

First record of *Cimex lectularius* Linnaeus, 1758 (Cimicidae: Heteroptera) for Amasya

Ahmet Dursun^{1*}, Meral Fent²

¹Amasya University, Faculty of Science, and Arts Department of Biology, 05100,
Amasya/Türkiye,
E-mail: ahmet.dursun@amasya.edu.tr ORCID ID: 0000-0002-5114-7470

²Trakya University, Faculty of Science, Department of Biology, Edirne Türkiye
E-mail: m_fent@hotmail.com ORCID: 0000-0001-5787-6714

*Corresponding author E-mail: ahmet.dursun@amasya.edu.tr

ABSTRACT: In this present study was given the first faunistic record of *Cimex lectularius* Linnaeus, 1758, which lives as a parasite on humans and bats, from Amasya and its distribution in Türkiye.

KEYWORDS: *Cimex lectularius*, new faunistic record, Amasya, Türkiye.

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INTRODUCTION

Cimex lectularius Linnaeus, 1758, a cosmopolitan, flightless, nocturnal ectoparasite species, belongs to the family Cimicidae Latreille, 1802 (Hemiptera: Heteroptera). The family Cimicidae includes six subfamilies and contains more than

110 species distributed among 25 genera worldwide. Approximately two-thirds of the species are related to bats, which are suggested to be the original host of the family. The remaining species are related to birds. Three bat-related species, including the bedbug *C. lectularius*, have



adopted humans as another host. (Usinger, 1966; Péricart, 1996; Balvin et al., 2015). In Palaearctic region; 17 species from 5 genera of two subfamilies have been recorded (Usinger, 1966; Péricart, 1996; Simov et al., 2006; Ghazarayan et al., 2023).

According to a study reporting the results of comprehensive surveys of bat roosts of various bat species in the Northwest-Southeast section across Europe (Czech and Slovak Republics, Hungary, Serbia and Bulgaria), the distribution of *C. lectularius* follows synanthropic habitats of main hosts *Myotis myotis* and *M. emarginatus*, both Mediterranean elements of the European fauna (Balvin et al., 2015). It is known that *C. lectularius* feeds by sucking blood from humans, as well as the Great Horseshoe Bat (*Rhinolophus ferrumequinum*) and the smaller mouse-eared bat (*Myotis blythii*) (Al Barwari et al., 2012; Ghazarayan et al., 2023). Therefore, *C. lectularius* is a parasite that has spread throughout the world along with humans. With new studies have determined that bedbugs appeared 115 million years ago (Booth, 2019). About 100,000 years ago, Neanderthal humans lived in caves in the Middle East along with bats. Cromagnon people lived under similar conditions during the last Ice Age 12, 000 B.C. Thus, *Cimex* Linnaeus, 1758 species began to use humans as hosts (Usinger, 1966).

C. lectularius is known to be the most common bedbug species to infest homes (Robinson, 2005; Köse et al., 2017). Adults and nymphs hide in beds, bases, and wall cavities in the light, and suck blood from sleeping people at night.

Although it was thought that bedbugs and other pests would be prevented with the use of Diklorodifeniltri-kloroetan (DDT) and other synthetic organic insecticides in the world since the 1940s, it has been observed that complaints caused by *C. lectularius* have increased both in Europe and America in recent years (Topluoğlu et al., 2023). It is known that bedbug cases have increased in Türkiye recently, especially due to the increase in the

number of immigrants (Ruh & Taylan Özkan, 2023).

C. lectularius, which has medicinal importance, is known to be the vector of many disease agents, especially diseases such as Tularemia, Filariasis, Mansonellosis, Kala-azar, Leprosy, Septicemia, Anthrax, Pneumonia type 2, Brucellosis, Epidemic typhus, Murine typhus, Relapsing fever, yellow fever and Smallpox (Usinger, 1966; Gürçan, 2014). At the same time, *C. lectularius* bite causes physical and psychological problems, such as itching, rash, allergies, insomnia, and anxiety, and is often noticed by the blood stains they leave on the sheets (Bağrıaçık & Tekin, 2021). Despite this, Ruh & Taylan Özkan (2023) report that there is no evidence that *C. lectularius* is the vector of any disease. This is due to the lack of a system for monitoring epidemics caused by parasites such as bedbugs (Ruh & Taylan Özkan, 2023).

The first records about *C. lectularius* are known from Greece around 400 BC. It is reported that it was seen in Italy in 77 AD and in China in 600 AD (Usinger, 1966). We think that its distribution in Anatolia coincided with Greece, but there is no data on this. Because in those years, the same civilization prevailed in both Greece and Anatolia. Even today, Péricart (1996) did not list Türkiye among the countries distributed in the Palaearctic region catalogue. Faunal records of countries, are very important for all species. For this reason, in this study are given the distribution of *C. lectularius* in Türkiye.

MATERIAL AND METHODS

The samples were collected with forceps from wooden house wall in Amasya and from bed base of dormitory in Ankara, and placed in tubes in 70% ethanol, and brought to the laboratory. In the laboratory, all samples were softened in 80°C-90°C water for 5 minutes and were examined using a Leica SZX stereomicroscope. Usinger (1966) was followed in the identifications of the specimens (Fig. 1).

RESULT**Family Cimicidae Latreille, 1802****Subfamily Cimicinae Latreille, 1802*****Cimex* Linnaeus, 1758*****Cimex lectularius* Linnaeus, 1758**

Material examined: **Amasya:** Saygılı, 16.06.2020, 2♀♀, 3♂♂; **Ankara,** Centrum, 20.10.2023, 1♀, 1♂.

Distribution in Türkiye: It is widespread in all regions (Önder et al., 2006).

Distribution: Europe: Albania, Belgium, Bosnia Hercegovina, Bulgaria, Byelorussia, Croatia, Czech Republic, Denmark, Estonia, Faeroe Isles, Finland, Great Britain, Germany, Greece, Iceland, Ireland, Italy, Kazakhstan (European Part), Latvia, Lichtenstein, Luxembourg,

Malta, Macedonia, Moldavia, Montenegro, Netherlands, Norway, Poland, Portugal, Russia (Central European Territory, North European Territory, South European Territory), Serbia, Slovakia, Slovenia, Spain (Gibraltar incl.), Sweden, Switzerland, Ukraine. **North Africa:** Azores, Tunisia.

Asia: Azerbaijan, Armenia, China (Central Territory, Northeastern Territory, Northern Territory, Northwestern Territory, Southeastern Territory (Macao and Hong Kong incl.), Southwestern Territory, Western Plateau) Georgia, Israel, Japan (Bonin, Isles and Ryukyu Isles incl.), Kazakhstan (Asien Part), Kirgizia, Russia (Far Est, East Siberia, West Siberia) Tadjikistan, Turkmenistan, Uzbekistan, Yemen (Socotra incl.). Probably more widely spread.

Extralimittally: Worldwide (Péricart, 1996; Ghazarayan et al., 2023).

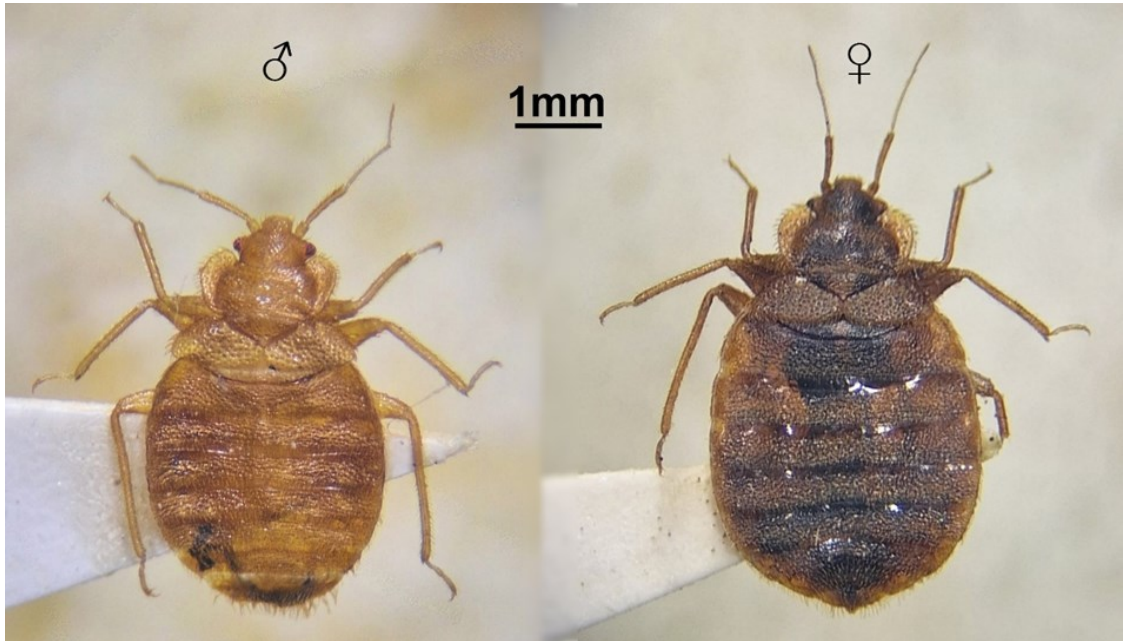


Figure 1. *Cimex lectularius* Linnaeus, 1758 (Male-Female Dorsal view)

Although there are many studies on Tularemia, a common zoonotic disease in Türkiye (Gürcan, 2014), there are no studies on the faunistic record of *C. lectularius*. *C. lectularius* was reported by Önder et al. (2006) for Türkiye, but the exact locality was not mentioned there. The present study represents the first record with exact locality of *C. lectularius*

from Türkiye. Beyhan et al. (2016) also listed *C. lectularius* in their study on human-biting tick species and their seasonal distribution in Ankara. According to the data of pest control companies, *C. lectularius* is seen to be common in Türkiye as well as all over the world (Ruh & Taylan Özkan, 2023).

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