



Journal of
Entomology

ISSN 1812-5670



Academic
Journals Inc.

www.academicjournals.com

Studies on Pentatomidae and Scutelleridae (Heteroptera) Fauna of Isparta Province (Turkey)

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Abstract: Pentatomidae and Scutelleridae (Heteroptera) fauna of Isparta province were studied between 2000 and 2005. The samples were collected from different plants, on the ground, under the stones and in debris both from cultivated and non cultivated areas. A total of 18 species, of which 14 species belonging to Pentatomidae and 4 species belonging to Scutelleridae were determined. Among those *Eurygaster maura* (Linnaeus) (Scutelleridae) and *Rhaphigaster nebulosa* (Poda) (Pentatomidae) were the common species.

Key words: Scutelleridae, pentatomidae, fauna, biodiversity, Isparta

INTRODUCTION

Scutelleridae and Pentatomidae fauna of Turkey is quite abundant and in the previous studies of Gadeau de Kerville (1939), Hoberlandt (1955), Seidenstücker (1958), Linnavuori (1965), Gül-Zümreoğlu (1972), Lodos *et al.* (1978, 1998), Önder *et al.* (1983, 2006), Fent and Aktaş (1999), Awad and Pehlivan (2001), Özsaray and Kıyak (2001) and Kıyak *et al.* (2004), many species were determined belonging to Turkish Heteroptera fauna.

Isparta province is located in an area connecting three climatic regions of Turkey. Those are Mediterranean, Aegean and Middle Anatolian regions which have effects on the biodiversity of flora and fauna in this province. In previous studies (Gül-Zümreoğlu, 1972; Tuatay *et al.*, 1972; Lodos *et al.*, 1978) have recorded some species belonging to Scutelleridae and Pentatomidae in these regions. On the other hand, these studies were not focused on the fauna of Isparta province. The purpose of the study was to determine Scutelleridae and Pentatomidae fauna of Isparta province.

MATERIALS AND METHODS

Insects have been collected from different locations at the following sampling locations of Isparta during the years of 2000-2005: Central province, Atabey, Eğirdir, Gönen, Senirkent, Çünür, Gölcük, Uluborlu, Findos, Kirazlıdere and Davraz Mountain (1250 m) (Fig. 1). Materials were collected on the ground, under stones and debris. The information concerning specific name, describer and description date, locality and date of collection, plant on which the species were collected, determinant and number of species (in brackets) was given. Samplings were made by using different methods such as knock down method (Steiner, 1962), sweeping net and by hand. Collected materials were put into jars containing ethyl acetate and then they were relaxed and pinned. Material preserved in the collections of EMIT (Entomological Museum of Isparta, Turkey) in Süleyman Demirel University, Faculty of Agriculture, Department of Plant Protection.

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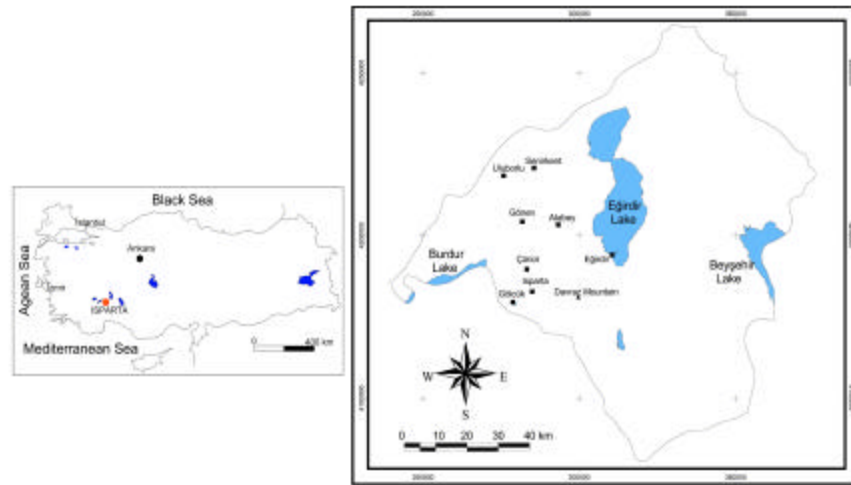


Fig. 1: Map of Isparta province

RESULTS AND DISCUSSION

At the end of this study a total of 18 species belonging to 13 genera were determined. Information on the studied material is given below in alphabetical order within each family.

A. Family: PENTATOMIDAE (Leach, 1815)

Genus 1: *Acrosternum* (Fieber, 1860)

Acrosternum heegeri (Fieber, 1861)

Material: Atabey, 12.x.2000, *Prunus amygdalus* (L.), (1). Total 1 specimen.

Genus 2: *Apodiphus* (Spinola, 1837)

Apodiphus amygdali (Germar, 1817)

Material: Central province, 11.x.2000, *Prunus amygdalus* (L.) (3); 12.viii.2002, (1); 13.viii.2002, (1); 21.ix.2005, weeds, (1); Atabey, 17.x.2000, *Prunus amygdalus* (L.), (1); 21.x.2000, (1); 16.xi.2000, (1); Gönen, 12.viii.2002, weeds, (2); Uluborlu, 11.vi.2002, *Prunus amygdalus* (L.), (1). Total 12 specimens.

Genus 3: *Carpocoris* (Kolenati, 1846)

Carpocoris mediterraneus (Tamarinini, 1958)

Material: Central province, 06.vii.2004, weeds, (2); 09.vii.2004, (1); 22.vii.2004, (1); Atabey, 14.vii.2002, weeds, (1). Total 5 specimens.

Carpocoris purpureipennis (De Geer, 1773)

Material: Central province, 03.x.2005, weeds, (3); Findos, 21.vii.2003, *Cirsium* sp., (2); Gölçük, 11.vi.2003, weeds, (3); Gönen, 21.vi.2005, *Cirsium* sp., (4). Total 12 specimens.

Genus 4: *Codophila* (Mulsant and Rey, 1866)

Codophila varia (Fabricius, 1787)

Material: Atabey, 06.x.2001, weeds, (3). Total 3 specimens.

Genus 5: *Dolycoris* (Mulsant and Rey, 1866)

Dolycoris baccarum (Linnaeus, 1758)

Material: Central province, 07.xi.2005, weeds, (3); 11.xii.2005, (2); Atabey, 25.xi.2000, *Rosa* sp., (5); Çüntür, 23.viii.2005, weeds, (4). Total 14 specimens.

Genus 6: *Eurydema* (Laporte de Castelnau, 1833)

Eurydema blandum (Horvath, 1903)

Material: Central province, 04.x.2003, weeds, (2); 14.vii.2004, (2); Kirazlıdere, 12.vi.2001, weeds, (2); Uluborlu, 08.vi.2005, weeds, (3); Senirkent, 08.vi.2005, weeds, (4). Total 13 specimens.

Eurydema ornatum (Linnaeus, 1758)

Material: Central province, 22.vii.2004, Cruciferous plants, (5); 13.x.2000, weeds, (4); 26.vi.2003, (3); 19.vii.2004, (1); Atabey, 13.x.2000, Cruciferous plants, (5); Sütçüler (Çandır), 30.iv.2002, weeds, (3). Total 21 specimens.

Eurydema ventrale (Kolenati, 1846)

Material: Central province, 09.vii.2004, weeds, (3); 03.vii.2005, (2); Atabey, 26.vi.2002, weeds, (2); Davraz Mountain (1250 m); 12.vi.2004, weeds, (4). Total 11 specimens.

Genus 7: *Eysarcoris* (Hahn, 1834)

Eysarcoris inconspicuus (Herrich-Schaffer, 1844)

Material: Eğirdir, 23.vii.2004, weeds, (2). Total 2 specimens.

Genus 8: *Holcogaster* (Fieber, 1860)

Holcogaster exilis (Horvath, 1903)

Material: Atabey, 07.xi.2000, weeds, (1). Total 1 specimen.

Genus 9: *Mustha* (Amyot and Serville, 1843)

Mustha spinosula (Lefebvre, 1831)

Material: Central province, 12.viii.2002, *Prunus amygdalus* (L.), (4); Atabey, 08.x.2000, *Cupressus* sp., (2). Total 6 specimens.

Genus 10: *Rhaphigaster* (Laporte de Castelnau, 1833)

Rhaphigaster nebulosa (Poda, 1761)

Material: Central province, 08.xi.2001, *Prunus amygdalus* (L.), (5); 12.x.2003, weeds, (3); Atabey, 22.ix.2000, *Prunus amygdalus* (L.), (4); 08.x.2000, (4); 25.x.2000, (4); 26.vii.2001, (2); 12.x.2000, weeds, (2); 18.x.2000, (1); 07.xi.2000, (1); 11.xi.2000, (2); 25.xi.2000, (1); 09.x.2001, (3); Gönen, 12.viii.2002, weeds, (5). Total 6 specimens.

Genus 11: *Stagonomus* (Gorski, 1852)

Stagonomus amoenus (Brullé, 1832)

Çünür (The East Campus Süleyman Demirel University), 24.v.2004, weeds, (3). Total 3 specimens.

B. Family: SCUTELLERIDAE (Leach, 1815)

Genus 1: *Eurygaster* (Laporte de Castelnau, 1833)

Eurygaster austriaca (Schrank, 1776)

Material: Central province, 27.ix.2003, debris, (2); Gölcük, 19.x.2003, under stone, (2). Total 4 specimens.

Eurygaster integriceps (Puton, 1881)

Material: Central province, 13.viii.2002, poaceous plants, (4); 22.ix.2003, (2); 07.vii.2004, (3); Gönen, 12.vii.2002, poaceous plants, (6). Total 15 specimens.

Eurygaster maura (Linnaeus, 1758)

Material: Central province, 21.vii.2003, poaceous plants, (6); 01.iv.2004, (3); 07.vii.2004, (4); 21.vii.2004, (4); 27.ix.2004, (6). Total 5 specimens.

Genus 2: *Odontotarsus* (Laporte de Castelnau, 1833)

Odontotarsus karatasensis (Hoberlandt, 1955)

Material: Central province, 12.vii.2003, weeds, (4). Total 4 specimens.

At the end of this study, 2 species belonging to Scutelleridae (*Eurygaster austriaca* Schrank, *E. integriceps* Puton) and 7 species belonging to Pentatomidae (*Acrosternum heegeri* Fieber,

Table 1: The List of the species of scutelleridae and Pentatomidae fauna of isparta province, A: Previous records
B: Determined in this study

Scutelleridae and Pentatomidae fauna of Isparta	A	B
SCUTELLERIDAE (Leach, 1815)		
<i>Eurygaster austriaca</i> (Schrank, 1776)	-	+
<i>E. integriceps</i> (Puton, 1881)	-	+
<i>E. maura</i> (Linnaeus, 1758)	+	+
<i>Odontotarsus freyi</i> (Puton, 1882)	+	-
<i>O. karatasensis</i> (Hoberlandt, 1956)	+	+
<i>O. purpureolineatus</i> (Rossi, 1790)	+	-
<i>O. robustus</i> (Jakovlev, 1884)	+	-
PENTATOMIDAE (Leach, 1815)		
<i>Acrosternum heegeri</i> (Fieber, 1861)	-	+
<i>Aelia rostrata</i> (Boheman, 1852)	+	-
<i>Ancyrosoma leucogrammes</i> (Gmelin, 1789)	+	-
<i>Apodiphus amygdali</i> (Germar, 1817)	-	+
<i>Carpocoris fuscispinus</i> (Boheman, 1849)	+	-
<i>C. mediterraneus</i> (Tamanini, 1959)	+	+
<i>C. purpureipennis</i> (De Geer, 1773)	+	+
<i>Codophila humulata</i> (Goeze, 1778)	+	-
<i>C. varia</i> (Fabricius, 1787)	-	+
<i>Dolycoris baccarum</i> (Linnaeus, 1758)	+	+
<i>Eurydema blandum</i> (Horvath, 1903)	-	+
<i>E. ornatum</i> (Linnaeus, 1758)	+	+
<i>E. ventrale</i> (Kolenati, 1846)	-	+
<i>Graphosoma lineatum</i> (Linnaeus, 1758)	+	-
<i>Holcogaster exilis</i> (Horvath, 1903)	-	+
<i>Jalla dumosa</i> (Linnaeus, 1758)	+	-
<i>Leprosoma inaequale</i> (Horvath, 1911)	+	-
<i>Mustha spinosula</i> (Lefebvre, 1831)	+	+
<i>Rhaphigaster nebulosa</i> (Poda, 1761)	+	+
<i>Sciocoris macrocephalus</i> (Fieber, 1851)	+	-
<i>Stagonomus amoemus</i> (Brulle, 1832)	-	+
<i>Tarisa virescens</i> (Herrich-Schaffer, 1851)	+	-

+: Sing denotes that species have been observed, - : denotes that species have not been observed

Apodiphus amygdali Germar, *Codophila varia* Fabricius, *Eurydema blandum* Horvath, *E. ventrale* Kolenati, *Holcogaster exilis* Horvath, *Stagonomus amoemus* Brulle) were determined as new records for the local fauna of Isparta. According to the previous studies by Gül-Zümreoğlu (1972), Tuatay *et al.* (1972) and Lodos *et al.* (1978), 19 species were recorded belonging to Scutelleridae and Pentatomidae families from Isparta province. Among those species 8 of them were also found in this study. The number of species belonging to Pentatomidae increased to 22 and species belonging to Scutelleridae increased to 7. They were given in Table 1.

In conclusion, *Eurygaster maura* (Linnaeus) belonging to Scutellaridae and *Rhaphigaster nebulosa* (Poda) belonging to Pentatomidae were found the most common species in the investigated area.

ACKNOWLEDGMENTS

This study was carried out with financial support of the State Planning Organization (Project number: 2002K 120590-3). We thank Dr. Meral FENT for the identification of materials.

REFERENCES

- Awad, T.I. and E. Pehlivan, 2001. Systematic and Faunistic Study of the Species of the Tribe Carporini (Heteroptera: Pentatomidae: Pentatominae) in Turkey Part I: *Holcogaster*, F.B., D. Staria and *Jak Cnephosa* (Eds.). *Turk. J. Entomol.*, 25 (3): 163-174.

- Fent, M. and S. Aktaç, 1999. Taxonomic and faunistic studies of the fauna of Pentatomidae (Heteroptera) in the region of Edirne. *Turk. J. Zool.*, 23 (2): 377-395.
- Gadeau de Kerville, H., 1939. Zoological expeditions of d'Henri Gadeau de Kerville in Anatolia (Turkey) (April-May, 1912). Pub. Paul Le Chevalier, Paris.
- Gül-Zümreoğlu, S., 1972. Agricultural combat research institute of İzmir. Catalogue of insect and general pests (1928-1969). Zirai Mücadele Araştırma Enstitüsü Bornova, İstiklal Matbaası, İzmir.
- Hoberlandt, L., 1955. Results of the zoological scientific expedition of the National Museum in Praha to Turkey. *Acta Entomologica Musei Nationalis Pragae Supplementum*, pp: 162-263.
- Kıyak, S., Ö. Özaraç and A. Salur, 2004. Additional notes on the Heteroptera fauna of Nevşehir province (Turkey). *Gazi Univ. J. Sci.*, 17 (1): 21-29.
- Linnavuori, R., 1965. Studies on the South-and East Mediterranean Hemipterous fauna III. Hemipterological observations from Turkey. *Acta Entomol. Fennica*, 21: 8-9.
- Lodos, N., F. Önder, E. Pehlivan and R. Atalay, 1978. Investigation on harmful insect fauna of Aegean and Marmara regions [(Curculionidae, Scarabaeidae (Coleoptera), Pentatomidae, Lygaeidae, Miridae (Heteroptera)]. T.C. Gıda-Tarım ve Hayvancılık Bakanlığı Zirai Mücadele ve Zirai Karantina Genel Müdürlüğü, pp: 135-169.
- Lodos, N., F. Önder, E. Pehlivan, R. Atalay, E. Erkin, Y. Karsavuran, S. Tezcan and S. Aksoy, 1998. Faunistic studies on Pentatomidae (Plataspidae, Acanthosomatidae, Cydnidae, Scutelleridae, Pentatomidae) of Western Black Sea, Central Anatolia and Mediterranean regions of Turkey. Ege Üniversitesi Basımevi, Bornova-İzmir.
- Önder, F., R. Atalay and Y. Karsavuran, 1983. Species of Heteroptera overwintering as adult stages in İzmir and surrounding areas and some observations on their hibernation sites (II). *Türk. Bit. Kor. Derg.*, 7: 129-144.
- Önder, F., Y. Karsavuran, S. Tezcan and M. Fent, 2006. Heteroptera catalogue of Turkey (Insecta). Meta Basım Matbaacılık Hizmetleri, Bornova İzmir.
- Özaraç, Ö. and S. Kıyak, 2001. A study on the Heteroptera fauna of Bozcaada (Çanakkale Province). *Turk. J. Zool.*, 25: 313-322.
- Seidenstücker, G., 1958. Heteroptera from Anatolia II. *İstanbul Üniv. Fen Fak. Mecmuası*, 23: 119-129.
- Steiner, H., 1962. Research methods of population dynamic in fruit production. *Entomophaga*, 7 (3): 207-214.
- Tuatay, N., A. Kalkandelen and N. Aysev, 1972. Catalogue of plant protection museum (1961-1971). T.C. Tar. Bak. Zir. Kar. Müc. Gn. Md. Yay. M. K. Ser. Ankara.