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ECOLOGICAL AND ECONOMIC IMPORTANCE OF THE WOLF (*CANIS LUPUS LINNAEUS*) IN SOUTHERN ARAL CONDITIONS

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ANNOTATION

*The article discusses the ecological and economic significance of the wolf in the conditions of the Southern Aral Sea region. The South Aral Sea region is one of the key regions rich in natural populations of carnivorous mammals with a narrow range structure, including the wolf (*Canis lupus Linnaeus*). Wolves are the main cause of individual death of herbivorous animals and play an important role in maintaining their ecological and physiological well-being. One aspect of natural selection is carried out through the predation of wolves.*

KEYWORDS: *ecosystem, population, relationships, method, region, population ecology.*

INTRODUCTION

One of the fundamental problems of population ecology, which is of great theoretical and economic importance, is the relationship "predator - prey". There are no absolutely useful or absolutely harmful predatory animals in nature. Therefore, ecologists, zoologists and hunting specialists from many countries of the world, including the Republic of Uzbekistan, are actively developing methods for identifying and quantifying the patterns of relationships in the "predator-prey" system, which is of paramount ecological and economic importance. One of the representatives of carnivores, the wolf is known to have some ecological significance. Consequently, studies of the bioecological features of wolves (*Canis lupus Linnaeus*) and their ecological and economic importance in all natural zones of the Southern Aral Sea region are acquiring actual scientific and practical significance.

STUDY DEGREE

In various regions, the ecology of carnivores, including the ecology of the wolf, their ecological significance are reflected in the studies of foreign scientists Bibikov D.I. et al. (1985), Pavlova M.P. (1990), Korytina S.A. (2008, 2009, 2010, 2011), Bondareva A.Ya. (2002), Smirnova V.S., Matveeva A. (2001), Fedosenko A.K. (1986), Badridze J.K. (2004),

Suvorova A.P. (2004) and others.

In the Republic, studies on the study of the ecology of wolves, their distribution in ecosystems and their economic importance were given in the works of M. Palvaniyazov (1974, 1990), T. Nuratdinov (1969), R. Reimov (2000, 2003). But the above information cannot provide complete information on the ecology of the wolf (*Canis lupus Linnaeus*) in the conditions of the Southern Aral Sea region. Therefore, the substantiation of the study of wolf ecology in the conditions of the Southern Aral Sea region is of theoretical and practical importance.

MATERIALS AND METHODS

This work is based on data collected from 2009 to 2021. in the South Aral Sea region on the example of the Republic of Karakalpakstan.

Ground surveys were carried out in accordance with the approved program for the study of the ecological characteristics of the wolf population. At the same time, field expeditions were carried out on the territory of the districts of Karakalpakstan: Kegeyli, Chimbay, Takhtakupyr, Muynak, Kanlykul and Shumanai, Ellikkala, Beruni and Turtkul regions, as well as the Ustyurt plateau and the Kyzylkum desert. Field studies to study the ecology of the wolf were carried out according to the generally accepted methodology of



G.A. Novikov (1953).

RESEARCH RESULTS

The South Aral Sea region is not only one of the centers of fauna biodiversity in Central Asia, but is also one of the key regions rich in natural populations of carnivorous mammals with a narrow range structure, including the wolf (*Canis lupus Linnaeus*).

Wolves are the main cause of individual death of herbivorous animals and play an important role in maintaining their ecological and physiological well-being. One aspect of natural selection is carried out through the predation of wolves. With the complete extermination of the wolf, the growth in the number of ungulates sharply progresses, leading to a deterioration in the quality of their population and habitats. At the same time, a decrease in weight, linear dimensions and the optimal structure of the ungulate population was especially often observed. It was also noted among ungulates the spread of various diseases, various natural injuries, physical deformity, increased infestation with ecto and endoparasites, etc. [16].

In the subsequent period, the outbreak of the number of wolves, first of all, defective ungulates are exterminated. It is at such moments that the "sanitary" role of the wolf is especially manifested. According to the literature data of some authors it is indicated that wolves kill healthy animals in their prime. But studies conducted by American scientists show that wolves eat only old and sick victims. [17].

In the course of the study, we took into account two opposing points of view of specialists. Each point of view has its own convincing arguments. The opposition of experts' opinions on the ecological role of wolf predation does not exclude either one or the other. Most likely, the studies were carried out in different conditions, at different times and reflect the different state of the predator and prey populations that do not adequately respond to the wolf.

When assessing the selective role of the wolf in ungulate populations, both points of view should be used, which we did. With a sharply reduced number of wolves and a violation of hierarchical structuring in its flocks, the selectivity of prey increases. At the same time, weakened and injured victims were observed among their prey. In contrast, at a sufficiently high number of wolves, prey selectivity decreases and elimination becomes more general. The above was confirmed on a model wolf population in the Aspantai-Shakaman territory of the Chimbay region.

There is evidence that if the population of ungulates is in poor condition, then wolves prey in a large number of mostly defective individuals. If after some time the state of the ungulate population improves,

then quite healthy, strong individuals can die from wolves. Especially the sanitary role of wolves is observed in protected areas (reserves, reserves, national parks), because in these optimal environmental conditions, with a high density of ungulates, overpopulation, high food competition, and depletion of forage resources are observed.

In any environmental conditions, wolves primarily prey on the most vulnerable prey within the population group. Young one-year-olds are especially affected, as they are susceptible to food stress and any deterioration in habitat conditions makes this age group very accessible to the wolf. According to A.A. Sludsky (1981) on the territory of Kazakhstan from wolves, first of all, young wild boar and goitered lambs perish. Wolves are selective about the age and sex of the prey population and about local environmental conditions. This selectivity depends on temporal and spatial variability.

Considering the predatory role of the wolf from the biocenotic point of view, it should be noted that the interacting species are not separate species of the prey population, but their groups, which form relatively homogeneous ecological links. Within each such link, compensatory reactions are highly developed that support the functional stability of the "predators – herbivorous – vegetation" system. Such an ecosystem functions as a whole.

When studying the ecological significance of the wolf, one cannot but consider its relationship with other predators in the region. There are no large predators competing with wolves on the studied territory of the Southern Aral Sea region, but there are some small predators that have a common food base for lagomorphs and mouse-like rodents. These include the jackal, fox, corsac. Systematically, the jackal is the closest to the wolf, but they have different ecological niches. Basically, the jackal lives in dense reed thickets, and feeds on carrion left over from wolves. There is no competition for asylum.

The habitats of jackals and wolves may partially or completely overlap, but they lay their hunting routes in different ways. The placement of jackals depends on the use of the territory by lone wolves or packs. Where non-territorial wolves hunt, the number of jackals is greater than where wolf packs constantly keep. There is evidence that with a decrease in the number of wolves, the number of jackals decreases. The reason for this is the lesser availability of the remnants of the prey of wolves for the jackal. Based on the foregoing, it can be noted that the biocenotic relationship between the wolf and the jackal has the character of commensalism.

The fox and corsac are also out of direct competition with the wolf due to their food specialization. Also, like the jackal, these species can

switch to a predominant feeding on carrion, in particular, on the remains of wolves' prey (table).

Table
Biocenotic relationships of wolves with other predators

Relationship	Kinds		
	Jackal	Fox	Korsak
Eating the remains of the wolf's prey	+	+	+
The use of burrows by wolves		+	
Direct aggression	+	+	+
Presence in the diet of prey species and plant foods in common with wolves	+	+	+

According to scientists, while examining the stomachs of foxes, the remains of saigas left behind by wolves were found. Several corsacs were also observed near the remains of wolf prey. During the migration of saigas, korsaks were pursued after herds. But at the same time, during the migration period, most of the Korsaks die when attacked by wolves [4,5,6].

During expeditionary research in 2014, we recorded cases on the territory of the assigned farm of the Society of Hunters and Fisheries of the Republic of Karakalpakstan, where two adult wolves tore a jackal to pieces. Bibikov D.I. et al. (1985) described another important ecological benefit of wolves: "It is well known that the prey of wolves provides for the existence of many" freeloaders "- small and feathered predators.

The economic value of the wolf lies in how and in what quantity, he withdraws ungulates in forestry. In such conditions, the assessment of his hunting activity becomes negative. The main negative effect of a wolf is as follows: firstly, the increasing number of wolves sharply reduces the number of useful animals, secondly, wolves are carriers of infectious diseases such as scabies and rabies, and thirdly, they cause great damage to livestock and local the population. So, according to our observations, in 2005, in the village of Uchsai-Muynakskiy district, there were cases of attacks of rabid wolves on two residents of the village, after which both died a month later from rabies.

Studies carried out earlier in the South Aral Sea region have established that the assessment of the "harmfulness" or "usefulness" of a wolf was carried out on isolated cases, without the necessary study of the entire comprehensive approach to this problem. The harmfulness of a wolf is determined by the fact that it destroys domestic animals in massive quantities, which make up an essential part of its diet. This is clearly expressed in areas where animal husbandry is well developed (Chimbay, Kegeili, Takhtakupyr, Karauzyak, Muinak, Kungrad regions).

Thus, we have established that with a sharp increase in the number of wolves, concentrations of their flocks in densely populated areas occur, and vice versa - with a sharp decrease in the number of wolves, the selection of individuals specializing in domestic animals takes place.

One of the ecological features of the wolf on the territory of the Southern Aral Sea region is the specialization of the use of the ecological niche. This means that both with an increased and a low number of wolves, pets are the priority object of their food. As a result of the analysis of the personal data, the approximate amount of damage caused by the wolf to animal husbandry in the territory of the Republic of Karakalpakstan was established (Fig. 1).

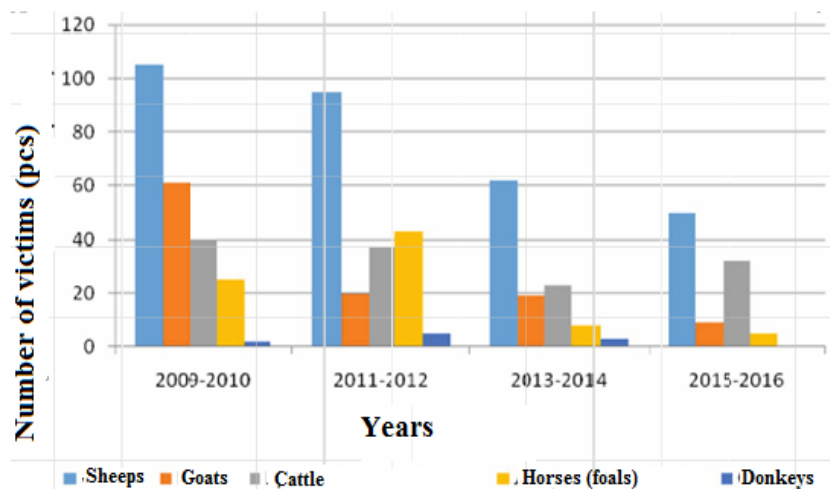


Fig. 1. Dynamics of damage done by wolves to animal husbandry on the territory of the Republic of Karakalpakstan for 2009-2016.

The analysis showed that the main victims of domestic animals are small and cattle.

CONCLUSIONS

Thus, on the basis of the above, it becomes clear that the ecological and economic significance of the wolf lies in the fact that by its predation it maintains the number of prey in an optimal state, significantly affects the population of ungulates, and can serve as an important regulatory ecological mechanism.

At the same time, the wolf is a factor regulating interspecific relations among ungulates, and its activity should be assessed not only from the point of view of its influence on the abundance of one or another prey species, but also taking into account how reliably and sustainably it protects vegetation from being overused by ungulates.

The next no less important value of the wolf is that under its influence, the composition of the populations of its victims is transformed, and the nature of their use of the territory also changes. In this case, it acquires an evolutionary aspect. In any case, the ecological assessment of natural phenomena should not be replaced by the economic one, and these assessments will never coincide [2]. The wolf is an excellent "breeder", a key species of desert ecosystems. It regulates the number of wild ungulates, preventing overgrowth of the livestock and the development of epizootics.

LITERATURE

1. Badridze Ya. Volk Questions of ontogeny of behavior, problems and method of introduction. - M: Publishing house Geos. - 2004. -34 p.
2. Bibikov D.I. et al. Wolf. - M. - Science. -1985. - 605 p.
3. Bondarev A.Ya. Wolf of the south of Western Siberia and Altai. -Barnaul. - Publishing house Barnaulsk. state ped. un-that. - 2002. -176 p.
4. Kidirbaeva A.Yu., Mamabetullaeva S.M. The ecology of the wolf (*Canis Lupus Linnaeus, 1758*) in modern conditions of the Southern Aral Sea region // News of the Dagestan State Pedagogical University. - Series Natural and exact sciences. - Dagestan. -2009. - No. 2 (7). - P.41-43.
5. Korytin S.A. Comparative behavior of canids (*Canidae*). - Kirov: VNIIOZ. -2011. - 64 p.
6. Mambetullaeva S.M., Kidirbaeva A.Yu. Bioecological features of a wolf (*Canis Lupus Linnaeus, 1758*) in the conditions of the Southern Aral region // Scientific medical bulletin. -Tambov (Russia). - 2015. - No. 2 (2). - P.76 - 82
7. Pavlov M.P. Wolf. - M. - Agropromizdat. - 1990.- 351s.
8. Sludskiy A.A. Wolf (*Canis lupus., 1758*) Mammals of Kazakhstan. -Alma -Ata: Science. -1981. - T. 3. - Part 1. - P.8-57.
9. Smirnov M.N. Wolf (*Canis lupus L.*) -Mammals of the lake. Baikal. -Novosibirsk: Science. -1984. - S. 44 - 45.
10. Suvorov AP Wolf in the Yenisei basin (biological aspects of population management) // author. thesis ... candidate of biological sciences - Krasnoyarsk -2004. -27 s.
11. Novikov G.D. Field research on the ecology of terrestrial vertebrates - M.: Sov. The science. -1953. - pp. 187 - 263.
12. Nuratdinov T. Ecology of predatory animals of the Amu Darya River and their economic significance. // abstract of thesis ... cand. biol. sciences. - Alma-Ata. - 1969. - 21p.
13. Palvaniyazov M. Predatory animals of the deserts of Central Asia. -Nukus. -Karakalpakstan, 1974. -320 p.



14. Reimov R. *Mammals of the Southern Aral Sea region (ecology, protection and use)*. - Tashkent: Fan. - 1985. - 96 p.
15. Fedosenko A.K. A.P. *Suvorov Wolf and ungulates: facets of control // Hunting and hunting farm*. –2004. - No. 3. - P. 1–3.
16. Tsyndyzhapova S.D. *The state of the number of wolves and the fight against it in the Irkutsk region // Proceedings of the conference dedicated to the 50th anniversary of the Faculty of Game Management. Part 1*. - Irkutsk: IrGSKhA –2000. - p. 209 –215.
17. Mech D.L., Frenzel L. *Ecological studies of the timber wolf in Northeastern Minnesota –US Dep. Agr. Forest.Serv. Res. Pap. 1971 a NO – 52*. - 62