

Flora of the Yozgokkum desert and the food problem

Nargiza Torayeva^{1*}, *Khudoynazar Tashov*¹, and *Jasur Abdukhakimov*¹

¹Bukhara State University, Street Mukhammad Ikbol, 11, 200118, Bukhara, Uzbekistan

Abstract. the article is devoted to the importance of the desert zone of Bukhara region in food security. Because 88% of the territory consists of deserts. The flora of the Yozgoqqum desert was analyzed using the methods of inventory and landscape indication, and it was revealed that the number of plant species and bioproductivity increased by 2-7 centers. In particular, they harvested and dried plants such as yulgun, reed, mat reed, yam, shirminiya, lux, kendir, yantok growing in the 4x4 m² area in the forests around Janam ditch and Janam lake, which are important for pasture cattle breeding, and their bioproductivity was determined. Medicinal herbs in the regions of Yozgokkum, where the Amu-Bukhara canal is crossed by the Cholkuvar network, are sedum, sweet miya, red hemp, sand tongue, white and yellow clover, nettle, goose paw, water pepper, sachartqi, peppermint, yantok, takasokol, frankincense, zupturum. it is stated that herbariums were made from sedge, sorrel, sedge, sedge, sedge, pepper, mint, ituzum, button-flower, and medicinal sytemgul.

1 Introduction

Steven Weinberg, an American scientist and laureate of the Nobel Prize in Physics, noted that "Today we continue to study the laws of nature, but we do not take into account the values of humanity" [1]. In fact, one of the first conditions for glorifying the value of humanity is ensuring its food security.

The global and most urgent task of world agriculture is to fully satisfy the needs of all mankind for food products and agricultural raw materials of the world industry without having a negative impact on the environment. To date, this task has not been fully solved, except for some products. However, this matter is extremely important. Today, more than 7.4 billion people live on earth. However, in 2000, the world population consisted of 6 billion people. It can be seen that the world's population has doubled in the next half

In the period of the current science and technology revolution, i.e. in the conditions where one hectare of land used by intensification of agriculture and many products are obtained at the expense of one worker and the average growth rate of the population is decreasing, the population's food - the problem of food supply has not lost its importance.

The population of Bukhara region has also reached about 2 million people. Their demands for agricultural products, including animal husbandry, are increasing. All of the above shows that the rapid development of this sector in the region, especially focusing on the wide use of

* Corresponding author: n.n.turayeva@buxdu.uz

promising possibilities of pasture livestock, is one of the promising ways to ensure food security. Because 88.6% of the territory of the region is desert-pastures. Desert-pastures exist in more than 10 mavzes (natural regions), including Yozgoqum mavze, and it is very important to study their resource capacity, inventory, and biological and economic study of the possibilities of pasture animal husbandry. As a result, it ensures the ecological stability of the area. At this point, local scientists "It should be noted that any research related to the use of natural resources should be carried out on the basis of ecological principles, otherwise the scientific conclusions and recommendations will not reach the perfect level and will not give the intended result in practice" - it is necessary to remember that they noted that [2].

The main purpose of the work. It consists of inventorying natural complexes in the Yozgoqum region, studying and evaluating their opportunities for pasture cattle breeding, and developing suggestions and recommendations on the prospects of pasture cattle breeding. There are several types of inventory. Inventory of natural resources, inventory of pasture feed base is one of them. Taking into account the area and productivity of pastures or registering areas with nutritious feed consumed by ungulates and other types of animals is an inventory of the pasture feed base [3].

2 The main part

It is known that the deserts of the Bukhara region have been fully developed due to the historical development of pasture cattle breeding. Yozgoqum district is one of these places, located in the southeastern part of Bukhara region. It is considered one of the regions of large pasture breeding. The area consists of unique natural objects, and it is very important to study them from the point of view of the possibilities of animal husbandry development.

The northern border of Yozgokkum district passes through the southern part of the Bukhara oasis for a long distance. In particular, it connects with the irrigated cultural zone belonging to Kogon, Bukhara and Jondar districts. In the west, the region is bounded by the Jondor and Karakol plateaus and cultivated lands of Karakol districts, in the south by the Jondor canal, and in the east by the banks of the Amu-Bukhara car canal. Today, many natural and natural anthropogenic objects have been created and built in the region (Table 1).

Table 1. Natural and natural anthropogenic objects in Yozgokkum district.

Natural objects	Natural anthropogenic objects	Anthropogenic objects
Yozgokkum district	ABMK of the Yozgokkum desert and its surroundings	the village of Cholkuvar
Janam hill	Cholkuvar canal and surrounding area,	agricultural land owned by farmers of Cholkuvar MFY
Kozanchukur depression	Janam lake and surroundings	
Janam lowland	Janam ditch and its surroundings	
Kumsultan massif		

Source: Compiled by the authors based on the results of the Yozgokkum expedition

3 Inventory of the pasture fodder base of Yozgokkum district

Only by carrying out an inventory of the objects of the Yozgoqkum desert region, it is possible to study and evaluate their opportunities for pasture breeding, as well as to develop proposals and recommendations on the prospects of pasture breeding.

I.Q. Nazarov, H.K. Esanov, H.R. Tashov, A.F. Fayziev, O.H. Rahimov, M.K. Ergasheva conducted research in the Yozgoqkum region [4-6]. The main area of Yozgoqum district is occupied by desert, where sandy and clay massifs are widespread. H.R. Tashov, who conducted research on the formation of sandy massifs in Yozgoqum, noted that they were formed mainly due to the creative activity of the wind in desert conditions [4]. In their areas close to the oases, there are medium and small-scale shifting sand dunes. They are usually found in fragments. The main part of the massif is covered with eolian sands. The sands are well-sorted, granular, yellowish-gray in color. The water mode is relatively better, it conducts water well. In ancient times, the Kashkadarya flowed through this area and joined the Zarafshan river near Poykand. Today, in the ancient bed of the river, large areas have formed flat meadows.

The flora of Yozgoqum is diverse, including shrubs such as saksovul, kandym, kuyonsuyak, cherkez, sejutbarg, seline, singren, watak, as well as grasses such as ilok, yaltyrbosh, arpagon, kumtarin, kumarjik, etc. plants grow. A unique hydrological network has been formed in Yozgoqkum district based on irrigation and reclamation systems of the region. More information on this is given in the brochure Water Value. For example, "There are no natural running water sources in the province. Today, the main water source is the Amu-Bukhara machine canal, built in 1962-1975. Through the canal, 4.2-4.8 km³ of water is taken from Amudarya every year and flows in the opposite direction to the relief slope to the oases of Bukhara, Karakol, and Qarovulbazar. Most of the canal water is collected in Shorkol, Todakol and Kuyimozor reservoirs belonging to Bukhara and Navoi regions. A system of ditches was created to improve the land reclamation condition of Obikor lands, through which wastewater flows to Ayakogitma, Sho'rkol, Karakhotin, Karakir, Zamonbobo, Katta Tuzkon, Kichik Tuzkon, Sho'rkol - Qamishli, Dengizkol., is flowing into more than ten lakes such as Devkhana, Khadicha, Kumsultan" [7].

The Amu-Bukhara car canal, its "Cholkuvar" canal, crosses Yozgokkum at a long distance. As a result, this irrigation facility and filtration lakes were created around the canal. Thanks to them, the process of transformation is being observed in Yozgokkum. Transformation is often referred to anthropogenic change of the plant community [3]. The transformation of plants is the result of their change as a result of external influence (natural, anthropogenic), that is, the product of dynamic processes. Due to the transformation process in Yozgokkum, grassy and shrubby groves appeared around the irrigation and reclamation facilities. Among them, the leading dominants are yulgun, reed, mat reed, zaram, shirinmiya, lux, kendir, and yantak. Also, rings of bushes and grassy groves formed around Janam ditch and Janam lake (Fig. 1). A large part of thicket forests has been formed. These orchards prevent soil erosion and are a great feed base for livestock

Transformation is often referred to as anthropogenic change of the plant community [3].

The transformation of plants is the result of their change as a result of external influence (natural, anthropogenic), that is, the product of dynamic processes. Due to the transformation process in Yozgokkum, grassy and shrubby groves appeared around the irrigation and reclamation facilities. Among them, the leading dominants are yulgun, reed, mat reed, zaram, shirinmiya, lux, kendir, and yantak. Also, rings of bushes and grassy groves formed around Janam ditch and Janam lake (Fig. 1). A large part of thicket forests has been formed. These orchards prevent soil erosion and are a great feed base for livestock [8-10].



Fig. 1. Janam (Kumsultan) ditch (September 16, 2016. Taken by N. Torayeva, H.R. Toshov, and O. Rahimov).

The Cholkuvar channel crosses the Yozgokkum desert at a distance of 25 km. Currently, thanks to the canal water, a cultural zone has been formed on an area of 1000 hectares. Alfalfa and corn crops are grown in large areas.

A network of desert wells was created in the meadows (Fig. 2). The distance between them is 3-5-7 km. Cattle breeders made good use of ancient riverbeds when choosing the place of wells. When naming the wells, they used adjectives typical of the nature of the place (Urusquduq, echkiyotoq, gonzchuqur, etc.). In addition, in the areas where the Amu-Bukhara car canal and the Cholkuvar canal cross the Yozgoqqum, medicinal herbs: sedge, licorice, red hemp, sand tongue, white and yellow kashgar alfalfa, nettle, goose paw, water pepper, peppermint, peppermint, yantok, yarrow, frankincense, zupturum kokoki, sorrel, sedum, jag-jag, temirtikan, kopychak, sorghum, pepper, peppermint, ituzum, button flower, medicinal system flower, etc spread out. In particular, sweet red hemp is forming large areas along the channel.



Fig. 2. Urusquduq - artesian well in Yozgoqqum (September 16, 2016. Taken by N. Torayeva, H.R. Toshov and O. Rahimov).

Along with shrubs such as saxabul, kandym, kuyonsuyak, cherkez, sejutbarg, seline, singren, and watak, herbaceous plants such as ilok, yaltirbosh, arpagon, kumtarin, kumarjik grow in summer (Fig. 3).



Fig. 3. A saxophone and a sandpiper (April 23, 2022. Photo: N. Torayeva).

References

1. S. Weinberg, *Explaining the world: The origins of modern science* (M.: Alpina non-fiction, 2018)
2. H.R. Toshov, *Effective use of desert landscapes and their agricultural potential (in the case of Bukhara region)*. Abstract of the dissertation prepared for the degree of Candidate of Geography (Tashkent, 2008)
3. I.K. Nazarov, H.R. Toshev, *Landscape resource science*. Information of the Geographical Society of Uzbekistan **23**, 18-20 (2003)
4. N.F. Reimers, *Nature management* (M.: "Thought", 1990)
5. Kh.R. Tashov, M.K. Ergasheva, *Content and Significance of Primary Works is Fine Geographic*. Economy and society. Magazine **9(76)**, 71-74 (2020)
6. H.R. Tashov, O.H. Rahimov, G.I. Hikmatova, *The value of water* ("SHAZZOD PRINT" printing house, Bukhara, 2018)
7. H.Q. Esanov, *Analysis of flora of Bukhara oasis*. Abstract of the dissertation prepared for obtaining the degree of Doctor of Philosophy (Ph) in biological sciences (Tashkent, 2017)
8. V.E. Chubb, *Climate change and its impact on people's resource potential*. Republic of Uzbekistan (Tashkent, 2000)
9. V.E. Chubb, *Climate change and its influence on hydrometeorological processes, agroclimatic and water resources of the Republic of Uzbekistan* (Tashkent, 2007)
10. A.I. Shevchenko, *Hydrogeological classification oroshaemyx territorial Uzbekistan* (Tashkent, 1961)