



Scientific Communication

STUDY ON THE DEGREE OF PARASITISM OF RHINONYSSID NASAL MITES (PARASITIFORMES: GAMASINA) ON BIRDS IN THE LENINGRAD PROVINCE DURING THE SPRING AND SUMMER SEASONS

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ABSTRACT

The studying Rhinonyssid taxonomy is engaged many researchers all over the world. Russia is a place for much of the published research on the nasal mites. But Leningrad region was not investigated yet. The present note is based on 21 weeks intensive field collecting in Leningrad province. For the period March-July 2010 in the Leningrad province were studied 671 specimens, which relate to 23 species, 18 genera, 13 families, 5 orders. 85 specimens (13%) out of all examined birds were parasitized by Rhinonyssidae. Parasite mites belong to the genera *Ptilonyssus* and genera *Tinaminyssus*.

Key words: Rhinonyssidae, nasal mites, birds

INTRODUCTION

Rhinonyssid mites are endoparasites that live in the nasal cavities of birds in their tracheas and lungs. They are the most numerous living group of mites, parasitizing in birds. Rhinonyssid are at least 500 described species of avian nasal mites worldwide [1]. They are viviparous, produce larvae in which the nymphs are already developed [2]. Rhinonyssid mites live generally in the mid-portion of the nasal cavity, which is covered with mucous membrane and highly vascularized. They are large, lightly sclerotized, sluggish and reddish-brown to transparent depending on their state of engorgement with blood [3]. Co-parasitism is fairly common among the Rhinonyssidae, where two or three species infect the same host [4]. Rhinonyssid mites are transmitted in direct form via the oral route, or when infested adult birds regurgitate food to their nestlings or during courtship behavior. Indirect transmission has been detected through water, perches, or other contaminated surfaces [5]. Research works in Russia on mites belonging to the Rhinonyssidae family date back to the 1930s. In the 1950s the scientific works of Bregerova, Butenko, Issakova, Shumillo and

Lunkashu were published, where new essential information was delivered on the mites's varieties present in the Rhinonyssidae family. Extremely valuable has been Butenko's contribution to the studies on Rhinonyssidae on Russian territory. As of today, the scholars who are engaged in research work on Rhinonyssidae in Russia are Butenko, Stanykovich and Dimov[6,7,8,9] The aim of the study is to determine the degree of parasitism of Rhinonyssidae mites on birds in the Leningrad province during the spring - summer period of 2010.

MATERIALS AND METHODS

The birds came primarily from five Leningrad province areas: Koltushi, Voibocalo, Volhovstroi, Tihvin, Radogosh. Results to date have been most gratifying, and a wealth of new records and species is under study. Many of birds were collected by mist nets, some were found dead along the roadways, and several were donated by friends. Usually the birds were frozen until it was convenient to examine them. All mites were collected from all birds by dissecting the host's nasal cavities. The hosts were decapitated and the dissected heads were placed in a glass dish with 80% ethanol and examined under a dissecting stereomicroscope. All mites were preserved in 70% ethanol.

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RESULTS AND DISCUSSION

The present discussion gives out the preliminary results of a vast research work conducted on the Leningrad province territory.

For the period from March to July 2010 in the Leningrad province were studied 671 specimens of birds, which relate to 23 species, 18 genera, 13 families, 5 orders. (**Table1**).

Table1. Orders of birds examined for nasal mites in Leningrad region and numbers of host families, genera, and species examined from each order.

Host order	N: of host families	N: of host genera	N: of host species
Passeriformes	8	13	17
Charadriiformes	2	2	3
Piciformes	1	1	1
Falconiformes	1	1	1
Columbiformes	1	1	1
Total	13	18	23

85 specimens (13%) out of all examined birds were parasitized by Rhinonyssidae. What has been noticed is that among 23 species from distant orders, 14 species turned out to be hosts of Rhinonyssidae. Except from *Corvidae*, birds from almost all orders were parasitized by mites. Considering the limited number of birds studied, there is a wide distribution of Rhinonyssidae mites on hosts in the Leningrad province. The percentage of parasitized birds with Rhinonyssidae mites in the Leningrad

province for the March-July period 2010 is: *Pinicola enucleator* – 50%, *Carduelis carduelis* – 9%, *Turdus pilaris* – 13%, *Riparia riparia* – 25%, *Sturnus vulgaris* – 7%, *Motacilla alba* – 8%, *Passer montanus* – 18%, *Passer domesticus* – 11%, *Sylvia curruca* – 32%, *Larus ridibundus* – 36%, *Larus argentatus* – 30%, *Sterna hirundo* – 43%, *Dendrocopos major* – 38%, *Columba livia* – 9%. (**Table2**).

Table2. Orders, families and species of birds examined for nasal mites in Leningrad region; number of individuals examined number of individuals with mites.

Host order	Host family	Host species	N: of individuals examined	N: of individuals with mites
Passeriformes	Fringillidae	<i>Pinicola enucleator</i> L.	6	3
		<i>Carduelis carduelis</i> (L.)	47	4
		<i>Spinus spinus</i> (L.)	14	0
		<i>Carduelis chloris</i> (L.)	18	0
	Turdidae	<i>Luscinia megarynchos</i> Brehm	7	0
		<i>Turdus pilaris</i> L.	61	8
	Hirundinidae	<i>Riparia riparia</i> (L.)	16	4
		<i>Hirundo rustica</i> L.	22	0
	Sturnidae	<i>Sturnus vulgaris</i> L.	71	5
	Motacillidae	<i>Motacilla alba</i> L.	85	7

	Ploceidae	<i>Passer montanus</i> (L.)	56	10
		<i>Passer domesticus</i> (L.)	9	1
	Corvidae	<i>Corvus cornix</i> L.	21	0
		<i>Corvus monedula</i> L.	5	0
		<i>Pica pica</i> (L.)	12	0
		<i>Corvus corax</i> L.	6	0
	Sylviidae	<i>Sylvia curruca</i> (L.)	28	9
Charadriiformes	Laridae	<i>Larus ridibundus</i> L.	25	9
		<i>Larus argentatus</i> Pontopp.	30	9
	Sternidae	<i>Sterna hirundo</i> L.	7	3
Piciformes	Picidae	<i>Dendrocopos major</i> (L.)	8	3
Falconiformes	Accipitridae	<i>Accipiter nisus</i> (L.)	1	0
Columbiformes	Columbidae	<i>Columba livia</i> (Gmelin)	116	10
Total			671	85

This research's result is the defining of the degree of parasitism of Rhinonyssidae mites on birds in the Leningrad province for the period of May-July as well as the determination of the mites genus belonging, by means of different keys: Fain, 1957, Domrow, 1968, Pence, 1975, Butenko, 1984, Knee, 2010. Parasite mites belong to the genera Ptilonyssus and Tinaminyssus. Studying of Rhinonyssid mites is very important because is a high probability that these nasal mites can be carriers of infectious diseases.

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