The Presence of Chewing Lice (Insecta: Phthiraptera) Species on Wild Quails (Coturnix coturnix)

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Abstract: This research was conducted to determine species of chewing lice (Phthiraptera) on wild quails (Coturnix coturnix). For this purpose, 30 wild quails obtained in different areas of Elazig province (the Eastern Anatolian region) of Turkey in 2006 and 2008 during the hunting season between August-October were examined in terms of ectoparasites. It was established that 19 (63.33%) wild quails were infested with at least one chewing lice species. A total of 53 chewing lice were collected from the infested quails and the diagnosis of them led to the discovery of three different species. Of the infested quails, 6 (31.58%) were found to have Menacanthus abdominalis, 12 (63.15%) were found to have Cuculogaster cinereus and 1 (5.27%) was found to have Goniodes astrocephalus. In this study, the evidence of Menacanthus abdominalis, Goniodes astrocephalus and Cuculogaster cinereus on wild quails is reported for the first time in Turkey.

Key words: Chewing lice, quail, Coturnix coturnix, M. abdominalis, C. cinereus and G. astrocephalus, Turkey

INTRODUCTION

Species of chewing lice (Phthiraptera: Amblycera, Ischnocera) have a significant place among the winged ectoparasites. The wild birds are often infected with chewing lice ectoparasites (Keymer, 1972). Chewing lice living mainly on the feathers, ischnocerans lice feed on keratinized cells and feathers of the host skin and their movement causes irritation, weakening, shedding of feathers and a decrease in productivity, while living mainly on the skin, amblyceran lice feed on blood and lymph fluid, may cause irritation of the skin, restlessness, overall weakening, cessation of feeding, loss of weight, inferior laying capacity and skin lesion that may become secondary infection and are therefore more pathogenic, causing death in cases of heavy infestation (Mullen and Durden, 2002). It was reported in studies carried out in various countries that quails were infested with M. abdominalis, C. cinereus and G. astrocephalus (Aguirre and Gallego-Berenger, 1984; Doster et al., 1980; Kellogg and Chapman, 1899; Rekasi et al., 1997; Otify, 1988). Price et al. (2003) reported that the M. abdominalis, C. cinereus and G. astrocephalus were found on galliformes (Phasianidae) suborder of birds.

However, Martin-Mateo (2006) stated that M. abdominalis, C. cinereus and G. astrocephalus were found on wild quails in Spain.

Manila and Cicolani (1985) recorded that they found G. astrocephalus and Amyridea sp. on quail (Coturnix coturnix). There is very little information on species of chewing lice on wild quails. This study was conducted to determine species of chewing lice on wild quails in Turkey.

MATERIALS AND METHODS

Collection of wild quail: The present survey was conducted to determine species of chewing lice on wild quails. For this purpose, 30 wild quails (Galliformes: Phasianidae) captured from different areas of Elazig province (the Eastern Anatolian region) of Turkey in 2006 and 2008 during the hunting season between August-October were killed. Each quail was brought to the laboratory in a transparent bag and their protocols were noted.

Laboratory method and identification: Transparent bag was placed immediately on freezing until it could be examined for ectoparasites. Each frozen quail was kept for approximately 30 min at room temperature before inspection. Thereafter, each quail was placed in a white tray and thoroughly brushed for collection of ectoparasites.

The ectoparasites were collected under a stereomicroscope by needle. The lice collected were transferred into petri dishes containing 70% alcohol and each dish was assigned a number. The lice were kept in lactophenol for 7 days for the transparenting procedure. Transparented lice were mounted on slides with Foure Forte medium and examined under a microscope. Transparented lice were examined under a microscope.
were infested with at least one ectoparasite species. A total of 53 samples of chewing lice belonging to three species were collected from wild quails. The *M. abdominalis* male of this species is 1.6 mm in length and the female is 1.8 mm in length (Fig. 1).

The *C. cinereus* male of this species is 1.6 mm in length and female is 1.7 mm in length (Fig. 2). The *G. astrocephalus* male of this species is 3 mm in length and the female is 2.2 mm in length (Fig. 3). The prevalence of chewing lice species on infested quails is as follows: 6 (31.58%) *M. abdominalis*, 12 (63.15%) *C. cinereus* and 1 (5.27%) *G. astrocephalus* (Table 1).

The highest number of ectoparasites collected from the infected quails are 26 (49.05%) *C. cinereus* which was followed by 17 (32.08%) *M. abdominalis* and the lowest numbers collected are 10 (18.37%) *G. astrocephalus* (Table 2).

*C. cinereus* was found with the highest prevalence, abundance and mean intensity, followed *M. abdominalis* was found with the medium prevalence, abundance and mean intensity, while *G. astrocephalus* showed the lowest prevalence abundance and mean intensity of infestation (Table 1). A total of 53 chewing lice were collected in accordance to stage of development are shown in Table 2.

There is only a limited number of studies about the species of chewing lice on wild and domestic quails. Species *M. abdominalis*, *C. cinererus* and *G. astrocephalus* are common on quail birds (Aguirre and Gallego-Berenger, 1984; Doster et al., 1980; Kellog and Chapman, 1899; Reyes et al., 1997; Otify, 1988).

Ansanli (1951) reported that the measurements of *M. abdominalis* male 1.653-1.290 mm in length and the female 1.819-1.924 mm in length. According to the same researcher (1947) described that the measurements *C. cinererus* male 1.478-1.665 mm length and the female 1.692-1.906 mm length, while the species *G. astrocephalus* male 2.051-0.605 mm length and female 1.199-1.924 mm length. Doster at al. (1980) reported that they found 13% *M. praire*, 25% *Colincola uncinata*, 47% *Colincola obtusa* and 63% *Oxyplectes clavatus* on bobwhite quails (Colinus virginianus) in southeastern states. Mania and Ciocan (1985) recorded that they found *G. astrocephalus* and *Amynoridea* sp. on quail (Coturnix coturnix) in Abruzzo.

### Table 1: Cheewing lice collected from wild quails on a host of species distribution (prevalence, abundance, mean intensity)

<table>
<thead>
<tr>
<th>Cheewing Lice species collected</th>
<th>No. of host insects examined (%)</th>
<th>Prevalence</th>
<th>Abundance</th>
<th>Mean intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Menacanthus abdominalis</em></td>
<td>6/50</td>
<td>31.66</td>
<td>66.67</td>
<td>89.47</td>
</tr>
<tr>
<td><em>Cuculogaster cinererus</em></td>
<td>12/50</td>
<td>63.15</td>
<td>66.67</td>
<td>156.84</td>
</tr>
<tr>
<td><em>Goniodes astrocephalus</em></td>
<td>15/50</td>
<td>5.27</td>
<td>33.33</td>
<td>52.63</td>
</tr>
<tr>
<td>Total</td>
<td>19/50</td>
<td>63.33</td>
<td>196.66</td>
<td>278.94</td>
</tr>
</tbody>
</table>

**Statistical analysis**: The following statistical analyses were carried out after Margolis et al. (1982).

**RESULTS AND DISCUSSION**

Out of the 30 wild quails examined throughout the study, ectoparasites were found on 19 (63.33%) and quails
Table 2: Species and numbers of chewing lice collected from infeete quail in according to the development phase

<table>
<thead>
<tr>
<th>Ectoparasite sp.</th>
<th>Infestation rate % (Female/total) (n)</th>
<th>Infestation rate % (Male/total) (n)</th>
<th>Infestation rate % (immature/total) (n)</th>
<th>Infestation rate % (total) (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. abdominalis</td>
<td>16.98 (9/53)</td>
<td>11.32 (6/53)</td>
<td>5.78 (2/53)</td>
<td>32.08 (17/53)</td>
</tr>
<tr>
<td>C. cinereus</td>
<td>22.64 (12/53)</td>
<td>18.87 (10/53)</td>
<td>7.54 (4/53)</td>
<td>49.05 (26/53)</td>
</tr>
<tr>
<td>G. astrocephalus</td>
<td>11.32 (6/53)</td>
<td>7.54 (4/53)</td>
<td>-</td>
<td>18.87 (10/53)</td>
</tr>
<tr>
<td>Total</td>
<td>50.94 (27/53)</td>
<td>37.73 (20/53)</td>
<td>11.32 (6/53)</td>
<td>100 (53)</td>
</tr>
</tbody>
</table>

Khan et al. (2008) reported that M. abdominalis and C. cinereus on the grey quails. In the present study, out of the 30 wild quails examined, 19 (63.33%) were infested with 6 (31.58%) with M. abdominalis, 12 (63.15%) C. cinereus and 1 (5.27%) G. astrocephalus. Species of lice recorded on wild quails in this study are consistent with the report cited earlier.

CONCLUSION

In this study, the evidence of Menacanthus abdominalis, Goniodes astrocephalus and Culicotorax cinereus on wild quails is reported for the first time in Turkey.

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REFERENCES


