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# CONTRIBUTIONS TO THE KNOWLEDGE OF HAWK MOTHS (LEPIDOPTERA: SPHINGIDAE) IN TURKEY

Ar. Gör. Hamit AYBERK<sup>1)</sup>  
Ar. Gör. Erol AKKUZU<sup>1)</sup>

## Abstract

The family Sphingidae (Lepidoptera) has 63 species distributed in the Western Palaearctic Region of the world. 35 species out of 63 present in Turkey either permanently or temporarily. The subfamilies Smerinthinae, Sphinginae and Macroglossinae are consisted of 7, 4, and 24 species respectively. This study was conducted between the years of 2002-2003. 10 out of 35 species were captured in the field. Available knowledge of Sphingidae of Turkey was evaluated and summarized with this study as well.

**Keywords:** Sphingidae, Geographical distribution, Turkey

## 1. INTRODUCTION

Sphingidae (Lepidoptera) species are called "hawk moths" or "sphinx". The hawk moths are medium to large-sized, heavy-bodied moths with characteristics of bullet-shaped bodies and long, blade-like wings. Hawk moths are strong fliers, which can reach 40-50 km/hr.

Hawk moths are represented by about 1000 species all over the world (CARTER 1992). Out of 1000, 63 species are distributed in Western Palaearctic Region in which Turkey is located (PITTAWAY 1993).

The objectives of this study were to investigate the Sphingidae fauna of Turkey and summarize available knowledge of previously recorded Sphingidae species in Turkey.

## 2. MATERIALS AND METHODS

This study was conducted between the years of 2002 and 2003. The species were mostly collected in Istanbul Province. The number of 10 Sphingidae species was collected in the field by using light traps and sweep nets. Details concerning the captured species in the field and the other species previously recorded in Turkey were also taken from the literature (ACATAY 1943 and 1959; AKBULUT et al. 2003; BANG-HAAS 1938; BODENHEIMER 1941; BUXTON 1916; DANIEL 1932 and 1939; DANNER et al. 1998; EBERT 1969; EICHLER 1971; EISENSTEIN 1984; FREINA 1979 and 1988; FREINA/GECK 2003; GRAVES 1914 and 1926; GÜNEYİ/ŞENGÜN 1972; HARIRI 1971; KALALI 1976; KANAT 1998; KANSU 1963; KERNBACH 1958; KORNOŞOR/SERTKAYA 1996; LATTIN 1951; MATHEW 1881; MILYANOVSKII 1959; MOL/AVCI 1997; MOL et al. 2003; ÖZAY 1997; PITTAWAY 1982,

<sup>1)</sup> İ.Ü. Orman Fakültesi Orman Entomolojisi ve Koruma Anabilim Dalı

1993, 1995, 1996 and 1997; REBEL 1903; ROTHSCHILD/JORDAN 1903; SEKENDİZ 1974; WILTSHIRE 1957). Collecting and preservation techniques used in this research were based mainly on ÇANAĞCIOĞLU 1993, ECEVİT/MENNAN 2000, and SCHAUFF 1986.

Collection dates of hawk moths given in the results section refer to either the dates of collection of adult hawk moths in the field or to the dates when the hawk moths which had been collected in the larval or pupal stage in the field passed to the adult stage in the laboratory conditions.

### 3. RESULTS

The following list of the Sphingidae of Turkey is based mainly on the generic classification taken from PITTAWAY (1993). Species under tribes are arranged alphabetically.

Subfamily SMERINTHINAE Grote and Robinson, 1865

Tribe *Smerinthini* Grote and Robinson, 1865

1. *Laothoe populi* (Linnaeus, 1758), Poplar hawk moth

*Sphinx populi* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 489. Type locality: Sweden.

Recorded in Çanakkale (Gelibolu) (MATHEW 1881; REBEL 1903). On *Populus nigra* and *P. canadensis*: Istanbul (Belgrad Forest), 13.viii.1957 (ACATAY 1959). In Kocaeli (Izmit), 15.v.1967; in Erzincan, 17.vi.1968; in Kocaeli (Izmit), 24.vi.1969, 21.v.1970, 01.vii. 1970 (SEKENDİZ 1974). In Ankara (City center, Keçiören, Hacıkadın, Etlik, Atatürk Orman Çiftliği), Bursa (City center), İçel (Erdemli), Samsun (City center) (KANSU 1963). In Adana (Düziçi, Pozantı) (KORNOŞOR/SERTKAYA 1996). In Hakkari (PITTAWAY 1996). In Istanbul (Belgrad Forest), 20.vi.1995; in Tekirdağ (Saray), 23.vi.1996 (MOL/AVCI 1997). In Kahramanmaraş (Suçatı), 15.ix.1996 (KANAT 1998). In Muğla (Fethiye-Butterflies Valley) (MOL et al. 2003). DANIEL (1939), de FREINA (1979), PITTAWAY (1993), and DANNER et al. (1998) also recorded this species in Turkey.

We found on *Populus nigra*: Afyonkarahisar (Sincanlı), 12.vii.2002; on *Salix babylonica*: Istanbul (Bahçeköy), 24.vi.2003; in Kütahya (City center), 10.vii.2003.

2. *Marumba quercus* ([Denis and Schiffermüller], 1775), Oak hawk moth

*Sphinx quercus* [Denis and Schiffermüller], 1775, *Ankündigung syst. Werkes Schmelt. Wienergegend*: 41, 244. Type locality: Vienna district, Austria.

Recorded in Adana (Düziçi, Pozantı) (KORNOŞOR/SERTKAYA 1996). In Istanbul (Belgrad Forest), 17.vi.1995; in Kocaeli (Izmit, Kefken), 02.vi.1997 (MOL/AVCI 1997). In Kahramanmaraş (Başkonuş), 19.vi.1996; in Kahramanmaraş (Suçatı), 05.vii.1996 (KANAT 1998). In Düzce (Beçiyörükler), 04.vii.2001 (AKBULUT et al. 2003). BANG-HAAS (1938), DANIEL (1939), and de FREINA (1979) also recorded this species in Turkey.

We collected this species in Sakarya (Hendek), 29.vi.2002.

3. *Mimas tiliae* (Linnaeus, 1758), Lime hawk moth

*Sphinx tiliae* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 489. Type locality: Unspecified [Europe].

Recorded in Istanbul (Kefeliköy) (GÜNEYİ/ŞENGÜN 1972). de FREINA (1979) recorded *M. tiliae* in Northern and Western Turkey.

We found this species on *Tilia argentea*: Istanbul (Bahçeköy), 21.vii.2002; on *Tilia argentea*: Istanbul (Belgrad Forest), 10.vii.2003.

4. *Smerinthus kindermannii* Lederer, 1853, Southern eyed hawk moth  
*Smerinthus kindermannii* Lederer, 1853, *Verh. zool.-bot. Ver. Wien (Abhandlungen)*  
 2: 92. Type locality: Argana Maden, Southeastern Turkey [Maden, north of Ergani, Turkey].

Recorded in Ankara (City center), Niğde (City center) (KANSU 1963). In Adana (Balcalı, Düziçi, Hacıali, Kadirli, Pozantı) (KORNOŞOR/SERTKAYA 1996). In Istanbul and Konya (de FREINA 1979).

5. *Smerinthus ocellata* (Linnaeus, 1758), Eyed hawk moth  
*Sphinx ocellata* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 489. Type locality: Unspecified [Europe].

Recorded on *Populus nigra* and *P. canadensis*: Istanbul (Belgrad Forest), 15.viii.1957 (ACATAY 1959). In Ankara (City center) (KANSU 1963). In Istanbul (Kefeliköy) (GÜNEYİ/ŞENGÜN 1972). On *P. nigra*: Kocaeli (Izmit), 30.vi.1967; in Diyarbakır, June 1967 (SEKENDİZ 1974). On *Salix alba*: Kocaeli (Izmit Forest Nursery), 13.vi.1994; on *S. alba*: Sakarya (Geyve), 27.vi.1995; on *S. babylonica*: Balıkesir (Manyas Kuş Cenneti), 27.vii.1995; on *S. alba*: Sakarya (Karasu), 01.vii.1996 (ÖZAY 1997). In Istanbul (Belgrad Forest), 12.viii.1996 (MOL/AVCI 1997). de FREINA (1979) recorded this species in Turkey.

We found this species in Istanbul (Sarıyer), 03.viii.2002.

#### Tribe Sphingulini Rothschild and Jordon, 1903

6. *Dolbina elegans* A. Bang-Haas, 1912, Ash hawk moth  
*Dolbina elegans elegans* A. Bang-Haas, 1912, *Dt. ent. Z. Iris* 26: 229. Type locality: Iskenderun [Southern Turkey].

Recorded in Adana (Pozantı), 21.vii.1995 (KORNOŞOR/SERTKAYA 1996). de FREINA (1979) recorded this species in Western and Southern Turkey.

#### Tribe Ambulycini Butler, 1876

7. *Akbesia davidi* (Oberthür, 1884), David's hawk moth  
*Smerinthus davidi* Oberthür, 1884, *Bull. Soc. ent. Fr.* 1884: 12. Type locality: Asia Minor.

Recorded from Southern Turkey (DANIEL 1939; de FREINA/GECK 2003). In Southeastern Turkey (de FREINA/GECK 2003). On *Pistacia* sp.: Iskenderun (Akbez) (PITTAWAY 1995).

Tribe *Sphingini* Latreille, [1802]

8. *Sphinx ligustri* Linnaeus, 1758, Privet hawk moth  
*Sphinx ligustri* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 490. Type locality: Unspecified [Europe].

Recorded in Izmir (Bornova) (KANSU 1963). In Muğla (Fethiye-Butterflies Valley) (MOL et al. 2003). This species was also recorded in Eastern Turkey (de FREINA 1979; DANNER et al. 1998) and Northern Turkey (de FREINA 1979).

9. *Sphinx pinastri* Linnaeus, 1758, Pine hawk moth  
*Sphinx pinastri* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 492. Type locality: Unspecified [Europe].

Recorded in Adana (Pozantı) (KORNOŞOR/SERTKAYA 1996). In Kahramanmaraş (Başkonuş), 22.vii.1996; in Kahramanmaraş (Önsen-Hacıağalar), 09.vi.1996, 19.vi.1996 (KANAT 1998). This species was also recorded in Southern Turkey (DANIEL 1932; DANIEL 1939; KERNBACH 1958).

Tribe *Acherontiini* Boisduval, [1875]

10. *Acherontia atropos* (Linnaeus, 1758), Death's Head hawk moth  
*Sphinx atropos* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 490. Type locality: Europe.

Recorded in Çanakkale (Gelibolu) (MATHEW, 1881). In Izmir (Bornova) and Samsun (City center) (KANSU 1963). In Adana (Balcalı, Hacıali, Pozantı), Içel (Tarsus) (KORNOŞOR/SERTKAYA 1996). On *Fraxinus* sp. and *Nerium* sp.: İstanbul (Florya) and Trabzon (ACATAY 1943). On *Fraxinus* sp.: İstanbul (Belgrad Forest) (MOL/AVCI 1997). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003). DANIEL (1932) and de FREINA (1979) found this species in Turkey.

11. *Agrius convolvuli* (Linnaeus, 1758), Convolvulus hawk moth  
*Sphinx convolvuli* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 490. Type locality: [Europe].

Recorded in Artvin (Murgul), Bursa (Karacabey), Kocaeli (Izmit) (KANSU 1963). In Çanakkale (Gelibolu) (MATHEW 1881; REBEL 1903). In İstanbul (Kefeliköy) (GÜNEYİ/ŞENGÜN 1972). In Adana (Balcalı, Doğan kent, Düziçi, Hacıali, Kadirli), Içel (Tarsus) (KORNOŞOR/SERTKAYA 1996). In Düzce (Düzorman Forest Depot), 04.viii.2001 (AKBULUT et al. 2003). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003). In Turkey (PITTAWAY 1995).

We found this species in İstanbul (Belgrad Forest), 27.vii.2002; Sakarya (Adapazarı), 16.viii.2003.

Subfamily MACROGLOSSINAE Harris, 1839

Tribe Dilophonotini Burmeister, 1878

12. *Hemaris croatica* (Esper, 1800), Olive Bee hawk moth

*Sphinx croatica* Esper, 1800, *Die Schmett.* (Suppl.)(Abschnitt 2): 33, pl.45, fig. 2.  
Type locality: Karlstadt [Karlovac, Croatia].

Recorded in Çanakkale (Gelibolu) (MATHEW 1881). DANIEL (1932) and de FREINA (1979) also found this species in Turkey.

13. *Hemaris dentata* (Staudinger, 1887), Anatolian Bee hawk moth

*Macroglossa ducalis* var. *dentata* Staudinger, 1887, *Stettin. ent. Ztg* 48: 66. Type locality: Aintab near Antiochia [Gaziantep, near Hatay, Turkey; however, the specimen label specifies 'Gjaurdagh' as the collection locality, which are the present-day Nur Mountains just north of Hatay].

Recorded in Southern Turkey as far west as the Toros Mountains. Confirmed localities are the Nur Mountains (near Hatay), Ala Mountains (near Niğde) and Anamas Mountains (near Eğridir) (de FREINA 1988), as well as Kayseri (Tekir-Şihli), Mount Palaz (near Antalya), Ilica (near Süleymanlı), Mount Nemrut (near Adiyaman) and Elazığ (Harpur) (ROTHSCHILD/JORDAN 1903; PITTAWAY 1995).

14. *Hemaris fuciformis* (Linnaeus, 1758), Broad-bordered Bee hawk moth

*Sphinx fuciformis* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 493. Type locality: Europe.

DANIEL (1932 and 1939) and de FREINA (1979) confirmed this species from Turkey.

15. *Hemaris tityus* (Linnaeus, 1758), Narrow-bordered Bee hawk moth

*Sphinx tityus* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 493. Type locality: Unspecified [Europe].

de FREINA (1979) found this species in Turkey.

Tribe Macroglossini Harris, 1839

16. *Clarina kotschyi* (Kollar, [1849]), Grapevine hawk moth

*Deilephila kotschyi* Kollar, [1849], in Kollar and Redtenbacher, *Denkschr. Akad. Wiss. Wien* 1: 53. Type locality: Schiraz [Shiraz, Iran].

This species was reported to distribute in Eastern and Central Turkey (DANNER et al. 1998). This species is also distributed from Northern Turkey south to Northern and Western Syria, Lebanon and Israel (EISENSTEIN 1984).

17. *Daphnis nerii* (Linnaeus, 1758), Oleander hawk moth

*Sphinx nerii* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 490. Type locality: Unspecified [Europe].

Recorded in Ankara (City center), Antalya, İçel (Tarsus), Adana (Seyhan), Osmaniye (KANSU 1963). In Istanbul (LATTIN 1951). In Adana (Balcalı, Düziçi, Kadirli) (KORNOŞOR/SERTKAYA 1996). On *Nerium* sp.: in Turkey (BODENHEIMER 1941). On *Nerium* sp.: in Istanbul (Büyükada), 27.vii.1996 (MOL/AVCI 1997). In Muğla (Fethiye-Butterflies Valley) (MOL et al. 2003). This species is also found in Turkey (EBERT 1969; PITTAWAY 1995).

We collected *D. nerii* in Istanbul (Sarıyer), 02.viii.2002; in Istanbul (Atatürk Arboretum), 15.viii.2002.

18. *Deilephila elpenor* (Linnaeus, 1758), Large Elephant hawk moth  
*Sphinx elpenor* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 491. Type locality: Unspecified [Europe].

Recorded in Düzce (City center), 14.vii.2001 (AKBULUT et al. 2003). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003). de FREINA (1979) also captured this species in Turkey.

19. *Deilephila porcellus* (Linnaeus, 1758), Small Elephant hawk moth  
*Sphinx porcellus* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 492. Type locality: Unspecified [Europe].

Recorded in Adana (Pozantı), 02.vi.1994 (KORNOŞOR/SERTKAYA 1996). In Toros Mountains of Southern Turkey (PITTAWAY 1995). In Sinop (de FREINA 1979).

20. *Hippotion celerio* (Linnaeus, 1758), Silver-striped hawk moth  
*Sphinx celerio* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 491. Type locality: Unspecified [Europe].

Recorded in İçel (Tarsus), Adana (Seyhan) (KANSU 1963). On *Vitis* sp.: İçel (Namrun) (KORNOŞOR/SERTKAYA 1996). This species is found in Turkey (PITTAWAY/KITCHING 2000).

We captured this species in Istanbul (Sarıyer), 19.vi.2002; in Istanbul (Beykoz), 02.vii.2003.

21. *Hyles centralasiae* (Staudinger, 1887), Foxtail-lily hawk moth  
*Deilephila euphorbiae* var. *centralasiae* Staudinger, 1887, *Stettin. ent. Ztg* 48: 64. Type locality: Samarkand [Uzbekistan].

This species is recorded in Eastern Turkey (DANNER et al. 1998), the Eastern Toros Mountains, and Southern Turkey (DANIEL 1932).

22. *Hyles euphorbiae* (Linnaeus, 1758), Spurge hawk moth  
*Sphinx euphorbiae* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 492. Type locality: Unspecified [Europe].

Recorded in Ankara (City center, Etimesgut, Keçiören), Bingöl (City center), Adana (Seyhan), Tokat (KANSU 1963). In Adana (Balcalı, Doğan kent, Düziçi, Kadirli, Pozantı)

(KORNOŞOR/SERTKAYA 1996). In Çanakkale (Gelibolu) (MATHEW 1881). In Çanakkale (City center) (BUXTON 1916). In Çanakkale (Gelibolu), 16.vii. 1996; In Yalova (Çınarcık), 19.ix.1996 (MOL/AVCI 1997). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003). DANIEL (1932 and 1939) and de FREINA (1979) recorded this species in Turkey.

23. *Hyles gallii* (Rottemburg, 1775), Bedstraw hawk moth  
*Sphinx gallii* Rottemburg, 1775, *Naturforscher, Halle 7*: 107. Type locality: Germany.

This species is found in Northern Turkey (EICHLER 1971; DANNER et al. 1998).

24. *Hyles hippophaes* (Esper, 1789), Seathorn hawk moth  
*Sphinx hippophaes* Esper, 1789, *Die Schmett.* (Suppl.) (Abschnitt 2): 6, pl. 38, figs 1-3. Type locality: Wallachei, Milkowfluss bei Foran [Wallachia region, Southern Romania].

Recorded in Ankara, Elazığ (Keban), Niğde (City center) (KANSU 1963). In Adana (Pozantı), 27.ix.1994 (KORNOŞOR/SERTKAYA 1996). This species is found in Western Turkey (PITTAWAY 1982a), Southeastern and Eastern Turkey (DANIEL 1932 and 1939).

25. *Hyles livornica* (Esper, 1780), Striped hawk moth  
*Sphinx livornica* Esper, 1780, *Die Schmett.* 2: 88. Type locality: Germany.

Recorded in Ankara (City center), Artvin (Murgul), İçel (Mersin), İstanbul (Çayırova), İzmir (Bornova), Samsun, Urfa (KANSU 1963). In Çanakkale (Gelibolu) (MATHEW 1881). In İstanbul (Sarıyer) (de LATTIN 1951). In Adana (Balcalı, Doğan kent, Düziçi, Hacıali, Kadirli, Pozantı), İçel (Tarsus) (KORNOŞOR/SERTKAYA 1996). In Çanakkale (Ayvacık), 04.v.1996 (MOL/AVCI 1997). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003). This species is found in Turkey (PITTAWAY 1993).

We found this species in İstanbul (Sarıyer), 02.vi.2002; in İstanbul (Bahçelievler), 09.v.2003. In Afyonkarahisar (City center), 28.v. 2003.

26. *Hyles nicaea* (de Prunner, 1798), Greater Spurge hawk moth  
*Sphinx nicaea* de Prunner, 1798, *Lepid. Pedemontana*: 86. Type locality: Nice, Alpes-Maritimes [Southern France].

HARIRI (1971) and de FREINA (1979) recorded this species in Southern Turkey and Turkey, respectively.

27. *Hyles vespertilio* (Esper, 1780), Bat hawk moth  
*Sphinx vespertilio* Esper, 1780, *Schmetterlinge* 2: 178. Type locality: Verona, Northern Italy.

MILYANOVSKII (1959) recorded this species in Western Turkey.

28. *Hyles zygophylli* (Ochsenheimer, 1808), Bean-caper hawk moth  
*Sphinx zygophylli* Ochsenheimer, 1808, *Schmetterlinge Europa* 2: 226. Type locality: Southern Russia [Turkestan].



This species is recorded in Western Turkey (DANNER et al. 1998) and Eastern Turkey (de FREINA 1979).

29. *Macroglossum stellatarum* (Linnaeus, 1758), Hummingbird hawk moth  
*Sphinx stellatarum* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 493. Type locality: Unspecified [Europe].

Recorded in Ankara (City center, Aydos, Etimesgut, Mamak), Balıkesir (Manyas), Bingöl (City center), Eskişehir (City center), Gaziantep, Hatay (Iskenderun), İçel (Alata, Çavuşlu), İstanbul (Göztepe), Konya (Akşehir), Kilis, Sakarya (Adapazarı), Tokat, Yalova (Termal) (KANSU 1963). In Çanakkale (Gelibolu) (MATHEW 1881). In Çanakkale (BUXTON 1916). In Çanakkale (Gelibolu) (GRAVES 1926). In İstanbul (Bebek, Büyükdere, Emirgan, Rumelikavağı) (de LATTIN 1951). In İstanbul (Kefeliköy) (GÜNEYİ/ŞENGÜN 1972). In Adana (Balcalı, Doğanekent, Düziçi, Hacıali, Kadırlı, Pozantı) (KORNOŞOR/SERTKAYA 1996). In Düzce (City center), 06.vi.2001; in Düzce (Gümüşpınar), 24.vi.2001; in Düzce (Güzeldere Waterfall), 01.vii.2001; in Düzce (Gölyaka), 14.vii.2001; in Düzce (Tatlıdere), 18.vii.2001; in Düzce (Çiçekli), 25.vii.2001; in Düzce (Cumayeri), 20.viii.2001; in Düzce (Kabalak), 05.ix.2001. (AKBULUT et al. 2003). In Muğla (Fethiye- Butterflies Valley) (MOL et al. 2003).

We collected this species in İstanbul (Bahçeköy), 04.vi.2002; in İstanbul (Belgrad Forest), 15.vi.2002; in İstanbul (Kemerburgaz), 31.vi.2002; in Sakarya (Hendek), 12.vi.2002; in Sakarya (City center), 04.vii.2002; in Afyonkarahisar (City center), 05.viii.2002; İstanbul (Sarıyer), 09.vi.2003; İstanbul (Rumelikavağı), 04.viii.2003; in Sakarya (Hendek), 21.viii.2003; in Afyon (Şuhut), 05.ix.2003.

30. *Proserpinus proserpina* (Pallas, 1772), Willowherb hawk moth  
*Sphinx proserpina* Pallas, 1772, *Spicilegia Zool. quibus novae....et obscurae anim. species....illustrantur* 1: 26. Type locality: Francofurtum ad Moenum, Germania [Frankfurt am Main, Germany].

Recorded in İstanbul (Belgrad Forest) (GRAVES 1914). In Adana (Pozantı), 11.v.1995 (KORNOŞOR/SERTKAYA 1996). KALALI (1976) recorded this species in Turkey.

31. *Rethera brandti* O. Bang-Haas, 1937, Lesser Madder hawk moth  
*Rethera brandti brandti* O. Bang-Haas, 1937, *Ent. Z., Frankf. a. M.* 50: 562. Type locality: Elburz [Alborz] Mountains, Northern Iran.

This species is recorded in Southeast Turkey (WILTSHIRE 1957).

32. *Rethera komarovi* (Christoph, 1885), Madder hawk moth  
*Deilephila komarovi* Christoph, 1885, in Romanoff, *Mem. Lepid.* 2: 169. Type locality: Ashkhabad [Ashkhabad, Turkmenistan].

Recorded in Ankara (City center) (KANSU 1963). This species is recorded in Western and Central Turkey (DANIEL 1932; de FREINA/WITT 1987), Southern Turkey (HARIRI 1971), and Eastern Turkey (DANIEL 1979).

33. *Sphingonaepiopsis gorgoniades* (Hübner, [1819]), Gorbion hawk moth  
*Proserpinus gorgoniades* Hübner, [1819], *Verz. bekannter Schmett.*: 132. Type locality: Southern Volga, Russia.

This species is recorded in Southern Turkey (DANIEL 1932; HARIRI 1971).

34. *Theretra alecto* (Linnaeus, 1758), Levant hawk moth  
*Sphinx alecto* Linnaeus, 1758, *Syst. Nat.* (Edn 10) 1: 492. Type locality: India.

Recorded in Ağrı (City center), Ankara (City center, Atatürk Orman Çiftliği, Etimesgut), Antalya (City center, Alanya), Elazığ (Keban), Gaziantep (City center), İçel (City center, Alata, Tarsus), İzmir (Bornova), Kahramanmaraş, Kilis, Adana (Seyhan, Kozan, Karaisalı), Osmaniye, Sinop (Ayancık) (KANSU 1963). In Çanakkale (Gelibolu) (MATHEW 1881). In Adana (Balcalı, Dütziçi, Kadirli, Pozantı) (KORNOŞOR/SERTKAYA 1996). In Istanbul (Bahçeköy), 05.ix.1995 (MOL/AVCI 1997). DANIEL (1932) and de FREINA (1979) confirmed this species across Southern and Eastern Turkey.

We found this species in Istanbul (Sarıyer), 17.ix.2002; in Istanbul (Rumelikavağı), 29.viii.2003.

35. *Theretra boisduvalii* (Bugnion, 1839), Boisduval's hawk moth  
*Sphinx boisduvalii* Bugnion, 1839, *Annls Soc. ent. Fr.* 1839: 115. Type locality: Ile de Candie [Crete].

PITTAWAY (1997) recorded this species as a very rare vagrant to Turkey.

#### 4. DISCUSSION AND CONCLUSIONS

The Sphingidae (Lepidoptera) has 35 species in 3 subfamilies (Smerinthinae, Sphinginae and Macroglossinae) in Turkey. Turkey has seven geographical regions which are Aegean (Western Turkey), Marmara (Northwestern Turkey), Black sea (Northern Turkey), Central Anatolia, Eastern Anatolia, Southeastern Anatolia and Mediterranean (Southern Turkey) regions. Out of 35 species, 15 species were recorded from Aegean, 15 from Marmara, 14 from Blacksea, 11 from Central Anatolia, 11 from Eastern Anatolia, 9 from Southeastern Anatolia and 22 from Mediterranean Region (Table 1). While *Macroglossum stellatarum* (L.) and *Theretra alecto* (L.) were recorded from all the regions, *Sphinx pinastri* L., *Hyles gallii* (Rott.), *Reithera brandti* O. Bang-Haas and *Sphingonaepiopsis gorgoniades* (Hbn.) were only from one region (Table 1).

**Table 1: Regional Distribution of the Hawk Moths of Turkey****Tablo 1 : Türkiye Sphingidae Türlerinin Bölgesel Dağılımı**

No	Species Türler	Geographic Regions Coğrafi Bölgeler						
		1	2	3	4	5	6	7
1	<i>Laothoe populi</i> (L.)	✓	✓	✓	✓	✓	-	✓
2	<i>Marumba quercus</i> ([Den. and Schiff.])	-	✓	✓	-	-	-	✓
3	<i>Mimas tiliae</i> (L.)	✓	✓	✓	-	-	-	-
4	<i>Smerinthus kindermannii</i> Led.	-	-	-	✓	-	✓	✓
5	<i>Smerinthus ocellata</i> (L.)	-	✓	-	-	-	✓	-
6	<i>Dolbina elegans</i> A. Bang-Haas	-	✓	-	-	-	-	✓
7	<i>Akbesia davidi</i> (Oberthür)	-	-	-	-	-	✓	✓
8	<i>Sphinx ligustri</i> L.	✓	-	✓	-	✓	-	-
9	<i>Sphinx pinastri</i> L.	-	-	-	-	-	-	✓
10	<i>Acherontia atropos</i> (L.)	✓	✓	✓	-	-	-	✓
11	<i>Agrius convolvuli</i> (L.)	✓	✓	✓	-	-	-	✓
12	<i>Hemaris croatica</i> (Esp.)	-	✓	-	-	-	-	-
13	<i>Hemaris dentata</i> (Stgr.)	-	-	-	✓	✓	✓	✓
14	<i>Hemaris fuciformis</i> (L.)	?	?	?	?	?	?	?
15	<i>Hemaris tityus</i> (L.)	?	?	?	?	?	?	?
16	<i>Clarina kotschy</i> (Koll.)	-	-	✓	✓	✓	-	-
17	<i>Daphnis nerii</i> (L.)	✓	✓	-	✓	-	-	✓
18	<i>Deilephila elpenor</i> (L.)	✓	-	✓	-	-	-	-
19	<i>Deilephila porcellus</i> (L.)	-	-	✓	-	-	-	✓
20	<i>Hippotion celerio</i> (L.)	-	✓	-	-	-	-	✓
21	<i>Hyles centralasiae</i> (Stgr.)	-	-	-	-	✓	-	✓
22	<i>Hyles euphorbiae</i> (L.)	✓	✓	✓	✓	✓	-	✓
23	<i>Hyles gallii</i> (Rott.)	-	-	✓	-	-	-	-
24	<i>Hyles hippophaes</i> (Esp.)	✓	-	-	✓	✓	✓	✓
25	<i>Hyles livornica</i> (Esp.)	✓	✓	✓	✓	-	✓	✓
26	<i>Hyles nicaea</i> (Prunner)	-	-	-	-	-	-	✓
27	<i>Hyles vespertilio</i> (Esp.)	✓	-	-	-	-	-	-
28	<i>Hyles zygothylli</i> (Och.)	✓	-	-	-	✓	-	-
29	<i>Macroglossum stellatarum</i> (L.)	✓	✓	✓	✓	✓	✓	✓
30	<i>Proserpinus proserpina</i> (Pall.)	-	✓	-	-	-	-	✓
31	<i>Rethera brandti</i> O. Bang-Haas	-	-	-	-	-	✓	-
32	<i>Rethera komarovi</i> (Christ.)	✓	-	-	✓	✓	-	✓
33	<i>Sphingonaepiopsis gorgoniades</i> (Hbn.)	-	-	-	-	-	-	✓
34	<i>Theretra alecto</i> (L.)	✓	✓	✓	✓	✓	✓	✓
35	<i>Theretra boisduvalii</i> (Bugnion)	?	?	?	?	?	?	?

## Geographic Regions:

1. Aegean Region (Western Turkey)
2. Marmara Region (Northwestern Turkey)
3. Blacksea Region (Northern Turkey)
4. Central Anatolia
5. Eastern Anatolia
6. Southeastern Anatolia
7. Mediterranean Region (Southern Anatolia)

## Symbols:

- ✓ Recorded
- Not recorded
- ? Recorded but region is unknown

Zoogeographical standpoints: 25 species are European, 4 are Asia Minor, 5 are Central Asia, and 1 is Southern Asia originated species.

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## TÜRKİYE SPHINGIDAE (LEPIDOPTERA) FAUNASINA KATKILAR

Ar.Gör.Hamit AYBERK  
Ar.Gör.Erol AKKUZU

## Kısa Özet

Dünya'nın Batı Palaarktik Bölgesinde 63 Sphingidae (Lepidoptera) türü bulunmaktadır. Bu 63 türden 35'inin devamlı veya periyodik aralıklarla Türkiye'de bulunduğu tespit edilmiştir. Türkiye'de Sphingidae'nin alt familyalarından olan Smerinthinae'nin 7, Sphinginae'nin 4 ve Macroglossinae'nin de 24 türü bulunmaktadır. Bu çalışma 2002-2003 yılları arasında yapılmış olup araştırma noktalarımızda 10 tür tarafımızdan tespit edilmiştir. Ayrıca, bu çalışma ile Türkiye Sphingidae'leri ile ilgili literatür bilgileri özet olarak da verilmiştir.

Anahtar Kelimeler: Sphingidae, Coğrafi yayılış, Türkiye

## ÖZET

Araştırmanın amacı; Türkiye'de bugüne kadar tespit edilen Sphingidae türleri ile ilgili özet bilgi vermek, ayrıca yeni tespitlerimizle birlikte bu türlerin coğrafi yayılışlarına katkılarda bulunmaktır.

Bu araştırma 2002-2003 yıllarında gerçekleştirilmiş olup arazi çalışmaları çoğunlukla İstanbul'da yapılmış, kelebeklerin yakalanması amacıyla ışık tuzağı ve atrap kullanılmıştır. Türkiye'de daha önce tespit edilen Sphingidae türleri ile ilgili özet bilgiler çeşitli literatür kaynaklarından alınmıştır.

Türkiye'de bugüne kadar 35 Sphingidae türü tespit edilmiş olup, bu türlerin 7'si Smerinthinae, 4'ü Sphinginae ve 24'ü de Macroglossinae alt familyasına mensuptur. Araştırma noktalarımızda 10 tür tespit edilmiş, türlerin coğrafi yayılışı anlamında Türkiye Sphingidae faunasına yeni katkılarda bulunulmuştur. Bugüne kadar Türkiye'de tespit edilen Sphingidae türlerinin listesi aşağıda verilmiştir:

Subfamily SMERINTHINAE Grote and Robinson, 1865

Tribe Smerinthini Grote and Robinson, 1865

*Laothoe populi* (Linnaeus, 1758)

*Marumba quercus* (Denis and Schiffermüller), 1775)

*Minas tiliae* (Linnaeus, 1758)

*Smerinthus kindermannii* Lederer, 1853

*Smerinthus ocellata* (Linnaeus, 1758)

- Tribe **Sphingulini** Rothschild and Jordon, 1903  
*Dalbina elegans* A. Bang-Haas, 1912
- Tribe **Ambulycini** Butler, 1876  
*Akbesia davidi* (Oberthür, 1884)
- Subfamily SPHINGINAE Latreille, [1802]  
 Tribe **Sphingini** Latreille, [1802]  
*Sphinx ligustri* Linnaeus, 1758  
*Sphinx pinastri* Linnaeus, 1758
- Tribe **Acherontiini** Boisduval, [1875]  
*Acherontia atropos* (Linnaeus, 1758)  
*Agrius convolvuli* (Linnaeus, 1758)
- Subfamily MACROGLOSSINAE Harris, 1839  
 Tribe **Dilophonotini** Burmeister, 1878  
*Hemaris croatica* (Esper, 1800)  
*Hemaris dentata* (Staudinger, 1887)  
*Hemaris fuciformis* (Linnaeus, 1758)  
*Hemaris tityus* (Linnaeus, 1758)
- Tribe **Macroglossini** Harris, 1839  
*Clarina kotschyi* (Kollar, [1849])  
*Daphnis nerii* (Linnaeus, 1758)  
*Deilephila elpenor* (Linnaeus, 1758)  
*Deilephila porcellus* (Linnaeus, 1758)  
*Hippotion celerio* (Linnaeus, 1758)  
*Hyles centralasiae* (Staudinger, 1887)  
*Hyles euphorbiae* (Linnaeus, 1758)  
*Hyles gallii* (Rottemburg, 1775)  
*Hyles hippophaes* (Esper, 1789)  
*Hyles livornica* (Esper, 1780)  
*Hyles nicaea* (de Prunner, 1798)  
*Hyles vespertilio* (Esper, 1780)  
*Hyles zygophylli* (Ochsenheimer, 1808)  
*Macroglossum stellatarum* (Linnaeus, 1758)  
*Proserpinus proserpina* (Pallas, 1772)  
*Rethera brandti* O. Bang-Haas, 1937  
*Rethera komarovi* (Christoph, 1885)  
*Sphingonaepiopsis gorgoniades* (Hübner, [1819])  
*Theretra alecto* (Linnaeus, 1758)  
*Theretra boisduvalii* (Bugnion, 1839)

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