

The Agathidinae (Hymenoptera: Braconidae) Fauna of the Marmara Region

Özlem ÇETİN, Ahmet BEYARSLAN

Department of Biology, Faculty of Arts and Sciences, University of Trakya,
22030, Edirne - TURKEY

Received: 29.02.2000

Abstract: This study was carried out to determine the species of the subfamily Agathidinae (Hymenoptera: Braconidae) in the Marmara region of Turkey. Samples were collected from 47 localities between 1985 and 1997. A total of 16 species were determined.

The results revealed that *Agathis fulmeki* Fischer and *Bassus linguarius* (Nees von Esenbeck) are new records for the Turkish fauna. *Agathis malvacearum* Latreille, *A. lugubris* (Foerster, 1862) and *Baeognatha armeniaca* Telenga are new records for the Marmara region. *A. syngenesiae* Nees von Esenbeck, *A. umbellatarum* Nees von Esenbeck, *A. nigra* Nees von Esenbeck, *A. breviseta* Nees von Esenbeck, *A. assimilis* Kokujev, *A. rufipalpis* Nees von Esenbeck, *A. fuscipennis* (Zetterstedt), *A. melpomene* Nixon, *A. anglica* Marshall, *Bassus tumidulus* (Nees von Esenbeck), and *Disophrys caesa* (Klug) were already known in the Marmara region. *A. syngenesiae* Nees von Esenbeck, *A. umbellatarum* Nees von Esenbeck, and *A. anglica* Marshall are common species in the Palearctic region.

Key Words: Marmara region, Braconidae, Agathidinae, Fauna, Turkey

Marmara Bölgesi Agathidinae (Hymenoptera: Braconidae) Faunası

Özet: Marmara Bölgesi' nin Agathidinae (Hymenoptera: Braconidae) türlerini saptama amacı ile yapılan bu araştırmada 1985 ve 1997 yılları arasında 47 lokaliteden toplanan örnekler incelenmiş ve 16 tür saptanmıştır. *Agathis fulmeki* Fischer ve *Bassus linguarius* (Nees von Esenbeck) Türkiye faunası için, *Agathis malvacearum* Latreille, *Agathis lugubris* (Foerster, 1862), *Baeognatha armeniaca* Telenga Marmara Bölgesi faunası için yeni kayıt niteliği taşımaktadır.

Agathis syngenesiae Nees von Esenbeck, *A. umbellatarum* Nees von Esenbeck, *A. nigra* Nees von Esenbeck, *A. breviseta* Nees von Esenbeck, *A. assimilis* Kokujev, *A. rufipalpis* Nees von Esenbeck, *A. fuscipennis* (Zetterstedt), *A. melpomene* Nixon, *A. anglica* Marshall, *Bassus tumidulus* (Nees von Esenbeck), *Disophrys caesa* (Klug) daha önce Marmara Bölgesi'nde saptanan türlerdir. *Agathis syngenesiae* Nees von Esenbeck, *A. umbellatarum* Nees von Esenbeck, *A. anglica* Marshall Palearktik'te yaygın türlerdir.

Anahtar Sözcükler: Marmara Bölgesi, Braconidae, Agathidinae, Fauna, Türkiye

Introduction

Species of the subfamily Agathidinae (Hym: Braconidae) are very small wasps. Many members of the Agathidinae are important for the natural control of pest species of Lepidoptera. They live in the several species of Blastobasidae, Coleophoridae, Gelechiidae, Noctuidae, Oecophoridae, Pyralidae, Sesiidae, Tineidae and Tortricidae (Lepidoptera). Eggs usually are laid in the first or second instar larvae and the adult parasitoid members spin their cocoon after the final instar of the host (1).

Little is known about the Agathidinae fauna of Turkey. To date, a total of 24 species have been given in the literature (2, 3, 4, 5, 6). The first detailed faunistic study of the Agathidinae fauna of Turkey was carried out by Zettel and Beyarslan in various regions of Turkey. They reported a total of 21 species, one of which was described as new to science and 14 of which were new records for the Turkish Agathidinae fauna (4).

The Marmara region is about 67300 km² and it covers 1/8 of the superficies of the Turkish mainland. The

research area is represented by deciduous and scrophyllous forests (25%), cultivated land (32%), fallow land (6%), meadow (23%) and unproductive land (14%). Forest habitats are situated in the Istranca, Ganos and Koru mountains in the European part of Turkey, and Samanlı, Uludağ and Kaz Mountains in the Asian part. The region may be represented by different faunal elements since the region has different habitats such as geographical humid forests, dry forests, anthropological steppe and cultivated lands. Moreover, from the biogeographic point of view, Istranca, Uludag and Kaz Mountains are known to have served as refugial zones during glaciation periods. Also, the Bosphorus and Dardanelles straits constitute effective barriers, minimising the distribution of terrestrial and freshwater animals. Consequently, this study was undertaken to determine the Agathidinae species of the Marmara region and therefore to contribute to the Turkish fauna as well as presenting useful data on the faunal distribution of animals.

Materials and Methods

Adult specimens of Agathidinae from different habitats of the Marmara region were collected between 1985 and 1997 using traps from grass-type plants. They were transferred into suction tubes and killed immediately by KCN. Samples were then stored and labelled according to taxonomic rules and regulations.

The pertinent literature was used for taxonomical examination of materials. In addition, adult Agathidinae species from various regions of Turkey collected by Beyarslan were used as comparison materials.

Result and Discussion

A total of 118 samples were collected from 47 localities (Table and Figure 1). Sixteen species belonging to 4 genera of the subfamily Agathidinae (Hym: Braconidae) were identified and the key to the species is presented.

Key to the species of Agathis Latreille, 1804.

1. Galea hardly protruding, about as long as wide, antecellar area differentiated, triangular and body black; length of ovipositor sheath 0.7-0.8 times fore wing; tarsal claws without distinct acute lobe;

- antennal segments 20-24; length of fore wing 2-3 mm *A. lugubris* (Foerster)
- Galea distinctly protruding, distinctly longer than wide; if galea rather short, then part of body yellowish, antecellar area not developed and/or ovipositor sheath longer than fore wing; tarsal claws, number of antennal segments, and length of fore wing variable without distinct acute lobe; antennal segments 20-24; length of fore wing 2-3 mm 2
- 2. Notauli absent or obsolescent; hind tarsal claw with distinct lobe *A. rufipalpis* Nees
- Notauli present, at least anteriorly distinctly impressed and frequently with medio-posterior groove; hind tarsal claw variable 3
- 3. Keel between antennal sockets distinctly protruding in dorso-lateral view, acute; if sometimes rather weakly so, then galea and labrum with distinct scaly micro-sculpture; antennal segments (27-) 28-31; depression in front of anterior ocellus triangularly elongate, distinct; body black; precoxal sulcus long, frequently complete or nearly so (Fig. 2A) 4
- Keel between antennal sockets not protruding in dorso-lateral view, obtuse or (largely) absent; galea and labrum largely smooth; number of antennal segments variable, usually less than 28; depression in front of anterior ocellus variable, usually much shorter or absent; colour of body variable; precoxal sulcus absent anteriorly (Fig. 2B) 5
- 4. Ovipositor sheath 0.4-0.6 times fore wing, about as long as metasoma or shorter; galea (and usually labrum) with distinct scaly micro-sculpture; hind basitarsus comparatively robust . *A. breviseta* Nees
- Ovipositor sheath 0.8-0.9 times fore wing, about 1.5 times length of metasoma; galea and labrum largely smooth or superficially micro-sculpture; hind basitarsus comparatively slender *A. assimilis* Kokujev
- 5. Galea acute apically, reaching beyond apex of fore coxa (Fig. 3A); its length usually about equal to height of head, and 1.4-1.9 times height of eye; if galea 0.7-0.8 times height of head or 1.2-1.4 times height of eye then femur yellowish or orange-brown *A. nigra* Nees

Table 1. Collection sites (for map reference see figure 1) .

- | | |
|---|---|
| 1. Adapazarı - Geyve - Bağlarbaşı | 25. Kırklareli - Demircihalil |
| 2. Bilecik - Yeniköy | 26. Kırklareli - Lüleburgaz - Türkgeldi |
| 3. Bilecik - Küplü | 27. Tekirdağ - Ganos Mountains |
| 4. Bilecik - Demirköy | 28. Kırklareli - Kofçaz |
| 5. Bilecik - Çakırpınar | 29. Kırklareli - İnece |
| 6. Bilecik - Pazaryeri | 30. Kırklareli - Yoğuntaş |
| 7. Bursa - İnegöl - Mezitli - Taraklı | 31. Çanakkale - Biga - Çınardere |
| 8. Bursa - İnegöl - Karacaköy | 32. Edirne - Lalapaşa - Vaysal |
| 9. Bursa - M. Kemalpaşa - Söğütalan | 33. Edirne - Değirmenyeni |
| 10. İstanbul - Belgrad forests - Bilezikçi Farm | 34. Edirne - Süleoğlu Dam |
| 11. İstanbul - Silivri | 35. Edirne - Tatarlar - Süleoğlu |
| 12. Bursa - Karacabey - Devlet Üretme Çiftliği | 36. Edirne - Süleoğlu - Kovankaya |
| 13. Bursa - Karacabey - Çingençeşme | 37. Edirne - Havsa - Necatiye |
| 14. İstanbul - Silivri - Küçüksinekli | 38. Edirne - Hadımağa |
| 15. Tekirdağ - Çorlu - Seymen | 39. Edirne - Lalapaşa - Kalkansöğüt |
| 16. Kırklareli - Demirköy | 40. Edirne - Keşan - Korudağ |
| 17. Kırklareli - Demirköy - Balaban | 41. Çanakkale - Kaz Mount |
| 18. Between Kırklareli - Demirköy and Balaban | 42. Edirne - Büyükdöllük |
| 19. Kırklareli - Demirköy - Boztaş | 43. Edirne - Karaağaç |
| 20. Tekirdağ - Çorlu - Deregündüzlü | 44. Edirne - Meriç |
| 21. Kırklareli - Ürünlü | 45. Edirne - Enez - Sütçüler |
| 22. Balıkesir - Gönen - Gebeçınar | 46. Edirne - Enez - Vakıf |
| 23. Tekirdağ - Naipköy | 47. Edirne - Enez |
| 24. Kırklareli - Dereköy | |

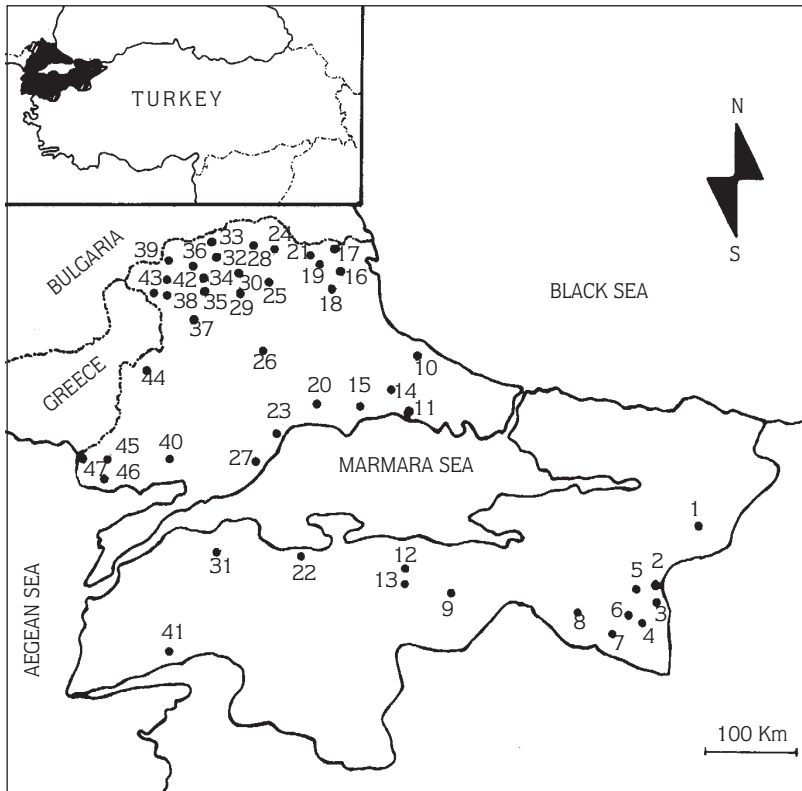


Figure 1. Map reference for the collection sites (Numbers denote the names of the sites in the Table).

- Galea obtuse apically, not surpassing apex of fore coxa (Fig. 3B); its length at most 0.6 times height of head, and up to 1.4 times height of eye; if galea 0.6 times height of head or 1.2-1.4 times height of eye then hind femur black or dark brown6
- 6. Malar space robust in lateral view, height of eye 2.1-2.7 times length of malar space (Fig. 4A); median keel of frons obtuse; ovipositor sheath slightly shorter than fore wing; basal half of middle and hind basitarsi largely yellowish-brown; length of mesosoma 1.6-1.9 times its height; ante-ocellar area distinctly protruding and comparatively wide anteriorly, and frequently with a small round convexity in depression submedially; second metasomal tergite transverse; vein 2-R1 of fore wing distinctly developed*A. fulmeki* Fischer
- Malar space less robust, height of eye of ♀ 0.8-2.0 times length of malar space (Fig. 4B); if 1.8-2.5 times then median keel of frons acute; ovipositor sheath at least somewhat longer than fore wing; ante-ocellar area narrow anteriorly, and basal half of middle and hind basitarsi largely dark brown; length of mesosoma usually less than 1.7 times its height; second tergite and length of vein 2-R1 of fore wing variable7
- 7. Posterior half of second metasomal tergite completely and densely sculptured; second submarginal cell of fore wing usually quadrate . . .8
- Posterior half of second metasomal tergite (largely) smooth, at most sparsely sculptured; shape of second submarginal cell of fore wing variable . . .9
- 8. Length of ovipositor sheath 0.6-0.9(-1.0) times fore wing; height of eye 1.4-1.8 times length of malar space; galea less developed; antennal segments 24-26; second submarginal cell often about as wide as high; small specimens . .*A. fuscipennis* (Zetterstedt)
- Length of ovipositor sheath 1.1-1.5 times fore wing; height of eye 1.1-1.4 times length of malar space; galea more developed; antennal segments 26-31; second submarginal cell usually higher than wide; somewhat larger specimens . . .*A. anglica* Marshall
- 9. Height of eye of ♀ 0.8-1.5 (of ♂ up to 1.4) times malar space; if 1.2-1.5 times than mesoscutum (partly) yellowish or orange, and with long medio-posterior groove, and temples more rounded posteriorly10
- Height of eye of ♀ 1.2-2.1 (of ♂ up to 2.5) times malar space; if 1.2-1.5 times than mesoscutum black medio-posterior groove of mesoscutum short or indistinct, and temples behind eyes subparallel11
- 10. Frons normal medially, and ante-ocellar area present, often more or less prominent; propodeum largely smooth dorsally (except for a pair of carinae medially) or micro-sculptured; head shorter in frontal view; second submarginal cell of fore wing slender and (sub)sessile (Fig. 5A); outer side of middle tibia usually with more than 4 robust pegs; frons usually black laterally; scutellum smooth medio-posteriorly*A. umbellatarum* Nees
- Frons short medially, and ante-ocellar area not developed or nearly so; propodeum (nearly) completely and coarsely (punctate) reticulate; head comparatively long in frontal view; second submarginal cell of fore wing slender and (sub)petiolate (Fig. 5B); outer side of middle tibia with 1-3 small pegs; frons usually yellow laterally; scutellum distinctly crenulate medio-posteriorly*A. syngenesiae* Nees
- 11. Ante-ocellar area prominent and with a distinct impression medially; median keel of frons more or less developed; length of ovipositor sheath 1.0-1.7 times fore wing; hind tarsal claws usually with medium-sized to large lobe; colour of hind femur variable12
- Ante-ocellar area not or scarcely prominent and with at most a shallow impression; median keel of frons absent or obsolescent; length of ovipositor sheath 0.9-1.3 (-1.5) times fore wing; hind femur completely black; hind tarsal claws without lobe or lobe rather small13
- 12. Hind femur bicoloured, basally blackish and apically yellowish or brownish, rarely dark brown apically or completely yellowish; if completely blackish then ante-ocellar area with short semi-circular depression or shortly triangular; if triangularly depressed then head less tapered ventrad; outer side of middle tibia usually with less than 6 pegs above apical patch*A. malvacearum* Latreille
- Hind femur (nearly) entirely black and head strongly tapering ventrad in frontal view; depression of ante-ocellar area usually long triangular; row on outer side of middle tibia with 4-8 (-13) pegs above apical patch*A. rufipalpis* Nees

13. Medio-basal swelling of second tergite normal, removed from lateral margins of tergite; ante-ocellar area more or less developed; in lateral view clypeus frequently slightly protruding; length of ovipositor sheath 1.0-1.3 (-1.5) times fore wing; hind claw with at most a weak, basal angulation (Fig. 6A)
*A. anglica* Marshall
- Medio-basal swelling of second tergite wide, comparatively flat, almost reaching lateral margins of tergite; ante-ocellar area absent; in lateral view clypeus not protruding compared with face; length of ovipositor sheath 0.9-1.0 times fore wing; hind claw with conspicuous lobe (Fig. 6B)
*A. melpomene* Marshall

Genus: Agathis Latreille, 1804

***Agathis syngenesiae* Nees von Esenbeck, 1814**

Agathis syngenesiae Nees von Esenbeck, 1814 Mag. Ges. nat. Fr. Berl. 6:12; 1834:133; Shenefelt, 1970: 358; Tobias, 1976: 209; 1986:280; 1986:196; Zettel & Beyarslan, 1992:122; Simbolotti & van Achterberg, 1999:113

Vipio insularis Snellen van Vollenhovan, 1873: 192, 218-219

Agathis insularis Shenefelt, 1970: 338; Krikken et al., 1981: 258

Agathis tadzhica Telenga, 1955: 248; Shenefelt, 1970: 359; Tobias, 1986:280

Agathis gilvus Papp, 1975: 302-306

Length: 4.5-5.6 mm (excluding ovipositor)

Material examined: 10 ♀♀, 10 ♂♂

Tekirdağ - Ganos mountains (oak forest, 350 m., 14.7.1986, 1 ♂), Edirne - Enez (pine forest, 20 m., 8.8.1991, 2 ♂♂), Kırklareli - Lüleburgaz - Türkgeldi (pasture, 60 m., 13.8.1992, 1 ♂), İstanbul - Silivri (meadow, 50 m., 25.8.1992, 2 ♂♂), Edirne - Havsa - Necatiye (pasture, 70 m., 30.8.1992, 1 ♂), Bursa - M.Kemalpaşa - Söğütalan (mixed forest, 400 m., 12.7.1993, 1 ♀), Edirne - Enez - Sütçüler (pasture, 30m, 5.8.1993, 1 ♀), Tekirdağ - Çorlu - Seymen (pasture, h: 100m., 12.8.1993, 4 ♀), Tekirdağ - Çorlu -

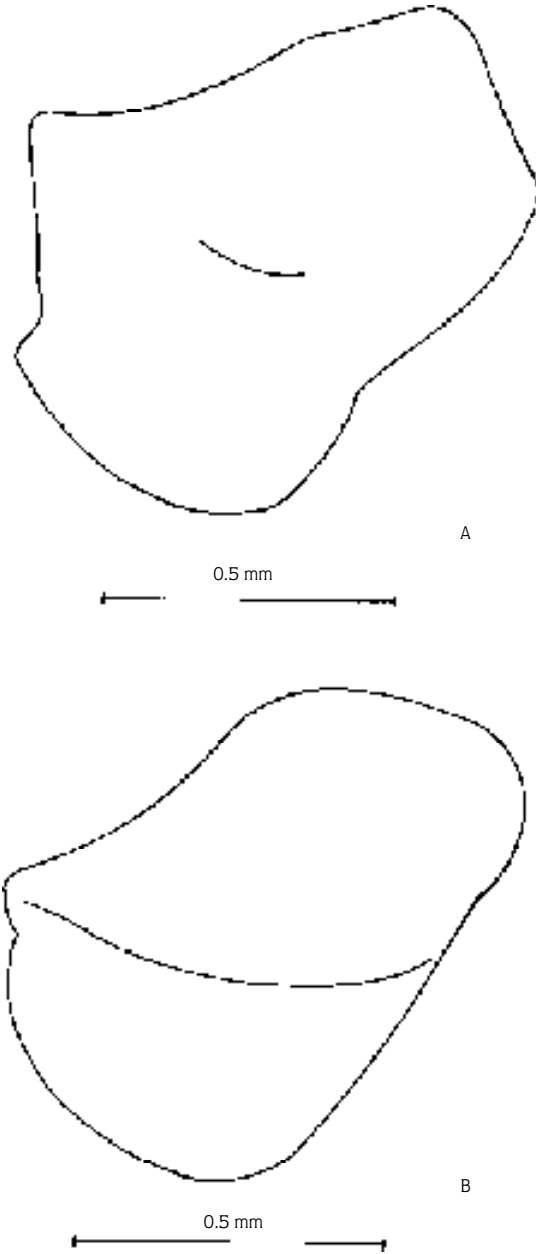


Figure 2. Precoxal sulcus
 A. *Agathis rufipalpis* Nees von Esenbeck.
 B. *A. breviseta* Nees von Esenbeck.

Deregündüzlü (pasture, 20 m., 12.8.1993, 1 ♀), Bursa - Karacabey - Çingençeşme (meadow, 700 m., 19.8. 1994, 1 ♀, 2 ♂♂), Bursa - Karacabey - (crop field, 600 m., 19.8. 1994, 1 ♀), Balıkesir - Gönen - Gebeçinar (rice and clover fields, 24 m., 20.8.1994, 1 ♂), Çanakkale - Biga - Çınardere (meadow, 50 m., 20.8.1994, 1 ♀).

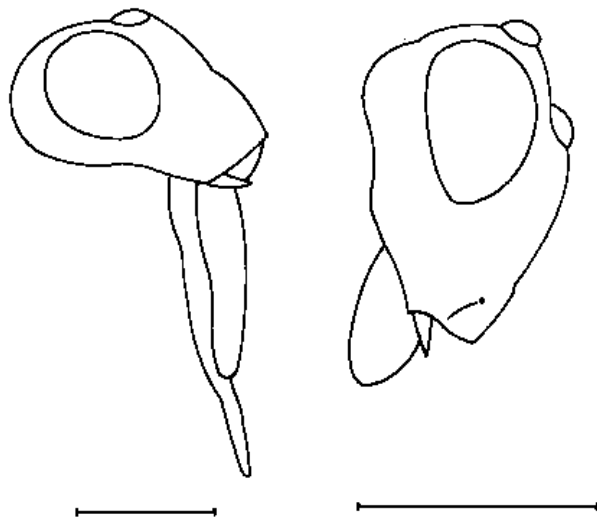


Figure 3. Galea.
A. *Agathis nigra* Nees von Esenbeck.
B. *A. fuscipennis* (Zetterstedt).

General Distribution: Germany, Finland, Denmark, France, Holland, Spain, Sweden, Italy, Corfu, Corsica, Hungary, Russia, Turkey, Yugoslavia (7); Caucasia, Middle Asia, (3); Portugal (2); Azerbaijan, Croatia, Dagestan, Poland (6).

Distribution in Turkey: Adana - Yumurtalık, Edirne - Enez, Gaziantep - Oğuzeli, İçel - Erdemli, İçel - Tarsus - Namrun, Tekirdağ - Ganos mountains (4); Bursa-Uludağ, Bursa-Karacabey (2).

***Agathis umbellatarum* Nees von Esenbeck, 1814**

Agathis umbellatarum Nees von Esenbeck, 1814, Mag. Ges. nat. Fr. Berl. 6:195, Shenefelt, 1970:363-364; Nixon, 1986:197; Tobias, 1986:282; Simbolotti & van Achterberg, 1999:123

? *Agathis thoracica* Lucas, 1849:338; Shenefelt, 1970:360

? *Agathis brullaei* Lucas, 1849:338

? *Agathis aurantiaca*, Fahringer, 1937:445; Shenefelt, 1970:319

Agathis kolazyi Fischer, 1959:2; Shenefelt, 1970:338; Nixon, 1986:197

? *Agathis gussakovskiyi*, Tobias, 1963:868

Length: 4.5-5 mm (excluding ovipositor)

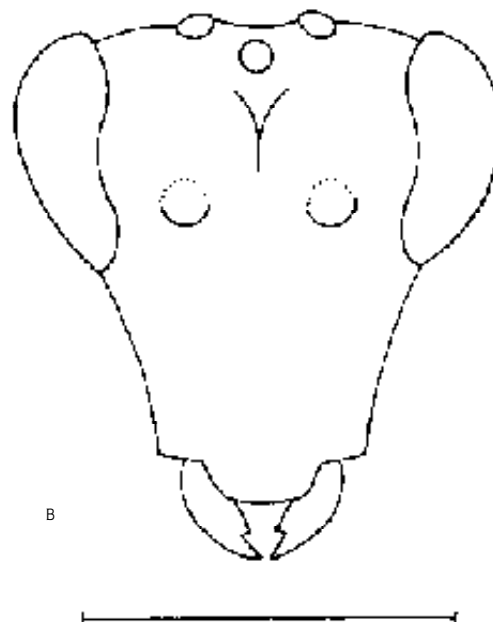
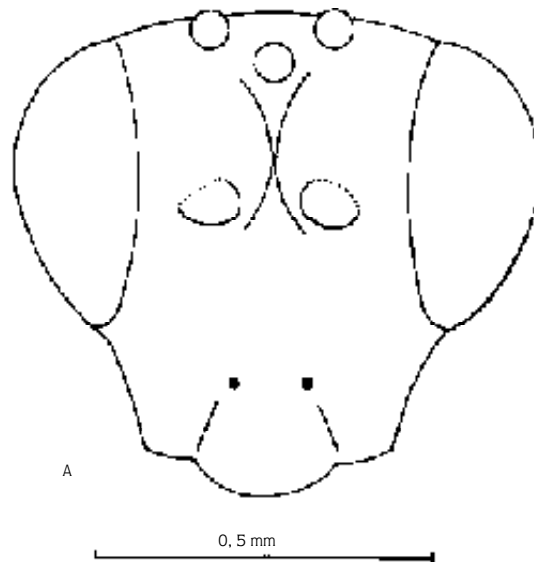


Figure 4. Head (Frontal view).
A. *Agathis fulmeki* Fischer.
B. *A. malvacearum* Latreille.

Material examined: 4 ♀♀ 2 ♂♂

Edirne - Büyükdöllük (crop field, 130 m., 20.6.1987, 1 ♂), Edirne - Enez (pine forest, 20 m., 8.8.1991, 1 ♀), Edirne - Değirmenyeni (meadow, 120 m., 8.6.1993, 1 ♀), Kırklareli - Ürünlü (pasture, 60 m. 22.8.1992, 1 ♂), Bursa - M. Kemalpaşa - Söğütalan (pine, oak, mixed forest, 400 m., 12.7.1993, 2 ♀♀).

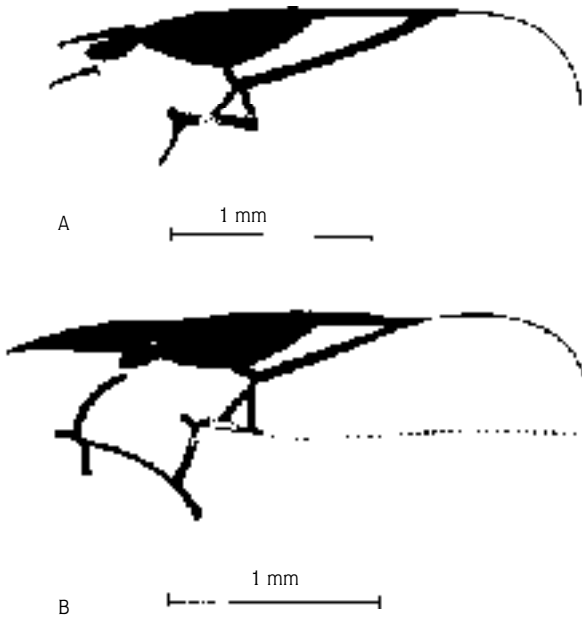


Figure 5. Fore wing (Second submarginal cell).
A. *Agathis melpomene* Nixon.
B. *Agathis anglica* Marshall.

General Distribution: Germany, Balearic Islands, Dalmatia, France, Caucasia, Hungary, Middle Asia, Spain, Portugal, Russia, Sicily (7); Azerbaijan, Uzbekistan, Tajikistan (8); Bulgaria, Cyprus, Greece, Turkey, Yugoslavia (2); Kazakhstan (3); North Africa (6).

Distribution in Turkey: Ankara - Temelli, İstanbul - Yakuplu, Niğde - Kocas (2); Antakya, Edirne - Büyükdöllük, Edirne - Enez, İçel - Erdemli, İçel - Mut, İçel - Tarsus, K. maraş - Elbistan (4).

***Agathis nigra* Nees von Esenbeck , 1814**

Agathis nigra Nees von Esenbeck, 1814 Mag. Ges. nat. Fr. Berl. 6:11; 1834:128; Shenefelt, 1970:345; Nixon, 1986:203; Zettel & Beyarslan 1992:125; Simbolotti & van Achterberg, 1999: 93

Agathis niger Kirchner 1867 Cat. Hym. Eur. : 123

? *Agathis nigra* var. *marshalli* ab. *castenea* Fahringer, 1937:469

Bassus nigra Thompson 1953 Host Par. Cat. 2: 95

Agathis testaceipes Fischer, 1957b:8; Shenefelt, 1970:360; Nixon, 1986:203

Agathis kasachstanica Tobias, 1963:872; Shenefelt, 1970:338

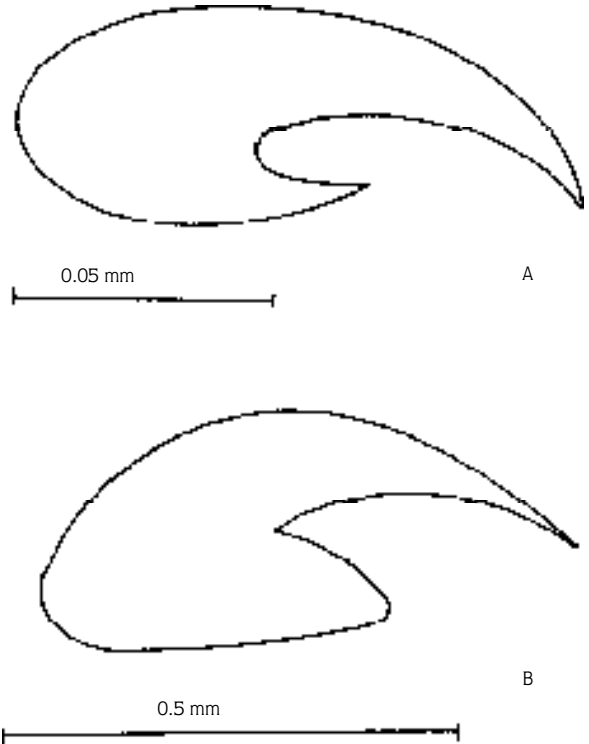


Figure 6. Hind claw.
A. *Agathis anglica* Marshall.
B. *A. melpomene* Nixon.

Agathis nixonii Belokobylski & Jervis , 1998: 1221-1223

Length: 4.5- 4.8 mm (excluding ovipositor)

Material examined: 3 ♂♂

Edirne - Büyükdöllük (crop field, 130 m., 20.6.1987, 1 ♂), Edirne - Lalapaşa - Vaysal (oak forest, meadow, 300 m., 29.5. 1993, 1 ♂), Kırklareli - Demirköy - Balaban (mixed forest, 300 m., 6.7.1997, 1 ♂)

General Distribution: Germany, Austria, Belgium, Dalmatia, Finland, France, Holland, England, Iran, Bulgaria, Sweden, Switzerland, Italy, Kazakhstan, Hungary, Mongolia, Russia, Yugoslavia (7); Israel (9); Morocco (6); Turkey (4).

Distribution in Turkey: Antakya, Edirne - Büyükdöllük, Elazığ - Baskil - Hacimustafa, Isparta - Alibeyköy, Isparta - Eğridir, İçel - Silifke, İçel - Erdemli (4).

***Agathis lugubris* (Foerster, 1862)**

Cenostomus lugubris, Foerster, 1862:246

Agathis minuta Niezabitowski, 1910 Spraw. Kom. fizyogr., Krakow 44: 81; Shenefelt, 1970: 344; Nixon, 1986: 208-209; Simbolotti & Achterberg, 1992:48; Zettel & Beyarslan, 1992:125

Agathis lugubris; Shenefelt, 1970: 341; Simbolotti & van Achterberg, 1992: 48-49; 1999: 77

Bassus lugubris; Papp et al., 1996:123

Length: 2.3 mm (excluding ovipositor)

Material examined: 2 ♀♀

Bursa – İnegöl - Mezitli - Taraklı (mixed forest, 1275 m., 11. 7. 1993, 1 ♀), (fir forest, stinging nettle, 1670 m. 18.8.1994, 1 ♀)

General Distribution: Germany, Ireland, England, Switzerland (2); Poland (7); France, Netherlands, Norway (6); Turkey (4).

Distribution in Turkey: Antalya - Elmalı, Antalya - Korkuteli (2).

New record for Marmara region.

Agathis breviseta Nees von Esenbeck, 1814

Agathis breviseta Nees von Esenbeck, 1814, Mag. Ges. nat. Fr. Berl. 5:194; 1834:131; Shenefelt, 1970:321; Tobias, 1976:211; 1986:285; Nixon, 1986:197-198; Zettel & Beyarslan, 1992:124; Papp et al., 1996:123; Simbolotti & van Achterberg, 1999: 40.

Agathis achterbergi Nixon, 1986:208

Length: 3.5 mm (excluding ovipositor)

Material examined: 1 ♀

Edirne - Hadımağa (fruit garden, 40 m. 24.5.1987, 1 ♀)

General Distribution: Germany, Belgium, Czechoslovakia, Finland, France, Holland, England, Spain, Sweden, Switzerland, Hungary, Mongolia, Poland, Romania, Siberia (7); Bulgaria, Ireland, Turkey, Yugoslavia (2); Caucasus, Middle Asia (3); Russia, Slovenia, Greece (6).

Distribution in Turkey: Balıkesir - Dursunbey, Edirne, Edirne - Hadımağa (4).

Agathis assimilis Kokujev, 1895

Agathis assimilis Kokujev 1895, Trudy russk. ent.

Obshch. 29: 387; Shenefelt, 1970: 318-319; Nixon, 1986:198; Simbolotti & van Achterberg 1999:33

Agathis propinqua Kokujev, 1895: 384; Shenefelt, 1970: 349; Tobias, 1986:285

Agathis jakowlewi Kokujev, 1895:381; Shenefelt, 1970:338; Tobias, 1986:283

Agathis anchisiades Nixon, 1986:207

Length: 3.5 mm (excluding ovipositor)

Material examined: 1 ♂

Kırklareli -Yeniceköy - Demirköy arası (meadow, 660 m., 16.6.1987, 1 ♂)

General Distribution: Austria, Kazakhstan, Mongolia, Uzbekistan, Russia, Tajikistan (7); Bulgaria, England (2); Turkey (4); Yugoslavia (10); Caucasus, France, Germany, Hungary, Netherlands (6).

Distribution in Turkey: Kırklareli - Yeniceköy - Demirköy arası (4).

Agathis malvacearum Latreille, 1805

Agathis malvacearum Latreille 1805 Hist. nat. Crust. Insectes 13:175; Shenefelt, 1970:342-343; Nixon, 1986: 202; Tobias, 1986: 283; Simbolotti & van Achterberg, 1999: 79

Ichneumon panzeri Jurine, 1807:113

Length: 5.5 mm (excluding ovipositor)

Material examined: 1 ♀

Edirne - Lalapaşa - Kalkansöğüt (mixed forest, 200 m., 5.7.1997, 1 ♀)

General Distribution: Germany, England, Spain, Italy, Corsica, Hungary, Mongolia, Poland, Yugoslavia (7); Bulgaria, France, Turkey (2); Netherlands (6).

Distribution in Turkey: Mersin (2).

New record for Marmara region.

Agathis rufipalpis Nees von Esenbeck, 1814

Agathis rufipalpis Nees von Esenbeck, 1814 Mag. Ges. nat. Fr. Berl. 6:192; 1834:129; Shenefelt, 1970:352-353; Nixon, 1986:199; Zettel & Beyarslan, 1992:124; Simbolotti & van Achterberg, 1999: 107

Length: 4.2 mm excluding ovipositor)

Material examined: 5 ♀♀, 2 ♂♂

Kırklareli - Dereköy (meadow, 500 m., 18.6.1986, 1 ♀), Edirne - Süleoğlu Dam (pasture, 200 m., 7.6.1987, 1 ♀), Kırklareli - Demirköy (mixed forest 300 m., 16.6.1987, 2 ♀♀), Edirne - Süleoğlu - Kovankaya (meadow, 185 m., 31.5.1988 1 ♂), Bilecik - Pazaryeri (meadow, 700 m., 10. 7.1993, 1 ♀), Bursa - İnegöl-Karacaköy (meadow, 300 m., 18.8.1994, 1 ♂)

General Distribution: Germany, Belgium, Finland, France, Holland, England, Switzerland, Hungary, Poland, Russia (7); Sweden (2); Turkey (4); Bulgaria, Ireland, Portugal (6).

Distribution in Turkey: Antakya, Antalya - Elmalı, Antalya - Korkuteli, Burdur-Ağlasun, Edirne - Süleoğlu - Kovankaya, Edirne - Süleoğlu, Erzurum - Abdurrah-mangazi, Isparta - Alibeyköy, Isparta - Eğridir, Isparta - Merkez, Kırklareli - Velika köprüsü - Demirköy, Kırklareli - Dereköy (4).

Agathis fulmeki Fischer, 1957

Agathis fulmeki, Fischer, 1957 Mitt. Munch. ent. Ges. 47:6; Shenefelt, 1970: 334; Nixon, 1986:198-199; Simbolotti & van Achterberg, 1999:50

Length: 3.5 mm (excluding ovipositor)

Material examined: 5 ♀♀, 5 ♂♂

Edirne - Keşan - Koru mountains (pine forest, 300 m., 26.6.1993, 1 ♀), Kırklareli - Boztaş (oak forest, 350 m., 6.7.1993, 1 ♀), Bilecik - Demirköy (meadow, 400 m., 10.7. 1993, 2 ♀♀, 4 ♂♂), Bilecik - Pazaryeri (meadow, 700 m. 10.7.1993, 1 ♀), Bursa - M. Kemalpaşa - Söğütalan (mixed forest, 400 m. 12.7.1993, 1 ♂)

General Distribution: Austria, Bulgaria (2); France, Morocco, Spain (6).

New record for Turkey.

Agathis fuscipennis (Zetterstedt, 1838)

Microgaster fuscipennis, Zetterstedt, 1838:404

Agathis fuscipennis, Papp, 1994:308; Simbolotti & van Achterberg, 1999:53

Agathis meridionallae, Fischer 1957 Mitt. Munch. ent. Ges 47:1

Agathis glabricula, Thomson, 1895:2228; Shenefelt, 1970:335; Nixon, 1986:209-210; Papp, 1994: 303-310; Zettel & Beyarslan, 1992:125

Agathis schmiedeknechti Kokujev, 1895:389, Shenefelt, 1970:354

Agathis tibialis Nees, 1814, var. *annulata* Fahringer, 1937:477

Agathis meridionellae Fischer, 1957:1; Shenefelt, 1970:344; Nixon, 1986:210

Agathis albicostellae Fischer, 1966: 399; Shenefelt, 1970:315; Nixon, 1986:209

Agathis artemisiana Fischer, 1966:397; Shenefelt, 1970:318; Nixon, 1986:210-211

Length: 3-3.2 mm (excluding ovipositor)

Material examined: 2 ♀♀, 6 ♂♂

Kırklareli - Dereköy (meadow, 500 m., 18.6.1986, 1 ♀, 1 ♂, Kırklareli - Dereköy (meadow, 500 m., 29.7.1987, 2 ♂♂), Bilecik - Küplü (clover field, 500 m., 17.8.1994, 1 ♂), Bursa-Karacabey - Çingeneşme (crop field, meadow; 700 m., 19. 8. 1994, 1 ♂), Bursa - Karacabey - Devlet Üretme Çiftliği (crop field, meadow; 600 m. , 19. 8. 1994, 1 ♀, 1 ♂)

General Distribution: Germany, Finland, Sweden (7); Austria, Bulgaria, England, Ireland (2); Switzerland (6); Turkey (4).

Distribution in Turkey: Gümüşhane - Sagil, İçel - Mut - Sertavni, Kırklareli -Dereköy, Kırklareli - Dereköy - Kocayazı (4).

Agathis melpomene Nixon, 1986

Agathis melpomene Nixon, 1986 Bull. Brit. Mus. Ent. 52 (3): 213; Zettel & Beyarslan, 1992:126; Simbolotti & van Achterberg, 1999:85

Length: 4.8 - 5.0 mm (excluding ovipositor)

Material examined: 3 ♀♀, 2 ♂♂

Kırklareli - Kofçaz (meadow, 300 m., 18.6. 1986, 3 ♀♀, 2 ♂♂)

General Distribution: Andorra, Austria, Italy, Mongolia, Poland (6); Bulgaria, Hungary (2); Turkey (4).

Distribution in Turkey: Kırklareli - Kofçaz, Isparta - Alibeyköy (4).

***Agathis anglica* Marshall, 1885**

Agathis anglica Marshall, 1885 Trans. R. ent. Soc. Lond. 1885:265; Shenefelt, 1970: 316; Nixon, 1986:200-201; Zettel & Beyarslan, 1992:124; Simbolotti & van Achterberg, 1999:28.

Agathis longicauda Kokujev 1895:385; Shenefelt, 1970: 331.

?*Agathis nigra* var. *marshalli* Fahringer, 1937:469; Shenefelt, 1970: 346.

Agathis albanica Fischer, 1957 :3; Shenefelt, 1970: 315; Nixon, 1986:200.

Agathis syriaca Fischer, 1957:5-6; Shenefelt, 1970: 359; Zettel & Beyarslan, 1992:125-126.

Agathis caucasica Tobias, 1963:877, 1964:64, 1986:283; Shenefelt, 1970:324.

Agathis taiwaniensis Chou & Sharkey, 1989:150.

Length: 4.5 - 5 mm (excluding ovipositor)

Material Examined: 25 ♀♀, 13 ♂♂

Kırklareli - Dereköy (meadow, 500 m., 25.4.1985, 3 ♀♀), Edirne - Hadımağa (fruit garden, 40 m., 24.5.1987, 1 ♂), Edirne - Büyükdöllük (crop field, 130 m., 20.6.1987, 17 ♀♀, 8 ♂♂), Edirne - Süleoğlu - Kovankaya (meadow, 185 m., 31. 5.1985, 2 ♀♀, 1 ♂), Edirne - Süleoğlu - Tatarlar (meadow, 500 m., 4.6.1988, 3 ♂♂), Kırklareli - Demircihalil (meadow, 450 m. , 17.6.1993, 1 ♀), Edirne - Enez - Vakıf (meadow, 20 m. 27.6.1993, 1 ♀), Edirne - Lalapaşa - Kalkansöğüt (mixed forest 200 m., 5.7.1997, 1 ♀).

General Distribution: Algeria, Austria, Bulgaria, Italy, Greece (2); Dalmatia, East Germany, England, Finland, Holland, Hungary, Russia, Yugoslavia (7); Turkey (4).

Distribution in Turkey: Edirne - Süleoğlu - Tatarlar, Edirne - Büyükdöllük, Edirne - Süleoğlu - Kovankaya, Edirne - Hadımağa, Kırklareli - Dereköy, Isparta - Alibeyköy, Elazığ - Baskil - Hacımustafa (4).

Genus: *Baeognatha* Kokujev, 1903

Baeognatha armeniaca Telenga, 1955

Baeognatha armeniaca Telenga, 1955 Fauna SSSR 5 (4): 300

Length: 4 mm

Material examined: 1 ♂

Kırklareli - Yoğuntaş (meadow, 270 m., 17.6.1993, 1 ♂)

General Distribution: Austria, Russia, Turkey (2).

Distribution in Turkey: Ankara - Kavaklıdere (2).

New record for Marmara region.

Genus: *Bassus* Fabricius, 1804

Key to the species of *Bassus* Fabricius, 1804 in Marmara region.

1. Head in facial somewhat elongate; radius distinctly bent inwards at middle towards stigma; gaster often conspicuously palemarked *linguarius* (Nees)
- Head in facial not elongate; radius straight or almost so; gaster virtually always black . . . *tumidulus* (Nees)

***Bassus linguarius* (Nees von Esenbeck ,1814)**

Microdus linguarius, Nees von Esenbeck, 1814; Mag. Ges. natur. Fr. Berl. 6:160; Tobias 1971:260 & 1986:288; Nixon, 1986: 223-224

Bassus linguarius, Fischer, 1965: 15; Simbolotti & van Achterberg, 1992: 31

Agathis linguarius (Nees von Esenbeck), Shenefelt, 1970:340

Length: 5 - 5.5 mm (excluding ovipositor)

Material examined: 1 ♀

Bilecik - Çakırpınar (pasture, 80 m., 9.7.1993, 1 ♀)

General Distribution: Germany, Austria, Belgium, Finland, Holland, Hungary, Russia, Yugoslavia (7); Bulgaria, France (5); England (2).

New record for Turkey.

***Bassus tumidulus* (Nees von Esenbeck ,1814)**

Microdus tumidulus Nees von Esenbeck, (1812) 1814 Mag. Ges. nat. Fr. Berl. 6: 189; Tobias, 1971: 260; Abdinbekova, 1975:201-202; Zettel & Beyarslan, 1992: 126

Bassus tumidulus, Thompson, 1953: 96

Agathis tumidula, Shenefelt , 1970: 362-363

Microdus annae, Shenefelt, 1908: 223

Agathis annae, Enderlein, 1970:316

Microdus tumidulus var. *ruficoxis* Fahringer, 1937:509

Agathis tumidula var. *ruficoxis*, Shenefelt, 1970:363

Microdus victoris, Telenga, 1955:288; Tobias, 1986:288

Agathis victoris, Shenefelt, 1970:366

Microdus anuphrievi, Tobias, 1986:288

Length: 5 mm (excluding ovipositor)

Material examined: 2 ♀♀

İstanbul - Belgrad forests - Bilezikçi Farm (meadow, 30 m., 24. 6. 1993, 1 ♀), Tekirdağ - Naip (meadow, 20 m., 9.5.1996, 1 ♀)

General Distribution: Germany, Belgium, Finland, France, Holland, England, Italy, Sweden, Switzerland, Hungary, Poland, Russia, Siberia, Yugoslavia (7); Greece, Ireland (2); Turkey (4).

Distribution in Turkey: Antalya-Aksu, Antalya-Korkuteli, Burdur-Merkez, İçel-Silifke, Tekirdağ-Şarköy (4).

Genus: *Disophrys* Forster, 1862

Disophrys caesa (Klug), 1890

Agathis caesa Klug, 1835 Reise d. Tyrol. 2:89

Disophrys caesus (Klug) Marshall, 1890: 574

Diophrys (sic) anthracina Kriechbaumer, 1898: 185

Disophrys anthracina Kriechbaumer; Szepliget, 1904: 124.

Length: 8 - 11 mm (excluding ovipositor)

Material Examined: 8 ♀♀ , 4 ♂♂

Edirne - Meriç (clover field, 60 m., 30.7.1992, 1 ♂), İstanbul - Silivri - Küçüksinekli (fruit garden, 170 m., 25.8. 1992, 1 ♀), Çanakkale - Kaz mount (meadow, 700 m., 16.9.1992, 1 ♀); Bilecik - Yeniköy (clover field, 600 m., 20.9.1992, 1 ♂); Adapazarı - Geyve - Bağlarbaşı (Fruit garden, 100 m. 21.9.1992, 1 ♂); Edirne - Karaağaç (clover field, 41 m., 9.10.1992, 2 ♀♀); Kırklareli - İnece (mixed forest, 150 m., 17.6.1993, 1 ♂); Bursa - İnegöl - Mezitli - Taraklı (mixed forest, 1670m., 18.8.1994, 2 ♀♀); Bursa - Karacabey - Çingenceşme (meadow, 700 m., 19.8.1994, 1 ♀); Bursa - Karacabey - Devlet Üretme Çiftliği (meadow, 600m., 19.8.1994, 1 ♀).

General Distribution: Austria, West and Middle Asia, Algeria, France, Spain, Romania, Sicily (7); Caucasia (3); Hungary, Portugal, Turkey, Yugoslavia, Greece (2); Italy, North Africa (8).

Distribution in Turkey: Adıyaman - Koçaklı, Antakya, İçel - Erdemli - Güzeloluk, Kırklareli - Lüleburgaz - Sarımsaklı Çiftliği, Konya - Sille (4).

The results demonstrated that *Agathis fulmeki* Fischer and *Bassus linguarius* (Nees von Esenbeck) are new records for the Turkish fauna. *Agathis malvacearum* Latreille, *A. lugubris* (Foerster, 1862) and *Baeognatha armeniaca* Telenga are new records for the Marmara region.

Agathis syngenesiae Nees von Esenbeck, *A. umbellatarum* Nees von Esenbeck, *A. nigra* Nees von Esenbeck, *A. breviseta* Nees von Esenbeck, *A. assimilis* Kokujev, *A. rufipalpis* Nees von Esenbeck, *A. fuscipennis* (Zetterstedt), *A. melpomene* Nixon, *A. anglica* Marshall, *Bassus tumidulus* (Nees von Esenbeck) and *Disophrys caesa* (Klug) were all previously determined in the Marmara region.

References

1. Sharkey, M. J., Cladistic and tribal classification of the Agathidinae (Hymenoptera: Braconidae), Journal of Natural History, 26: 425-447, 1992.
2. Nixon, G.E.J., A revision of the European Agathidinae (Hymenoptera: Braconidae), Bull. Brit. Mus. nat. Hist. (Ent), Ser., 52 (3): 183 - 242, 1986.
3. Tobias, V.I., Keys to The Insects of The European Part of USSR Ed:G.S. Medvedev, 3(4), New Delhi. Baba Barkha Nath, pp. 900, 1995.
4. Zettel, H. & Beyarslan, A., Über Agathidinae aus der Türkei (Hymenoptera: Braconidae), Entomofauna, Zeitschrift Für Entomologie, 13 (5): 121-132, 1992.
5. Simbolotti, G. & Achterberg, C. van., Revision of the West Palearctic species of the genus *Bassus* Fabricius (Hymenoptera: Braconidae), Zool. Verh. Leiden 281: 1- 80, 1992.
6. Simbolotti, G. & Achterberg, C. van., Revision of the West Palearctic species of the genus *Agathis* Latreille (Hymenoptera: Braconidae: Agathidinae), Zool. Verh. Leiden 325: 1-167, 1999.

7. Shenefelt, R.D., Hymenopterum Catalogus (nav. ed.), Part 6. Braconidae 3: 307 - 428, 1970.
8. Telenga, N.A., Fauna of the U.S.S.R., Microgastrinae and Agathinae (Hymenoptera: Braconidae), Zoological Institute of the Academy of Sciences of the U.S.S.R., 5 (4): 217 - 283, 1964.
9. Papp, J., A contribution to the Braconid Fauna of Israel (Hymenoptera), Israel Journal of Entomology, Vol. V , p. 65, 1970.
10. Papp, J., Contribution to the Braconid fauna of Yugoslavia (Hymenoptera: Braconidae) II., Folia Entomologica Hungarica Rovartani Közlemenyek (Series Nova) 28 (2): 301-319, 1975.