

Haemodipsus Species Occurring on Hares (*Lepus europaeus*, L.): Two New Species in Turkish Lice Fauna

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SUMMARY: The aim of this paper was to give information about *Haemodipsus* species occurring on hares in the Konya province. Thirty three lice specimens collected from forty hares (*Lepus europaeus*, L.) were examined; two species, *Haemodipsus lyriocephalus* (Burmeister, 1839) and *H. setoni* (Ewing, 1924) were identified. Information about and discussion of the morphological characteristics of these species is given in this paper. This is the first time that *Haemodipsus lyriocephalus* and *H. setoni* have been reported in Turkey.

Key Words: *Haemodipsus lyriocephalus*, *Haemodipsus setoni*, Anoplura, *Lepus europaeus*, Turkey.

Yabancı Tavşanlarda (*Lepus europaeus*, L.) Görülen *Haemodipsus* Türleri. Türkiye Bit Faunası İçin İki Yeni Tür

ÖZET: Bu makale Konya yöresindeki yabancı tavşanlarda görülen *Haemodipsus* türleri hakkında bilgi vermek amacıyla hazırlanmıştır. Yabancı tavşanlarından (*Lepus europaeus*, L.) 33 adet bit toplanmış, *Haemodipsus lyriocephalus* (Burmeister, 1839) ve *H. setoni* Ewing, 1924 olmak üzere iki tür tespit edilmiştir. Bu makalede bu türlerin morfolojik özellikleri hakkında bilgi verilmiştir. *Haemodipsus lyriocephalus* ve *H. setoni* Türkiye'den ilk kez bildirilmektedir.

Anahtar Sözcükler: *Haemodipsus lyriocephalus*, *Haemodipsus setoni*, Anoplura, *Lepus europaeus*, Türkiye.

INTRODUCTION

The sucking lice belong to the genus *Haemodipsus* are lived on hares. Some authors (7, 9) informed about morphological characteristics of *H. lyriocephalus* (Burmeister, 1839), *H. ventricosus* (Denny, 1842) and *H. setoni* Ewing, 1924. Seguy (9) stated that *H. lyriocephalus* had a lyrioform head and the latter species had a large head, two long setae on posterior margin of the head, hexagonal sternal plate and vestigial paratergal plates in abdominal segments. *Haemodipsus conformalis* Blagoveshtchensky, 1965 and *Haemodipsus leporis* Blagoveshtchensky, 1966 was described from *Lepus tolai* in Kazakhstan and from *Lepus timidus* in Yakutia, respectively (3, 4).

Beaucournu (2) stated morphological characteristics, hosts, epidemiological roles, distributions and identification keys of 18 Anoplura species including *H. lyriocephalus*, *H. setoni* and *H. ventricosus* and noted that *H. conformalis*, *H. leporis* and *H. africanus* Bedford, 1934 could be synonymies of *H. setoni*. On the other hand, it was published a checklist of the sucking

lice of the world and reported that six species namely *H. africanus*, *H. conformalis*, *H. leporis*, *H. lyriocephalus*, *H. setoni* and *H. ventricosus* had found in the genus *Haemodipsus* and two of them; *H. lyriocephalus* and *H. setoni* had occurred on *Lepus europaeus* in that paper (6).

H. lyriocephalus and *H. setoni* have been reported to be found on hares in Poland (11, 12). Wegner and Eichler (12) reported that *H. lyriocephalus* was common species and a number of three specimens from *H. setoni* were collected and the latter species was noted for the first time in Poland. *H. lyriocephalus* and *H. setoni* have also been reported to occur on *Lepus europaeus* in the Netherlands (5) and in Britain (10).

There is no study was found about *Haemodipsus* species on hares in Turkey. In a study was done on ectoparasites of wild rabbits in Elazığ province had not found any louse (1). However, it was reported that *Haemodipsus ventricosus* had detected on *Gallus domesticus* for the first time in Havza, a county of Edirne city and Istanbul in Turkey (8).

The aim of this study was inform about morphological characteristics of *Haemodipsus* species found on the hares in Konya province in Turkey.

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MATERIAL AND METHODS

This study was done between the months September 2003 and November 2006. Forty hares (*Lepus europaeus*) shot by the hunters were used as materials. They were transported to the Parasitology laboratory in the sacks. The hares were laid on a white paper and examined macroscopically for the lice. In addition to this, their hairs were brushed a comb. The lice were collected by a medical forceps and preserved in vials containing 70% alcohol. They were mounted on slides by using Faure Forte medium after clearing in lacto phenol. They were identified according to descriptions by Beaucournu (2), Blagoveshchensky (3, 4) and Ferris (7).

RESULTS

Thirty-three lice specimens were collected from the hares and two species; *Haemodipsus lyriocephalus* and *H. setoni* were identified.

Haemodipsus lyriocephalus (Burmeister, 1839)

Synonyms: *Pediculus lyriocephalus* Burmeister, 1839. *Haemotopinus lyriocephalus* (Burmeister): Denny, 1842. – *Pediculus lyriceps* Nitzsch, 1864. – *Haemotopinus (Polyplax) lyriocephalus* (Burmeister): Neumann, 1909.

Hosts: *Lepus timidus* Linnaeus, *L. europaeus* Linnaeus, *L. sinensis* Gray, *L. tolai* Pallas, *L. arcticus* Ross.

Materials Studied: 12 ♀, 2 ♂, 17 nymphs

Female: Head is elongate and lyrioform. It is longer than width and slightly pointed in anterior. There is a long seta on each side of temple. There are no eyes. Antenna has five segments (Pl. 1 Fig. 1).

Thorax is relatively small. Sternal plate is slightly longer and as in Fig.1 A. In some specimens sternal plate is undefined. Legs are relatively small.

Abdomen is oval, widely and long. There are a lot of setae on the sternites and tergites. Generally, there are four posterolateral setae and four or five tergocentral setae on each side of the segments. Paratergal plates are absence. The length of the body is varied between 2,3 mm-2,6 mm.

Male: It likes to female (Pl. 1 Fig. 2). Male genitalia are as in Fig.1 B. The length of the body is varied between 1,6 mm-2,0 mm.

Haemodipsus setoni Ewing, 1924

Hosts: *Lepus californicus* Gray, *L. americanus* Erxleben, *L. timidus* Linnaeus, *L. townsendii* Bachman, *L. tolai* Pallas, *Sylvilagus audubonii* (Baird), *S. nuttalli* (Bachman)

Materials Studied: 1 ♀, 1 nymph

Female: This species is smaller than *H.lyriocephalus*. Head is obviously swollen in postero-lateral. Head is rounded in anterior (Pl. 1 Fig. 3). Antenna has five segments and the first is obviously wider than the others.

Thorax is smaller from head. Sternal plate is hexagonal shaped (Fig. 1 C). Legs are relatively small.

Abdomen is relatively short. There are four tergocentral and two posterolateral setae on the segments. The length of the body is 2,1 mm.

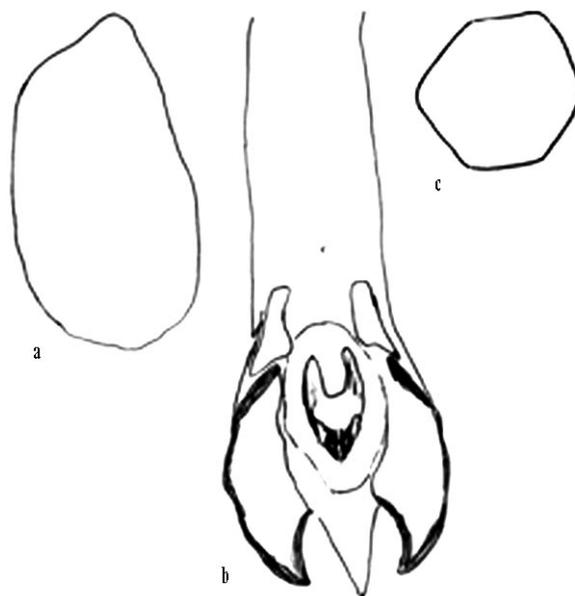


Fig. 1. a. *H.lyriocephalus*, sternal plate
b. male genitalia c. *H.setoni*, sternal plate

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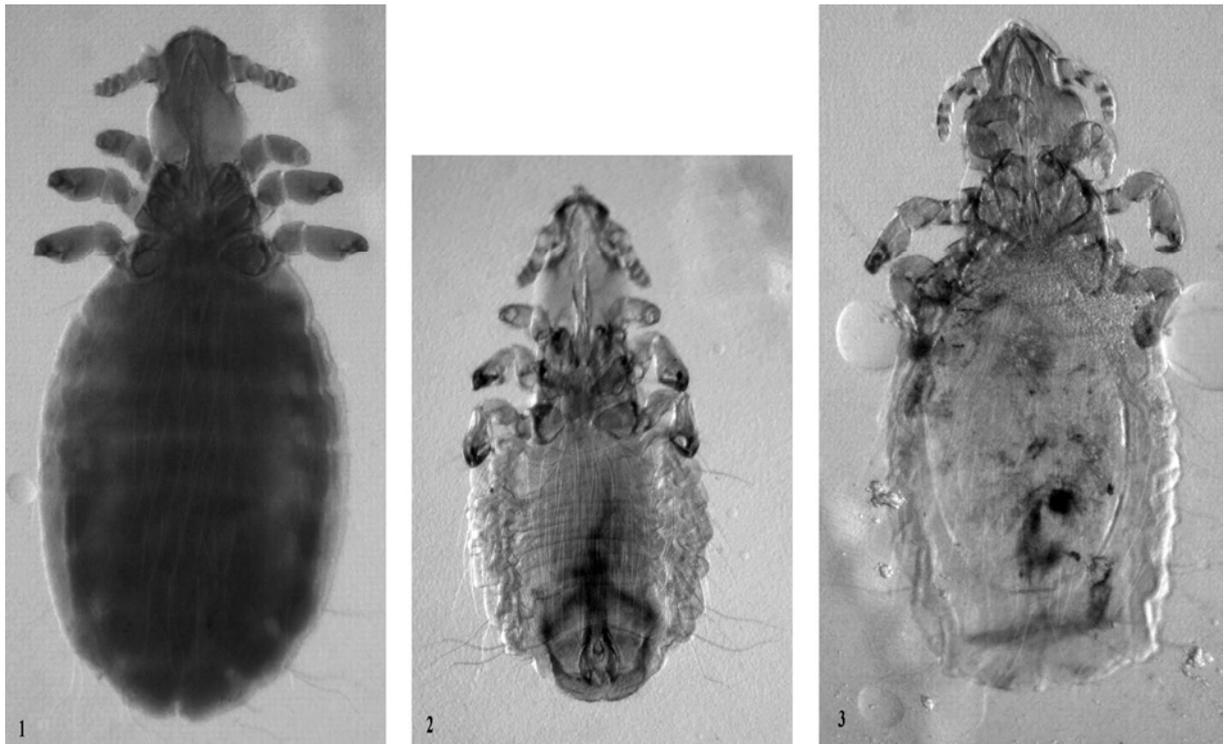


Plate 1, Figure 1. *Haemodipsus lyriocephalus*, female 2. *Haemodipsus lyriocephalus*, male; 3. *Haemodipsus setoni*, female

DISCUSSION

The lice belong to the genus *Haemodipsus* lived on rabbits and hares. It was stated that six species were found in this genus (6). *Haemodipsus lyriocephalus* is the first species in this genus described from *Lepus europaeus* and it is characterized with a head lyrioform and a long sternal plate (4). This species was recorded also from *Lepus sinensis*, *L. tolai*, *L. arcticus* and *L. timidus*. It was informed that *H. ventricosus* had a large head, two long setae on posterior margin of the head, hexagonal sternal plate and vestigial paratergal plates in abdominal segments (9). However, some authors (2, 4, 7) reported that *H. ventricosus* had relatively a swollen head and transverse sternal plate while *H. setoni* had more rounded of head and hexagonal sternal plate. These species could distinguish the morphological characteristics given above from each other. Blagoveshtchensky (4) and Ferris (7) reported that earlier authors had been identified mistakenly *H. setoni* as *H. ventricosus*. In addition, some authors (2, 6) recorded that primer host of *H. ventricosus* was *Oryctolagus cuniculus* and this species had been found on *Lepus townsendii*, *L. saxatilis* and *Sylvilagus audubonii* in error or reflect accidental host-parasite relationships. Blagoveshtchensky (3) described *H. conformalis* from *Lepus tolai* in Kazakhstan and classified earlier as *H. lyriocephalus*. This author (3) stated that *H. conformalis* like to *H. setoni*, but differs from the latter species it had a head average sized and slightly convex posterior

lateral margins, numerous setae on abdominal segments and a genital plate different configuration. In present study, the specimens of *H. lyriocephalus* were identified which their head lyrioform and longer sternal plate. Nevertheless, sternal plate was not seen clearly in some specimens. Two specimens of *H. setoni* were obtained from one hare which were identified by having a swollen head in postero-lateral and sternal plate hexagonal shaped. This species was different because of sternal plate hexagonal shaped and not pyriform abdomen and more length of the body from *H. ventricosus* and it had a swollen head and different configuration of posterior margin of abdomen and also more length of the body from *H. conformalis*.

There could be found only one study on ectoparasites of hares in Turkey. In that study, *Haemodipsus* species were not found on the hares (1). On the other hand, *H. ventricosus* was recorded from chickens previously (8) but no hares. Consequently, any *Haemodipsus* species had not reported from hares in Turkey yet. For that reason this report will be the first record of *H. lyriocephalus* and *H. setoni* from hares in Turkey.

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