

## Contribution to the study of Turkish Pyrrhocoridae (Heteroptera)

Talat Issa AWAD\*

Feyzi ÖNDER\*

### Summary

In this study, four species belonging to the family Pyrrhocoridae in Turkey are described with their detailed synonymy and identification keys are provided. These species are *Scantius aegyptius*, *Pyrrhocoris apterus*, *P. marginatus* in addition to *P. niger* which constitutes a new record for Turkish fauna.

Also in this study, their distribution, occurrence as well as some biological notes including hosts and hibernation sites are briefly discussed.

**Key words:** Turkey, *Pyrrhocoris apterus*, *P. marginatus*, *P. niger*, *Scantius aegyptius*

**Anahtar sözcükler:** Türkiye, *Pyrrhocoris apterus*, *P. marginatus*, *P. niger*, *Scantius aegyptius*

### Introduction

This study is a continuation of the work of Prof. Dr. F. Önder and Prof. Dr. N. Lodos regarding the Turkish fauna of Heteroptera. With the exception of some scattered taxonomic information and occasional studies covering certain aspects such as hibernation sites and economic importance of some species of Pyrrhocoridae, there are few publications dealing with Pyrrhocoridae of Turkey.

\* University of Ege, Faculty of Agriculture, Plant Protection Department, Bornova-Izmir, Turkey

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The systematic aspects of the Pyrrhocoridae of Turkey has not yet received sufficient attention. From this point of view, further studies of Pyrrhocoridae fauna of Turkey would be very useful.

**Family: Pyrrhocoridae** Dohrn

Dohrn, 1859 Cat. Hem. 36 (plate 3)

Type-genus: *Pyrrhocoris* Fallén, 1814.

Pyrrhocoridae (pyrrhos=fire, coris=bug), the fire or red bugs are so called from the fact that, the distinctive colour of most members is red. They are almost world-wide distributed. The members of this family are medium to large insects (5-50 mm). They are elongate-oval usually brightly marked with red and black. Head is small, antennae well developed and 4 segmented, large compound eyes but ocelli are absent. Proboscis long and 4-segmented. Scutellum small and triangular. Most of the pyrrhocorids are fully alate however, some brachypterous, others are apterous resembling ants or antmimics. The hemelytra usually complete with clavus, corium and membrane. The base of the membrane with 2 large cells from which 4 branches arise forming 4 veins. Walking legs, tarsi 3-segmented with claws and arolia.

The pyrrhocorids are phytophagous, gregarious and hibernate as adults. Most species feed on seeds, dead insects and eggs of other insects. In some cases, occasional predation and cannibalism may occur (Essig, 1954; Miller, 1956; Borror and DeLong, 1964).

The family Pyrrhocoridae consists of about thirty genera and the known species are more than 450. In Pyrrhocoridae the most important genus is *Dysdercus* consisting of more than 20 species which are often serious pests of cotton in tropical and subtropical regions (Freeman, 1947). In Turkey *Scantius* and *Pyrrhocoris* genera are widely distributed (Southwood and Leston, 1959; van Doesburg, 1968; Ghauri and Önder, 1980; Önder and Lodos, 1986; Lodos, 1986).

Key to the genera of **Pyrrhocoridae**

- 1(2) Venter of abdomen red, with black patches; middle femora with subapical spines .....**Scantius** Stal
- 2(1) Venter of abdomen black, lateral sides reddish, yellowish or blackish, middle femora without spines .....**Pyrrhocoris** Fallén

**Genus: *Scantius* Stal**

Stal, 1866. Berlin. ent. Z., 4 & 10.

Type species: ***Scantius forsteri*** (F., 1781)

Fabricius, 1781. Spec. Ins., 2, 386: 176.

Head black as long as broad, eye almost reaching the anterior margin of pronotum; basal antennal segment equal or slightly shorter than 2nd, 3rd shortest, 4th equal or slightly shorter than the 2nd; rostrum reaching mesocoxae, basal segment almost reaching the posterior margin of eyes, slightly shorter or almost equal to 2nd, 2nd longer than 3rd, 4th the shortest, pronotum gradually narrowed from base to apex, fore femora bearing ventrolateral marginal spines, metathoracic scent gland complex ill-developed with minute opening; membrane usually incomplete; incisures of 4th and 5th abdominal venter slightly or moderately curved, reaching lateral margins.

***Scantius aegyptius*** (Linne)

Linne, 1758. Syst. Nat. ed. X, p. 447: 56.

Description:

Head and antennae black; pronotum red with black macula; scutellum and clavus black, corium red with medial black round spot; membrane black; dorsum and connexiva red; thoracic sternites red, lateral sides blackish; legs black; abdominal sternites red with black patches on lateral sides one on each segment.

Length: 8.0-10.0 mm.

General distribution:

Albania, Algeria, Balear Island, Bulgaria, Canary Islands, Central Asia, Corsica, Crete, Cyprus, Egypt, Greece, Iran, Israel, Italy, Libya, Malta, Morocco, Portugal, Romania, Sicily, Spain, South France, South Russia, Tunisia, Turkey, Yugoslavia (Lindberg, 1948; Hoberlandt, 1955; Wagner, 1959, 1966; Kerzhner, 1964; Linnavuori, 1965; Servadei, 1967; Lodos, 1986; Kiyak, 1990; Reichling, 1994).

Distribution in Turkey:

Afyon (Emir Mountain: Kurudere), Ankara (Kızılcahamam); Aydın; Balıkesir; Bursa; Çanakkale; Denizli; Diyarbakır (Hashaver); Eskişehir (Sivrihisar); Hatay (Hassa: Akbez); İçel (Toros); İstanbul, (Belgrad Ormanı, Fener, Polu Çiftliği, Yedikule); İzmir (Bornova, Centrum, Çeşme Karaburun, Menemen, Ödemiş); Kahramanmaraş (Yenicekale); Manisa, Muğla; Niğde (Ulukışla); Zonguldak (Hoberlandt, 1955; Wagner, 1959; Linnavuori, 1965; Kiyak, 1990).

Material examined:

Specimens collected from Aydın, Balıkesir, Çanakkale (Bozcaada), Denizli (Pamukkale), İzmir (Bornova, Centrum, Çeşme, Karaburun, Menemen, Ödemiş), Manisa, Muğla, Zonguldak.

Occurrence:

Occasional

Biological notes:

Specimens were collected from January to August. Usually found in hot sunny places, on walls, hedges, and ground, under stones and logs, on weeds such as *Ecballium elaterium* and *Onopordon tauricum* and under bark of trees such as *Ficus carica*, *Morus alba*, *Olea europea*, *Pistacia lentiscus*, *Platanus orientalis*, *Populus* sp., *Pyrus eleagnifolia*, *Schinus molle* as well as in Malvaceae (Wagner, 1959; Stichel, 1959). They overwinter as adults under barks of trees mainly *Populus* sp., *Platanus orientalis*, *Olea europea*, *Morus alba*, *Pyrus eleagnifolia* and under stones and logs (Önder et al., 1983).

**Genus: *Pyrrhocoris* Fallén**

*Pyrrhocoris* Fallén, 1814, Spec. Nov. Meth. Dispon. Hem.: 9.

*Platynotus* Schilling, 1829, Beitr. Ent. 1: 37.

*Meganotus* Laporte, 1832, Essai class. Hem.: 38.

*Phylocoris* Laporte, 1832, Essai class. Hem.: 83.

*Astemma* Spinola, 1837, Essai, Ins. Hem.: 78.

*Platycoris* Gistel, 1848, Naturg. Thierr.: 39.

Type species: *Pyrrhocoris apterus* (Linné, 1758)

Linné, 1758. Syst. Nat. ed. X, p. 447: 55.

Head almost as wide as long sometimes wider, without a median sulcus; basal antennal segment shorter than head length, 3rd antennal segment the shortest; rostrum reaching mesocoxae, basal segment reaching the posterior margin of head; pronotum almost trapezoid; fore femora with a series of spines; membrane usually incomplete; metathoracic scent gland complex well developed or ill-developed; apical margin of corium rounded, semirounded or truncated but never elongated.

Key to the species of *Pyrrhocoris*

1. Dorsum red, head, antennae, legs, centre of pronotum, scutellum, clavus, a round spot in middle of corium, a small spot at base of corium black; pronotum and corium without lateral yellowish stripes .....*P. apterus* (L.)
  - Body black or partly brown, pronotum and corium with lateral yellowish stripes .....2
2. Length of head shorter than its width.....*P. marginatus* (Klt.)
  - Length of head almost equals to its width.....*P. niger* Reut.

*Pyrrhocoris apterus* (Linné)

Linné, 1758. *Cimex apterus*. Syst. Nat. ed.X, p. 447: 55.

Syn.: *Pyrrhocoris clamariensis* Fall., 1829 (after Servadei, 1967).

Description:

Head and antennae black; pronotum red, callus black, posterior part of pronotum with black trapezoidiform maculate either fused to callus or separated, scutellum black; hemelytra generally without or with rudimentary membrane, if present, reaching 4th abdominal tergite, clavus black; corium red, its anterior part with triangular black maculate, middle part of corium with round black spot; membrane black; dorsum of abdomen black; connexiva red, thoracic sterna black, legs black, venter of abdomen black, its lateral sides reddish.

Length: 9.0-12.5 mm.

General distribution:

Afghanistan, Albania, Algeria, Austria, Balear Islands, Belgium, Bulgaria, Caucasia, Central Asia, Central Russia, Corsica, Costa Rica, Cyprus, Czechoslovakia, Denmark, England, France, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Kaschmir, Mongolia, Morocco, Netherlands, Poland, Portugal, Rumania, Sardinia, Siberia, Spain, Sweden, Switzerland, Syria, Tajikstan, Tunisia, Turkey, U.S.A., West Russia, Yugoslavia (Lindberg, 1948; Hoberlandt, 1955; Stichel, 1959; Kerzhner, 1964; Lodos, 1986; Ahmad and Perveen, 1987).

Distribution in Turkey:

Adana (Ceyhan, Seyhan), Ağrı (Ağrı Mountain), Ankara (Beynam, Moğan Lake), Aydın, Batman, Bilecik, Bursa, Çorum, Edirne, Elazığ (Centrum, Hazar Lake), Erzincan (Tercan, Ucü, Zemkan), Erzurum (Olur), Eskişehir (Sivrihisar, Sultan Mountain), Hatay (Hassa: Akbez), İstanbul (Küçük Çekmece), İzmir (Bornova, Centrum, Çeşme,

Karaburun, Kemalpaşa, Ödemiş, Urla), Kahramanmaraş, Kayseri (Erciyes Mountain, İncesu), Kırklareli, Konya (Akşehir), Manisa, Muğla, Muş (Dom), Nevşehir, Niğde, Samsun (Hoberlandt, 1955; Wagner, 1959; Kıyak, 1990).

Occurrence:

Common and found in large numbers.

Material examined:

Specimens collected from Ağrı (Ağrı Mountain), Ankara, Aydın, Batman, Bilecik, Eskişehir, İzmir (Bornova, Centrum, Çeşme, Karaburun, Ödemiş, Urla), Kahramanmaraş, Konya, Muğla, Nevşehir.

Biological notes:

Specimens were collected from January to September from different areas of Turkey.

In general, these bugs are found in gregarious masses on evergreen trees at the base of the trunks near the soil surface or under bark of trees, on weeds, under stones, tiles and logs. Main host plants are *Aesculus* sp., *Althaea* sp., *Beta vulgaris*, *Chenopodium* sp., *Cornus sanguinea*, *Cupressus sempervirens*, *Malva sylvestris*, *Medicago sativa*, *Nicotiana tabacum*, *Peganum harmala*, *Phaseolus vulgaris*, *Platanus orientalis*, *Populus* sp., *Pyrus malus*, *Tilia* sp., *Trifolium* sp., *Ulmus* sp. *Urtica* sp. and some other cruciferous plants (Stichel, 1959; Kıyak, 1990). In addition it is recorded on *Zea mays* causing considerable damage (18-20 %) the bug attacks corncombs and feeds on seeds at the milky stage causing them to shrivel and to turn dark brown (Yürüten, 1956).

*P. apterus* hibernates as adults under stones, tiles, logs and bark of trees such as *Platanus orientalis*, *Verbascum* sp., *Cupressus sempervirens* (Önder et al., 1983).

*Pyrrhocoris marginatus* (Kolenati)

*Platygaster marginatus* Kolenati, 1845. Melet. Ent. 2: 86, pl. 10, Fig. 2.

Description:

Head black, antennae brownish; 4th antennal segment darker than the others, 1st antennal segment shorter than the length of head, 2nd antennal segment shorter than the width of the head; pronotum dark brown with yellowish brown lateral stripes; scutellum black, clavus

and corium fused, hemelytra dark reddish brown, brachypterous reaching the 4th abdominal tergite, lateral sides with yellowish stripes, without membrane; dorsum of abdomen, connexiva and thoracic sternites black; coxae and trochanter yellowish; femora black with yellowish brown apex; tibia yellowish brown with brown apex; tarsi brown.

Length: 7.0-7.5 mm.

General distribution:

Albania, Austria, Belgium, Bulgaria, Central Asia, Czechoslovakia, France, Greece, Hungary, Italy, Luxemburg, Poland, Rumania, South Russia, Switzerland, Syria, Turkey, Yugoslavia (Hoberlandt, 1955; Ahmad and Abbas, 1986; Reichling, 1994).

Distribution in Turkey:

Ankara (Beynam), Erzincan (Ahmediye), Erzurum, Hatay (Hassa: Akbez), Kahramanmaraş (Ahır Mountain), Kayseri (Erciyes Mountain), İzmir (Kınık) (Hoberlandt, 1955).

Material examined:

Specimens collected from Erzincan (Ahmediye), İzmir (Kınık).

Occurrence:

Occasional.

Biological notes:

Specimens were collected mid March, end of March and beginning of September on *Astragalus* sp. Adults overwinter under *Astragalus* sp.

***Pyrrhocoris niger*** Reuter

Reuter, 1888. Rev. Ent., 7, 223.

Head and antennae black, 1st antennal segment as long as the length of head, 2nd as long as the width of head; pronotum black, lateral sides with yellowish stripes; scutellum black; clavus and corium fused; hemelytra brachypterous, without membrane reaching the 5th tergite, black and lateral sides with yellowish stripes; dorsum of abdomen and connexiva black; rostrum black reaching mesocoxae, 1st rostral segment as long as 1st antennal segment. Thoracic sternites black; tibia and tarsi blackish brown; abdominal sternites black.

Length: 5.8 - 6.0 mm.

General distribution:

Crete and South Russia (Stichel, 1959). This species constitutes a new record for Turkish fauna.

Distribution in Turkey:

Kayseri (Erciyes Mountain).

Material examined:

Specimens collected from Kayseri (Erciyes Mountain) total of 3 specimens.

Occurrence:

Very rare.

Biological notes:

Specimens were collected mid-June.

## Özet

### Türkiye Pyrrhocoridae (Heteroptera) familyası üzerinde çalışmalar

Bu çalışmada Pyrrhocoridae familyasına bağlı Türkiye'de saptanmış 4 türün sinonimleri, tanımları ele alınmış ve bunlara ait cins ve tür teşhis anahtarları verilmiştir. Bu türler *Scantius aegyptius*, *Pyrrhocoris apterus*, *P. marginatus* ve *P. niger* olup sonuncu tür Türkiye faunası için yeni kayıttır.

Bu çalışmada ayrıca türlerin yayılışları, bulunma durumları, konukçuları, kışlama yerleri dahil bazı biyolojik notlar da verilmiştir.

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