

Türkiye’de, Konya Yöresindeki Yaban Tavşanlarında (*Lepus europaeus* L.) Bulunan *Haemodipsus* (Anoplura: Polyplacidae) Türlerinin Yaygınlığı

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ÖZET: Bu çalışma Konya yöresindeki yaban tavşanlarındaki (*Lepus europaeus* L.) bitlerin yaygınlıklarını tespit etmek amacıyla Ekim 2003-Ocak 2007 tarihleri arasında yapılmıştır. Bu süre içerisinde 54 yaban tavşanı bit yönünden incelenmiş, beşi (%11) bitlerle enfeste bulunmuş ve enfeste tavşanlardan toplam 41 adet bit örneği toplanmıştır. İki tür *Haemodipsus lyriocephalus* (Burmeister, 1839) ve *H.setoni* Ewing, 1924 tespit edilmiş ve *H.lyriocephalus*'un *H.setoni*'ye oranla daha yaygın olduğu saptanmıştır.

Anahtar Sözcükler: Anoplura, *Haemodipsus lyriocephalus*, *Haemodipsus setoni*, Yaban Tavşanı, Türkiye

Prevalence of *Haemodipsus* (Anoplura: Polyplacidae) Species Found on Hares (*Lepus europaeus* L.) in Konya Province, Turkey

SUMMARY: This study was carried out in order to determine the prevalence of lice on hares (*Lepus europaeus* L.) in the Konya province of Turkey from October 2003 to January 2007. During this period, 54 hares were examined for lice, 5 of them (11%) were found to be infested with lice and a total of 41 lice specimens were collected from the infested hares. Two species; *Haemodipsus lyriocephalus* (Burmeister, 1839) and *H. setoni* Ewing, 1924 were identified and *H. lyriocephalus* was more abundant than *H. setoni*.

Key Words: Anoplura, *Haemodipsus lyriocephalus*, *Haemodipsus setoni*, hare, Turkey

INTRODUCTION

Lice belonging to the suborder Anoplura (order Phthiraptera) suck blood from their hosts. The sucking lice living on hares have been found in the genus *Haemodipsus*. *H.lyriocephalus*, *H.setoni* and *H.ventricosus* (Denny 1842) may play a role in the transmission of tularemia (2, 5, 14).

Beaucournu (2) reported morphological characteristics, hosts, epidemiology, and distributions of some Anoplura species including *H.lyriocephalus*, *H.setoni* and *H.ventricosus*. Durdan and Musser (7) stated that six species had found in the genus *Haemodipsus* and two of them; *H.lyriocephalus* and *H.setoni* occurred on *Lepus europaeus*. Some authors (2, 7) have observed that the main host of *H.ventricosus* is *Oryctolagus cuniculus*; it has also been found on *Lepus townsendii*, *L.saxatilis* and *Sylvilagus audubonii* by mistake or reflect accidental host-parasite relationships.

Wegner and Eichler (15) studied the *Haemodipsus* species of hares in the Poznan province of Poland and examined 21 hares which were infested with lice. They (15) collected 183 lice specimens from the hares of which 176 were *H.lyriocephalus*, three were *H.setoni* and four were destroyed individuals. Kadulski (10) examined 1460 hares (*Lepus eurapeus*) in Poland; and two species: *H.lyriocephalus* and *H.setoni* were identified. In that study, *H.lyriocephalus* and *H.setoni* were found to have infestation prevalences of % 20 and % 5, respectively. Earlier, Broekhuizen (5) reported that *H.lyriocephalus* and later *H.setoni* occurred on *Lepus europaeus* and that infestation rates with *H.setoni* increased on diseased hares rather than healthy ones in the Netherlands. Pfaffenberger and Valencia (13) examined 35 *Sylvilagus audubonii* (Baird) and 35 *Lepus californicus* Gray for ectoparasites in eastern New Mexico. The authors (13) reported that the hares were found to be infested only with *Haemodipsus setoni*; and 123 lice specimens were recovered from each species of hare. Louw et al. (11) reported that *H.lyriocephalus* was the most abundant species; and *H.setoni* the most widely distributed species on jackrabbits (*Lepus saxatilis*) in South Africa. These authors (11) had found 8 hares to be infested by *H.lyriocephalus* and 29 by *H.setoni*.

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Merdıvenci (12) reported that *Haemodipsus ventricosus* was found on chickens, for the first time in Havza, a county of Edirne city and Istanbul in Turkey. Aksın and Aksın (1) studied ectoparasites of wild rabbits in Elazığ district; but they did not find any lice. Recently, Dik and Uslu (6) reported *H.lyriocephalus* and *H.setoni* from hares (*Lepus europaeus*) for the first time in Turkey.

The purpose of the study was to detect the presence of lice found on hares in Konya, Turkey.

MATERIALS AND METHODS

This study was carried out between the months September 2003 and January 2007. Fifty-four hares (*Lepus europaeus*) shot by hunters during autumn and winter were examined. They were transported to the Parasitology laboratory in separate sacks. The hares were laid on white paper and examined macroscopically for lice. In addition to this, their fur was brushed with a comb.

Lice on the hares were collected using medical forceps and put in tubes which contained 70% alcohol. They were mounted on slides using Faure Forte medium after being cleared in lactophenol. They were examined under a standard light microscope and identified to species according to descriptions by Ferris (8), Beaucournu (2) and Blagoveshtchensky (3, 4).

RESULTS

Five (11%) of 54 hares were found to be infested with lice. Forty-one lice specimens were collected from the hares; and two species namely; *Haemodipsus lyriocephalus* and *H.setoni* were identified. *H.lyriocephalus* (2 ♂, 12 ♀, 17 nymphs) was more abundant species than *H.setoni* (5 ♂, 4 ♀, 1 nymph). *H.lyriocephalus* was detected as a single species on three hares while *H.setoni* was found as a single species on one hare. Both species of lice were observed together on one hare (Table 1).

Table 1. Presence and numbers of *Haemodipsus lyriocephalus* and *Haemodipsus setoni* on the hares in Konya province, Turkey

Hare No	Lice Species	Date	Number of lice collected from the hares
10	<i>Haemodipsus lyriocephalus</i>	24.10.2003	1 ♂, 9 ♀, 13 nymphs
11	<i>Haemodipsus lyriocephalus</i>	29.12.2003	1 ♂, 1 ♀
12	<i>Haemodipsus lyriocephalus</i>	31.12.2003	1 ♀, 4 nymphs
14	<i>Haemodipsus lyriocephalus</i> <i>Haemodipsus setoni</i>	13.01.2004	1 ♀, 1 ♀, 1 nymph
41	<i>Haemodipsus setoni</i>	26.12.2006	5 ♂, 3 ♀

H.lyriocephalus was relatively more abundant; and it was found on four hares. On three hares, *H.lyriocephalus* was de-

tected as a single species and 31 specimens were collected from the hares. Eight individuals of *H. setoni* as a single species occurred on one hare and two specimens were found together with *H.lyriocephalus* on one hare.

Haemodipsus lyriocephalus was detected in October, December and January while *H.setoni* was recorded in December and January.

DISCUSSION

Lice belonging to the genus *Haemodipsus* live on rabbits and hares. These lice suck blood from their hosts and can be irritating and cause anemia when found in large numbers on the host. *H.lyriocephalus* and *H.setoni* have been found on *Lepus europaeus* and other hares. In the current study, the number of lice on the host was determined to be lower than in previous studies; and only *H.lyriocephalus* and *H.setoni* were found. No *H.ventricosus* was recovered from the hares. These findings supported that of other authors (2, 7).

Some authors (5, 10, 11) have reported that hares were infested by lice in spring and summer rather than in other seasons. In the present study, the presence of the *Haemodipsus* species on the hares was not so widespread. The hares examined for lice were shot during December and January; and fewer hares were shot in September and October.

No hares were examined from February to September; because hare hunting is forbidden during this period in Turkey. For that reason, no more than fifty-four hares could be obtained for a long period as pointed out above. Probably, infestation rate and the number of lice individuals collected from the hares were lower than expect, due to inhibited hunting season.

Some species such as *H.lyriocephalus*, *H.ventricosus* and *H.setoni* can play a role in the transmission of tularemia (2, 5, 14). In addition to this, tularemia can be transmitted in other ways such as by direct contact with rabbits which can be infected the disease, by food contaminated with the microorganism and other vectors such as fleas, ticks and some flies belonging to the families Tabanidae and Simuliidae. However, the possibility of the spreading of tularemia will increase due to the presence of *Haemodipsus* species on hares. Tularemia had been detected in Konya after 1910. No data was found that the disease had not occurred in animals or human beings in this area from the date which was pointed out above. Recently, a tularemia outbreak appeared in human beings in the Thracian region in Turkey (9).

A previous study on prevalence of ectoparasites of wild rabbits in Turkey was done; but *Haemodipsus* species were not found in the study (1). *H.ventricosus* was recorded from chickens previously but not hares (12). However, this author (12) give not any inform about morphological characters of the species in his paper. Probably, that record mistake or reflect accidental host-parasite relationships.

However, Dik and Uslu (6) recorded *H.lyriocephalus* and *H.setoni* from hares for the first time in Turkey. Nevertheless, these authors only gave information about morphological characters of these species.

Consequently, this report will be the first report of the prevalence of *Haemodipsus* on hares in Turkey.

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