

Biodiversity of Bird Helminths in Natural and Transformed Biocenoses of Uzbekistan

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Abstract

The article involves information on the biodiversity of bird helminths in biocenoses of natural and urban areas of Uzbekistan.

Keywords: Biocenoses, Cestodes, Orthoptera, Birds, Biodiversity, Pheasant, Black Crow, Indian Sparrow, Helminth.

INTRODUCTION

Birds, unlike other classes of vertebrates, have a more extensive habitat, different parts of which differ significantly in natural and climatic conditions. This has a certain influence not only on the taxonomic structure of bird helminths in general, but also on the composition of their helminths in certain biocenoses.

Under analyzing our material on the characteristics of the distribution of bird helminths in various environmental conditions, biocenoses were identified, which are characterized by originality; structure of helminth fauna complexes. It was established that the determining factors in this are, on the one hand, the physiographic and hydrological conditions of the area, the vegetation cover and the composition of vertebrates and invertebrates of these biocenoses, on the other hand, the ecology of the hosts (final, intermediate, reservoir) involved in all links in the formation of parasitic systems.

An important role in the formation of the structure of the helminth fauna in biocenoses is also played by the degree of influence of the anthropogenic factor on them, where the length of stay of birds in certain biocenoses should also be taken into account.

RESULTS AND DISCUSSION

In the biocenoses of the coasts of rivers and sais, 4 species of cestodes (*Amoebotainia cuneata*, *Dilepis undula*, *Paradilepis scolicina*, *Cloacotaenia megalops*), 4 species of trematodes (*Echinostoma revolutum*, *Ech.transfretanum*, *Bilharziella polonica*, *Lyperosomum coraci*) are widespread among birds; *P. minutus*, *Prosthorhynchus transversus*) and 3 nematode species (*Contraecaecum spicullgerus*, *Tetrameres fissispina*, *Amidostum falicae*). This is due to the presence here of a large number of final and intermediate (earthworms, molluscs, crustaceans) hosts of these helminth species, the specifics of their ecology, and such favorable natural conditions (moist soil, dense vegetation) for the survival, preservation and increase of the noted parasitic units.

Pheasant, black crow, Indian sparrow, blackbird, rooks and other birds are permanent inhabitants in the biocenoses of tugai thickets, characterized by a peculiar shrub and woody vegetation, for which 2 species of cestodes (*Raillietina frontina*, *R. taiwanensis*) are characteristic helminths, 4 species of akontocephalus (*Sphaerirostris teres*, *S.turdi*, *Mediorhynchus armenicus*, *M.microcanthus*) are noted in these biocenoses as mass species. Favorable conditions have been created here for the development of parasitic worms and intensive exchange of helminths between birds of various systematic groups (high humidity during the intense summer heat, dense thickets, and poor air circulation).

The main part of the territory of the mountains is occupied by mixed forests, which orchards and pastures with mixed herbs, trees, and shrubs. The natural conditions here are characterized by an abundance of precipitation, a relatively humid climate, low air and soil temperatures, rich vegetation, etc., which creates favorable conditions for the development of many types of helminths, especially nematodes that develop without intermediate hosts (geohelminths).

These biocenoses are dominated by 4 species of cestodes (*Mesocestoides perlatus*, *choanotaenia passerina*, *Ch. constricta*,

Passerilepis crenata), trematodes of the family *Brachylaemidae* and *Dicrocoellidae*, associated in their development with terrestrial mollusks. *Sphaerostris teres*, *S.turdi*, *Mediorchinchus armenicus*, *M.microcanthus* dominate among acontacephalus. The helminth fauna of birds in pasture biocenoses is mainly characterized by the presence of species whose development is associated with orthoptera, beetles, soil mites and other invertebrate inhabitants of open spaces. Representatives of the class of cestodes (*Mesocestoides perlatus*, *Passerilepis crenata*) and nematodes (*Ascaridia galli*, *Capillaria obsignata*, *Heterakis gallinarum*) dominate here.

The natural conditions of these biocenoses adversely affect the survival of the embryonic stages of helminths and the vital activity of some moisture-loving invertebrates, which creates certain difficulties in the circulation and maintenance of the development of certain groups of parasitic worms [1,2,3,4].

The helminthological status of poultry farms largely depends on the technology of its management. In large poultry farms with a cellular method of keeping chickens, a slight "survival" of helminths was revealed. On poultry farms, especially with a vast walking area, the species composition of helminths is quite diverse, and the extensiveness of infection of birds with pathogens of the main helminthiases (ascaridiosis, heterakidiasis, capillariasis, etc.) is quite high (75-89%) [5,6].

The most common helminths on poultry farms. In these types of farms, infection of chickens with ascaris reached 40-90%, with heterakis - 51-54%, cestodes were also noted (rayetinin: 0.6-4.1%) Infestation of chickens with several types of helminths was often observed (mixed invasion).

The helminth fauna of birds in orchards and vegetable gardens has some similarities with natural biocenoses, however, the main factors limiting the development of parasitic worms in these conditions are the impact on birds of agrotechnical measures and the use of chemicals as fertilizers, herbicides, insecticides, etc., which is unconditional affects the parasitological situation. Cestodes (*Raillietina taiwanensis*, *Choanotaenia passerina*, *Passerilepis crenata*) and *acanthocephals* (*Sphaerostris teres*, *Prosthorhynchus transversus*) are the most frequent here.

Cities, as you know, make up the bulk of the urbanized areas of our region. It is characterized by exceptional originality of environmental conditions - relatively high air temperature, pollution of water, atmosphere, soil, green spaces, etc. Nevertheless, in recent years, a peculiar avia fauna has formed here - Indian starling, black crow, magpie, large and small turtledoves, blackbird, tree sparrow, living in mass form. Among helminths under these conditions, 4 species of cestodes prevailed (*Raillietina echinobothrida*, *R. frontina*, *Scriabinia cesticullus*, *Chaonotaenia infundibulum*). A large presence of invertebrates (woodlice, ants, beetles, and others) was found in biotopes with tree plantations, in wastelands with grassy and shrubby vegetation, contributing to the creation and functioning of the following helminthic foci (*Scriabinia cesticarioca*, *Hymenolepis fraterna*, *Dispharynx nasuta*).

We note that the most diverse helminth fauna among birds was on the coasts of water bodies, riparian forests, mountain forests, and pastures belonging to biocenoses of natural zones. In these biocenoses, 17.25 % and 31 species of helminths were recorded in birds, respectively, with an invasion intensity of 2.76 and 33.3%. The diversity of the species composition of helminths in the studied biocenoses is determined by the diversity of the invertebrates of various systematic groups living in them and natural conditions favorable for the survival of invasive elements.

The helminthic fauna of most bird species (rock and brown dove, roller, gray shrike) tends to be depleted. However, under the conditions of anthropo pression with an intensive exchange of helminths between wild and domestic birds in such synanthropic species of birds as the Indian common starling, black crow, field sparrow, large and small doves, the extensiveness of infection with parasitic worms remains quite high (54.7-66.5%).

CONCLUSION

The distribution of helminthiases in various biocenoses among birds is less pronounced than in other pears of vertebrates. This is especially evident in the environment of migratory birds and birds with a wide habitat, which in most cases leads to a mosaic distribution of parasitic worms. Nevertheless, in many species of helminths, a noticeable confinement to certain biocenoses is observed, which is associated with biological (intermediate host, high degree of attendance and accumulation of birds, degree of saturation of the environment with invasive elements), ecological, anthropogenic and other patterns.

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