

On the Aradidae fauna of Turkey (Heteroptera)

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Summary

Including these records the total number of Aradidae known from Turkey up to date has increased to 16 species belonging to two subfamilies and three genera:

Subfam. Aneurinae Dgl. and Sc., 1865

Genus *Aneurus* Curt., 1825: 2 species

Subfam. Aradinae Am. and Serv., 1843

Genus *Aradus* F., 1803: 13 species

Genus *Quilnus* Stal., 1873: 1 species

It can be expected however, that further investigation and/or adopting specific collection methods in the primary biotops of Aradidae, the deciduous and coniferous forests of the mountainous areas in Turkey may again rise the number of species.

At the moment few available data are not yet sufficient for a zoogeographical analysis.

Introduction

The territory of the Republic of Turkey comprises a number of different characteristics geographic regions, which due to their geomorphology, climatic conditions and vegetation bear a rich and diverse fauna of Heteroptera. This fauna has been studied in general by several earlier authors (Horvath, Kiritshenko, Puton, Reuter) and was summarized in a synoptic review including the rich material collected by the zoological scientific expedition of the Natural History Museum of Prague in 1947, by Hoberlandt (1955).

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Important additions have been published later by recent specialists (Seidenstücker, Wagner, Linnavuori, Lodos, Önder, Ahmad).

In spite of the rather good knowledge of the Heteroptera-fauna in general, that of the family Aradidae is still comparatively poor. Hoberlandt (1955) listed 10 species but only few additions have been published and two, possibly endemic new species have been described by Heiss (1989 b, 1990).

The following Table 1 presents a review of records from Turkey found in literature to date.

- Abbreviations used :
- 1 *Aneurus avenius* Duf.
 - 2 *A. laevis laevis* (F.)
 - 3 *Aradus versicolor* H.S.
 - 4 *A. conspicuus* H.S. (*crenatus* auct. nec Say)
The specimens cited by Hoberlandt (1955) from Bolu Dağları could be reexamined; it is confirmed to belong to *conspicuus*.
 - 5 *A. corticalis* f. *annulicornis* (F.)
This is only a colour variation not ssp.
 - 6 *A. krueperi* Rt.
 - 7 *A. caucasicus* Kol.
 - 8 *A. betulae* (L.)
 - 9 *A. brenskei* Rt.
 - 10 *A. flavicornis* Dalm.
 - 11 *A. cinnamomeus* Panz.
 - 12 *A. seidenstückeri* Heiss (Fig. 1 a)
 - 13 *A. cilicicum* Heiss (Fig. 1 b)
 - 14 *Quilnus parvicollis* Stal (syn. *anatolicus* He.=macr. female form)

Table 1. A review of Aradid species from Turkey found in literature to date

| Authors | Species | | | | | | | | | | | | | |
|--------------------------|---------|---|---|---|---|---|---|---|---|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Horvath 1883 | o | | | o | o | | | | | | | | | |
| Puton 1892 | o | | | | | | | | o | | | | | |
| Puton and Noualhier 1895 | | | | | | | | o | | | | | | |
| Horvath 1901 | | | | | | o | | | | | | | | |
| Horvath 1911 | | o | | | | | | | | | | | | |
| Stichel 1925-1938 | | | | o | | | | | | | | | | |
| Hoberlandt 1955 | | | o | o | | | o | | | o | | | | |
| Stichel 1957 | o | o | o | o | o | o | o | o | o | o | | | | |
| Heiss 1974 | | | | | | | | | | | | | | o |
| Heiss and Halparin 1982 | | | | | | | | | | | o | | | |
| Heiss 1989 a | | | | | | | | | | | | | * | |
| Heiss 1990 | | | | | | | | | | | | | | * |

o locality indicated

o only general indication "Turkey"

* description based on material from Turkey

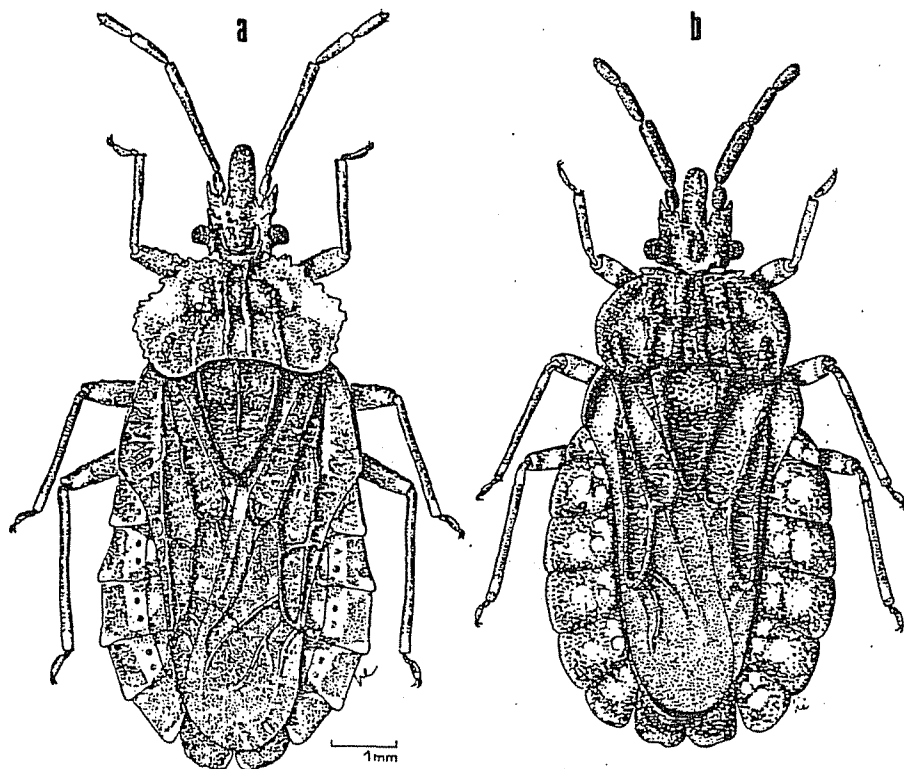


Fig. 1. *Aradus* species described from Turkey.

a- *A. seidenstueckeri* He. (Pozantı);

b- *A. cilicicus* He. (Akbez) (after Heiss 1989b, 1990)

So far the number of Aradidae reported from Turkey is 14. By this study the number of species increased to 16.

Additional faunistical and ecological data

These data are based on material which is in the collection of the Ege Üniversitesi, Ziraat Fakültesi at Bornova, İzmir (EU) and of the first author (EH) respectively.

***Aneurus avenius* Duf.**

1 female Düzce, Bolu Prov., 24.5.80 on *Cydonia vulgaris* (Ayva), EU.

This species can be found under loose bark of deciduous trees and shrubs associated with fungi.

Aneurus laevis laevis (F.)

1 male, Akçakoca, Bolu Prov., 24.5.80 on *Fagus* (Kayın), EU; 1 female Çaycuma, Zonguldak Prov., 31.5.1980 on *Salix* sp., EU; 1 female Kars, 5.75 1g. Holzschuh in coll.EH; numerous males and females Uludağ nr.Bursa, 5.88 1g.Witzgall, EH.

Ecology as *avenius* but seems to prefer *Fagus* as host plant.

Aradus betulae (L.)

1 male, Kozak, İzmir Prov., 12.1.82 on *Polyporus* sp. (Kav mantarı), EU; 2 males, 7 females Korkuteli, Antalya Prov., 8.10.79 on *Pirus malus* (Elma), EU; 1 male, 1 female, Beyşehir, Konya Prov., 1100 m, 7.5.78 1g. Löbl, EH.

Widespread species of the so called "*betulae*-group" (with *krueperi*, *caucasicus*, *brenskiei*, *seidenstückeri* occurring in Turkey) to be found on deciduous trees.

Aradus cinnamomeus Panz.

1 female, Korkuteli, Antalya Prov., 23.5.88 on *Quercus* sp. (Meşe), EU; 1 female, Kumluca, Antalya Prov., 11.4.84 on *Pinus* sp. (Çam), EU; 3 females, Uşak, 29.4.73 on *Quercus* sp., EU; 1 male, 1 female, Altıntaş, Kütahya Prov., 2.5.73 on *Pinus* sp., EU; 1 male, Beyşehir, Konya Prov., 24.4.79 on *Pinus* sp., EU; 1 female, Gökçedağ, İzmir Prov., 18.5.71 on *Pinus* sp., EU; 1 female Söğüt, Bilecik Prov., 20.6.75 on weed (Yabancı ot), EU; 1 male, 2 females, Bozöyük, Bilecik Prov., 23.5.71 on *Quercus* sp., EU; 4 females same locality, 20.6.75 on *Pinus* sp., EU; 1 female, Çubuk, Ankara Prov., 3.5.79 on *Pinus* sp., EU; 1 male, 4 females Kınık, İzmir Prov., 15.5.73 on *Pinus* sp., EU; 1 female, Bozdağ, İzmir Prov., 30.12.71, 1200 m under bark of *Platanus orientalis* (Çınar), EU; 1 female, Sultanyayla, Manisa Prov., 16.5.73 on *Rosa* sp. (Gül), EU; 5 males, 9 females, Karagöl, Ankara Prov., 3.5.79 on *Pinus* sp., EU; 1 female, Domaniç, Kütahya Prov., 19.6.75 on *Pinus* sp., EU; 1 male, 3 females, Kars, 5.75 1g. Holzschuh, EH; 1 female Çakinay, Sinop, 5.75 1g. Holzschuh, EH.

Unlike most other Aradidae which are mycetophagous and therefore associated with fungi, *A. cinnamomeus* feeds on living healthy trees of different *Pinus* species and *Larix*, penetrating with the rostrum to the phloem and cambium sucking the sap. This attacks may cause damages to young trees which have reached economic importance in parts of Scandinavia. *A. cinnamomeus* is the only primary pest in the family Aradidae known to date.

It can be found under thin scales of the trees or beaten from branches. Records from other trees are purely occasional while moving to another biotop.

This species occurs in three different forms of wing development: brachypterous and macropterous females and stenopterous males. All but one (from Domaniç) females cited above belong to the brachypterous form.

***Aradus depressus* (F.)**

1 male Bozdağ, Izmir Prov., 24.6.77 on *Mentha* (Nane), EU.

New turkish record. *A. depressus* is widely distributed and lives on deciduous trees, sucking fungi on or under the bark. The record from *Mentha* is only occasional. The spp. *leptocerus* Hv. is known from Caucasus and Iran and might occur in north-eastern Turkey as well. It has longer antennae and smaller differences in the genitalic structures.

***Aradus flavicornis* Dalm.**

2 females, Antalya, 9.6.82 on *Olea europea* (Zeytin), EU.

Ecology and biology of this widespread small species is not yet known. As very good flyers they are regularly collected in light-traps.

***Aradus inopinus* Kir.**

1 female, Feke, Adana Prov., 4.5.85 on *Juniperus*, EU.

New turkish record. This species is closely related to the european *conspicuus* H.S. (*crenatus* auct. nec SAY) and the eastanatolian *cilicicus* Heiss and has been reported only from Caucasus and northern Iran. Both other species are known to live mainly on deciduous trees as *Fagus*, *Quercus* etc.

***Quilnus parvicollis* Stal**

1 female, "Asia minor" of the brachypterous form, EH.

The palaearctic species of the genus *Quilnus* show - like the not related. *A. cinnamomeus* - three different modifications of wing development: brachypterous and macropterous females and stenopterous males. Their biology is still insufficiently known, but they seem to be associated with coniferous trees.

Özet

Türkiye Aradidae (Heteroptera) faunası üzerinde çalışmalar

Bu çalışmayla Türkiye Aradidae familyası türlerinin toplam sayısı 16'ya yükselmiş bulunmaktadır. Mevcut türler 2 altfamilyaya bağlı 3 cinsle temsil edilmektedir. Bunlar 2 türü bulunan ve Aneurinae Dgl.-Sc., 1865 altfamilyasına bağlı olan *Aneurus* Curt., 1825 cinsi ve Aradinae Am.-Serv., 1843 altfamilyasına bağlı olan ve sırasıyla 13 ve 1 türle temsil edilen *Aradus* F., 1803 ve *Quilnus* Stal, 1873 cinsleridir.

Türkiye'nin dağlık bölgelerinde Aradidae familyasının tipik biyotopları olan yaprağını döken ağaçlar ve kozalaklı ağaçlar ormanlarında yapılacak yeni araştırmalar ve uygulanacak yeni toplama yöntemleriyle toplam tür sayısının artacağı kuşkusuzdur.

Familya türleri üzerinde yeterli bilgi bulunmaması nedeniyle zoocoğrafik bir analize gidilememiştir.

References

- Heiss, E., 1974. Ein neuer *Aradus* (Insecta:Heteroptera, Aradidae) aus der Türkei. *Ber. nat.-med.Ver.Innsbruck*, 61 : 101-105.
- Heiss, E., 1989 a. Studien zur Revision der palaearktischen Aradidae (Heteroptera) 1. Zur Kenntnis der Gattung *Quillnus* (Stal). *Ber.nat.-med. Ver.Innsbruck*, 76 : 127-139.
- Heiss, E., 1989 b. Studien zur Revision der palaearktischen Aradidae (Heteroptera) 2.Ein neuer *Aradus* aus der *betulae*-Gruppe. *NachrBl. bayer. Ent.*, 38(2) : 33-36.
- Heiss E., 1990. Studien zur Revision der palaearktischen Aradidae (Heteroptera) 3.Ein neuer *Aradus* aus Ostanatolien. *NachrBl.bayer.Ent.*, 39(4) (in print).
- Heiss, E. and J. Halperin, 1982. On the occurrence of *Aradus cinnamomeus* Panzer in Israel and some other East-Mediterranean countries (Heteroptera, Aradidae). *Isr. Journ.Ent.*, 16 : 45-46.
- Hoberlandt, L., 1955. Results of the zoological scientific expedition of the National Museum in Praha to Turkey. 18.Hemiptera IV, Terrestrial Hemiptera-Heteroptera of Turkey. *Acta ent.Mus.Nat.Pragae*, Suppl. 3 : 145-146 (Aradidae).
- Horvath,G., 1883. Heteroptera Anatolica in regione Brussae collecta enumeravit. *Term. Füz.*, 7 : 21-30.
- Horvath, G., 1901. Hemipteres du voyage d.M.Martinez Escalera dans l'Asia-Mineure. *Term.Füz.*, 24 : 469-485.
- Horvath, G., 1911. Hemiptera nova vel minus cognita e regione palaeartica II. *Ann.hist.-nat.Mus.Hung.*, 9 : 573-610.
- Puton, A. 1892. Hemipteres nouveaux ou peu connues et notes diverses. (IV Hemipteres d'Akbès, Region de l'Amanus (Syrie septentrionale) recoltés par M.Delagrange). *Rev.d'Ent.*, 11 : 34-36.
- Puton, A. and M. Noualhier, 1895. Supplement à la liste des Hémiptères d'Akbès. *Rev.d'Ent.*, 14 : 170-177.
- Stichel, W., 1925-1938. Illustrierte Bestimmungstabellen der Deutschen Wanzen, Berlin, 499pp (geogr. distrib. of Aradidae:408-411).
- Stichel, W., 1957. Illustrierte Bestimmungstabellen der Wanzen II.Europa (Hemiptera-Heteroptera Europeae). Vol. IV : 2-34 (Aradidae).