

# Mallophaga Species on Long-Legged Buzzards (*Buteo rufinus*) in Turkey

Bilal DİK<sup>1</sup>, Meral AYDENİZÖZ ÖZKAYHAN<sup>2</sup>

<sup>1</sup>Selçuk Üniversitesi Veteriner Fakültesi Parazitoloji Anabilim Dalı, Konya;

<sup>2</sup>Kırıkkale Üniversitesi Veteriner Fakültesi Parazitoloji Anabilim Dalı, Kırıkkale, Türkiye

**SUMMARY:** This study was carried out on three long-legged buzzards to be brought for treatment to Veterinary Faculty, University of Kırıkkale. Twenty lice were collected from the buzzards. The lice preserved in a tube containing of 70 % alcohol. They were mounted on slides separately by using Faure Forte medium after cleared in lactophenol. Three species of lice: *Laemobothrion* (*Laemobothrion*) *maximum*, *Craspedorrhynchus platystomus*, *Colpocephalum nanum* were determined in microscopical examination. *Colpocephalum nanum* was reported for the first time from long-legged buzzards in Turkey.

**Key Words:** *Laemobothrion* (*Laemobothrion*) *maximum*, *Craspedorrhynchus platystomus*, *Colpocephalum nanum*, *Buteo rufinus*, Turkey

## Türkiye’de Kızıl Şahinlerde (*Buteo rufinus*) Bulunan Mallophaga Türleri

**ÖZET:** Bu araştırma, Kırıkkale Üniversitesi Veteriner Fakültesi’ne tedavi amacıyla getirilen üç adet kızıl şahin (*Buteo rufinus*) üzerinde yapılmış ve şahinlerden toplam 20 adet bit toplanmıştır. Toplanan bitler, içinde % 70’lik alkol bulunan tüplere alınmıştır. Laktofenolde saydamlaştırılan bitler daha sonra lamlara ayrı ayrı yapıştırılmışlardır. Mikroskobik incelemeler sonucunda, toplanan bitler *Laemobothrion* (*Laemobothrion*) *maximum*, *Craspedorrhynchus platystomus* ve *Colpocephalum nanum* olarak teşhis edilmişlerdir. Bu çalışma ile *Colpocephalum nanum* Türkiye’de kızıl şahinlerden ilk kez bildirilmektedir.

**Anahtar Sözcükler:** *Laemobothrion* (*Laemobothrion*) *maximum*, *Craspedorrhynchus platystomus*, *Colpocephalum nanum*, *Buteo rufinus*, Türkiye

## INTRODUCTION

The lice of Falconiformes have been studied by many authors in various parts of the world. Tendeiro (13) published a report on some Mallophaga of avies and gave a valuable informs about some species. Nelson and Price (7) studied many *Laemobothrion* specimens collected from 74 different species of Falconiformes. They have been identified four species: *L.tinnunculi*, *L.maximum*, *L.vulturis*, *L.glutinans* and created a key of the genus *Laemobothrion*. Gallego *et al.* (4) published a paper on the species of the genus *Craspedorrhynchus* of Falconiformes in Spain and gave an identification key for this genus. Bach and Eichler (2) described a new species, *Colpocephalum buteonis* (Syn: *Neocolpocephalum buteonis*) from *Buteo buteo buteo*. Price and Beer (9) reported and illustrated twenty-five species of *Colpocephalum* from Falconiformes. Tendeiro *et al.* (14) reported three species of *Colpocephalum*, two of them were new for Science in Sardinia. Pérez-Jiménez

*et al.* (8) reported six Mallophaga species: *Degeeriella fulva*, *Craspedorrhynchus platystomus*, *Laemobothrion* (*L.*) *maximum*, *L.iberum*, *Colpocephalum meridionale* and *Columbicola c.columbae* from the buzzard (*Buteo b.buteo*) in southern Spain. Price *et al.* (11) published a checklist for chewing lice and their identification keys of the worldwide. These authors (11) classified the genera of Mallophaga, and the lice species as to their hosts and illustrated that some important morphologic characters for identification of the species and all genera. Adam (1) collected many lice specimens from *Buteo buteo* in Romania belonging to the genera *Colpocephalum*, *Craspedorrhynchus* and *Degeeriella* and identified five species as *Colpocephalum flavescens*, *C.nanum*, *Craspedorrhynchus* sp., *Craspedorrhynchus platystomus* and *Degeeriella fulva*.

Present subject are not studies sufficiently in Turkey. There are only a few published studies on chewing-lice of falconiformes in Turkey. Kaya *et al.* (5) identified three species as *Laemobothrion* sp., *Craspedorrhynchus* sp. and *Degeeriella* sp. on long-legged buzzard (*Buteo rufinus*) in Central Anatolian Region of Turkey. Dik (3) also identified four lice species: *Laemobothrion maximum*, *Degeeriella fulva*, *Craspe-*

Geliş tarihi/Submission date: 07 Mayıs/07 May 2007  
Düzeltilme tarihi/Revision date: 29 Haziran/29 June 2007  
Kabul tarihi/Accepted date: 02 Temmuz/02 July 2007  
Yazışma /Corresponding Author: Meral Aydenizöz Özkayhan  
Tel: (+90) (318) 357 33 01 Fax: (+90) (318) 357 33 04  
E-mail: meralaydenizoz@hotmail.com

*dorrhynchus platystomus* and *Colpocephalum* sp. on long-legged buzzards in Konya province, in Central Anatolia, all of them were the first records for Turkey.

Present study is the first record for the *Colpocephalum nanum* on *Buteo rufinus* in Turkey.

## MATERIAL AND METHOD

During the years of 2005 and 2006, three long-legged buzzards (*Buteo rufinus*) were left for treatment to the Surgery Clinic of Veterinary Faculty, Kırıkkale University. A few lice were observed on the some parts of their bodies and they were collected by using a thin pens a petri dish. They were transferred in a tube which is containing 70% alcohol. They were mounted on slides by using Faure Forte medium after cleared in lactophenol. They were examined under a light microscope and identified species level.

## RESULTS

Twenty lice were collected from the buzzards. Three species: *Laemobothrion* (*L.*) *maximum* (Scopoli), 1763, *Craspedorhynchus platystomus* (Burmeister, 1838) and *Colpocephalum nanum* Piaget, 1890 were identified. *Colpocephalum nanum* was reported for the first time from *Buteo rufinus* in Turkey.

### *Laemobothrion* (*L.*) *maximum* (Scopoli), 1763

Material studied: 1 ♀

**Female:** The head narrowed in anterior. Sitophore sclerite of hypopharynx has two large holes, with an U-shaped structure. The palpes had four segments. Prosternal plate has four setae in anterolateral. Meso-metasternal plate was a short seta on each lateroanterior part. Subvulvar region was without pigmentation. It has two long and three short setae on each side (Fig. 2). Some measurement of *L. (L.) maximum*: Head length: 1,95 mm; Head width: 1,90 mm; Cephalic index: 1,03; Thorax length: 2,31 mm; Abdomen length: 6,56 mm; Abdomen width: 3,10 mm; Total length: 10,40 mm.

### *Craspedorhynchus platystomus* (Burmeister, 1838)

Material studied: 6 ♀♀, 4 ♂♂, 1 nymph

**Female:** Head is narrowed in front and cone shaped. The anterior margin of the head was concaved in medial. The clypeal signature is tongue shaped extended to posterior. The gular plate is subpentagonal. Thorax is relatively small and prothorax is narrowed in laterally. Abdomen is oval shaped. Paratergal plates are well-sclerotized and triangular (Fig. 3). Head length: 0,96-1,00 mm; Head width: 0,98-0,99 mm; Cephalic index: 0,98-1,01; Thorax length: 0,52-0,56 mm; Abdomen length: 1,09-1,27 mm; Abdomen width: 1,13-1,26 mm; Total length: 2,60-2,79 mm.

**Male:** It likes female (Fig. 4). Basal plate was relatively long and wide and closed anteriorly. Parameres were well-developed and slightly curved posteriorly. Head length: 0,86-0,87 mm; Head width: 0,77 mm; Cephalic index: 0,99-1,00;

Thorax length: 0,45-0,46 mm; Abdomen length: 0,97-1,06 mm; Abdomen width: 1,07-1,10 mm; Total length: 2,29 -2,40 mm.

### *Colpocephalum nanum* Piaget, 1890

Material studied: 3 ♀♀, 5 ♂♂

**Female:** Preocular and occipital regions are very dark. Two long setae were observed on each side of temple. Prothorax has five long and three short setae on each side marginally. Prosternal plate has four setae. Mesosternal plate has 9-10 setae. There are two ctenidia on each side of abdominal segment III. Tergocentral setae in female; II, 9; III, 10; IV, 7; V, 10; VI, 8; VII, 6; VIII, 6. Anus is indented dorsally (Fig.1 A). Post-spiracular setae were very long except on IV (Fig. 5). Head length: 0,37-0,41 mm; Head width: 0,52-0,54 mm; Cephalic index: 1,31-1,40; Thorax length: 0,25-0,35 mm; Thorax width: 0,45-0,47 mm; Abdomen length: 1,10-1,22 mm; Abdomen width: 0,65-0,67 mm; Total length: 1,76-1,94 mm.

**Male:** Like female (Fig. 6). The head possess preocular and occipital nodi. Occipital setae were very long. Prothorax has five long and three short setae on each side marginally. Prosternal plate has three setae. Metasternal plate has 9-13 setae. Post-spiracular setae were very long except on IV. Tergite IX had no anterior setae. Genital sclerite was without posterolateral projections. Penis was barbed (Fig.1 B). Head length: 0,36-0,41 mm; Head width: 0,45-0,50 mm; Cephalic index: 1,15-1,38; Thorax length: 0,32 mm; Thorax width: 0,40-0,41 mm; Abdomen length: 0,91-0,97 mm; Abdomen width: 0,55-0,58 mm; Total length: 1,58-1,66 mm.

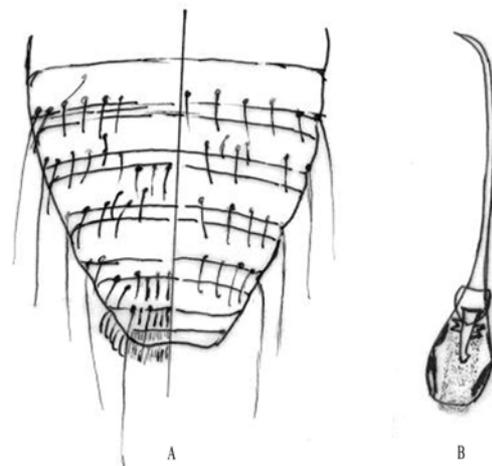
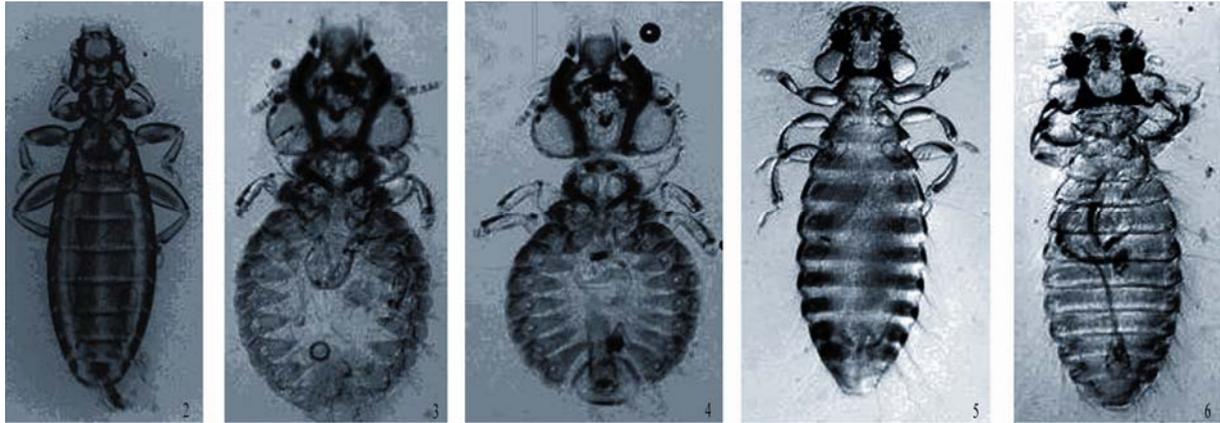


Figure 1. *Colpocephalum nanum*.  
A. Posterior end of female; B. Male genitalia

## DISCUSSION

There are many studies published on Mallophaga of Falconiformes in the worldwide. Nelson and Price (7) reported that proximodorsal aspect of femur II with no more than 4 stout spiniform setae, sitophore sclerite of hypopharynx with two



Figures 2. *Laemobothrion maximum*, female; 3. *Craspedorhynchus platystomus*, female; 4. *Craspedorhynchus platystomus*, male; 5. *Colpocephalum nanum*, female; 6. *Colpocephalum nanum*, male

large holes and there is medioanterior U or V shaped structure in *L. (L.) maximum*. According to Pérez-Jiménez *et al.* (8), dorsal forepart of femur II of female of *Laemobothrion (L.) maximum*, possesses less than 6 setae like spin, subvulvar region without pigmentation and bears particular chaetotaxy, which differs this species from others the genus. In this study, it was observed that four stout setae on proximodorsal part of femur II, postvulvar area without pigmentation and has two long and three short setae. Sitophore sclerite of hypopharynx has two big holes and medioanterior U shaped structure.

The clypeal signature is elongated with tongue shaped. Posterior extremes and gular plate were subpentagonal shaped and prosternal plate variable in both sexes in *Craspedorhynchus platystomus* (8). In this study, clypeal signature was elongated as tongue shaped and gular plate was subpentagonal in *C. platystomus*. Prosternal plate was triangular shaped. There are no setae on prosternal plate. Male genitalia and other morphologic characteristics were similar to those reported by Pérez-Jiménez *et al.* (8).

According to Price and Beer (9) the genus *Colpocephalum* characterized by combs of short spiniform setae restricted to the venter of femora III and abdominal sternite III, prominent preocular and occipital nodi, in female without ventral sclerites bearing setae between vulva and anus. Price *et al.* (11) classified the lice of falconiformes and they stated that the genus *Colpocephalum* had ctenidia on only one abdominal sternite and head with strong occipital nodi. Price and Beer (9) noticed that the species belonging to *flavescens*, *impressum*, *osborni*, *turbinatum*, *zerafae* and *chelictinae* groups have five long and three short setae on each side margin of prothorax. Dik (3) recorded *Colpocephalum* sp. from *Buteo rufinus* previously in Turkey. This author (3) stated that the male genitalia of *Colpocephalum* sp. resembles to *C. flavescens*, *C. turbinatum* and *C. nanum*. Nevertheless, latero-posterior projections of genital sclerites had not visible clearly due to the slides' poor condition and it may belonging to the *flaves-*

*ens*, *turbinatum* or *osborni* groups because of the penis barbed. Structure of penis had been considered as very similar to *C. flavescens* when text-figures of Price and Beer (9) are taken into account. Anus of female oval shaped as found in *C. flavescens* and not resemble to *C. nanum* and *C. turbinatum*'s. In present study, the specimens of the genus *Colpocephalum* had five long and three short setae on each side of prothorax. Anus of female indented dorsally as located in *C. nanum*. In male, genital sclerite has no postero-lateral projections and penis was barbed. These characteristics no resemble to the *Colpocephalum* sp. which was recorded by Dik (3), previously, however similar to the *C. nanum*'s. Pérez-Jiménez *et al.* (8) reported as a new species *Colpocephalum meridionale* from the buzzard (*Buteo b. buteo*) in southern Spain. However, Price *et al.* (10) stated that *C. meridionale* was a new synonym of *C. nanum*. Séguéy (12) recorded that the length of *C. nanum* is 1,25 mm, and the host of this species is *Larus canus*. According to Martin-Mateo (6) the length of *C. nanum* is 1,26-1,44 mm in male and 1,52-1,70 mm in female. In this study, the lengths of specimens of *C. nanum* varied among 1,58-1,66 mm in male and 1,76-1,94 mm in female. Price and Beer (9) and Martin-Mateo (6) stated that the host of *C. nanum*, *Larus canus* in Piaget's description is wrong and they considered that the host of this species had *Buteo (b.) buteo*. Adam (1) has also been recorded that *C. nanum* from *Buteo buteo* in Romania.

In conclusion, *Laemobothrion (L.) maximum* and *C. platystomus* were recorded from long-legged buzzards in Turkey previously. However *C. nanum* was reported for the first time from *Buteo rufinus* in Turkey and it is also a louse species of *Buteo rufinus* as *Buteo buteo*.

## REFERENCES

1. Adam C, 2003. Chewing Lice (Phthiraptera: Amblycera, Ischnocera) collected on some bird species of Romania. *Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa"*. 45: 159-172.

2. **Bach G, Eichler WD**, 1954. Federlinge in Federspulen. *Monatshfte für Veterinaermedizin*, 9: 12-14.
3. **Dik B**, 2006. Mallophaga species on long-legged buzzards (*Buteo rufinus*). New Records from Turkey. *Turkiye Parazitol Derg*, 30 (3): 226-230.
4. **Gallego MP, Martin Mateo MP, Aguirre YJM**, 1987. Malofagos de Rapaces Espanolas. II. Las Especies del Género *Craspedorhynchus* Keler, 1938 Parasitas de Falconiformes, con Descripsion de Tres Especies Nuevas. *Eos*, 63: 31-66.
5. **Kaya Ü, Vaassen EWAM, Yavuz E, Gülanber A**, 2001. Chewing-lice (Mallophaga- Phthiraphtera) Fauna on Long-Legged Buzzard (*Buteo rufinus*) in Central Anatolia, Turkey. 4<sup>th</sup> *Eurasian Congress on Raptors, September, 25-29, Sevilla-Spain*.
6. **Martin Mateo MP**, 2002. Mallophaga, Amblycera. Fauna Ibérica, 20. In: *Ramos, M.A. et al* (ed.), Museo Nacional de Ciencias Naturales (CSIC), Madrid, p. 187.
7. **Nelson RC, Price RD**, 1965. The *Laemobothrion* (Mallophaga: Laemobothridae) of the Falconiformes. *J Med Entomol*, 2: 249-257.
8. **Pérez-Jiménez JM, Soler-Cruz MD, Benitez-Rodriguez R, Diaz-Lopez M, Ruiz-Martinez I**, 1988. Mallophaga of *Buteo b.buteo* in southern Spain. *Angewandte Parasitologie*, 29: 189-200.
9. **Price RD, Beer JR**, 1963. Species of *Colpocephalum* (Mallophaga: Menoponidae) Parasitic upon the Falconiformes. *The Canadian Entomologist*, 95: 731-763.
10. **Price RD, Palma RL, Hellenthal RA**, 1997. New synonymies of chewing lice (Phthiraptera: Amblycera, Ischnocera) described from the Falconiformes (Aves). *European J Entomol*, 94: 517-545.
11. **Price RD, Hellenthal RA, Palma RL, Johnson KP, Clayton DH**, 2003. The Chewing Lice: World checklist and biological overview. Illinois Natural History Survey Special Publication. p. 24 x + 501.
12. **Séguy E**, 1944. Insectes Ectoparasites (Mallophages, Anoploures, Siphonaptères), 43. Faune de France. Paul Lechevalier et Fils, Paris. p. 684.
13. **Tendeiro J**, 1955. Estudos Sobre Uma Colecção de Malofagos de Aves. *Do Boletim Cultural Da Guine Portuguesa*, 35: 497-625.
14. **Tendeiro J, Miranda de Restivo MA, Mocci Demartes A**, 1979. Sur Trois Especies du Genre *Colpocephalum* Nitzsch (Mallophaga: Menoponidae), Parasites de Falconiformes de la Sardaigne. Garcia de Orta. *Séries Zoologie Lisboa*, 8: 29-38.