

Ecology of Hunting-Fishing Birds under Conditions of Karakalpakstan, Their Protection and Rational Use

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Abstract: *In the article, the territory of the Southern Aral Sea region was shown to hunting birds of migratory, nesting, near-water, waterfowl, tugai and desert bird species. In order to preserve and improve the ecological state of the Southern Aral Sea region, ways of conservation of the hunting birds and the possibility of inexhaustible use of their resources are outlined*

Keywords: Southern Aral Sea region, ecosystem, biodiversity, tugai, desert, flora, fauna, resource, monitoring

1. Introduction

The territory of the South Aral Sea region is of great importance for the conservation of ornithological territories aimed at preserving the biodiversity of migratory, nesting, near-water, waterfowl, tugai and desert bird species.

The Amu Darya delta zone is located on the traditional migration route of migratory birds from nesting sites in Western Siberia and Kazakhstan to the Iran-Caspian, African, Central Asian and Indo-Pakistan wintering.

Changes in the hydrological regime of the lower reaches of the Amu Darya, drying out of the Aral Sea, as well as increasing anthropogenic pressures have led to a significant transformation of the natural environment of the Southern Aral Sea region. Many lakes of the delta zone have disappeared; the area of floodplain tugai massifs and the water area of preserved wetlands have decreased. All this ultimately led to a change in the habitat conditions of avifauna. A significant redistribution of species and their complexes over the lower reaches of the Amu Darya occurred. In this regard, the study of the biodiversity of birds, including game birds and the development of measures and ways to protect them is necessary and very relevant.

According to N.A.Gladkova (1933) in the article "On the Fauna of the Hunting and Fishing Birds of the Lower Amu Darya", information is given on various species of birds, such as grebes, bitterns, gulls, waders, ducks, pheasants and birds of prey. In the works of famous scientists-travelers, such as E.L.Shestoperova (1936), there is provided numerous data on hunting and commercial birds and mammals that live in the middle and lower reaches of the Amu Darya.

In 1944-1948 V.P.Kostin examined the left-bank part of the Amu Darya delta and the Karakalpak part of the Ustyurt, the observations were published by him in 1956. In his article he gives some data on the biology and distribution of 149 bird species, including some hunting and fishing species.

According to the results of scientific observations, H. S. Salikhbaev (1950) found 35 species of hunting and fishing species, including 3 species of thrush found in tugai and nesting of 5 species of sandpiper on the coast of water bodies. In the works of Rashkevich (1962, 1965), some species of hunting birds were noted, namely the winter avifauna, their abundance and some features of the ecology of birds in tugai.

In subsequent years, ornithological studies were carried out by Mambetzhumaev (1968, 1993), Ametov (1981), Abdreimov (1981), Zhumanov (2017), Ametov (2018, 2019), Matekova and et al. (2019), in which some species of hunting birds, their biology and ecology were noted.

Many publications by ornithologists R.D.Kashkarov, Ya.I.Ametov (2010), G.A.Matekova (2012), M.A.Zhumanov, Y.I.Ametov (2016) et al. are devoted to the ecology and abundance of the Khiva pheasant in Karakalpakstan.

Today, according to literature data and our observations in the territory of Karakalpakstan, the avifauna is represented by 319 species of birds, of which more than 50 species are related to hunting and fishing birds and are an object of hunting.

Among them, 14 species are widely used by hunters: *Anser anser*, *Anas platyrhynchos*, *Netta rufina*, *Aythya ferina*, *Anas crecca*, *Anas strepera*, *Anas querquedula*, *Tadorna ferruginea*, *Tadorna tadorna*, *Phasianus colchicus*, *chrysomelas*, *Fulica atra*, *Alectoris chukar*, *Coturnix coturnix* and *Pterocles orientalis*.

For amateur, hunting sports the following kinds are used: *Phalacrocorax carbo*, *Syrhaptes paradoxus*, *Rallus aquaticus*, *Gallinula chloropus*, *Burhinus oedicnemus*, *Vanehus vanellus*, *Philomachus pugnax*, *Gollinago gallinago*, *Columba livia*, *Streptopelia turtur*, *Streptopelia orientalis*, *Sturnus vulgaris* and others.

Among hunting and fishing birds there are anseriformes. They are objects of hunting and fishing, amateur, sports

Volume 9 Issue 2, February 2020

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hunting, have high and taste qualities of meat, are caught for the sake of fluff, and are used in folk medicine. They represent aesthetic value, decorate our reservoirs, folk legends and beliefs are associated with them, they are used for making stuffed animals for commercial purposes, for decorating fur coats and making children's hats (merganser).

Considering the dynamics of bird shooting according to the data of the Karakalpak society of hunters and fishermen of the Republic of Karakalpakstan for the period from 1940 - 2019, it can be noted that if about 100,000 birds were caught in the 1940-50s, in the 60s - up to 70,000, and in 1994, prey decreased to 20,000 birds (Fig. 1).

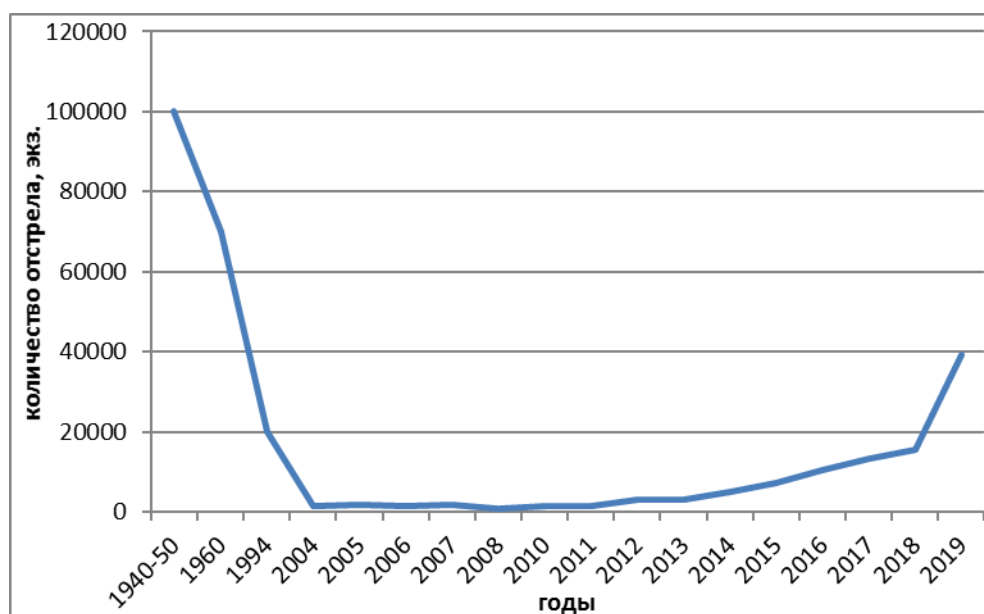


Figure 1: Dynamics of hunting birds shooting according to the Karakalpak society of hunters and fishermen for bird hunting (1940-2019)

From 2004 to 2015, the dynamics remained almost at the same level (from 1305 to 7343 birds). Beginning in 2016, the number of birds shot by 2018 increased to 15500 birds, in 2019 - to 39102 birds per year.

All species of birds of prey, all owls, herons of all species, both species of cranes, bitterns, all bustards (3 species), all species of terns and gulls, including species included in the Red Book of the Republic of Uzbekistan and the IUCN Red List, are subject to special protection and prohibition of hunting.

Currently, it is known that various environmental factors have a very strong influence on the avifauna of the tugai (Amudarya delta) and desert (Ustyurt, Kyzylkum) ecosystems. For example, it can be noted that climatic changes are very often observed - cold winters, plus temperatures with thick snow cover, severe snowy winters. We also note that thick snow cover sometimes lasts almost until mid-February; birds experience difficulty in obtaining food. In this regard, it would be advisable to feed, which must be taken into account in the future.

In particular, in the thick part of tugai in cold conditions, a favorable environment is formed for *Halimodendron halodendron*, *Phragmites communis*, *Salsola* and *Tamarix* thickets, where birds adhered to these sites.

We also note that in tugai and *Phragmites communis* thickets favorable conditions were created for rest, overnight stays, and energy storage for further continuation of the flight of birds. The ruins of the caravan-shed fortress (XIV century), burial grounds, rocky gorge of the deep chink

gorge, high scattered thickets of saxaul, wanderings between lakes can be attributed to the same places.

It is during this period (mass hatching) in the conditions of tugai (Amu Darya delta) and desert (Ustyurt, Kyzyl Kum) territories that adverse conditions are also created associated with waterlessness, which is repeated annually. Under these conditions, a group of young chicks with their mother, in search of water, switches to the waters of the river or canals, springs, artesian springs and wells. However, here they are exposed to natural threats (waiting predators: *Canis aureus*, *Felis chaus*, *Vulpes vulpes*, etc.) and without reaching maturity, most of them die. It should be emphasized that in the autumn period on agro landscapes, most of the tugai birds are exposed to anthropogenic factors, such as capture by hunter-poachers, deforestation, which affects the destruction of nests, etc.

Thus, in order to preserve and improve the ecological state of the South Aral Sea region, ways to preserve the biodiversity of birds and the possibility of inexhaustible use of their resources are outlined. Therefore, the water bodies of the South Aral Sea region need constant environmental monitoring and development of conservation measures, such as, for example, the creation of wildlife sanctuaries with a temporary regime for the protection of birds during spring and autumn migrations.

2. Conclusions

To protect the hunting and fishing species of birds, we consider it necessary to develop and implement the following measures:

- Strengthening the fight against poaching;
- Carrying out phytomeliorative and biotechnical works, i.e. creation of natural habitats, as well as maintaining the number of tugai birds, further expansion of the areas of *Elaeagnus turcomanica*, *Glycyrrhiza glabra*, *Halimodendron halodendron*, *Alhagi pseudalhagi* and other cereal *Poaceae* plants, as fodder objects of birds due to afforestation in wastelands;
- To carry out educational work among the local population about the need for rational use of hunting resources, to acquaint them with the list of tugai species of birds prohibited for hunting, penalties, etc.
- To stop the drying of tugai and to maintain all the tugai vegetation, it is necessary to irrigate the exposed area at least twice a year (March-April, July-August);
- During a harsh winter (thick snow cover) due to difficulties in obtaining feed, it is advisable and necessary to feed;
- During the period of mass hatching of chicks, it is advisable to organize an artificial "watering place" in remote areas, i.e. create temporary small ponds or organize special containers with water;
- Prohibition and strict control of deforestation and their reduction; burning and felling of bushes; cattle grazing in forests, intensifying the fight against poaching;
- Create optimal conditions for nesting.
- To preserve biodiversity and to protect rare and endangered bird species, we also consider it necessary: an environmentally favorable "green corridor" for migrants (birds and saigas) from key habitats, nesting birds in particular.

Considering the remote location of the studied monitoring sites in the zone of weak anthropogenic impact (no cattle grazing, poaching, etc.), we recommend that these territories be reserved for conservation of biodiversity.

Considering the great diversity of vegetation and animals and in order to preserve the gene pool of the avifauna, natural and artificial resettlement of some significant species of birds is necessary. And also, due to the small number of predators, it is possible the resettlement of pheasants *Phasianus colchicus* and *Alectoris chukar* chives in the studied territories.

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