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COMPARATIVE ANALYSIS OF SOIL LANDSCAPES AND INSECT FAUNA IN BIOCENOTIC CHANGES OF KARAKALPAKSTAN

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ABSTRACT
The article considers a comparative analysis of soil landscapes and insect fauna in biocenotic changes of Karakalpakstan. The article also notes that many places have turned into a desert due to the drying up of the Aral Sea, where drying of vegetation due to salinization has led to an increase in the number of harmful insects. Insect pests cause serious harm to plants mainly at the larval stages, and beetles and worms of adult insects cause serious damage by gnawing out the leaves of plants.
KEY WORDS: *Factors, Climate, Salinization, Drying Out, Insects, Flora, Fauna*

INTRODUCTION

Global ecological changes in the environment lead to the emergence of negative situations in all living organisms, which are considered biotic factors, in turn, this has a serious impact on human life.

The drying up of the Aral Sea is considered one of the ecosystem violations in the world. It is known that today the negative conditions of environmental quality in the South Aral Sea region are rapidly increasing on a global scale, and the importance of solving these problems is increasing. In the conditions of Karakalpakstan, modern environmental problems of biocenotic changes in the environment are complex, diverse and territorially different from other places in the Republic of Uzbekistan.

As a result of the drying up of the Aral Sea, serious changes occurred in many places. In the first years of the drying up of the sea, climate changes were observed in places 100 km away from the water, i.e. the air temperature was hot in summer, cold in winter, low humidity (low annual precipitation), and a reduction in the duration of the vegetation period appeared in biotic factors [1, 2].

Among such changes, the presence of dust storms in the air was highlighted due to greater salinization of the environment on the Ustyurt Plain and the Akpetkoy archipelago in the conditions of Karakalpakstan, which is considered the site of the research, and as a result, negative processes in general biotic factors were observed.

MATERIALS AND METHODS OF RESEARCH

The materials required for the research work were studied and compared in the conditions of Karakalpakstan during 2019-2024, i.e. more attention was paid to the soil landscape and insect fauna of the dried bottom of the Aral Sea, the Ustyurt plain and the Akpetkey archipelago, a list of plant flora was also compiled and insects were collected from them.

In this case, the population ecology of insects, the mechanism of evolutionary adaptation and adaptation to the terrain, based on the laws of existence of the community of biocenoses, the level of monitoring and dominance were determined. Also, in laboratory conditions, the species composition of the insect collection was studied based on general entomological, ecological, microbiological, physiological [2], biological, systematic analysis, faunistic, bioecological and phase methods [3].

Samples were collected from the upper, middle and lower layers of the soil according to the soil landscape. All data were obtained using Biostat, Origin 6.1 [Microsoft USA] and G.F. But this was done by statistical processing [2].

RESEARCH RESULTS

In the conditions of Karakalpakstan, studies were conducted on the distribution and number of insects in the natural ecosystem of the dried-up part of the Aral Sea, the Ustyurt plain and the Akpetkey archipelago.

As a result, we witnessed the accumulation of insects inside and under the stems of desert plants - a natural biotope of the ecosystem, such as: camel thorn - Alhagi pseudalhagi, bristly tamarisk - Tamarix hispida, Caspian karelinia - Karelinia caspia, common harmala - Peganum harmala, reed - Scirpus affinis, hill saltwort - - Salsola collina, white goosefoot - Chenopodium album, narrow-leaved

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oleaster - Elaeagnus angustifolia, honey locust - Gleditschia triacanthos, turanga - Populus euphratica, saxaul - Haloxylon aphyllum, chestnut - Aesculus hippocastanum, shepherd's purse - Capsella bursapastoris, Japanese pagoda tree - Sophora janonica, stinking ferula -Ferula foetida, leafless juzgun -Calligonum aphyllum (Table 1).

As a result of observations from behind the salty sands in the dried-up part of the Aral Sea, the Ustyurt Plain and the Akpetkey Archipelago, due to the drying out of vegetation, the harmful properties of the following insect species were determined: the odorous wood borer - Cossus cossus, the alecto hawk-moth - Theretra alecto, the bindweed hawk-moth - Agrius convolvuli, the common tongue-moth - Macroglossum stellatarum, the turanga hawk-moth - Laothoe philerema, the alder leaf beetle - Agelestica alni, the red-breasted leaf beetle - Ouloma melanopus and the Turkestan termite - Anacfnthotermes turkestanicus, etc.

Pests cause serious damage to plants mainly in the larval stages, and beetles and worms of adult insects cause serious damage by gnawing out the leaves of plants [3]. In general, we all know that increased salinity and drying out of vegetation are negative aspects of climate change.

CONCLUSIONS

Thus, this process leads to the entire biocenotic change of the environment, i.e. the loss of one component of the natural environment negatively affects all factors. Therefore, drying out of the habitat due to lack of water creates opportunities for the active development of xylophagous pests. From this point of view, it is necessary to constantly monitor insect pests and develop programs of preventive measures against them

Table 1
Dominant insect pests found in the plant flora of the natural ecosystem of Karakalpakstan

№	Name of plants	Name of insects								
		A.alni	*T.alecto*	*C.cossus*	*L. philerema*	*A.convolvuli*	*O.melanopus*	*M.stellatarum*	*A. turkestanicus*	*A. ahngerianus*
1	*A.pseudalhagi*		+		+	+	+	+	+	+
2	*T.hispida*	+	+	+	+	+	+	+	+	+
3	*K.caspia*	+	+		+	+	+	+	+	+
4	*P.harmala*		+		+	+	+	+		
5	*S.affinis*		+		+	+	+	+		
6	*S.collina*		+		+	+	+	+	+	+
7	*C.album*		+		+	+	+	+	+	+
8	*E.angustifolia*	+		+	+	+	+	+	+	+
9	*G.triacanthos*		+		+	+	+	+		
10	*P.euphratica*	+		+	+	+	+	+	+	+
11	*H.aphyllum*	+		+	+	+	+	+	+	+
12	*A.hippocastanum*		+		+	+	+	+		
13	*C.bursapastoris*		+		+	+	+	+	+	+
14	*S janonica*		+		+	+	+	+		
15	*F.foetida*		+	+	+	+	+	+	+	+
16	*C.aphyllum*		+		+	+	+	+	+	+

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