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A study of Ichneumonidae (Hymenoptera) of Kasnak Oak Forest Nature Reserve in Turkey with new records

M.F. GÜRBÜZ, H. KIRTAY, O. BİROL

Abstract: This study was carried out to determine the species of fauna Ichneumonidae (Hymenoptera) in Kasnak Oak Forest Nature Reserve in Isparta. Totally 71 species belonging to 14 tribes and 11 subfamilies have been recorded in the research area; 28 species from Cryptinae, 13 species from Tryphoninae, 8 species from Ctenopelmatinae, 6 species from Banchinae, 5 species from Anomaloninae, 4 species from Ophioninae, 2 each of Pimplinae and Diplazontinae, 1 each of Xoridinae, Acaenitinae and Collyriinae. Among them, 5 species noted in the text by asterisk are new records for the Turkish fauna. The general distribution of all species and distribution in Turkey were given on the basis of literature. Also species of dominance were estimated and given.

Key words: Ichneumonidae, fauna, Kasnak Oak Forest Nature Reserve, new records, dominance scale, Turkey.

Introduction

Ichneumonidae (Hymenoptera), is a widespread and extremely large family with an estimated 60.000 extant species in 35 genera worldwide (TOWNES 1969). GAULD (2000) estimated, by extrapolating from recent collections that the total global species-richness of the family will be more than 100.000 species. Isparta is one of the important refugia of Turkey, possessing different topographic conditions and various kinds of climates (GRUEV 2002). There are several studies about Ichneumonidae in Isparta. These are; (KOLAROV & GÜRBÜZ 2004) listed 26 species for Pimplinae, GÜRBÜZ & AKSOYLAR (2005) listed 6 species for Isparta, GÜRBÜZ (2005) listed 37 species in Isparta province. Faunistic data of 21 Tryphoninae were added from Isparta (GÜRBÜZ & KOLAROV 2006). KOLAROV & GÜRBÜZ (2006) listed 16 species for Anomaloninae, Banchinae, Ophioninae and Xoridinae also KOLAROV & GÜRBÜZ (2007) added 26 species for Cryptinae. Lately, new records have been added (GÜRBÜZ & KOLAROV 2005, 2006), *Parablastus anatolicus* nov.sp. and *Collyria isparta* for in this fauna. GÜRBÜZ & KOLAROV (2008) listed 39 species for Cryptinae. Volcanic oak or "riddle frame oak" in vernacular usage is an endemic species of Anatolia. It is found in a mixed stand covering an area over 5000 ha near the Turkish province Isparta (BALABAN & UÇAR 2001). Kasnak Oak Forests, a nature reserve mainly consisting of pure stands of vulcanic oak [*Quercus vulcanica* BOISS. & HELDR. ex KOTSCHY], which is endemic to Turkey (GÖK & ASLAN 2007).

1986

Methods

The Ichneumonidae samples were collected from Kasnak Oak Forest Nature Reserve in Isparta Province situated in the south-western of Turkey, between April 2007 and November 2007. There were 5 stations appointed to investigate of Ichneumonidae fauna depending on different altitudes (Table 1). The samples were obtained from grass-type plants by using a standard sweeping-net and Malaise trap. The samples are preserved in the collection of the Department of Biology, Faculty of Arts and Sciences at Süleyman Demirel University, Isparta, Turkey.

Table 1: Habitats, altitudes and coordinates of appointed stations.

Location	Habitat	Altitude	Coordinates
1. Station	<i>Salix</i>	925 m	37° 41' 51.46" N 30° 51' 23.19" E
2. Station	Angiospermae, <i>Triticum</i> , <i>Hordeum vulgare</i>	1225 m	37° 43' 01.55" N 30° 49' 59.68" E
3. Station	Monocotyledoneae, <i>Quercus vulcanica</i> , <i>Quercus cerris</i>	1425 m	37° 44' 19.09" N 30° 50' 17.03" E
4. Station	<i>Rhododendron</i> , <i>Quercus vulcanica</i> , <i>Quercus cerris</i> , <i>Pinus brutia</i> , <i>Cedrus libani</i> , <i>Juniperus excelsa</i>	1525 m	37° 44' 58.28" N 30° 49' 56.15" E
5. Station	Monocotyledoneae, <i>Pinus brutia</i> , <i>Cedrus libani</i> , <i>Juniperus excelsa</i>	1625 m	37° 44' 03.69" N 30° 49' 03.37" E

List of the species

Subfam. Acaenitinae

Phaenolobus fulvicornis (GRAVENHOST 1829)

Material examined: 4. Station, 1525m, 16.VI.2007, 1♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzurum, Köşk, İspir, Oltu (KOLAROV et al. 2002); Isparta, Eğirdir (GÜRBÜZ 2005).

Subfam. Anomaloniinae

Tribe Anomalonini

Anomalon cruentatum (GEOFFROY 1785)

Material examined: 5. Station, 1625m, 08.V.2007, 1♂; 09.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta-Merkez-Kirazlıdere-Gönen (GÜRBÜZ 2004); Adıyaman-Merkez, Batman-Hasankeyf, Diyarbakır-Çermik-Merkez, Elazığ-Yemişlik, Malatya-Yeşilyurt-Doğanyurt, Mardin-Savur (AKKAYA 2005).

1987

Tribe Gravenhorstini

***Barylypa delictor* (THUNBERG 1824)**

Material examined: 2. Station, 1225m, 03.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Edirne (ÖNCÜER 1991); Isparta, Eğirdir (GÜRBÜZ 2005).

***Erigorgus fibulator* (GRAVENHORST 1829)**

Material examined: 5. Station, 1625m, 09.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Adana-Yumurtalık (GÜRBÜZ et al. 2008)

*** *Erigorgus melanops* (FÖRSTER 1855)**

Material examined: 4. Station, 1525m, 26.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

***Kokujewiella vicaria* SHESTAKOV 1926**

Material examined: 5. Station, 1625m, 08.V.2007, 2♂♂, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic, (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

Subfam. Banchinae

Tribe Atrophini

***Alloplasta piceator* (THUNBERG 1824)**

Material examined: 5. Station, 1625m, 08.V.2007, 2♀♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

***Lissonota (Lissonota) compar* FONSCOLOMBE 1854**

Material examined: 5. Station, 1625m, 08.V.2007, 1♂, 1♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

1988

***Lissonota (Lissonota) culiciformis* GRAVENHORST 1829**

Material examined: 5. Station, 1625m, 08.V.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzincan (PEKEL et al. 2000); Isparta, Eğirdir, Burdur-Dirmil (KOLAROV & GÜRBÜZ 2006).

***Lissonota (Lissonota) fundator* (THUNBERG 1824)**

Material examined: 5. Station, 1625m, 02.VII.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta-Gökçay-Kasnakmeşesi-Sav, Burdur-Dirmil (KOLAROV & GÜRBÜZ 2006).

***Lissonota histrio* (FABRICIUS 1798)**

Material examined: 1. Station, 925m, 23.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzurum (PEKEL et al. 2000); Diyarbakır-Merkez, Elazığ-Hazar, Mardin-Savur (AKKAYA 2005).

***Lissonota (Loxonata) lineolator* AUBERT 1972**

Material examined: 2. Station, 1225m, 03.V.2007, 1♂.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Yalvaç (GÜRBÜZ 2005).

Subfam. Collyriinae

***Collyria coxator* (VILLERS 1789)**

Material examined: 2. Station, 1225m, 28.04.2007, 2♀♀, 1♂; 26.V.2007, 1♀; 1625m, 26.V.2007, 2♀♀; 1. Station, 925m, 05.V.2007, 2♀♀; 26.V.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Konya (ALTINAYAR 1981); İstanbul, Ankara (KOLAROV 1989); Batman-Merkez, Diyarbakır-Bismil, Elazığ-Sivrice, Mardin-Derik (AKKAYA 2005); Isparta, Şarkikaraağaç, Sütçüler, Yalvaç (GÜRBÜZ 2005).

Subfam. Cryptinae

Tribe Cryptini

***Agrothereutes fumipennis* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m, 07.VI.2007, 2♂♂.

1989

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzurum, Pasinler (ÇORUH & ÖZBEK 2005); Isparta, Eğirdir, Aksu (GÜRBÜZ & KOLAROV 2008).

***Aritranis director* (THUNBERG 1824)**

Material examined: 3. Station, 1425 m, 07.VI.2004, 1♂; 25.VII.2004, 1♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Yalvaç, Burdur, Antalya (GÜRBÜZ & KOLAROV 2008).

***Aritranis longicauda* (KRIECHBAUMER 1873)**

Material examined: 3. Station, 1425m, 07.VI.2007, 1♂.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Uluborlu (GÜRBÜZ & KOLAROV 2008).

***Aritranis nigrifemur* (SZEPLIGETI 1916)**

Material examined: 3. Station, 1425m, 02.VII.2007, 1♂.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Cryptus spiralis* (GEOFFROY 1785)**

Material examined: 3. Station, 1425 m, 07.VI.2007, 2♀♀; 02.VII.2007, 1♀; 25.VII.2004, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Bayburt, Erzurum, Kars (ÇORUH & ÖZBEK 2005); Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Gambrus incubitor* (LINNAEUS 1758)**

Material examined: 3. Station, 1425 m, 08.V.2007, 1♂.

General distribution: Eastern Palaearctic, Ethiopian, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Hidryta sordida* (TSCHEK 1871)**

Material examined: 2. Station, 1225 m, 23.V.2007, 2♂♂.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

1990

***Hoplocryptus quadriguttatus* (GRAVENHORST 1829)**

Material examined: 2. Station, 1225m, 07.VI.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Idiolispa analis* (GRAVENHORST 1807)**

Material examined: 2. Station, 1225m, 23.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Ischnus migrator* (FABRICIUS 1775)**

Material examined: 3. Station, 1425m, 02.VI.2007, 2♂♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Meringopus titillator rhodius* (DALLA TORRE 1902)**

Material examined: 3. Station, 1425m, 02.VII.2007, 1♂, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Antalya (GÜRBÜZ & KOLAROV 2008).

***Mesostenus albinotatus* GRAVENHORST 1829**

Material examined: 3. Station, 1425m, 07.VI.2007, 1♀; 02.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Mesostenus grammicus* GRAVENHORST 1829**

Material examined: 3. Station, 1425 m, 02.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Mesostenus transfuga* GRAVENHORST 1829**

Material examined: 3. Station, 1425m, 02.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Oceanic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Burdur (GÜRBÜZ & KOLAROV 2008).

***Myrmeleonostenus italicus* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m, 08.VI.2007, 1♀; 02.VII.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Uluborlu, Keçiborlu, Antalya (GÜRBÜZ & KOLAROV 2008).

***Stenarella domator* (PODA 1761)**

Material examined: 2. Station, 1225m, 23.V.2007, 1♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Trychosis neglecta* (TSCHEK 1871)**

Material examined: 3. Station, 1425m, 08.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Trychosis pauper* (TSCHEK 1871)**

Material examined: 2. Station, 1225m, 23.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2008).

***Trychosis tristator* (TSCHEK 1871)**

Material examined: 2. Station, 1225m, 12.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Atabey (GÜRBÜZ & KOLAROV 2008).

Tribe Phygadeuontini

***Aclastus gracilis* (THOMSON 1884)**

Material examined: 1. Station, 925m, 12.V.2007, 6♂♂; 23.V.2007, 1♀; 3. Station, 1425m, 08.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

1992

***Bathythrix lamina* (THOMSON 1884)**

Material examined: 3. Station, 1425m, 02.VII.2007, 2♀ ♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Dichrogaster aestivalis* (GRAVENHORST 1829)**

Material examined: 4. Station, 1525m, 07.VI.2007, 5♂ ♂; 02.VII.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Antalya (KOLAROV & GÜRBÜZ 2007).

***Dichrogaster longicaudata* (THOMSON 1884)**

Material examined: 2. Station, 1225m, 23.V.2007, 1♂; 3. Station 1425m, 07.VI.2007, 4♂ ♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Dichrogaster schimitscheki* (FAHRINGER 1935)**

Material examined: 4. Station, 1425m, 07.VI.2007, 1♀ ♀.

General distribution: Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Endasys brevis* (GRAVENHORST 1829)**

Material examined: 2. Station, 1225m, 22.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Endasys minutulus* (THOMSON 1884)**

Material examined: 3. Station, 1425m, 07.VI.2007, 4♂ ♂.

General distribution: Europe, Nearctic, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Endasys plagiator* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m, 07.VI.2007, 1♂.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

1993

Distribution in Turkey : Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

***Phygadeuon vexator* (THUNBERG 1822)**

Material examined : 2. Station, 1225m, 12.V.2007, 1♀.

General distribution : Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey : Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2007).

Subfam. Ctenopelmatinae

Tribe Mesoleiini

*** *Campodorus* sp. FÖRSTER 1869**

Material examined : 4. Station, 1525m, 12.V.2007, 1♂.

General distribution : Eastern Palearctic, Europe, Nearctic, Oriental, Western Palearctic (YU & HORSTMANN 1997).

*** *Campodorus agarcin* KASPARYAN 2005**

Material examined : 2. Station, 1225 m, 26.V.2007, 1♂.

General distribution : Europe, Western Palearctic (KASPARYAN 2005).

Tribe Euryproctini

***Mesoleptidea* sp. VIERECK 1912**

Material examined : 3. Station, 1425m, 09.VI.2007, 1♂.

General distribution : Eastern Palearctic, Europe, Nearctic, Neotropical, Western Palearcti. (YU & HORSTMANN 1997).

Distribution in Turkey : Türkiye (AUBERT 2000).

*** *Mesoleptidea cingulata* (GRAVENHORST 1829)**

Material examined : 4. Station, 1525m, 23.VI.2007, 1♂.

General distribution : Eastern Palearctic, Europe, Western Palearctic (YU & HORSTMANN 1997).

***Phobetres leptocerus* (GRAVENHORST 1820)**

Material examined : 3. Station, 1425m, 09.VI.2007, 1♂, 4. Station, 1525m., 23.VI.2007, 2♂♂.

General distribution : Europe, Western Palearctic (YU & HORSTMANN 1997).

Distribution in Turkey : Türkiye (AUBERT 2000).

1994

Tribe Perilissini

*** *Lathrolestes lucidulus* (HOLMGREN 1857)**

Material examined: 1. Station, 925m, 03.V.2007, 2♂♂.

General distribution: Europe, Western Palearctic (YU & HORSTMANN 1997).

***Perilissus albitarsis* THOMSON 1883**

Material examined: 4. Station, 1525m, 05.V.2007, 1♂, 12.V.2007, 3♂♂, 1♀, 29.VI.2007, 1♂.

General distribution: Eastern Palearctic, Europe, Western Palearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Türkiye (AUBERT 2000).

Tribe Pionini

***Pion fortibes* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m., 26.V.2007, 1♂, 5. Station, 1625m, 05.V.2007, 1♂.

General distribution: Eastern Palearctic, Europe, Western Palearctic. (YU & HORSTMANN 1997).

Distribution in Turkey: İstanbul (KOLAROV 1995), Erzurum (ÖZBEK et al. 2000).

Subfam. Diplazoninae

***Diplazon tibiatorius* (THUNBERG 1822)**

Material examined: 2. Station, 1225m, 03.VIII.2007, 1♂.

General distribution: Eastern Palaeartic, Europe, Nearctic, Western Palaeartic (YU & HORSTMANN 1997).

Distribution in Turkey: Tekirdağ, (YURTCAN et al. 1999); Ankara (ÖNCÜER 1991; ÖZDEMİR 2001); Isparta, Eğirdir (GÜRBÜZ 2005).

***Syrphophilus bizonairus* (GRAVENHORST 1829)**

Material examined: 2. Station, 1225m, 03.V.2007, 2♂♂.

General distribution: Eastern Palaeartic, Europe, Nearctic, Oriental, Western Palaeartic, Oriental (YU & HORSTMANN 1997).

Distribution in Turkey: Beyşehir gölü (SEVIDY 1959), İstanbul, Ankara (KOLAROV 1989), Edirne, Tekirdağ, Kırklareli (YURTCAN et al. 1999), Ankara, Eskişehir, Konya, Burdur, Niğde (ÖZDEMİR 2001), Isparta, Eğirdir, Uluborlu (GÜRBÜZ 2005).

1995

Subfam. O p h i o n i n a e

***Enicospilus* sp. (FABRICIUS 1798)**

Material examined: 4. Station, 1525m, 16.VI.2007, 1 ♀.

General distribution: Australasian, Eastern Palaearctic, Ethiopian, Europe, Nearctic, Neotropical, Oceanic, Oriental, Western Palaearctic, Ethiopian (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

***Enicospilus ramidulus* (LINNAEUS 1758)**

Material examined: 5. Station, 1625m, 02.VII.2007, 1 ♂.

General distribution: Eastern Palaearctic, Ethiopian, Europe, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

***Ophion* sp. FABRICIUS 1798**

Material examined: 4. Station, 1525m, 28.04.2007, 1 ♀.

General distribution: Australasian, Eastern Palaearctic, Europe, Nearctic, Neotropical, Oceanic, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

***Polysphincta* sp. (FABRICIUS 1798)**

Material examined: 4. Station, 1525m, 23.VI.2007, 1 ♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Neotropical, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

Subfam. P i m p l i n a e

Tribe P i m p l i n i

***Itopectis maculator* (FABRICIUS 1775)**

Material examined: 1. Station, 925m, 05.V.2007, 1 ♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Ankara, Eskişehir, Konya, Nevşehir, Yozgat (ÖZDEMİR & KILINÇER 1990); Erzurum (KOLAROV et al. 1999); Çanakkale, İstanbul, Edirne, Kırklareli, Tekirdağ (YURTCAN 2004); Artvin, Bayburt, Erzurum, Gümüşhane, Rize, Kars (ÇORUH 2005).

***Pimpla turionellae* (LINNAEUS 1758)**

Material examined: 1. Station, 925m, 05.V.2007, 1 ♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Oceanic, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

1996

Distribution in Turkey: Bursa-Uludağ, İstanbul-Belgrad Ormanları (FAHRINGER 1922); Eskişehir-Yassıhöyük-Kargeyikli, Konya-Lalebahçe, Ankara-Beypazarı-Çubuk-Kalecik-Kozanlı-Polatlı, Nevşehir-Avanos (ÖZDEMİR & KILINÇER 1990); Isparta-Merkez (GÜRBÜZ 2004); Kırklareli-Kofçaz-Ahmetler (YURTCAN 2004); Erzurum-Ilica, Oltu-Sarısaz, Tortum-Aksu (ÇORUH 2005).

Subfam. Tryphoninae

Tribe Eclytini

***Eclytus (Zapedias) exornatus* (GRAVENHORST 1829)**

Material examined: 5. Station, 1625m, 07.VI.2007, 1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2006).

Tribe Exenterini

***Acrotomus succinctus* (GRAVENHORST 1829)**

Material examined: 2. Station, 1225m, 15.VI.2007, 1♀; 5. Station, 1625m, 02.VII.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Nearctic, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Edirne, Tekirdağ (KOLAROV & BEYARSLAN 1994; YURTCAN & BEYARSLAN 2002); Bilecik, Çanakkale (KOLAROV et al. 1997); Erzurum (KOLAROV et al. 1999); İstanbul (YURTCAN & BEYARSLAN 2002); Isparta, Eğirdir, Burdur, Ağlasun (GÜRBÜZ & KOLAROV 2006).

Tribe Tryphonini

***Monoblastus brachyacanthus* (GMELIN 1790)**

Material examined: 5. Station, 1625m, 08.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzurum, Tekirdağ (KOLAROV & BEYARSLAN 1994), Edirne, Kırklareli (YURTCAN & BEYARSLAN 2002), Isparta, Eğirdir, Uluborlu, Burdur (GÜRBÜZ & KOLAROV 2006).

***Monoblastus discedens* (SCHMIEDEKNECHT 1912)**

Material examined: 5. Station, 1625m, 15.VI.2007, 1♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2006).

1997

***Monoblastus marginellus* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m, 26.V.2007, 1♀; 5. Station, 1625m, 07.VI.2004
18♂♂, 2♀♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Kırklareli (YURTCAN & BEYARSLAN 2002); Isparta, Eğirdir, Antalya (GÜRBÜZ & KOLAROV 2006).

***Otoblastus luteomarginatus* (GRAVENHORST 1829)**

Material examined: 5. Station, 1625m, 27.04.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2006).

***Parablastus ibericus* KASPARYAN 1999**

Material examined: 4. Station, 1525m, 02.VII.2007, 1♀.

General distribution: Georgia, Armenia, Turkey (GÜRBÜZ & KOLAROV 2005).

Distribution in Turkey: Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2005).

***Tryphon (T.) rarus* KASPARYAN 1969**

Material examined: 2. Station, 1225m, 12.V.2007, 2♂♂, 1♀.

General distribution: Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir, Keçiborlu (GÜRBÜZ & KOLAROV 2006).

***Tryphon rutilator* (LINNAEUS 1761)**

Material examined: 5. Station, 1625m, 12.V.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: İstanbul (FAHRINGER 1922); Balıkesir, Edirne (KOLAROV & BEYARSLAN 1994); Erzurum (KOLAROV et al. 1999); Bolu, Eskişehir (ÖZDEMİR 2001); Edirne, Kırklareli (YURTCAN & BEYARSLAN 2002); Isparta, Antalya (GÜRBÜZ & KOLAROV 2006).

***Tryphon (T.) signator* GRAVENHORST 1829**

Material examined: 2. Station, 1225m, 23.V.2007, 1♀; 5. Station, 1625m, 23.V.2007,
1♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: İstanbul (KOLAROV 1994); Edirne, İçel (KOLAROV & BEYARSLAN 1994); Erzurum (KOLAROV et al. 1999); Edirne, Kırklareli (YURTCAN & BEYARSLAN 2002); Isparta, Eğirdir, Uluborlu (GÜRBÜZ & KOLAROV 2006).

1998

***Tryphon thomsoni* ROMAN 1939**

Material examined: 5. Station, 1625m, 12.V.2007, 1♂; 2. Station, 1225m, 22.V.2004, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Kahramanmaraş, Kırklareli (KOLAROV & BEYARSLAN 1994); Erzurum (KOLAROV et al. 1999); Kırklareli (YURTCAN & BEYARSLAN 2002); Isparta, Eğirdir (GÜRBÜZ & KOLAROV 2006).

Tribe Phytodietini

***Netelia (Netelia) dilatata* (THOMSON 1888)**

Material examined: 5. Station, 1625m, 07.VI.2007, 3♀♀.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Erzurum (KOLAROV et al. 1999); Ankara, Konya (ÖZDEMİR 2001); Isparta, Eğirdir, Uluborlu (GÜRBÜZ & KOLAROV 2006).

***Netelia (N.) fuscicornis* (HOLMGREN 1860)**

Material examined: 4. Station, 1525m, 05.V.2007, 1♂, 5. Station, 1625m, 02.VII.2007, 2♀♀.

General distribution: Eastern Palaearctic, Europe, Oriental, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Hatay (KOLAROV 1987); Nevşehir-Ürgüp-Göreme-Karain (KOLAROV 1994); Edirne, Elazığ, Kahramanmaraş, Kırklareli, Tekirdağ (KOLAROV & BEYARSLAN 1994); Kayseri-Erciyes, Konya-Merem, Van, Hatay (KOLAROV 1995); Balıkesir, Bursa (KOLAROV et al. 1997b); Adana, Ankara, Bayburt, Erzurum (KOLAROV et al. 1999); Ankara, Eskişehir, Kırşehir, Nevşehir (ÖZDEMİR 2001); Edirne, Kırklareli (YURTCAN & BEYARSLAN 2002).

Subfam. Xoridinae

***Xorides (Xorides) gracilicornis* (GRAVENHORST 1829)**

Material examined: 3. Station, 1425m, 07.VI.2007, 1♂.

General distribution: Eastern Palaearctic, Europe, Western Palaearctic (YU & HORSTMANN 1997).

Distribution in Turkey: Isparta, Eğirdir (KOLAROV & GÜRBÜZ 2006).

Results and discussion

The dominance (D) describes the relative abundance of a species within a community (TISCHLER 1977).

It is measured as:

$$D = \frac{b}{a} \times 100 \quad \left| \begin{array}{l} b = \text{number of individuals of the species} \\ a = \text{number of individuals of all species} \end{array} \right.$$

Dominance scale logarithmic after ENGELMANN (MACZEY 2004):

- Eudominant > 32.0 ≤ 100 %
- Dominant > 10.0 ≤ 32.0 %
- Subdominant > 3.2 ≤ 10.0 %
- Recedent > 1.0 ≤ 3.2 %
- Subrecedent > 0.32 ≤ 1.0 %
- Sporadic ≤ 0.32 %
- Missing = 0 %

According to ENGELMANN'S (1978) dominance scale, *Monoblastus marginellus* is dominant species. *Aclactus gracilis*, *Collyria coxator*, *Dichrogaster aestivalis*, *Dichrogaster longicaudata* and *Perilissus albitarsis* are subdominant species. Also 25 species are recedent and 40 species are subrecedent. There is not any Eudominant, sporadic and missing species in the research area (Table 2).

Table 2: Dominance of species.

Species	Altitude					
	925m	1225m	1425m	1525m	1625m	D
<i>Aclactus gracilis</i>	+	-	+	-	-	5.26
<i>Acrotomus succinctus</i>	-	+	-	-	+	1.32
<i>Agrothereutes fumipennis</i>	-	-	+	-	-	1.32
<i>Alloplasta piceator</i>	-	-	-	-	+	1.32
<i>Anomalon cruentatum</i>	-	-	-	-	+	1.32
<i>Aritranis director</i>	-	-	+	-	-	1.32
<i>Aritranis longicauda</i>	-	-	+	-	-	0.66
<i>Aritranis nigrifemur</i>	-	-	+	-	-	0.66
<i>Barylypa delictor</i>	-	+	-	-	-	0.66
<i>Bathythrix lamina</i>	-	-	+	-	-	1.32
<i>Campodorus agarcin</i>	-	-	-	-	-	0.66
<i>Campodorus sp.</i>	-	-	-	+	-	0.66
<i>Collyria coxator</i>	+	+	-	-	+	5.26
<i>Cryptus spiralis</i>	-	-	+	-	-	2.63
<i>Dichrogaster aestivalis</i>	-	-	-	+	-	3.95
<i>Dichrogaster longicaudata</i>	-	+	+	-	-	3.29
<i>Dichrogaster schimitscheki</i>	-	-	+	-	-	0.66
<i>Diplazon tibiatorius</i>	-	+	-	-	-	0.66
<i>Eclytus (Zapedias) exornatus</i>	-	-	-	-	+	0.66
<i>Endasys brevis</i>	-	+	-	-	-	0.66
<i>Endasys minutulus</i>	-	-	+	-	-	2.63
<i>Endasys plagiator</i>	-	-	+	-	-	0.66
<i>Enicospilus ramidulus</i>	-	-	-	-	+	0.66
<i>Enicospilus sp.</i>	-	-	-	+	-	0.66
<i>Erigorgus fibulator</i>	-	-	-	-	+	0.66
<i>Erigorgus melanops</i>	-	-	-	+	-	0.66
<i>Gambrus incubator</i>	-	-	+	-	-	0.66
<i>Hidryta sordida</i>	-	+	-	-	-	1.32
<i>Hoplocryptus quadriguttatus</i>	-	+	-	-	-	0.66
<i>Idiolispa analis</i>	-	+	-	-	-	0.66
<i>Ischnus migratory</i>	-	-	+	-	-	1.32
<i>Itoplectis maculatur</i>	+	-	-	-	-	0.66
<i>Kokujewiella vicaria</i>	-	-	-	-	+	1.97
<i>Lathrolestes lucidulus</i>	+	-	-	-	-	1.32
<i>Lissonota (Lissonata) fundator</i>	-	-	-	-	+	0.66

2000

Species	Altitude					
	925m	1225m	1425m	1525m	1625m	D
<i>Lissonota (Lissonota) compare</i>	-	-	-	-	+	1.32
<i>Lissonota (Lissonota) culiciformis</i>	-	-	-	-	+	0.66
<i>Lissonota (Loxonata) lineolator</i>	-	+	-	-	-	0.66
<i>Lissonota histrio</i>	+	-	-	-	-	0.66
<i>Meringopus titillator rhodius</i>	-	-	+	-	-	1.32
<i>Mesoleptidea cingulata</i>	-	-	-	+	-	0.66
<i>Mesoleptidea sp.</i>	-	-	+	-	-	0.66
<i>Mesostenus albinotatus</i>	-	-	+	-	-	1.32
<i>Mesostenus grammicus</i>	-	-	+	-	-	0.66
<i>Mesostenus transfuga</i>	-	-	+	-	-	0.66
<i>Monoblastus brachyacanthus</i>	-	-	-	-	+	0.66
<i>Monoblastus discedens</i>	-	-	-	-	+	0.66
<i>Monoblastus marginellus</i>	-	-	+	-	+	13.82
<i>Myrmeleonostenus italicus</i>	-	-	+	-	-	1.32
<i>Netelia (N.) fuscicornis</i>	-	-	-	+	+	1.97
<i>Netelia (Netelia) dilatata</i>	-	-	-	-	+	1.97
<i>Ophion sp.</i>	-	-	-	+	-	0.66
<i>Otoblastus luteomarginatus</i>	-	-	-	-	+	0.66
<i>Parablastus ibericus</i>	-	-	-	+	-	0.66
<i>Perilissus albitarsis</i>	-	-	-	+	-	3.29
<i>Phaenolobus fulvicornis</i>	-	-	-	+	-	1.32
<i>Phobetres leptocerus</i>	-	-	+	+	-	1.97
<i>Phygadeuon vexator</i>	-	+	-	-	-	0.66
<i>Pimpla turionellae</i>	+	-	-	-	-	0.66
<i>Pion fortibes</i>	-	-	+	-	+	1.32
<i>Polysphincta sp.</i>	-	-	-	+	-	0.66
<i>Stenarella domator</i>	-	+	-	-	-	0.66
<i>Syrphophilus bizonairus</i>	-	+	-	-	-	1.32
<i>Trychosis neglecta</i>	-	-	+	-	-	0.66
<i>Trychosis pauper</i>	-	+	-	-	-	0.66
<i>Trychosis tristator</i>	-	+	-	-	-	0.66
<i>Tryphon (T.) rarus</i>	-	+	-	-	-	1.97
<i>Tryphon (T.) signator</i>	-	+	-	-	+	1.32
<i>Tryphon rutilator</i>	-	-	-	-	+	0.66
<i>Tryphon thomsoni</i>	-	+	-	-	+	1.32
<i>Xorides (Xorides) gracilicornis</i>	-	-	+	-	-	0.66

D= Dominance %, (+)= Species are shown in the research area, (-)=Species are not shown in the research area.

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Zusammenfassung

Vorliegende Studie hatte zum Ziel, die Ichneumonidenfauna (Hymenoptera) des Naturschutzgebietes "Kasnak-Eichenwald" in Isparta (Türkei) zu erfassen. Insgesamt gelang im Untersuchungsgebiet der Nachweis von 71 Arten aus 14 Triben und 11 Unterfamilien, die sich folgend zusam-

mensetzen: 28 Cryptinae, 13 Tryphoninae, 8 Ctenopelmatinae, 6 Banchinae, 5 Anomaloninae, 4 Ophioninae, je 2 Pimplinae und Diplazontinae, je 1 Xoridinae, Acaenitinae und Collyriinae. Unter diesen waren 5 Arten (markiert mit "**") neu für die Türkei. Angaben zur allgemeinen Verbreitung und jener in der Türkei wurden aus der Literatur erhoben, zudem wurden Angaben zur Dominanz der studierten Arten analysiert.

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Addresses of the authors: Mehmet Faruk GÜRBÜZ (corresponding author)

Süleyman Demirel University
Faculty of Arts and Sciences
Department of Biology
TR-32260 Isparta, Turkey
E-mail: mfg@fef.sdu.edu.tr

Hasan KIRTAY
Süleyman Demirel University
Faculty of Arts and Sciences
Department of Biology
TR-32260 Isparta, Turkey
E-mail: hasankirtay@hotmail.com

Onur BİROL
Süleyman Demirel University
Faculty of Arts and Sciences
Department of Biology
TR-32260 Isparta, Turkey
E-mail: birolonur@yahoo.com