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## The present situation of some families of Hymenoptera in Turkey

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**Abstract:** The present situation of Chrysididae, Sapygidae, Mutillidae, Pompilidae, Bradynobaenidae, Vespidae, Ampulicidae, Sphecidae, Crabronidae, Gasteruptiidae, Evaniidae, Stephanidae and Leucospidae fauna of Turkey were evaluated.

In this study, a total of 439 species and subspecies from 19 genera belonging to three subfamilies Cleptinae, Elampinae and Chrysidinae from Chrysididae; 15 species and subspecies from six genera belonging to two subfamilies Fedtschenkiinae and Sapyginae from Sapygidae; 64 species and subspecies from 19 genera belonging to five subfamilies Myrmosinae, Pseudophotopsidinae, Myrmillinae, Mutillinae and Dasylabrinae from Mutillidae; 247 species and subspecies from 36 genera belonging to three subfamilies Ceropalinae, Pepsinae and Pompilinae from Pompilidae; two species from one genus belonging to subfamily Apterogyninae from Bradynobaenidae; 299 species and subspecies from 52 genera belonging to four subfamilies Vespinae, Polistinae, Eumeninae and Masarinae from Vespidae; one species from one genus belonging to subfamily Ampulicinae from Ampulicidae; 72 species and subspecies from 13 genera belonging to three subfamilies Sceliphrinae, Sphecinae and Ammophilinae from Sphecidae; 489 species and subspecies from 64 genera belonging to five subfamilies Astatinae, Bembicinae, Philanthinae, Pemphredoninae and Crabroninae from Crabronidae; 12 species from one genus belonging to subfamily Gasteruptiinae from Gasteruptiidae; five species from two genera belonging to subfamily Evaniinae from Evaniidae; one species from one genus belonging to subfamily Stephaninae from Stephanidae and five species from one genus belonging to subfamily Leucospinae from Leucospidae were recorded in Turkey up to now.

The type localities of 51 species and 28 subspecies from Chrysididae; six species from Sapygidae; seven species and one subspecies from Mutillidae; 22 species and seven subspecies from Pompilidae; two genera, 70 species and 17 subspecies from Vespidae; three species from Sphecidae and 66 species and 11 subspecies from Crabronidae are situated in Turkey.

**Key words:** Hymenoptera, Chrysididae, Sapygidae, Mutillidae, Pompilidae, Bradynobaenidae, Vespidae, Ampulicidae, Sphecidae, Crabronidae, Gasteruptiidae, Evaniidae, Stephanidae, Leucospidae, fauna, Turkey.

### Introduction

Economically, aesthetically and biologically there are few groups of animals that are as important to man as the Hymenoptera. The Hymenoptera is one of the four great orders of insects, the order three being Coleoptera, Lepidoptera, and Diptera. Each order includes over 100.000 described species around the world, with Coleoptera having over

300.000. In Canada, Hymenoptera includes about 7.000 named species, or about 25 % of the total named insects. Experts have estimated less than half of Hymenoptera in Canada have been named, bringing the estimated Canadian fauna to 14.000-16.000 species. At present, over 18.000 species have been described in North America; a conservative estimate of undescribed species is about 30.000. The size of the world terrestrial fauna is well-known groups is often at least 10 times that of the nearctic, so that one could estimate 300.000 species of Hymenoptera as a conservation world total (GOULET & HUBNER 1993).

## Results

In this study, a total of 1.651 species and subspecies of 215 genera belonged to 31 subfamilies of Chrysididae, Sapygidae, Mutillidae, Pompilidae, Bradynobaenidae, Vespidae, Ampulicidae, Sphecidae, Crabronidae, Gasteruptiidae, Evaniidae, Stephanidae and Leucospidae were reported in Turkey. Separately, the type localities a total of two genera, 225 species and 64 subspecies from Chrysididae, Sapygidae, Mutillidae, Pompilidae, Vespidae, Sphecidae and Crabronidae are situated in Turkey (Table 1).

### Chrysididae

A total of 439 species and subspecies from 19 genera belonging to three subfamilies Cleptinae, Elampinae and Chrysidinae from Chrysididae were recorded in Turkey up to now. Separately, the type localities of 51 species and 28 subspecies from Chrysididae are situated in Turkey (YILDIRIM & STRUMIA 2008).

### Sapygidae

A total of 15 species and subspecies from six genera belonging to two subfamilies Fedtschenkiinae and Sapyginae from Sapygidae were recorded in Turkey up to now. Separately, the type localities of six species from Sapygidae are situated in Turkey (YILDIRIM & GUSENLEITNER 2001, 2004).

### Mutillidae

A total of 64 species and subspecies from 19 genera belonging to five subfamilies Myrmosinae, Pseudophotsidinae, Myrmillinae, Mutillinae and Dasylabrinae from Mutillidae were recorded in Turkey up to now. Separately, the type localities of seven species and one subspecies from Mutillidae are situated in Turkey (YILDIRIM 2006, LELEJ 2002).

### Pompilidae

A total of 247 species and subspecies from 36 genera belonging to three subfamilies Ceropalinae, Pepsinae and Pompilinae from Pompilidae were recorded in Turkey up to now. Separately, the type localities of 22 species and seven subspecies from Pompilidae are situated in Turkey (ÖZBEK et al. 1999, 2000).

### **Bradynobaenidae**

A total of two species from one genus belonging to subfamily Apterogyninae from Bradynobaenidae were recorded in Turkey up to now (YILDIRIM 2006, PAGLIANO 2002).

### **Vespidae**

A total of 299 species and subspecies from 52 genera belonging to four subfamilies Vespinae, Polistinae, Eumeninae and Masarinae from Vespidae were recorded in Turkey up to now. Separately, the type localities of two genera, 70 species and 17 subspecies from Vespidae are situated in Turkey (YILDIRIM & ÖZBEK 1996, YILDIRIM & KOJIMA 1999, YILDIRIM & GUSENLEITNER 2001, 2004, 2007; DVORAK & CASTRO 2007).

### **Ampulicidae**

A total of one species from one genus belonging to subfamily Ampulicinae from Ampulicidae were recorded in Turkey up to now (LJUBOMIROV & YILDIRIM 2008).

### **Sphecidae**

A total of 72 species and subspecies from 13 genera belonging to three subfamilies Sceliphrinae, Sphecinae and Ammophilinae from Sphecidae were recorded in Turkey up to now. Separately, the type localities of three species from Sphecidae are situated in Turkey (LJUBOMIROV & YILDIRIM 2008).

### **Crabronidae**

A total of 489 species and subspecies from 64 genera belonging to five subfamilies Astatinae, Bembicinae, Philanthinae, Pemphredoninae and Crabroninae from Crabronidae were recorded in Turkey up to now. Separately, the type localities of 66 species and 11 subspecies from Crabronidae are situated in Turkey (STRAKA 2005, HEPDURGUN et al. 2007, LJUBOMIROV & YILDIRIM 2008).

### **Gasteruptiidae**

A total of 12 species from one genus belonging to subfamily Gasteruptiinae from Gasteruptiidae were recorded in Turkey up to now (YILDIRIM et al. 2004).

### **Evaniidae**

A total of five species from two genera belonging to subfamily Evaniinae from Evaniidae were recorded in Turkey up to now (YILDIRIM 2008).

### **Stephanidae**

A total of one species from one genus belonging to subfamily Stephaninae from Stephanidae were recorded in Turkey up to now (YILDIRIM & KOLAROV 2006).

## Leucospidae

A total of five species from one genus belonging to subfamily Leucospinae from Leucospidae were recorded in Turkey up to now (YILDIRIM et al. 2002).

**Table 1:** The present situation of some families of Hymenoptera in Turkey

Family	Number of present in Turkey			Number of type localities situated in Turkey		
	Subfamily	Genus	Species and sub species	Genus	Species	Sub species
Chysididae	Cleptinae Elampinae Chrysidinae	19	439	-	51	28
Sapygidae	Fedtschenkiinae Sapyginae	6	15	-	6	-
Mutillidae	Myrmosinae Pseudophotopsidinae Myrmillinae Mutillinae Dasylabrinae	19	64	-	7	1
Pompilidae	Ceropalinae Pepsinae Pompilinae	36	247	-	22	7
Bradynobaenidae	Apterogyninae	1	2	-	-	-
Vespidae	Vespininae Polistinae Eumeninae Masarinae	52	299	2	70	17
Ampulicidae	Ampulicinae	1	1	-	-	-
Sphecidae	Sceliphrinae Sphecinae Ammophilinae	13	72	-	3	-
Crabronidae	Astatinae Bembicinae Philanthinae Pemphredoninae Crabroninae	64	489	-	66	11
Gasteruptiidae	Gasteruptiinae	1	12	-	-	-
Evaniidae	Evaniinae	2	5	-	-	-
Stephanidae	Stephaninae	1	1	-	-	-
Leucospidae	Leucospinae	1	5	-	-	-
13	31	215	1.651	2	225	64

## Conclusions

In this study, the present situation of Chrysididae, Sapygidae, Mutillidae, Pompilidae, Bradynobaenidae, Vespidae, Ampulicidae, Sphecidae, Crabronidae, Gasteruptiidae, Evaniidae, Stephanidae and Leucospidae of Turkey were evaluated and related studies on these families of Turkey which were reviewed. As a result, a total of 1.651 species and subspecies of 215 genera belonged to 31 subfamilies were recorded from Turkey up to

now. Separately, the type localities a total of two genera, 225 species and 64 subspecies are situated in Turkey.

Turkey is mountainous mass averaging about 1.000 meters in height. It several climatically distinct regions. The topographic and climatic structure give to the country the opportunity to hosts a rich and diverse fauna. Turkey is one of the most interesting countries from the view points of Hymenoptera taxonomy and biogeography. These families fauna in Turkey is very rich also in comparison to others countries of the Mediterranean region, well known for its high biodiversity. In conclusion, the Turkey richness, as emerged from the present paper, can be explained as fauna includes Mediterranean, Middle-East and southwestern Asian species.

### Zusammenfassung

In vorliegender Studie wurde der aktuell bekannte Artenstand folgender Hymenopterenfamilien in der Türkei festgehalten: Chrysididae (439 Arten und Unterarten, 19 Gattungen, aus den drei Unterfamilien Cleptinae, Elampinae und Chrysidinae), Sapygidae (15 Arten und Unterarten, 6 Gattungen, aus den zwei Unterfamilien Fedtschenkiinae und Sapyginae), Mutillidae (64 Arten und Unterarten, 19 Gattungen, aus den fünf Unterfamilien Myrmosinae, Pseudophotsidinae, Myrmillinae, Mutillinae und Dasylabrinae), Pompilidae (247 Arten und Unterarten, 36 Gattungen, aus den drei Unterfamilien Ceropalinae, Pepsinae and Pompilinae), Bradynobaenidae (2 Arten, 1 Gattung, Unterfamilie Apterogyninae), Vespidae (299 Arten und Unterarten, 52 Gattungen, aus den vier Unterfamilien Vespinae, Polistinae, Eumeninae und Masarinae), Ampulicidae (1 Art, 1 Gattung, Unterfamilie Ampulicinae), Sphecidae (72 Arten und Unterarten, 13 Gattungen, aus den drei Unterfamilien Sceliphrinae, Sphecinae und Ammophilinae), Crabronidae (489 Arten und Unterarten, 64 Gattungen, aus den fünf Unterfamilien Astatinae, Bembicinae, Philanthinae, Pemphredoninae und Crabroninae), Gasteruptionidae (12 Arten, 1 Gattung, Unterfamilie Gasteruptioninae), Evaniidae (5 Arten, 2 Gattungen, Unterfamilie Evaniinae), Stephanidae (1 Art, 1 Gattung, Unterfamilie Stephaninae), Leucospidae (5 Arten, 1 Gattung, Unterfamilie Leucospinae),

Typenstandorte von 51 Arten und Unterarten Chrysididae, 6 Arten Sapygidae, 7 Arten und einer Art Mutillidae, 22 Arten und 7 Unterarten Pompilidae, zweier Gattungen, 70 Arten und 17 Unterarten Vespidae, drei Arten Sphecidae und 66 Arten und 11 Unterarten Crabronidae liegen in der Türkei.

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