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THE ARAL ECOLOGICAL CRISIS AND ITS IMPACT ON CHANGES IN THE AREAS OF SOME SPECIES OF MAMMALS IN THE SOUTH ARAL REGION

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Abstract: New materials about the changing of areals, occuring in some species of mammals in the period of the Aral Sea crisis are introduced in the article. The analysis of mammals` fauna spread in three regions Usturt, Kyzylkum and Amudarya delta showed the extention of areals of 8 species and reduction in 14 species. The main reason of it is the influence of the changes talciry place in natural environment, as a result of Aral Sea disaster in the South Aral Sea region.

Key words:ecological crisis, degradation, gene bank, climate, region, Kizilkum, Karakum, Usturt, variety, reduction, rodents, mammals.

Аннотация:В статье, приводятся новые материалы, об изменениях ареалов происходящих у некоторых видов млекопитающих в период Аральского экологического кризиса. Анализ фауны млекопитающих распространенных в трех регионах – Устюрта, Кызылкума и дельты низовьев Амударьи, показало расширение ареалов 8 видов, сокращение 14 видов. Основной причиной которого являются влияние произошедших изменении в окружающей природной среде, как результат Аральской катастрофы в регионе Южного Приаралья.

Ключевые слово:Экологические кризис, деградация, генофонд, климат, регион, Кызылкум, Каракум, Устюрт, разнообразия, сокращение, грызуны, млекопитающы.

Annotatsiya: Maqolada Oral ekologik krizisi davrida ayrim sutemizuvchi turlarining arealida bo’layotgan o’zgarishlar haqida yangi ma’lumotlar berilgan. Qizilqum, Ustyurt va Amudaryo deltasi mintaqalarining sutemizuvchilar faunasini tahlil qilganimizda ularning 8 turining areali kengaygani, 14 turida qisqargani kərsatilgan. Uning asosiy sababi Oral ofati natijasida tabiiy atrof muhitning o’zgarishi natijasida sodir bo’ldi.

Kalit so’zi: Ekologik krezis, degradatsiya, genofond, iqlim, mintaqa, Qizilqum, Qaraqum, Ustyurt, hilma-hillik, kamayish, kemiruvchilar, sutemizuvchilar.

The Aral ecological crisis is a rare natural phenomenon that occurred in a very short period of time, creating many different problems not only on a regional, but also on a global scale. All its negative consequences worry the world community and call on them to stabilize the environmental situation.

Today, the dried seabed in the Karakalpak part alone is about 5 million hectares, from where 100 million tons of dust and toxic salts rise into the atmosphere every year, traces of which can be traced throughout Europe and the Arctic Ocean.

Scarcity of water resources, atmospheric pollution, degradation of the natural ecosystem, imbalance, deterioration of the health and gene pool of the population, flora and fauna, climate change, expansion of the area of desertification, reduction of glaciers in the Pamir and Tien Shan mountains are considered one of the minor problems arising from the death of Aral Sea.

The Aral crisis caused enormous damage to nature: 11 species of fish, 12 species of mammals, 26 species of birds and 11 species of plants disappeared in the region over a 60-year period.

In addition, 67 species of vertebrate animals are included in the Red Book of Uzbekistan (12 species of fish, 4 species of reptiles, 39 species of birds and 12 species of mammals). Many species are in a vulnerable state (Asenov, Zhumanov et al. 2013).

Not long ago, the Aral Sea region was considered a prosperous and biologically rich natural environment. The Aral Sea was the savior of life and well-being of all ailments of the Kyzylkum, Karakum and Ustyurt deserts.

In a short period of time (60 years), before the eyes of one generation, the disappearance of one of the world's largest lakes, the Aral Sea, unique natural complexes are being destroyed, which causes great concern and serious concerns.

The depletion of biological diversity is occurring at a rapid pace, which is a criterion for assessing the well-being of the existence of flora and fauna in the regions of Kyzylkum, Ustyurt and the lower reaches of the Amu Darya delta. Recently found in hundreds of thousands of saigas, numerous goitered gazelles are on the verge of extinction.

In the Kyzylkum desert, the area of loose sand, vegetative bushes, shrubs and subshrubs is increasing. In Ustyurt, frequently repeated dry, dusty storms mixed with toxic salts are observed, like dusty clouds blown through for weeks. In the Amu Darya delta, in the cultural land use zone, the desertification area is expanding. The number of wetted areas and reservoirs, etc., is reduced. as a result of the drying out of the Aral Sea and an increase in the temperature regime of the atmosphere on a global scale. In 2035-2050, its monthly average is expected to be -1.5-3.0 0C in the central region, and even higher in the Southern Aral Sea region (up to +3-5^{0}C).

As a result of a sharp reduction in the flow of the Amu Darya, about 800 thousand hectares of reed, cattail and shrub thickets, which provide food, a place of shelter, favorable habitat and reproduction of numerous species of vertebrates, have long been lost. The deterioration of these habitats and under its negative influence, large changes have occurred in the fertility, numbers and range of some species of mammals in all regions of the Southern Aral Sea region. At the same time, some species are experiencing expansion, while others are experiencing a reduction in their ranges.

Knowledge of this is of great theoretical and practical importance in forecasting the future of a particular species of animal and plant in a regional aspect.

Those expanding their range include 8 species of rodents (great, midday, red-tailed gerbil, slender-toed ground squirrel, comb-toed and woolly-footed jerboa, lamellar-toothed rat, house mouse).

Of these, 3 species of gerbils, as widespread and numerous species in the Kyzylkum desert, on Ustyurt and on the large islands of the Aral Sea, expand their ranges as they dry out and convenient habitats appear on the dried littoral zone of the sea, where an intensification of this process is observed.

Comb-toed and hairy-footed jerboas, typical psammophiles, colonize the barren areas of the sandy desert and expand their habitats within the Kyzylkum desert.

The thin-toed ground squirrel, a typical inhabitant of the sandy desert, expands its range within the territory, and large gerbils to the north. Not yet recorded on the inner islands of the Aral Sea.

The expansion of the range of the lamellar-toothed rat is associated with their mass migration from their previous habitats to the lower delta of the Amu Darya, as a result of the death of dense reed and cattail thickets and other shrubs and semi-shrub vegetation, the rhizomes and roots of which form the basis of the feeding area of this species.

Deprived of the main sources of food in the delta, the lamellar rat in the 1970-1980s, in search of places with an abundance of food, migrated to the zone of cultural and tugai landscapes, and in the 1980-

1990s they settled and began to greatly harm orchards, alfalfa fields, young seedlings of ornamental plants and eating their roots caused significant harm. After that, it settled in the fields of grain crops - wheat, millet, rice and caused significant damage to grain farms. In addition, in recent years it has penetrated into private plots and residential buildings. It digs holes under the floors and walls of the room. There have been cases of damage to large quantities of combined feed and rice seeds in the granaries of farmers and poultry farms.

Thus, the lamellar-toothed rat has become a widespread species in the cultural landscape, whose range is expanding, on the other hand, its range has decreased in the Amu Darya delta.

House mouse - expansion of the range of this species in the desert zones of Kyzylkum and Ustyurt is associated with the importation of various cargoes - animal feed, products in the form of animal feed, flour and other household items. Recently, the house mouse has been living in open biotopes, around stationary shepherd camps and unrelated habitats, near artesian wells, etc.

Animals whose ranges have been reduced include 14 species of mammals (muskrat, Trans-Caspian vole, gerbil, jackal, wolf, badger, jungle cat, caracal, wild boar, Bukhara deer, saiga, goitered gazelle, kulan).

Of these, the muskrat and the Trans-Caspian vole, whose habitat and range are associated with water bodies. Currently, it is very difficult to find the Trans-Caspian vole in some lakes where it lived in former times. According to the local population and fishermen, it is very rare in the area of Karajar and Lake Zhyltyrbas.

The muskrat, in the past a numerous species of commercial importance, has become a very rare species due to the drying out of the delta, lake systems, and the death of reed-cattail thickets; the nutria farming office for muskrat meat has been closed. Currently, it is very rarely found in drainage collectors and canals, etc.

The reduction in the ranges of the wolf, jackal, jungle cat, caracal, and wild boar is closely related to the reduction in the area of tugai forests by 10 times (from 300,000 hectares to 30 thousand at present).

The development of fallow lands, the expansion of crop fields for crops of grain, vegetables, melons and the expansion of the construction of a drainage system limits the range of the combed gerbil and badgers in the cultural land use zone.

Bukhara deer brought from the Aral-Paigambar and Ramitan reserve in 1971 to the Badai-Tugai reserve, from 16 heads reached 800 heads in 2016.

The saiga, a widespread and numerous species in the past on Ustyurt, has become small, rare and endangered, the range of which is shrinking very quickly and in a short time, as evidenced by their encounters with a large herd 40 km north of the village. Jaslyk on May 9, 1973, where they were hunted. To count the numbers, the end and edge of the herd was not visible. We were forced to stop for a long time, and admired the lambs, took photographs, there was no empty place to walk. All 100 head examined had twin lambs. In May 2010, in the same territory, within 30 days, we met one female saiga in the area of the Beleuli fortress.

The gazelle, which in the 1950-1960s was also a widespread species of the fauna of Ustyurt and Kyzylkum, has now become rare and endangered, not to mention its habitat. Recently, goitered gazelles and saigas up to 10 heads are rarely found on the dried seabed, where they escape from poachers armed with equipment, due to the inaccessibility of the territory.

Currently, Ustyurt and Kyzylkum have been developed in such a way that there are no places inaccessible to highly advanced modern equipment. The influence of anthropogenic factors has greatly increased. This is the construction of large industrial centers, international well-maintained highways

with round-the-clock traffic of various vehicles for the delivery of passengers and various goods. All this taken together has become a negative factor in the existence of mammals living in Ustyurt and Kyzylkum.

Based on the presented materials, the following conclusions can be drawn:

1. Under the influence of the Aral ecological crisis, in the life of some species of mammals, the ranges of 8 species are expanding, and 14 species are contracting.

2. The main reason for the change in habitats is the deterioration of the conditions of existence in the previous habitats, mainly the food supply.

3. The main determining factor is: in the delta, a reduction in the flow of the Amu Darya River, drought, death of food sources, reed beds over a large area (800 thousand hectares).

In Ustyurt and the Kyzylkum desert, climate change, desertification, deterioration in the qualitative and quantitative indicators of forage plants, and the increasing role of anthropogenic factors.

4. For the first time, lists of species whose ranges are expanding or contracting have been compiled, which is of great importance in assessing the status of individual species for protection and conservation.

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