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MODERN CONDITION OF FAUNISTIC COMPLEXES OF ACARIAN IXODID IN ARID ZONES OF UZBEKISTAN

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ABSTRACT
Some features of fauna of Ixodid Banks acarian, their landscape distribution and ecology are studied. In total 18 species of acarians which belonging to 6 genus are revealed: *Ixodes*, *Haemaphysalis*, *Boophilus*, *Dermacentor*, *Rhipicephalus*, *Hyalomma* And to two subfamilies - Ixodinae and Amblyommatinay. Habitat distribution of acarians community and seasonal dynamics of ixodicy of demestic, wild, hunting-commercial animals and birds are defined.

KEYWORDS: Ixodinae and Amblyomminay seasonal dynamics, acarian, fauna, ecology, taxonomy.

Ixodoid acarians (Ixodoidea) is one of the most medically and veterinary studied groups of parasitic arthropods. It is known that on the feature of links with hosts and on the types of habitats among Ixodoid acarians they distinguish groups of species with pasturable trapping and nidicolous and hole types of parasitism (Beklemishev, 1954; Balashov, 1982; Alekseyev, Kondrashova, 1985). According to this concept, nidicolous and hole types of parasitism inherent to arghaz acarians, and all their life cycle, including feeding in the host, occurs in holes, nests, constructions of biotopes occupied by them. Pastoral – trapping - parasitism inherent to Ixodoid acarians. In Uzbekistan, representatives of Ixodoid acarians are presented with subfamily of Ixodinae and Amblyomminay. They are widely spread in land coenosis and parasitize at domestic and wild animals (Uzakov, 1972; Kuklin, 1976). Considered acarians also are carriers of some dangerous transmissible illnesses of animals and a man (Alekseyev, 1993; Lacey, Frutos, 2001; Rasulov, 2003; Abdurasulov, 2006). Spending the most part of the life out of a body of the host, studied acarians, as well as others free living organisms, depend on joint influence of many abiotic and biotic factors on them. Geographical areas of species of these acarians in many respects correspond to distribution in zones suitable for their existence (Agrinsky, 1962; Balashov, 1982). The landscape shape of Uzbekistan consists of: flat (irrigated, steppe, deserted), foothill and mountain zones. It is characterized first of all by climatic features and expressed in changes of zone types of vegetation and a soil cover. Research of faunistic complexes of ixodine acarian in the conditions of the modern ecological background represents a special topicality.

1. MATERIAL AND METHODS
The material is collected in 2008-2018 in the natural and urbanized territories of the Republic of Uzbekistan. Assays were selected by standard parasitologic methods (Agrinsky, 1962; Balashov, 1962; Beklemishev 1954; Alekseyev, Kondrashova, 1985). 60123 copies of acarians have been in total collected and studied. Collecting of acarians was held in corresponding biotopes, direct on pastures, on farm, domestic, wild animals and birds. Definition of species of acarians were made on determinant of V.N.Beklemishev (1958).

2. RESULTS AND DISCUSSION
As a result of researches 18 species of acarians of 6 genus belonging to two subfamilies are defined - Ixodinae and Amblyomminay.

Family of Ixodidae Murr 1877 is represented by 18 species from 6 genus – *Ixodes*, *Haemaphysalis, Boophilus, Dermacentor, Rhipicephalus, Hyalomma*. Out of total number of species (18) Ixodoid, 17 - are registered in a flat zone, 13 - in foothill and 10 - in mountain. Dominating on a specific variety and quantitative distribution of Ixodoid acarians in a flat zone there were representatives of genus of *Hyalomma*. The given specie in our collection makes the basic background of fauna of Ixodoid acarian (65.6%) consisting of 6 species - *H. asiaticum*, *H.anatolicum*, *H. detritum*, *H. dromedarii*, *H.scupense,* и *H. plumbeum*

turanikum. The most often meeting parasites of pets are *H. asiaticum* (33.7%), *H. detritum* (22.6%), and *H. anatolicum* (about 20.0%). These species are marked practically, in all regions of Uzbekistan. The highest number is observed in Southern, Central and Northeast regions.

The flat zone with various climatic factors also is favorable for Ixodoid ectoparasite of animals - *Boophilus calcaratus* (16.5%), *Rhipicephalus turanicus* (10.7%) and *Dermacentor pictus* (2.2%). Some species of acarians of *Ixodes* and *Haemaphysalis* gunus are also extended pere.

The foothill zone is characterised by original fauna of Ixodes acarians, which are ecologically different. Representatives of *Ixodes* (1.8%), *Boophilus* (15.6%), *Rhipicephalus* (15.1%) are *Hyalomma* (18.9%) are noted here.

10 kinds of acarians, representatives *of Ixodes* (1.4%), *Boophilus* (32.6%), *Rhipicephalus* (4.2%) and *Hyalomma* (37.0%) are registered in a mountain belt. *Haemaphysalis* и *Dermacentor* species are not marked here. In this zone number of population of acarians is exposed to rare fluctuations under the influence of temperature of air within days on the one hand, and the limited quantity of small animals – feeders - on the other hand, creating unfavourable conditions for existence of some species. It is revealed, that a specific variety of Ixodoid in different landscape -geographical zones was various. A genus of *Ixodes* meets mainly, in foothill and mountain zones. Representatives of genus of *Haemaphysalis* and *Dermacentor* show confinedness to a plain.

The majority of species *of Boophilus*, *Rhipicephalus* and *Hyalomma* have adapted to all landscape zones. Stably high number is marked in Southern, Central and Northeast regions of Uzbekistan. The presented plentiful grassy vegetation in these regions, promotes wide development of cattle breeding and habiting of various groups of animals.

It is necessary to note also a role of animals - feeders in expansion of many species of Ixodoid acarian in the natural and urbanized territories of Uzbekistan. Domestic and wild animals, migrating from one territory to another one, rather effectively participate in expansion of investigated acarians. Thereupon the majority of species of acarians are registered as ectoparasites of animals, inhabitants of flat, foothill and mountain zones (table).

Table: Expansion of Ixodidae acarians on landscapes of Uzbekistan

Genus	Landscapes		
	Plain	foothill	mountain
Ixodes	-	++	+
Haemaphysalis	++	+	-
Boophilus	+++	++	+
Dermacentor	++	+	-
Rhipicephalus	++	+	+
Hyalomma	+++	++	+

+++ mass; ++ multiple; + few; - absent.

Activity of dominating species of Ixodidae and Argazidae is in dependence from seasons of year and a landscape. Display of activity of acarians on plain is observed from third decade of February and in the beginning of March, in a foothill belt - in March - April and in mountain - in the end of April and in the beginning of May.

The season of parasitizing of acarians in various zones differs by terms of settling of animals by them. Acarining of animals by separate species (groups) of investigated acarians is in a correlative connection with seasons of year (fig. 2). A maximum of contamination of animals as a rule, is observed in the summer. High infest of stock of cattle *H. asiaticum* have reached - 32%. Decrease in of acarining of animals is marked in all zones - in the autumn and considerable - in the winter.

Izodoidae acarians refer to ecological group of time ectoparasites with a long feeding. In life cycles there are neanic, nymphal and imaginal stages which eat blood of vertebrate animals, including also a man. by the nature of known life cycles of acarians it is accepted to subdivide into one - two – and three host cycle. The greatest distribution has three host cycle peculiar to all kinds of genus of *Ixodes, Haemaphysalis* and most species of *Dermacentor*, *Rhipicephalus*, *Hyalomma* (Balashov, 1984, 1998; Alekseyev, Kondrashova, 1985; Haunmante, Patil, 1981).

Presence of the big variety of species of animals in flat and foothill zones provides successful reproduction of the acarians in them developing on two - and three host type. However, as results of research of last years have shown, loss number of hosts from initial life cycle is observed at some acarians of species of *Ixodes* and *Hyalomma*. *I. persulcatus, H. asiaticum, H. dromedarii, H. detritum, H. anatolicum* и *H. plumbeum turanikum* wild mammals, fulfilling a role of feders of neanic and nymphal stages have dropped out from a development cycle. All their vital metamorphoses occurs only on one species of domestic animals. Life cycles of Ixodiode acarians are diverse, their changes have adaptive

character to climatic -geographical conditions and conditions of habitats, specific for concrete region. The marked tendencies in life cycles of acarians will be co-ordinated with known data of researchers (Balashov, 1998; Denisov, 2008; Abdulmagamedov, and others, 2012).

Set of noted factors promotes formation of faunistic complexes of Ixodoid acarians and in the conditions of Uzbekistan and functioning of parasitic system of «acarians - backboned».

From the results of researches received by us it is established, that in the territory of Uzbekistan Ixodoid acarians are presented by 24 species. Ixodoids make - 18 species, and Argasidae - 6 out of them. In the previous researches (Uzakov, 1972; Kuklin, 1976) at domestic, wild and commercial animals 40 species of Ixoidae acarians have been revealed: Ixodidae - 33 species and Argasidae - 7 species. It is necessary to mark, that the majority of kinds have been noted on individual finds, single specimens or unripe individuals. By present time data of previous researches have considerably become outdated, that confirm recent researches of acarifauna (Rasulov and others, 2003., Abdurasulov, 2006; Mirzayeva and others, 2015; Umrkulova and others, 2016). According to the results of researches of last years pauperisation of fauna of Ixodidae acarians in Uzbekistan is observed appreciable. In our collections there was no considerable number of species of Ixodidae: *Ixodes redikorzevi, Haemaphysalis numidiana, H. pavlovskyi, H. concinna, Dermacentor marginatus, D.silvarum, Rhipicephalus bursa, R. rossicus, R. pumilio, R. leporis, R. schulzei* и *Hyalomma anatolicum excavatum*, refer to Argasidae. In our opinion, a major factor limiting hesitance of population of acarians in biogeocenose of Uzbekistan is an economic activities of the person - scale development of natural territories which promotes change of a vegetative cover, temperatures, humidity of places of dwellings wild animal – feeders of acarians.

In spatial distribution of investigated acarians the particular place is occupied with a flat zone. Acarians meet practically in all areas with prevailing agricultural type of development. In supporting of existence of populations of acarians of the species marked by us and providing of their high number, domestic mammals and the birds which abundance is great play the big role. The most part of Ixodidae acarians in agrocoenosis are feed by pets and birds (cows, sheep, goats, horses, camels, dogs, hens, turkeys).

Presence of diverse and landscape-geographical conditions promotes functioning of parasitic system and formation of modern faunistic complexes of Ixodidae acarians.

3. CONCLUSION

We have considered fauna of Ixodidae acarian in the conditions of a modern ecological background of Uzbekistan. The general number of species of investigated acarians is presented by 18 species. Separate groups of species are noted in all landscapes of Republic which form proof populations of different generations, infest various kinds of mammals and birds.

The most part of species of acarians is ecologically connected with mammals, more exact, by their separate groups. Other part specialized to parasitizing mainly, on domestic and wild birds.

Degree of making acarian of animals has the dynamical nature, in dependence from factors of an environment and biocoenotic connection of components of parasitic system.

The complex of species composing fauna of Ixodidae acarian of Uzbekistan at the present stage assumes carrying out of regular monitoring of number of population of ectoparasite of animals for the purpose of perfection of methods of struggle against them in concrete territories.

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