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Contribution to the study on the Turkish Pentatomoidea (Heteroptera) VI. Asopinae (Amyot & Serville) 1843

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Summary

The present distribution in Turkey and neighboring countries is discussed and tabulated for 11 species of Asopinae. The keys to the genera and to the species are also given.

Introduction

Asopinae is a unique group within the family of Pentatomidae both of morphologically and habits, and yet in general aspect they are typical Pentatomid bugs. Short and strong rostrum is a very typical characteristics for these bugs and, their adults and nymphs are attack and prey upon a wide range of insects, especially such as caterpillars, the larvae of Tenthredinidae (Hymenoptera) and Chrysomelidae (Coleoptera), and the other larvae. Therefore, they are useful insects to help us to some extend for keeping down the pests population in the nature. However, most species are not found in large numbers and, also majority species are showing no preference for particular genera or species of prey of which effects the efficiency of their keeping down the pest population.

Asopinae has 14 genera and about 50 species in the whole Palearctic and from these, 8 genera and 12 species occur in western part of this region (Stichel, 1961). However from these, 10 species occur also in Turkey. All the species of this group known hitherto from Turkey are recorded by different authors and yet, distributional areas of some species in Turkey were not wholly known. The present distributional data are based on the collection of

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Plant Protection Department, University of Ege, Faculty of Agriculture, İzmir and also from the relevant literature.

Keys to the genera of Asopinae of Westpalearctic Region

1 (12) Humeral angles of pronotum sharply pointed or broadly projecting, their distal ends usually projecting beyond the base of abdomen.

2 (5) Distal part of front femora with a spine or spinule beneath.

3 (4) Clypeus closed in front by juga. Humeral angles of pronotum broadly projecting. Front femora somewhat dilated distally ..... *Pinthaeus*

4 (3) Clypeus free. Humeral angles of pronotum sharply pointed. Front femora simple ..... *Picromerus*

5 (2) Distal part of front femora unarmed

6 (7) Humeral angles of pronotum sharply pointed, distal end dentated ..... *Andrallus*

7 (6) Humeral angles of pronotum broadly pointed, no dentation at the distal end.

8 (9) Second abdominal segment with a forward pointed process ..... *Troilus*

9 (8) Second abdominal segment without such process.

10 (11) Second antennal segment somewhat 2x longer than the third. Stink gland orifice prolonged in a long canal ..... *Arma*

11 (10) Second antennal segment somewhat longer than the third. Stink gland orifice not prolonged in a long canal ..... *Rhacognatus*

12 (1) Humeral angles of pronotum somewhat rounded, their distal ends not projecting beyond the base of abdomen.

13 (14) Front femora unarmed. Bright metallic blue-green insects ..... *Zicrona*

14 (13) Front femora with a spine distally. Dark and dull coloured insects ..... *Jalla*

Pinthaeus sanguinipes (Fabricius 1787)

General distribution : It is an Eurosiberian element distributed up to Japan . It has been recorded from Turkey and her neighboring countries: in Balkan's; Bulgaria, Greece, Romania, Turkey; Russia, Syria.

Distribution in Turkey : This species has been recorded first time from Bursa (Horvath, 1883; Reuter, 1890). Later on Hoberlandt (1955) reported it from Bolu (Gerede). It has been known in Turkey according to these earlier records.

Material examined : 2 ♂♂ and 2 ♀♀, Ordu (Ünye), 16/VI/1973. They are collected on *Corylus avellana*.

Occurrence : Occasionally.

Biological note : This species has been known as predator on the leaf eating caterpillars. Its efficiency to control against leaf eating caterpillars in Turkey has little importance. As other Asopinae species, its population in nature is not high enough. It is possible that egg parasitoid wasps play important role to keep down its population.

Keys to the species of **Picromerus**

1 (2) Antennae entirely reddish. Venter with fine and dense puncturation ..... *P. bidens* L.

2 (1) Antennae more or less with black markings. Venter with coarse, sparse and black puncturation.

3 (4) Antennae reddish except the second half of the last 3 segments which are black. The base of scutellum without pale callosity ..... *P. nigridens* (F.)

4 (3) Antennae black except a median band of third and the base of the last 2 segments which are whitish. With 3 small calli at the base of scutellum ..... *P. conformis* (H.S.)

Picromerus bidens (Linnaeus 1758)

General distribution : It is an Eurosiberian element distributed up to Turkestan. It has been reported being in Turkey and her neighboring countries: in Balkan's; Albania, Bulgaria, Greece, Jugoslavia, Romania, Turkey; Russia.

Distribution in Turkey : This species recently reported being in Turkey by Lodos et al. (1978). In this first record, it was reported being only in the European part of Turkey (Thracia). However, more recent studies proved that it distributes also in the Anatolian parts of Turkey.

Material examined : Nevşehir (Ürgüp), Ordu (Ünye), Giresun (Şebinkarahisar), Artvin (Karçkar), Kırklareli (Pınarhisar, Lüleburgaz), Tekirdağ, Çanakkale (Biga), Çorum (İskilip). Totally 12 specimens (4 ♂♂ and 8 ♀♀). It seems to be distributed in most parts of Turkey.

Occurrence : Common but in small numbers.

Biological note : Specimens were collected from June to August on *Crataegus, Fraxinus, Corylus* and *Rubus*. As other Asopinae it is a predator preying on the leaf eating caterpillars, Tenthredinidae larvae, as well as the larvae of Chrysomelidae (especially *Melasoma* spp.). This species was hoped at one time to be a great value for *Leptinotarsa decemlineata* in Europe, but its activities in nature proved ineffective against this pest (Mayne and Breny, 1948). However, it is interesting to know that about more than 200 years ago. This species was recommended for biological control of bedbug (*Cimex lectularius* L.) in houses. It was stated that a few specimens in a heavily infested room can completely exterminate of all the bedbugs within a few weeks (Clausen, 1962).

Picromerus conformis (H. - S. 1841)

General distribution : It is a Pontomediterranean element recorded up to Romania and Caucasia. It has been reported from Turkey and her neighboring countries: in Balkan; Albania, Bulgaria, Jugoslavia, Romania, Turkey; Russia.

Distribution in Turkey : This species was recorded first time from Turkey by Fieber (1861) without specific location. Later on Horvath (1883) reported it from Bursa. Since then it has not been recorded again. The authors are now able to confirm its presence of this species in Turkey.

Material examined : Ankara (Beynam, Kurtboğazı), Çorum (İskilip), Edirne, Manisa (Gördes) and İzmir (Tire). Totally 9 specimens (4 ♂♂ and 5 ♀♀).

Occurrence : Occasional.

Biological note : Specimens were collected during July and August on *Crataegus, Quercus* and *Castaneum sativum*. It has been known also preying on leaf eating caterpillars.

Picromerus nigridens (Fabricius 1803)

General distribution : It is a Holomediterranean element distributed up to Portugal in the west and Transcaucasia in the east. It has been reported

from Turkey and her neighboring countries: in Balkan; Albania, Greece (Crete), Yugoslavia, Turkey; Russia.

Distribution in Turkey : Fieber (1861) made the first record of this species from Turkey but, showing without specific location. Oshanin (1906) and Hoberlandt (1955) listed it from Turkey according to this earlier record. We have no material of this species in our collection. Therefore, it has been known to Turkey according only to Fieber's record.

Andrallus spinidens (Fabricius 1787)

General distribution : This species widely distributed in Old and New World, recorded from Aethiopian, Indo - Australian and Neotropic Regions. It has been reported in West Palearctic: Aegypt, Syria, Turkey, Iran and Russia.

Distribution in Turkey : This species was first recorded from Turkey by Horvath (1901) as Aydın. Later on Hoberlandt (1955) reported it from Adana. Since then it has not been recorded again.

Material examined : Izmir (Karşıyaka, Bornova). Totally 3 specimens (1 ♂ and 2 ♀♀).

Occurrence : Very occasional.

Biological note : 2 specimens were collected in the house at cold day of the year (in November and January). The other one (1 ♀) is collected on a weed.

The main host of this species is not known. It is possible that preys on caterpillars.

Jalla dumosa (Linnaeus 1758)

General distribution : The species of Eurosiberian element distributed up to China and Japan. It has been recorded from Turkey and her neighboring countries: in Balkan; Bulgaria, Greece, Yugoslavia, Romania, Turkey; Syria, Iran and Russia.

Distribution in Turkey : This species was first recorded from Turkey by Horvath (1883) from Bursa and later on from Ankara by Escherich (1897), from Konya (in centrum, Beyşehir) (Hoberlandt, 1955; Tuatay et al., 1972).

Material examined : Ankara, Bursa (Karacabey), Isparta (Keçiborlu, Yalvaç), Kayseri (Yılanlıdağ) and Manisa. Totally 6 specimens (2 ♂♂ and 4 ♀♀).

Occurrence : Occasional.

Biological note : Specimens were collected in June - July, on the ground among the roots of weeds, especially near the *Verbascum* species. Its habits and biology are not known exactly.

Key to the species of **Arma**

1 (2) Clypeus shorter than the juga; antero-lateral margins somewhat sinuated. Smaller species ..... *A. custos* (F.)

2 (1) Clypeus as long as the juga, antero-lateral margins straight. Larger species ..... *A. insperata* Horv.

Arma custos (Fabricius 1794)

General distribution : Species of Eurosiberian element, distributes up to Turkestan, China and Japan. It has been recorded from Turkey and her neighboring countries: in Balkans; Bulgaria, Greece, Jugoslavia, Romania, Turkey; Russia.

Distribution in Turkey : It was first recorded from Turkey (Bursa) by Horvath (1883). Long after this date Hoberlandt (1955) reported it from Bolu (Gerede).

Material examined : Ankara, Manisa, İzmit, Kırklareli (Lüleburgaz) and Ordu (Ünye). Totally 16 specimens (4 ♂♂ and 12 ♀♀).

Occurrence : Somewhat common and sometimes found in very small numbers.

Biological note : Specimens were collected from April through up to the end of July, on Hazelnut, Elm, Apple, Wild Pear, Chestnut and Oak. It has been reported being predator on the leaf eating caterpillars.

Arma insperata Horvath 1899

General distribution : Species of Pontomediterranean element restricted to the Greece, Bulgaria and Turkey. It has been described by Horvath from Greece. After a longtime from this date, Josifov (1970) reported it from Bulgaria, Greece, Romania, and Seidenstücker (1975) from Turkey. Now, it has known only from these countries.

Distribution in Turkey : Seidenstücker *(l. c.)* reported it from Bolu (Gerede) and Kayseri.

Material examined : Bilecik (Pazaryeri), İzmir (Ödemiş) and Zonguldak (Safranbolu). Totally 3 specimens (1♂ and 2 ♀♀).

These records are the second ones after Seidenstücker's. It seems to be widely distributd in Western part of Turkey.

Occurrence : Very occasional.

Biological note : Specimens were collected in May and June, on Wild Pear, Oak and Chestnut trees. According to Seidenstücker, it is a predator on the leaf eating caterpillars such as the species of *Phalera, Euproctis* and *Thaumatopoea.*

Rhacognatus punctatus (Linnaeus 1758)

General distribution : Species of Eurosiberian element extending up to China and Japan. It has been recorded from Turkey and her neighboring countries: in Balkan; Albania, Bulgaria, Greece, Jugoslavia, Romania, Turkey; Russia.

Distribution in Turkey : This species has been recorded in Turkey up till now only from Edirne (Keşan) by Lodos et al. (1978).

Occurrence : Extremely occasional.

Material examined : Only one female specimen that collected in Edirne (Keşan), 25/VII/1973.

Biological note : This species is also a predator like the other species of Asopinae. According to Southwood and Leston (1959), its food is often the larvae of *Lochmaea suturalis* and *L. capreae* (Chrysomelidae).

Zicrona caerulea (Linnaeus 1758)

General distribution : Species of Holarctic element, extending up to China, Japan and Oriental Region as well. It has been recorded from Turkey and her neighboring countries such as: in Balkan; Albania, Bulgaria, Greece, Jugoslavia, Romania, Turkey; Cyprus, Iraq, Syria, Iran, Russia.

Distribution in Turkey : This species has been recorded from Turkey by several authors being the first one made by Puton et Noualhier (1895) which they found it in Gaziantep (Ekbez).

Occurrence : Common, but sometimes in small numbers.

Material examined : Adıyaman, Diyarbakır, Hakkari, Artvin (Karçkar), Siirt, Tokat, Samsun, Çankırı (Eskipazar), Ağrı (Tahir Geçiti), Konya (Boz-

kır), Zonguldak (Çaycuma, Ulus), Balıkesir (Edincik), İzmir (Bornova, Narlıdere), Edirne, Kırklareli (Vize). Totally 34 specimens (18 ♂♂ and 16 ♀♀).

Biological note : Specimens were collected from May through up to the end of August, on weedy plants such as Thistle, Nettle; Artichoke, Sainfoin etc. This species is seldom arboreal, usually found on short and annual plants. It has been known long ago preying on Chrysomelid beetles, especially such as genera of *Haltica* and *Galerucella*. In İzmir it is found preying on the larvae of *Sphareoderma rubidum* which attacking to Thistle.

Troilus luridus (Fabricius 1775)

General distribution : Species of Eurosiberian element extending as far as India and Burma. It has been recorded from Turkey's neighboring countries and Balkan; such as Albania, Bulgaria, Greece, Romania; and Russia.

This species has not been found in Turkey up to date, through it is possible that it might be found somewhere in Thrace or in Anatolia.

Özet

Türkiye Pentatomoidea (Heteroptera) üstfamilyası üzerinde araştırmalar. VI. Asopinae (Amyot & Serville) 1843 (Pentatomidae)

Türkiye'de bulunan Asopinae altfamilyasına bağlı 11 türün gerek yurdumuzda ve gerekse komşu ülkelerde yayılışının ele alındığı bu araştırmada ayrıca cins ve tür teşhis anahtarları da verilmiştir.

Table 1. Distribution of Asopinae species in Turkey, her neighboring countries and Balkan

Species	Turkey in General	Present in Turkey							Present in neighboring countries and Balkan									
		T	Mr	E	MA	B	SE	EA	Al	Bl	Cy	Gr	Ju	R	Iq	Ir	Rs	Sy
Andrallus spinidens	X	—	—	X	—	—	—	—	—	—	—	—	—	—	—	X	X	X
Arma custos	X	X	X	X	X	X	—	—	—	X	—	X	X	X	—	—	X	—
Arma insperata	X	—	X	X	X	X	—	—	—	X	—	X	—	X	—	—	—	—
Jalla dumosa	X	—	X	X	X	—	—	—	—	X	—	X	X	X	—	X	X	X
Picromerus bidens	X	X	X	—	—	X	—	X	X	X	—	X	X	X	—	—	X	—
Picromerus conformis	X	X	X	X	X	—	—	—	X	X	—	—	X	X	—	—	X	—
Picromerus n'gridens	X	?	?	?	?	?	?	?	X	—	—	X	X	—	—	—	X	—
Pinthaeus sanguinipes	X	—	X	—	X	X	—	—	—	X	—	X	—	X	—	—	X	X
Rhacognathus punctatus	X	X	—	—	—	—	—	—	X	X	—	X	X	X	—	—	X	X
Troilus luridus	—	—	—	—	—	—	—	—	X	X	—	X	—	X	—	—	X	—
Zicrona caerulea	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	10								6	9	1	9	7	9	1	3	10	5

T = Thrace; Mr = Marmara Region; E = Egean Region; MA = Middle Anatolia; B = Black Sea Coast; SE = Southeastern part of Turkey; EA = Eastern Region.
Al = Albania; Bl = Bulgaria; Cy = Cyprus; Gr = Greece; Ju = Jugoslavia; R = Rumania; Iq = Iraq; Ir = Iran; Rs = Russia; Sy = Syria.

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