The ectoparasite fauna of feral pigeon populations in Hungary

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ABSTRACT. A faunistical study of ectoparasites was carried out in 1988 on two feral pigeon populations in an urban and in a farmland area of Hungary. Samples consisting of 120 birds each were collected in both areas. The data of occurrence of Columbicola columbae columbae, Campomolotes bidentatus compar, Bonomiella columbae, Hohorstiella lata (Mallophaga) and Mesonyssus meloi, Dermanyssus gallinae, Dermoglyphus columbae, Falculifer rostratus, Diplaegidia columbae (Acarina) are described.

KEY WORDS: ectoparasite, feral pigeon, Columba livia, Mallophaga, Acarina, Hungary

INTRODUCTION

The domestic pigeon (Columba livia var. domestica) is one of the very few domestic animal species which has a feral variety widely distributed all over the world.

A good knowledge of the pathogenic agents of feral populations is needed to understand the epidemiology of diseases of the domestic stocks. The aim of this study was to identify the ectoparasite fauna of feral pigeons in Hungary.

Similar faunistical studies have been carried out e.g. in Egypt (SELIM et al. 1968), in Czechoslovakia (CERNY 1970) in the USA (BROWN 1971) and in Yugoslavia (KULISIC 1988).

MATERIALS AND METHODS

Two sample areas were chosen in order to represent different environments maintaining different biological communities. One of them was an urban area in the inner city of Budapest, and the other was a scarcely inhabited farmland area near Kerekegyháza, in Hungary.
Table 1. Prevalence (P) and mean intensity (I) of the most common ectoparasite species.

<table>
<thead>
<tr>
<th></th>
<th>Farmland</th>
<th>City</th>
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<tbody>
<tr>
<td></td>
<td>P</td>
<td>I</td>
</tr>
<tr>
<td>Columbicola columbae columbae</td>
<td>92</td>
<td>17.9</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>16.6</td>
</tr>
<tr>
<td>Campanulotes bidentatus compar</td>
<td>77</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>4.9</td>
</tr>
<tr>
<td>Mesonyssus melloi</td>
<td>23</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>10.3</td>
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Table 2. Number of specimens of three mite species.

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<tr>
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</thead>
<tbody>
<tr>
<td>Dermanyssus gallinae</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Dermoglyphus columbae</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Falculifer rostratus</td>
<td>27</td>
<td>10</td>
</tr>
</tbody>
</table>

Legend to the figures

Fig. 1: *Columbicola columbae columbae*, imago, female  scale bar 1.0 mm
Fig. 2: *Campanulotes bidentatus compar*, imago, male  scale bar 0.5 mm
Fig. 3: *Bonomiella columbae*, imago, female  scale bar 0.5 mm
Fig. 4: *Hohorstiella lata*, nymph  scale bar 0.5 mm
Fig. 5: *Mesonyssus melloi*, imago, female  scale bar 0.5 mm
Fig. 6: *Mesonyssus melloi*, nymph  scale bar 0.5 mm
Fig. 7: *Dermanyssus gallinae*, imago, female  scale bar 1.0 mm
Fig. 8: *Falculifer rostratus*, imago, male  scale bar 1.0 mm
Fig. 9: *Dermoglyphus columbae*  scale bar 0.5 mm
Fig. 10: *Dermoglyphus columbae*, with eggs in opisthosoma  scale bar 0.5 mm
Fig. 11: *Diplaegidia columbae*, imago, male  scale bar 0.2 mm
Fig. 12: *Diplaegidia columbae*, imago, female  scale bar 0.2 mm
One hundred and twenty birds each were collected in both areas throughout 1988. The birds were captured by mistnet in the roofs or by traps at feeding sites. Nestlings and temporary ectoparasites inhabiting nests were not involved in the study.

The captured birds were caged for a few days (max. 7) and killed with CO₂.

Nasal mites (*Mesonyssus mellot*) were collected by visual examination of the nasal passages.

The number of feather-mites (*Diplaegidia columbae*) was estimated visually, the levels of infestation were categorized as: no mites (0), several (1), several dozens (2), or several hundreds (3) of individuals.

Biting lice were collected manually by thorough examination of the plumage. It took at least 10 minutes per bird, or much more in cases of heavy infestation. In fact not all parasites were collected, so the numbers of lice are rather estimations.

The identification of louse species was based on the work of ZLOTORZYCKA et al. (1974) and RIBBECK (1972). Mite species were identified according to the works of DUBININ (1951), KRANTZ (1978), MACCHIONI and MARCONCINI (1976), UBEDA-ONTIVEROS et al. (1978) and ZAMUDIO (1988).

### RESULTS

#### 1. MALLOPHAGA

Four species of biting lice were identified during the survey. The prevalence and the mean intensity of the two dominant species, *Columbicola columbae columbae* (L., 1758) (Fig. 1) and *Campanulotes bidentatus compar* (Nitzsch, 1838) (Fig. 2) are presented in Table 1.

Nine specimens of *Bonomiella columbae* Emerson, 1957 (Fig 3) were collected in Budapest and one in the farmland area.

Twenty-four individuals of *Hohorstiella lata* (Piaget, 1880) (Fig. 4) were collected in Budapest.

<table>
<thead>
<tr>
<th>Farmland</th>
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<tbody>
<tr>
<td>no individuals</td>
<td>32</td>
</tr>
<tr>
<td>several individuals</td>
<td>39</td>
</tr>
<tr>
<td>several dozens of individuals</td>
<td>36</td>
</tr>
<tr>
<td>several hundreds of individuals</td>
<td>13</td>
</tr>
</tbody>
</table>
2. **ACARINA**

*Mesonyssus melloi* (Castro, 1948) (Figs 5-6) was the only nasal mite species identified during the survey. Its prevalence and average intensity are shown in Table 1.

A few specimens of *Dermanyssus gallinae* (De Geer, 1778) (Fig. 7) *Dermoglyphus columbae* (Sugimoto, 1942) (Figs 9-10) and *Falculifer rostratus* (Buchholz, 1869) (Fig. 8) were collected in both areas (Table 2).

*Diplaegidia columbae* (Buchholz, 1869) (Figs 11-12) was not found in Budapest at all while it was the most abundant arthropod species in the farmland area. Since it was not feasible to count all these mites, four categories of infestation have been defined on the base of the estimated number of specimens (Table 3).

**DISCUSSION**

To the author’s knowledge, the biting louse *Bonomiella columbae* has not been recorded previously in Hungary. Since the present study seems to be the first survey of parasitic mites of pigeons in Hungary, practically all the mite species mentioned here are new to our fauna, with *Dermanyssus gallinae* as the only exception.

The ectoparasite fauna of the two feral pigeon populations proved to be quite similar, except the occurrence of *Diplaegidia columbae* which species was absent from Budapest but numerous in the farmland area.

**ACKNOWLEDGEMENT**

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REFERENCES


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