

Haemodipsus leporis Blagoveshtchensky, 1966 (Phthiraptera: Anoplura: Polyplacidae) on a Hare (*Lepus europaeus*, L.). New Record for Turkish Phthiraptera fauna

Yabani Bir Tavşanda (*Lepus europaeus*, L.) ilk *Haemodipsus leporis* Blagoveshtchensky, 1966 (Phthiraptera: Anoplura: Polyplacidae). Türkiye Phthiraptera faunası için yeni kayıt

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ABSTRACT

This study was carried out to detect lice species found on hares (*L. europaeus*, L.) in the Konya province. Several lice individuals were collected on a hare and were kept in 70% alcohol. Then, they were cleaned in 10% KOH for 24 hours, washed in distilled water, stored in 70%, 80%, 90% and 96% alcohol for 24 hours for each step. They were mounted on the slides in Canada balsam and examined under a binocular light microscope. Two of the species were identified as *Haemodipsus leporis* Blagoveshtchensky, 1966, while the others were *H. lyriocephalus* (Burmeister, 1839). *H. leporis* was found on *L. europaeus* for the first time in Turkey, and it was also detected on this host species for the first time throughout the world. The morphological characteristics of this species are given in this paper. (*Türkiye Parazitol Derg* 2012; 36: 260-3)

Key Words: Hare, *Lepus europaeus*, *Haemodipsus leporis*, Konya, Turkey

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ÖZET

Bu çalışma Konya yöresindeki yabani tavşanlardaki (*L. europaeus*, L.) bit türlerini belirlemek amacıyla yapılmıştır. Yabani bir tavşanın üzerinden çok sayıda bit toplanmış ve %70 alkol içinde saklanmışlardır. Daha sonra %10 KOH içinde 24 saat bekletilmiş, distile suda 24 saat yıkandıktan sonra 24 saat süreyle %70, %80, %90 ve %96'lık alkol serilerinden geçirilmiştir. Bit örnekleri Kanada balsam ile lam üzerine yapıştirilerek binoküler ışık mikroskopunda incelenmiştir. Bit örneklerinden ikisi *Haemodipsus leporis* Blagoveshtchensky, 1966, diğerleri ise *H. lyriocephalus* (Burmeister, 1839) olarak teşhis edilmiştir. Bu araştırmada *H. leporis*'e Türkiye'deki yaban tavşanlarında ilk kez rastlanmış olup, bu tür *L. europaeus*'da ilk kez tespit edilmiştir. Bu makalede *H. leporis*'in morfolojik özellikleri hakkında bilgi verilmiştir. (*Türkiye Parazitol Derg* 2012; 36: 260-3)

Anahtar Sözcükler: Yaban tavşanı, *Lepus europaeus*, *Haemodipsus leporis*, Konya, Türkiye

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INTRODUCTION

Lepus europaeus belongs to the family Leporidae, order Lagomorpha and is known as the hare. This species is a cosmopolitan species and is found in almost all parts of Turkey (1). About 550 species of Anopluran lice species are known throughout the world. Polyplacidae is the most specious family within the Anoplura; worldwide, 16 genera and about 200 species are currently assigned to this family.

Members of *Haemodipsus* are ectoparasites of rabbits and hares throughout much of the world (2, 3). *Haemodipsus conformalis* Blagoveshtchensky, 1965 and *Haemodipsus leporis* Blagoveshtchensky, 1966 were described from hares in Kazakhstan and in Yakutia, respectively (4, 5). Beaucournu (6) stated the morphological characters, hosts, epidemiological roles, distributions and identification keys of 18 Anopluran lice species including *H. lyriocephalus* (Burmeister,

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1839), *H. setoni* Ewing and *H. ventricosus* (Denny, 1842). A checklist of the sucking lice of mammalian hosts in the world was published, and six species, namely *H. africanus* Bedford, *H. conformalis* Blagoveshtchensky, *H. leporis* Blagoveshtchensky, *H. lyriocephalus*, *H. setoni* and *H. ventricosus*, were reported to have been found in the genus *Haemodipsus* (2). However, Durden and Rausch (3) added to these a seventh species: *Haemodipsus brachylagi* Durden and Rausch, 2007 from Pygmy rabbit; *Brachylagus idahoensis*, (Merriam) in Nevada, USA.

Nevertheless, there are limited studies available on ectoparasites found on hares in Turkey (7-9). Although *H. ventricosus* was recorded from chickens previously; it has not been found in hares in the European part of Turkey (10). It was reported that *Ctenocephalides canis*, *Haemaphysalis otophila*, *Rhipicephalus bursa*, *Cheyletiella parasitivorax* and *Trombicula autumnalis* had been found on the hare in the Elazığ province in Turkey (7). However, there are two papers regarding *Haemodipsus* species found on hares in the Konya province (8, 9). In these studies, two *Haemodipsus* species, *H. lyriocephalus* and *H. setoni*, were detected on hares (8, 9); however, *H. leporis* has not been reported on hares in Turkey to date.

The aim of this paper is to discuss the knowledge about the morphological characteristics of *Haemodipsus leporis* found on a hare in Konya province in Turkey.

CASE REPORT

A hare shot by a hunter in Kestel village, Sarayönü, Konya in Middle Anatolia was examined for ectoparasites, and some lice specimens were detected on the hare. They were collected in a tube consisting of 70% alcohol and then cleaned in 10% KOH for a one day. Later, they were washed in distilled water for 24 hours and transferred in alcohol and stored for one day in 70%, 80%, 90% and 96% ethanol on consecutive days. They were mounted on slides in Canada balsam and kept to dry in an incubator for two weeks. They were examined under a binocular light microscope (Leice DM750) and identified as *H. lyriocephalus* (6 ♀, 5 ♂, 8 Nymphs) and *H. leporis* (2 ♂). In this case, information about the morphological characters of male *H. leporis* was given, because morphological characters of *H. lyriocephalus* had been explained in detail before.

Haemodipsus leporis Blagoveshtchensky (5)

Studied materials: 2 ♂♂, *L. europaeus*, February 29th, 2012, Kestel village, Sarayönü, Konya.

Male: a relatively small species (Figure 1). The head is triangular, rounded in front and widened at the temple. It is slightly wider than it is long (Figure 2). The antennae have five segments, and the first segment is clearly thicker than the others. There is a long seta on the temple on each side. The thorax is short and narrowed and is wider than it is long. The legs are strong and their widths are close to equal. The first is relatively short and curved to the anterior; there is a well developed claw on their edges. The sternal plate is hexagonal and relatively large (Figure 3) and the abdomen is wide, with narrowed pleural plates. Genitalia developed well (Figure 4, 5) And the basal plate is rectangular and relatively wide. Parameres are slightly concave and pointed in posterior. Head length: 0.35 mm, head width: 0.39 mm,

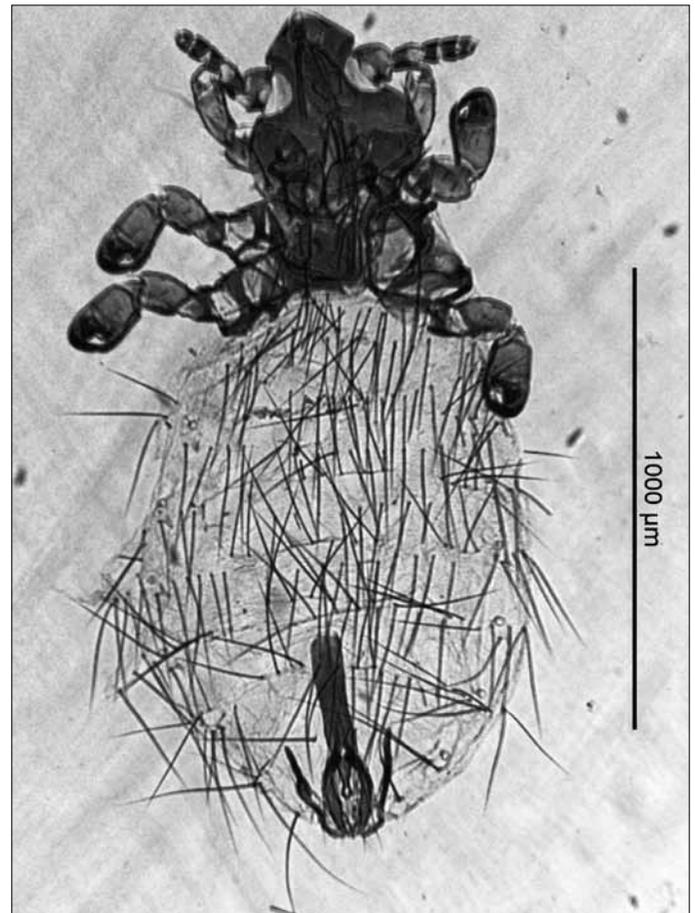


Figure 1. *Haemodipsus leporis*, male, original



Figure 2. *Haemodipsus leporis*, male, head and thorax, original

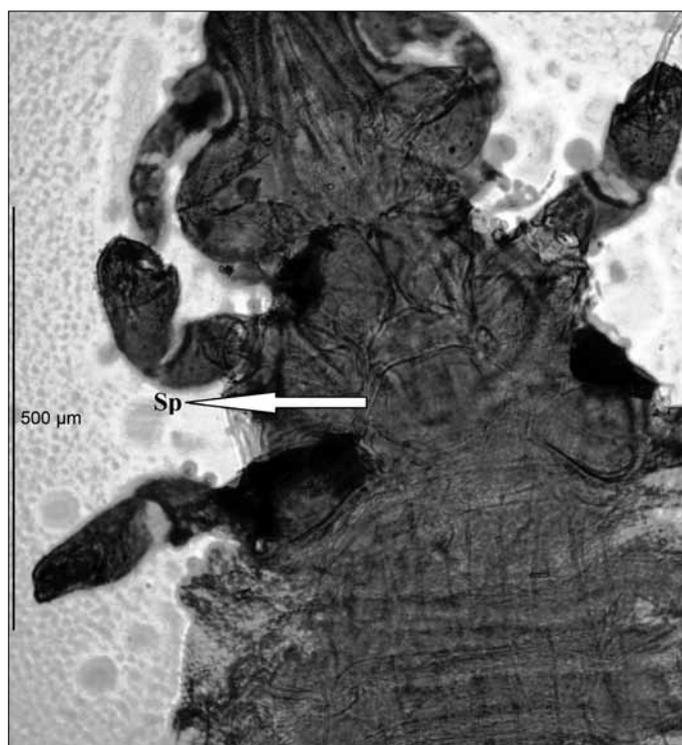


Figure 3. *Haemodipsus leporis*, male, sternal plate, original (Sp, arrowed)

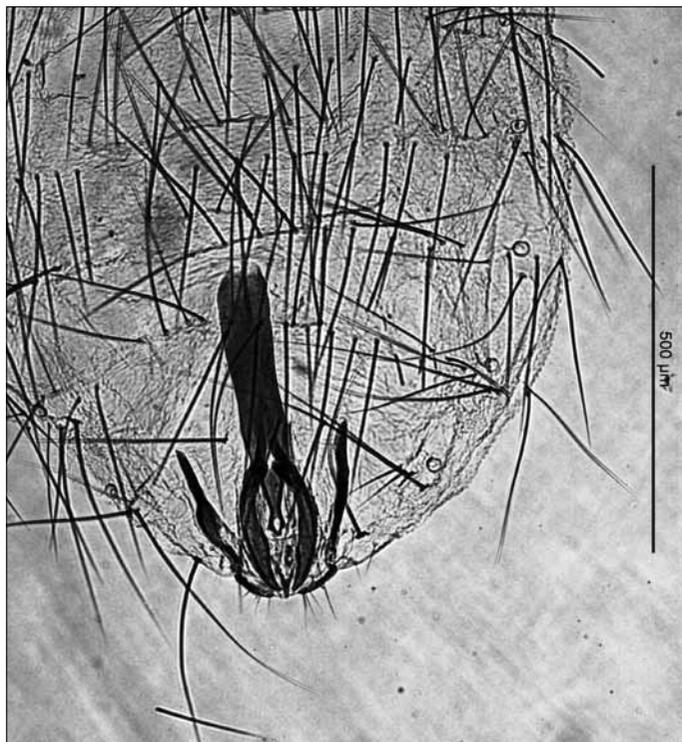


Figure 4. *Haemodipsus leporis*, male, genitalia, original
cephalic index: 0.90, thorax length: 0.32 mm, thorax width: 0.48 mm, abdomen length: 0.90 mm, abdomen width: 0.76 mm, total length: 1.71-1.80 mm.

DISCUSSION

Blagoveshtchensky (5) described *H. leporis* from the mountain hare, *L. timidus*, in Yakutia. This species was also reported on a



Figure 5. *Haemodipsus leporis*, male, genitalia, original

young hare (*L. timidus*) in Norway (11). According to Blagoveshtchensky (5), the head of *H. leporis* is similar to *H. ventricosus*; however, it is distinguished from the latter species which has a bigger head and a sternal plate that has a hexagonal shape. This author also stated that sternal plate of *H. leporis* is very similar to *H. setoni*; however, it is distinguished from the latter species with the shape of the head and has a slightly narrower projection on the posterior part of the abdomen (5). Two specimens obtained on *L. europaeus* in this study were examined and it was observed that the sternal plate was hexagonal, making it similar to *H. setoni*. However, it is distinguished from the latter species as the head is triangular, there are different male genitalia and the abdominal plate on the posterior is thinner. Two male individuals of *H. leporis* collected from *L. europaeus* in this study have similar morphological characters, such as a triangular head, hexagonal sternal plate and male genitalia according to the original description of *H. leporis*.

The lice species in the genus *Hemodipsus* live on hares (2, 3, 6). There are seven species in this genus and some authors have stated that *H. africanus* in southern Africa, *H. conformalis* in Central Asia, *H. leporis* and *H. lyriocephalus* in Eurasia, *H. setoni* and *H. brachylagi* in North America and *H. ventricosus* in Europe had been found on both rabbits and hare. Furthermore, some of these species have definitely, or apparently, been introduced into other biogeographical regions (2, 3). According to Durden and Rausch (3), Tenquist and Charleston claimed that *H. lyriocephalus*

had been introduced New Zealand. This species also presented on scrub hares, *L. saxatilis* in South Africa (12). *H. setoni* was recorded from some countries such as England, Switzerland, Poland, and France in Europe (3, 6) and the Asian part of Turkey (8, 9). Some authors reported that earlier authors had been mistakenly identified *H. setoni* as *H. ventricosus* (5, 13). In addition, some authors recorded that the primary host of *H. ventricosus* was *Oryctolagus cuniculus*, and that this species had been found on *L. townsendii*, *L. saxatilis* and *Sylvilagus audubonii* in error or reflecting accidental host-parasite relationships (3, 6).

There are a few studies available on ectoparasites found on hares in Turkey (7-9). Only two *Haemodipsus* species were detected on the hares in Turkey: *H. lyriocephalus* and *H. setoni* (8, 9). These authors only detected *L. europaeus* and found no other hare species in their studies in Konya province, Turkey (8, 9).

CONCLUSION

H. leporis were recorded for the first time in Turkey. *L. europaeus* is the new host for *H. leporis* throughout the world.

Conflict of Interest

No conflict of interest was declared by the authors.

REFERENCES

1. Demirsoy A. Yaşamın Temel Kuralları. Omurgalılar/Amniyota (Sürüngenler, Kuşlar ve Memeliler) Cilt-II I/ Kısım-II. Beşinci Baskı, Meteksan A.Ş, Ankara, 2003.
2. Durden LA, Musser GG. The sucking lice (Insecta, Anoplura) of the world: A checklist with records of mammalian hosts and geographical distributions. Bull Am Mus Nat Hist 1994; 218: 1-90.
3. Durden LA, Rausch RL. *Haemodipsus brachylagi* n. sp. (Phthiraptera: Anoplura: Polyplacidae), a new sucking louse from the Pygmy Rabbit in Nevad. J Parasitol 2007; 93: 247-51. [\[CrossRef\]](#)
4. Blagoveshtchensky DI. New species of sucking lice (Siphunculata) that are parasites of rodents. Communication I J Entomol Rew Wash 1965; 44: 85-91.
5. Blagoveshtchensky DI. New forms of lice (Siphunculata) parasites of pinnipeds and hares. Rev Entom URSS 1966; 45: 806-13.
6. Beaucournu J. Les Anoploures de Lagomorphes, Rongeurs et Insectivores dans la Région Paléarctique Occidentale et en particulier en France. Ann Parasitol Hum Comp 1968; 43: 201-71.
7. Aksın N, Aksın E. The prevalence of ectoparasites on wild rabbits in Elazığ Region. Acta Parasitologica Turcica 2002; 26: 67-70.
8. Dik B, Uslu U. *Haemodipsus* species occurring on hares (*Lepus europaeus*, L.). Two New species for Turkish lice fauna. Türkiye Parazitolojî Dergî 2007; 31: 119-22.
9. Dik B, Uslu U. Prevalence of *Haemodipsus* (Anoplura: Polyplacidae) species found on hares (*Lepus europaeus* L.) in Konya Province, Turkey. Türkiye Parazitolojî Dergî 2008; 32: 146-8.
10. Merdivenci A. Türkiye'nin Entomolojik Coğrafyası. In: Unat E.K, Yaşarol Ş, Merdivenci A, Editors. Türkiye'nin Parazitolojik Coğrafyası, Ege Üniversitesi Tıp Fakültesi yayınları No: 42, Ege Üniversitesi Basımevi, İzmir, 1965.p.114-54.
11. Mehl R. Records of ectoparasitic insects and mites on birds and mammals in Norway. Norsk ent Tidsskr 1970; 17: 109-13.
12. Louw JP, Horak IG, Braack LE. Fleas and lice on scrub hares (*Lepus saxatilis*) in South Africa. Onderstepoort J Vet Res 1993; 60: 95-101.
13. Ferris GF. Contributions toward a monograph of the sucking lice. Part V. Stanford University Publications University Series, Biological Sciences 1932; 2: 271-413.