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CURRENT STATUS OF BIRDS OF THE GENUS OF BEAM (MEROPS) IN UZBEKISTAN

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Abstract

The purpose of this article is to identify and evaluate the importance of birds of the genus Merops (European Bee-eater -Merops apiaster and Blue-cheeked Bee-eater -Merops persicus) in Uzbekistan, as well as to develop recommendations aimed at solving some problems associated with its protection. As a result of the study, in the aspect of biocenotic relations, the natural significance of these species was revealed. The economic value is determined and analyzed in beekeeping farms.

From the study of the remains of food contained in the stomachs, throats and nests of M. apiaster, a preliminary list of the main species of the food spectrum has been compiled. Based on the bioacoustic repellent "Korshun-8", a new, more effective bioacoustic repellent has been developed to repel bee-eaters. To solve some of the problems associated with the protection of bee-eaters, recommendations have been developed aimed at preventing the illegal extermination of bee-eaters, preserving their nesting colonies, etc.

Keywords: biocenotic communications, bioacoustic repellent, distress signal, commensalism, predation, bees, pellet, food residues

Introduction

Usually, an incorrect definition and assessment of the values of an animal species can affect the stability of the population or its continued existence. As you know, the same species in different parts of its range has different meanings. Therefore, it is very difficult to characterize a species in terms of its values and take appropriate measures. Based on these complexities, serious problems are created regarding the protection, use and management of the behavior of the species. In many countries, there is currently a one-sided approach in determining the value of a species, that is, the value of a species is mainly estimated from an economic point of view. Unfortunately, as a result of such an unacceptable approach in Uzbekistan and in some other countries, many birds from the bee-eater genus - Merops are destroyed. These are European Bee-eater -Merops apiaster and Blue-cheeked Bee-eater -Merops persicus).

In Uzbekistan, the significance of the biocenotic relationships of these species has not been sufficiently studied [9,11]. The lack of these and other information, especially about the conservation status, is the main reason for the negative attitude of humans towards these species.

At present, M. apiaster is listed in the Red Book of the Republic of Belarus and a number of Red Books of the subjects of the Russian Federation (Bashkortostan, Mari El, Chuvashia, Tatarstan, Udmurtia, Vladimir regions, Altai etc.). M. persicus is listed in the Red Books of the Astrakhan region and the Staropol of the Russian Federation. Despite this, in Uzbekistan and in many countries where beekeeping is developed, this species is destroyed by shooting, as beekeepers consider these species to be the main enemy of bees. This situation dictates that in the future, with the development of beekeeping, the scale of the negative impact of birds of the genus Merops may increase.

Based on this, we consider the definitions and assessment of the importance of birds of the genus Merops bee-eaters to be relevant in terms of their protection and rational use.

Materials and Methods

The materials were collected for the period 2020–2021 in various administrative-territorial entities of the Republic of Uzbekistan (Tashkent, Bukhara, Samarkand, Fergana, Karakalpakstan, Surkhandarya). The field study was carried out in natural landscapes, nesting colonies, beekeeping farms and agrocenoses.

The number of birds was taken into account in stationary areas and fixed routes [6,7,10]. At the same time, the length of the route was 1-2 km, the width was 50 meters, in total 3369 km were covered. To determine the composition of food, stomachs were collected from shot birds (n=115), from nocturnal and nesting colonies of pellets (n=1020) and food remains from nests (n=48).

Animal species found in food remains were studied in the laboratory of the Department of Zoology of the National University of Uzbekistan. An Eschenbach mobilux led magnifier and MBS-1 binoculars and guides were used to determine the species belonging of animals [1, 2, 8, 16, 17, 18, 19].

In order to control the behavior of birds by scaring them away from beekeeping farms, the bioacoustic repellant Korshun-8 (manufactured from Ukraine) was tested. For this purpose, we tested the “Merops – distress signal” developed by us, which is adapted to broadcast distress signals of local widespread bird species (Accipiter nisus, Falco naumanni, M. apiaster).

Results

From the genus Merops in Uzbekistan there is European Bee-eater –M. apiaster and Blue-cheeked Bee-eater –M. persicus. Which is a migratory-nesting species and is widely distributed in natural and cultural landscapes. It is noted in the literature that M. apiaster is found in mountainous and foothill areas, and M. persicus in the plains (deserts). It is noted that in the southern parts of the republic the abundance of M. apiaster is greater than that of M. persicus [9,11].

We examined 5 museum collections in Uzbekistan and found 196 specimens of these species of datiryushi there in the main end of the XIX th and in the first quarter of the XX th century [4]. An analysis of these samples shows that M. apiaster (110) is larger in abundance than M. persicus (86), and in terms of geographical distribution, it is different.

At present, in Uzbekistan, the total abundance of M. persicus is greater than that of M. apiaster. This is explained by our own research on accounting and description of bird distribution areas. Apparently, global climate warming also has a positive effect on the wide distribution and increase in the abundance of the more thermophilic M. persicus. And this is confirmed by the expansion of the breeding ranges of M. apiaster in a more northerly direction [3].

It should be noted that people involved in beekeeping consider these species to be harmful. In their opinion, the bee-eaters mainly feed on bees and, at the same time, the economic efficiency of the economy decreases. Our data obtained from the determination of the species composition and number of food objects of M. apiaster confirms that these species are useful.

Discussion

In Uzbekistan, the reproductive cycle of species of the genus Merops occurs mainly in natural landscapes. This period covers from mid-april to early august. After the reproductive cycle, the bee-eater leaves the nesting sites, since, during this period, natural landscapes cannot satisfy the food needs of birds. The reason for this is the lack of food resources associated with climatic conditions.

During this period, especially in arid regions, the species diversity and abundance of insects are sharply reduced. Secondly, an increase in the population due to hatched chicks also contributes to a change in trophic relationships.

In this regard, after the reproductive cycle, the bee-eater is pumped out into cultural landscapes (agrocenoses, settlements), where many insects are still preserved. They are especially concentrated in large numbers in beekeeping farms. It is during this

period (from the beginning of august to the end of september) that bee-eaters feed on bees in local areas and cause some damage to beekeeping farms.

Thus, in Uzbekistan, depending on the change in trophic relationships, the habitat, abundance and practical significance of these species change. This is evidenced by the indicators of the food spectrum of M. apiaster. If, in the reproductive cycle in the food composition, the share of Apus mellifera is 0,64%, then after the reproductive cycle it is 3,04%.

Under the conditions of Uzbekistan, bee-eaters are actively involved in biocenotic relationships and play an important role in maintaining the stability of the biocenosis [5, 13]. One of the participation in the biocenotic relationships of bee-eaters is commensal shelter. In the old nests of these birds, we found some species of Arthropoda and Chordata (Bufo viridis, Phrynocephalus interscapularis, Trapelus sanguinolentus, Cyrtopodion russowi, Coliber karelini, Eryx miliaris). These species in such nests are reliably protected from predators and from adverse climatic conditions [15]. Some nests are used for breeding other bird species (Coracias garrulus, Acridotheres tristis, Passer indicus, Passer montanus).

Usually pellets accumulate around and inside the nests of the bee-eater and in the places of their roosting. In these pellets, we found some species and their larvae (Lasius niger, Monomorium pharaonis, Dermestidae). Surely these pellets are food resources for them. The relationship of commensal specious obtaining nutrients and locomotion ensures the formation and stability of the food chain in the biocenosis.

The trophic relationships of bee-eaters in the biocenosis are very diverse and complex. Bee-eaters, when stalking, ambushing and in other behaviors while hunting for insects, will demonstrate the behavior characteristic of predatory animals. It should be noted that the insect also reacts to the sounds of the bee-eater and exhibits the behavior characteristic of the victims. In turn, bee-eaters and their chicks and eggs also become prey of some species (Vulpes vulpes, Canis aureus, Falco naumanni, Circus aeruginosus, Varanus griseus, Coluber karelini and Coluber ravergieri). In 2020, in one of the nesting colonies located in an old quarry in the Bukhara region, Varanus griseus was found swallowing an adult M. persicus. As a result, bee-eater predation is involved in regulating the number of insects, causing some damage to beekeeping, and predatory animals are involved in regulating the number of bee-eaters.

It should be said that in many countries, including Uzbekistan, M. persicus and M. apiaster are considered the main pest of beekeeping farms and therefore they are scared away or destroyed using different methods (shooting, catching with nets, destroying nests). Sometimes various optical and acoustic devices are used to scare

away birds. According to our observations and the results of the survey, it was revealed that only in the Bukhara region for 2016-2018. Approximately 10000 individuals of M. persicus have been shot, more than any other illegally shot species [14]. Although, both species are listed in the Red Books. Such an attitude towards species of the genus Merops and a one-sided assessment of their importance require further development of appropriate measures to control their behavior and protect these species from illegal destruction. Currently, in many countries, different repellents are used to control the behavior of birds [12]. When testing the bioacoustic repellent "Korshun-8", the expected result was not obtained. This can be explained by the population individuality of the sound signals that species perceive and respond to. Based on this repellent developed by us, the bioacoustic repellent “Merops – distress signal” is more effective in controlling the behavior of bee-eaters.

We believe that M. apiaster and M. persicus have a positive value in nature and in human economic activity. Especially, in the biocenoses of the arid zone of Uzbekistan, where many factors (lack of nesting sites and food resources, harsh climatic conditions, etc.) are at a critical level, it is necessary to take appropriate measures to prevent illegal hunting and destroy the nesting sites of these species.

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