (Polaszek, 2004 - Fauna Europaea), Turkey: Adana, Karaman, Sivas, Erzurum (Warncke, 1975), Ankara (Dikmen & Çağatay, 2007).

Material examined: Sandıklı, Akdağ NP, 1480m, 26. VI. 2007, 1♀; Bayat, Central, 1213m, 15. VII. 2008, 1♂.

***Seladonia semitica* (Blüthgen 1955)**

Distribution: Iran, Israel and Turkey (Pauly, 2007 - Atlas Hymenoptera), Turkey: First detailed record.

Material examined: Şuhut, Uzunpınar, 1250m, 16. VIII. 2006, 1♀.

***Seladonia smaragdula* (Vachal, 1895)**

Distribution: West Palaearctic, mostly inhabiting steppes (Pesenko *et al.*, 2000), East Palaearctic, Near East (Polaszek, 2004 - Fauna Europaea), Turkey: İstanbul, Bursa, Adana, Antalya, Samsun (Warncke, 1975), Erzurum (Özbek, 1979), Ankara, Hakkari (as *Halictus buteus* in Warncke, 1984).

Material examined: Hocalar, Yağcı, 1404m, 27. VII. 2007, 2♀♀.

***Seladonia tuberculata* (Blüthgen, 1924)**

Distribution: Ukraine, Near East (Polaszek, 2004 - Fauna Europaea), Turkey: Diyarbakır, Urfa, Ankara (Warncke, 1975)

Material examined: Emirdağ, Emirin, 976m, 15. VIII. 2006, 1♂.

***Seladonia vestita* (Lepelletier, 1841)**

Distribution: Steppes of Eurasia, from Iberia to Mongolia (Pauly, 2007 - Atlas Hymenoptera), North Africa (Polaszek, 2004 - Fauna Europaea), Turkey: First detailed record.

Material examined: Çobanlar, Central, 988m, 24. V. 2006, 1♀; Bolvadin, Derekarabağ, 972m, 28. VI. 2007, 6♀♀; Başmakçı, Akkoyunlu, 954m, 17. VI. 2008, 1♀.

***Thrincohalictus prognathus* (Pérez, 1912)**

Distribution: Greece (Aegean Islands), Turkey, Lebanon, Israel, Syria, Armenia, Iran (Pauly, 2007 - Atlas Hymenoptera), Turkey: Ankara, Nevşehir, Niğde, Kayseri (Warncke, 1975), Bayburt, Erzurum, Muş (Özbek 1979).

Material examined: Bolvadin, Hamidiye, 990m, 24. V. 2006, 1♀; Dinar, Cumhuriyet, 1109m, 05. VI. 2008, 1♀.

Subfamily: NOMIINAE**Tribe: Nomiini*****Nomiapis armata* (Olivier, 1812)**

Distribution: Spain, Italy, Bulgaria, Macedonia, Greece, Crimea, Armenia, Azerbaijan, Turkey (Astafurova and Pesenko, 2006), Turkey: First detailed record.

Material examined: Bayat, Dođlat, 1219m, 24. VII. 2007, 1♂.

***Nomiapis bispinosa* (Brullé, 1832)**

Distribution: North Africa, Southwest Europe, South Ukraine, South of European Russia, Azerbaijan (Astafurova and Pesenko, 2006), Greece, Turkey, Turkmenistan, Kazakhstan, Uzbekistan, Iran, Afghanistan, Pakistan, Iraq, Israel (Pauly, 2007 - Atlas Hymenoptera), Turkey: First detailed record.

Material examined: Emirdađ, Hisar, 1109m, 28. VI. 2007, 1♂.

***Nomiapis diversipes* (Latreille, 1806)**

Distribution: North Africa (Algeria, Libya, Egypt), Moldova, Ukraine, Russia, Transcaucasia, Kyrgyzstan, Afghanistan, Pakistan, Mongolia (Astafurova and Pesenko, 2006), South France, Italy, Switzerland, Austria, Poland, Slovakia, Croatia, Bulgaria, Greece, Turkey, Cyprus, Syria, Lebanon, Israel, Jordan, Uzbekistan, Kazakhstan, Turkmenistan, Iran, Pakistan, Mongolia (Pauly, 2007 - Atlas Hymenoptera), Turkey: Erzurum (Özbek, 1979), Ankara (Dikmen & Çađatay, 2007)

Material examined: Emirdađ, Kılıçlar, 915m, 23. VI. 2006, 4♀♀; Emirdađ, Hisar, 1109m, 28. VI. 2007, 1♂.

***Nomiapis equestris* (Gerstaecker, 1872)**

Distribution: Greece, Lebanon, Palestine, Cyprus, Turkey, Armenia, Azerbaijan, Iran (Astafurova and Pesenko, 2006), Turkey: Erzurum (Özbek, 1979), Muđla (Zanden, 1997), İzmir (Astafurova and Pesenko, 2006).

Material examined: Şuhut, Uzunpınar, 16. VIII. 2006, 1♀; Emirdađ, Bademli, 1112m, 28. VI. 2007, 1♂.

***Nomiapis squamata* (Morawitz, 1895)**

Distribution: Spain, Greece, Czech, Macedonia, Armenia, Azerbaijan, Israel, Cyprus, Turkey, Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan, Iran, Pakistan (Astafurova and Pesenko, 2006), Turkey: First detailed record.

Material examined: Emirdađ, Kılıçlar, 915m, 23. VI. 2006, 1♀.

Subfamily: NOMIOIDINAE**Tribe: Nomioidini*****Nomioides minutissimus* (Rossi, 1790)**

Distribution: A common steppe and semi-desert, West Palaearctic species (Pesenko & Pauly, 2005), from Canary Islands to Mongolia (Pesenko *et al.*, 2000), Turkey: Erzurum (Özbek, 1979), Ankara (Dikmen & Çađatay, 2007).

Material examined: Sandıklı, Akdađ NP, 1462m, 21. VI. 2006, 1♀; İhsaniye, Üçlerkayası, 1152m, 08. VI. 2006, 1♀; İncehisar, Alanyurt, 1386m, 15. VIII. 2006, 1♀; Emirdađ, Dereköy, 976m, 06. VII. 2006, 1♀, 6♂♂.

DISCUSSION

As a result of the taxonomic investigation of the collected specimens (N: 809), 8 genera and 80 species belonging to the Bombini (11) and Halictidae (69) families of Apoidea (Hymenoptera) were determined from Afyonkarahisar Province (Turkey). The Halictidae was the most abundant (N: 553, 68%) group and represented the highest species counts (69 species, 77%). Besides, it was found that the members of the following genera *Bombus* Latr., *Evyllaesus* Robertson, *Halictus* Latr., *Lasioglossum* Curtis and *Seladonia* Robertson are widely distributed within 17 boroughs (Table 1). Furthermore, 49 of the determined species in here are reported for the first time from the Aegean Region and 67 of them are also reported for the first time from this province.

Table 1. Number of collected individuals of the bee genera from 17 borough of Afyonkarahisar.

	<i>Bombus</i>	<i>Evyllaesus</i>	<i>Halictus</i>	<i>Lasioglossum</i>	<i>Normiapis</i>	<i>Normioides</i>	<i>Seladonia</i>	<i>Thrincohalictus</i>	# of Individuals
Başmakçı	17	5	49	3	0	0	4	0	78
Bayat	6	0	22	0	1	0	2	0	31
Bolvadin	0	14	7	4	0	0	8	1	34
Çay	38	12	22	1	0	0	2	0	75
Çobanlar	0	3	13	9	0	0	8	0	33
Dazkırı	17	8	32	1	0	0	1	0	59
Dinar	21	5	14	10	0	0	1	1	52
Emirdağ	3	8	44	1	8	7	6	0	77
Hocalar	3	0	15	1	0	0	4	0	23
İhsaniye	12	6	2	2	0	1	0	0	23
İscehisar	14	0	6	1	0	1	1	0	23
Kızılören	9	10	1	0	0	0	0	0	20
Merkez	7	34	4	17	0	0	3	0	65
Sandıklı	39	6	36	3	0	1	2	0	87
Sinanpaşa	41	4	10	1	0	0	0	0	56
Sultandağı	7	14	3	2	0	0	6	0	32
Şuhut	19	4	11	2	1	0	4	0	41
# of Individuals	253	133	291	58	10	10	52	2	809

Summarizing the whole data on the Halictidae fauna of Turkey from Warncke (1975 and 1984), Özbek (1979), Polaszek (2004), Pauly (2007), Pauly and Pesenko (2007) suggests that there are nearly 250-300 Halictidae species are found in Turkey. Moreover Özbek (1979) reported 96 halictid species from east Anatolia. When we compare these accounts with the currently found fauna of Afyonkarahisar we can easily conclude that this province is very rich that it represents nearly the quarter percent of the total Halictidae fauna of Turkey. The situation is also same for the

Bombus spp. and this province represents nearly the quarter percent of fauna. All of these findings are also congruent with our assumptions that the richness of the plants in the region may be the reason of the richness of the bee fauna. On the other hand, this study presents the first detailed records for *Evylaeus politus* (Schenck, 1853), *Nomiapis armata* (Olivier, 1812), *N. bispinosa* (Brullé, 1832), *N. squamata* (Morawitz, 1895), *Seladonia confusa* (Smith, 1853), *S. semitica* (Blüthgen 1955) and *S. vestita* (Lepeletier, 1841) in Turkey. According to TÇV (2005), the Apoidea fauna of Turkey should be richer than it had been documented so far. New studies would be helpful in determining the true richness of the bee fauna of this region and also Turkey.

ACKNOWLEDGMENTS

The authors wish to thank Dr. Yıldız and M.Sc. Alsancak (Central Research Institute for Field Crops, Ankara, TURKEY) for preparing the map of Afyonkarahisar province. Fatih Dikmen received support from the SYNTHESYS Project <http://www.synthesys.info/> which is financed by European Community Research Infrastructure Action under the FP6 “Structuring the European Research Area” Programme for his visit to NHMW and ZIN. The research was financially supported by the General Directorate of Agricultural Research, Ministry of Agriculture and Rural Affairs (TAGEM/TA/07/06/06/001).

REFERENCES

- Alford, D. V., 1975, *Bumblebees*. Davis-Poynter, London, 352.
- Amiet, F., Herrmann, M., Müller, A., Neumeyer, R., 2001, *Fauna Helvetica: Apidae 3. Halictus, Lasioglossum*. CSCF, SEG, Neuchâtel, 208.
- Anasiewicz, A., Warakomska, Z., 1977, Pollen food of the bumble-bees (*Bombus* Latr., Hymenoptera) and their association with the plant species in the Lublin Region. *Ekologia Polska*, 25(2): 309-322.
- Anonim, 2006, T.C. *Başbakanlık Devlet İstatistik Enstitüsü, Tarımsal Yapı (Üretim, Fiyat, Değer)*. Türkiye İstatistik Kurumu, Ankara, 526.
- Astafurova, Yu. V., Pesenko Yu. A., 2006, Bees of the subfamily Nomiinae (Hymenoptera: Halictidae) of Russia and adjacent countries: an annotated list. *Entomologicheskoe Obozrenie*, 85(1): 206-217. [In Russian with English summary. English translation: *Entomological Review*, 86(1): 74-84].
- Atanassov, N. 1975, Artenzusammenstellung und verbreitung der *Bombus* Latr. und *Psithyrus* Lep. (Hymenoptera) in den Rhodopen. *Academia Bulgare des Sciences, La Faune des Rhodopes, Materiaux, Sofia*. 145-160.
- Aytekin, A. M., Terzo, M., Rasmont, P., Cagatay, N., 2007, Landmark based geometric morphometric analysis of wing shape in *Sibiricobombus* Vogt (Hymenoptera: Apidae: *Bombus* Latreille). *Annales de la Soc. Entomologique de France*, 43: 95-102.
- Banaszak, J. 1969, Variability in density of bumblebee in Europe (Hymenoptera: Apoidea: *Bombus* Latr.). *Polski Pismo Entomologiczne*, 65(1): 21-32.
- Blom, J. Van Der, 1989, *De Hommels van Nederland, Cip-Gegevens Koninklijke Bibliotheek*. Den Haag, Holland, 45.
- Cölln, K., Schlüter, R., 1996, Zur kenntnis der hummeln und schmarotzerhummeln von Köln (Hymenoptera, Aculeata: *Bombus* et *Psithyrus*). *Decheniana- Beihefte*, 35: 305-312.
- Dias, B. S. F., Raw, A., Imperatri-Fonseca, V. L., 1999, *The São Paulo declaration on pollinators: report on the recommendations of the workshop on the conservation and sustainable use of pollinators in agriculture with emphasis on bee*. Brasília: Brazilian Ministry of the Environment (MMA), 66.

- Dikmen, F., Çağatay, N., 2007, Ankara'daki tozlaştırıcı arılardan Halictidae (Apiformes: Apoidea: Hymenoptera) familyası üzerine faunistik çalışmalar. *Uludağ Arıcılık Dergisi*, 7(3): 94-101.
- Ebmer, A. W., 1969, Die bienen des genus *Halictus* Latr. s. I. im grossraum von Linz (Hymenoptera, Apidae): systematik, biogeographie, ökologie und biologie mit berücksichtigung aller bisher aus Mitteleuropa bekannten arten, teil I. *Naturkundlichen Station der Stadt Linz*, 133-183.
- Ebmer, A. W., 1975, Neue Westpaläarktische Halictidae. (Halictinae, Apoidea). Teil III. *Linzer Biologische Beiträge*, 7(1): 41-118.
- Engel, M. S., 2001, A Monograph of the Baltic Amber Bees and Evolution of the Apoidea (Hymenoptera). *Bulletin of the American Museum of Natural History*, New York, 259:1-192.
- Gogala, A., 1999, Bee fauna of Slovenia: checklist of species (Hymenoptera: Apoidea). *Scopolia*, 42: 1-79.
- Grace, A., 2010, *Introductory Biogeography to Bees of the Eastern Mediterranean and Near East*. Bexhill Museum, Sussex, United Kingdom, 284. <http://www.wildrye.info/files/Grace2010.pdf>. 01.21.2011
- Grimaldi, D., Engel, M. S., 2005, *Evolution of the Insects*. Cambridge University Press. 755.
- Hänninen, P., 1962, *Bumblebee Species on Red Clover in Central Finland*. Publications of the Finnish State Agricultural Research Board. No: 197, 19.
- Heinrich, B., 1979, *Bumblebee Economics*. Cambridge, MA: Harvard University Press, 245pp.
- Iserbyt, S., Durioux, E., Rasmont, P., 2008, The remarkable diversity of bumblebees (Hymenoptera: Apidae: *Bombus*) in the Eyne Valley (France, Pyrénées-Orientales). *Annales de la Société Entomologique de France*, 44(2): 211-241.
- Ito, M., 1985 *Supraspecific Classification of Bumblebees Based on Characters of Male Genitalia*. Zoological Section, The Institute of Low Temperature Science Publ. Hokkaido University, Japan, 143.
- Mänd, M., Maavara, V., Martin, A. J., Mänd, R., 1996, The density of *Bombus lucorum* (L.) required to effect maximum pollination of alfalfa in Estonia. *Journal of Apicultural Research*, 35(2): 79-81.
- Michener, C. D., 2007, *The Bees of the World*, second edition. John Hopkins Univ. Press, Baltimore, USA, 953.
- Monfared, A., Talebi, A. A., Tahmasbi, G., Williams, P.H., Ebrahimi, E. & Taghavi, A., 2007, A survey of the localities and food-plants of the bumblebees of Iran (Hymenoptera: Apidae: *Bombus*). *Entomologia Generalis*, 30(4): 283-299.
- Özbek, H., 1979, Doğu Anadolu Bölgesi Halictidae (Hymenoptera, Apoidea) faunası ve bunların ekolojisi. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi*, 10 (3/4): 27-41.
- Özbek, H., 2002, Arılar ve doğa. *Uludağ Arıcılık Dergisi*, 3: 22-25.
- Pauly, A., 2007, Atlas Hymenoptera, Halictidae-Section (except *Halictus*). <http://zoologie.umh.ac.be/hymenoptera>. 01.03.2010.
- Pauly, A., Pesenko, Yu. A., 2007, Atlas Hymenoptera. Halictidae-*Halictus* Section. <http://zoologie.umh.ac.be/hymenoptera/page.asp?id=70>. 01.03.2010.
- Pawlikowski, T., 1996, Pszczołowate – Apidae, Podrodzina Apinae, Klucze do oznaczania owadów Polski (Keys for the Identification of Polish Insects, Bees, Apidae, Subfamily: Apinae). *Polskie Towarzystwo Entomologiczne*, 24, Toruń, 56 (in Polish).
- Pawlikowski, T., 1999, *A Field Guide to Identification of Bumblebees (Hymenoptera: Apidae: Bombini) in Poland*. Wydawnictwo Uniwersytetu Mikołaja Kopernika, Toruń. 30.
- Pawlikowski, T., Pajak, E., 1995, Materiały do studiów nad strukturą zespołów żądłówek (Hymenoptera, Aculeata) Polski 3. Trzmielce (Apoidea, *Bombus* Latr.) miasteczka Walcza [The materials to studies on the community structure of Hymenoptera Aculeata in Poland. 3. Bumblebees (Apoidea, *Bombus* Latr.) in Walcz (Pomerania, NW Poland)]. *Acta Universitatis Nicolai Copernici Biologia*, 49(94): 3-18.
- Pekkarinen, A., 1979, Morphometric, colour and enzyme variation in bumblebees (Hymenoptera, Apidae, *Bombus*) in Fennoscandia and Denmark. *Acta Zoologica Fennica*, 158: 1-60.
- Pekkarinen, A., Teräs, I., 1977, Suomen Kimalaisista Ja Loiskimalaisista. *Luonnon Tutkija*, 81: 1-24.
- Pekkarinen, A., Teräs, I., 1993, Zoogeography of *Bombus* and *Psithyrus* in Northwestern Europe (Hymenoptera, Apidae). *Annales Zoologici Fennici*, 30, 187-208.

- Pesenko, Yu. A., 1978, A key to families of the superfamily Apoidea. In: Medvedev, G. S. (Ed.). A Key to Insects of the European Part of the USSR. Vol. 3, Hymenoptera. Leningrad (Nauka), Published by the Zoological Institute of the Academy of Sciences of the USSR, 280-281.
- Pesenko, Yu. A., 1984, A subgeneric classification of bees of the genus *Halictus* Latreille sensu stricto (Hymenoptera, Halictidae). *Entomologicheskoe Obozrenie*, 63(3): 340-357 [in Russian with English summary; English translation: *Entomological Review*, 1985, 63(3): 1-20].
- Pesenko, Yu. A., 1985, Systematics of the bees of the genus *Halictus* Latreille (Hymenoptera, Halictidae) with a description of 7th and 8th metasomal sterna of males: subgenus *Monilapis* Cockerell. *Trudy Zoologicheskogo Instituta, Akademiia Nauk SSSR*, 132: 77-105.
- Pesenko, Yu. A., 1986, An annotated key to the Palaearctic species of bees of the genus *Lasioglossum* sensu stricto (Hymenoptera, Halictidae) for females, with descriptions of new subgenera and species. *Trudy Zoologicheskogo Instituta, Akademiia Nauk SSSR*, 159: 113-151.
- Pesenko, Yu. A., 2005, New data on the taxonomy and distribution of the Palaearctic halictids: genus *Halictus* Latreille (Hymenoptera: Halictidae). *Entomofauna*, 26(18): 313-348.
- Pesenko, Yu. A., 2007, *The family Halictidae (Hymenoptera): general*. In: A key to insects of the Russian Far East. Vol. IV., Vladivostok (Dal'nauka), 745-754 [in Russian].
- Pesenko, Yu. A., Banaszak, J., Radchenko, V. G., Cierzniak, T., 2000, *Bees of the family Halictidae (excluding Sphecodes) of Poland: taxonomy, ecology, bionomics*. Bydgoszcz, Poland: Bydgoszcz Press, 348.
- Pesenko, Yu. A., Pauly, A., 2005, Monograph of the bees of the subfamily Nomioiinae (Hymenoptera: Halictidae) of Africa (excluding Madagascar). *Annales de la Societe Entomologique de France*, 41(2): 129-236.
- Pittioni, B., 1937, Bestäubung und nektarraub beim gelben eisenhut (*Aconitum vulparia* Rchb). *Aus der Heimat, Stuttgart*, 50: 209-213.
- Pittioni, B., 1938, Die hummeln und schmarotzerhummeln der Balkan-Halbinsel mit besonderer berücksichtigung der Fauna Bulgariens I: allgemeiner teil. *Mitteilungen aus den Koninglichen Naturwissenschaftlichen Instituten in Sofia*, 11: 12-69.
- Pittioni, B., 1939, Die hummeln und schmarotzerhummeln der Balkan-Halbinsel mit besonderer berücksichtigung der Fauna Bulgariens II: spezieller teil. *Mitteilungen aus den Koninglichen Naturwissenschaftlichen Instituten in Sofia*, 12: 49-122.
- Polaszek, A. 2004, *Fauna Europaea: Apidae*. In: Noyes, J. (Ed.). *Fauna Europaea: Hymenoptera: Apocrita*. Fauna Europaea version 1.1. <http://www.faunaeur.org>. 01.03.2010.
- Popov, V. B., 1931, Zur kenntnis der Paläarktischen schmarotzerhummeln (*Psithyrus* Lep.). *Eoswalhiete*, 7: 131-209.
- Prys-Jones, O. E., Corbet, S. A., 1987, *Bumblebees*. Cambridge University Press, Cambridge, 86.
- Radoszkowski, O. 1884, Des armures copulatrices des males du genre *Bombus*. *Bulletin of the Moscow Society of Naturalists Biological Series*, 59: 50-92.
- Rasmont, P., 1983, Catalogue commenté des bourdons de la région Ouest-Paléarctique (Hymenoptera, Apoidea, Apidae). *Notes Fauniques de Gembloux*, 7: 1-71.
- Rasmont, P., Adamski, A., 1995, Les bourdons de la corse (Hymenoptera, Apoidea, Bombinae). *Notes Fauniques de Gembloux*, 31: 3-87.
- Rasmont, P., Aytekin, A. M., Kaftanoğlu, O., Flagothier, D., 2009, Atlas Hymenoptera. Atlas of the bumblebees of Turkey. <http://www.atlashymenoptera.net/page.asp?id=103>. 01.03.2010
- Scholl, A., Obrecht, E., Owen, R. E., 1990, The genetic relationship between *Bombus moderatus* Cresson and the *Bombus lucorum* auct. species complex (Hymenoptera: Apidae). *Canadian Journal of Zoology*, 68: 2264-2268.
- Semmens, T. D., Turner, E., Buttermore, R., 1993, *Bombus terrestris* (L.) (Hymenoptera: Apidae) now established in Tasmania. *Journal of Australian Entomological Society*, 32: 346-346.
- Skorikow, A., 1928, Die hummelfauna Turkestans und ihre beziehungen zur Zentralasiatischen fauna (Hymenoptera, Bombidae). *Abhandlungen Der Pamir-Expedition*, VIII: 17-247.

- Stevanovic, A. M., Demajo, M. A., 1985, Grada zu faunu bumbara (Bombinae, Apoidea, Hym.) Jugoslavije. *Glasnik Prirodnjackog Muzeja U Beogradu B.* 40: 183-190.
- TÇV (Türkiye Çevre Vakfı), 2005, *Türkiye'nin Biyolojik Zenginlikleri*, TÇV Yayını, Ankara, 328.
- Tkalcu, B., 1968, Beiträge zur kenntnis der fauna Afghanistans. *Acta Musei Moraviae (Casopis Moravskeho Musea)*, Supplementum, 189-210.
- Urbanova, K., Halik, J., Hovorka, O., Kindl, J., Valterova, I., 2004, Marking pheromones of the cuckoo bumblebee males (Hymenoptera, Apoidea, *Bombus* Latreille): compositions of labial gland secretions of six species found in the Czech Republic. *Biochemical Systematics and Ecology*, 32: 1025-1045.
- Warncke, K., 1975, Beitrag zur systematik und verbreitung der furchenbienen in der Türkei (Hymenoptera, Apoidea, *Halictus*). *Polskie Pismo Entomologiczne*, 45(1): 81-128.
- Warncke, K., 1984, Ergänzungen zur verbreitung der bienengattung *Halictus* Latr. in der Türkei (Hymenoptera, Apidae). *Linzer Biologische Beitrage*, 16(2): 277-318.
- Zanden, G. van der, 1997, Einige notizen über die gattungen *Pseudapis* Kirby 1900 und *Nomia* Latreille 1804 in der Paläarktis. *Linzer Biologische Beitrage*, 29(2): 753-757.

Received: April 21, 2010

Accepted: February 15, 2011

Copyright of Journal of the Entomological Research Society is the property of Journal of the Entomological Research Society and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.