

Diversity of birds of prey belonging to the Accipitridae family in the eastern part of the Kugitang Range

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Abstract. This article provides information on the study history, conservation measures, status, and meeting places of the birds of prey belonging to the Accipitridae family found in the eastern part of the Kugitang mountain. In the introduction, the relevance of the topic, the methods of research, and the results and discussion of the study of the researched predator species are described. Proposals for the protection of these species are given in the concluding part of the article.

1 Introduction

It is important to study the modern status of the population and distribution areas of the birds of prey belonging to the *Accipitridae* family found in the eastern part of Kugitang. The fact that 70% of the species of birds of prey belonging to the *Accipitridae* family in the territory of Uzbekistan are found in the eastern part of Kugitang shows that it has an important.

The Kugitang range is located in the southwest of the Pamir-Alai mountain system, in the territory of Uzbekistan and Turkmenistan. It is the southern extension of Boisun mountain and extends for about 100 km on the right side of Sherabad river. The highest point is Ayribaba peak (3139 m). In order to protect the mountain-forest ecosystem in the eastern part of the Kugitang range, the Surkhan state nature reserve was established in 1986, with a total land area of 23,406.4 ha.

2 Methods

Materials for studying the abundance of diurnal species of birds of prey were collected as a result of field studies conducted in the territories of the eastern part of the Kugitang range during 2012-2018. Also, the data of statistical and scientific reports of the Surkhan State Reserve for the last 8 years were studied and processed. So far, 27 species of diurnal birds of prey have been recorded on the territory of the eastern part of the Kugitang ridge. Of these, 21 species are representatives of the hawk family and 6 species of falcons.

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3 Results and discussion

Although the Kugitang range is located in the southern region, the natural climatic conditions vary according to the seasons. In this area, 7 species of inhabiting birds of prey (*Gyps fulvus*, *Aegypius monachus*, *Gypaetus barbatus*, *Circus aeruginosus*, *Accipiter nisus*, *Buteo rufinus*, *Aquila chrysaetos*) are, 5 species (*Neophron percnopterus*, *Circaetus gallicus*, *Accipiter badius*, *Hieraaetus pennatus*, *Hieraaetus fasciatus*) flying, nesting, 4 species (*Pernis apivorus*, *Pernis ptilorhynchus*, *Circus macrourus*, *Circus pygargus*) seasonal migrant, 3 species (*Milvus migrans*, *Circus cyaneus*, *Buteo buteo*, *Aquila clanga*) flying, wintering, 2 species (*Accipiter gentilis*, *Buteo lagopus*) is a winterer.

Data on meeting places, number and modern status of birds of prey belonging to the *Accipitridae* family found on the eastern slopes of Kugitang.

Honey-buzzard (*Pernis apivorus*) is a rare flying species. It is found in the eastern zones of Kugitang, in the low mountains of Kelif-Sherabad. It is found mainly in the foothills, in some cases up to the middle regions of the mountain. The distribution and number of this species in Kugitang has not been sufficiently studied.

Oriental honey-buzzard (*Pernis ptilorhynchus*) is a rare migratory species. Like the above type, it flies through the low hills of the eastern part of Kugitang, the low mountains of Kelif-Sherabad. The meeting places and numbers of the species in Kugitang require research.

Black kite (*Milvus migrans*) - used to nest in small numbers in Kugitang. N.A. Zarudny 1910 found 3 nests with eggs. On May 23, 2008, a pair of birds was found in Tangiduvol gorge (Mitroplsky, Filatova, Soldatov, 2012). Currently, it can be seen as a non-nesting, wintering and flying species in small numbers. During our research, this species was not found in the region. This situation is probably due to the warming of the climate. Listed in Appendix II of CITES and SMC for conservation purposes.

Eurasian griffon (*Gyps fulvus*) is a weak, shrinking, mosaic nominal subspecies (Red Book of Uzbekistan, 2019). This species is included in the national Red Book, Appendix II of CITES and SMC. It is found in Tangiduvol and Kyzylolma gorges (Salikhbaev, Ostapenko, 1964; Mitroplsky, Filatova, Soldatov, 2012).

In the course of our research, in 2012, it was found that 6 pairs of birds formed a colony and built nests in Oltikunliksoy and 14 pairs in Palangdara. In 2015, it was found that there are 3 nests in the rocks around Bashbulok, Tangiduvol Gorge. The population density of the bird was observed to be higher in the northeastern part of Kugitang mountain. Eurasian griffon feeds on carrion. In January 2013, it was found that 37 birds gathered near the village of Khodjanko to feed on cow carcasses. Due to the large range of birds foraging along the Kugitang mountain range, it is difficult to calculate the density in one part of the mountain.

According to the results of the spring and autumn wildlife census in the Surkhan reserve, this species was counted as 60-65 in 2016, 2017, 50-65 in 2018, 20-24 in 2019, 88 in 2020, and 87-100 in 2021. (Nature Chronicle of Surkhan State Reserve, 2016-2021).

Cinereous Vulture (*Aegypius monachus*) is a close to weak, mosaic species (Red Book of Uzbekistan, 2019). The black griffon is included in the national Red Book, the international Red List, Appendix II of CITES and SMC.

It was recorded in Shalkan and Tangiduvol regions (Salikhbaev, Ostapenko, 1964; Mitroplsky, Filatova, Soldatov, 2012).

Currently, it is found mainly in Gardon massif, Zaravutsoy, Vandop, Tangiduvol, Boglidara, Koldaroz regions of Kugitang. In 2012, 1 nest was found in Vandob region, 2015 in Oltikunliksoy. The bird is naturally small in number, Surkhan Nature Reserve registered 8 heads in the spring of 2017 and 5 heads in the fall count.

Lammergeier (*Gypaetus barbatus*) is a weak, naturally rare, locally distributed subspecies (Red Book of Uzbekistan, 2019). *G. barbatus* is included in the national Red Book, the international Red List, Appendix II of CITES and SMC.

At the beginning of the last century, N.A. Zarudny met this species during the nesting period in Kugitang, (Ivanov, 1969). In the last decade of May 2008, a pair of birds was found in Kyzylolma and Tangiduvol regions (Mitropolsky, Filatova, Soldatov, 2012).

G. barbatus is found constantly in the south of Kugitang: Tangiduvol, Oltikunliksoy, Boglidara, Kuruqkoldara, Zarautsoy and in the northern part of Gordara and Mukhkaptarkhana. Sometimes it enters other areas in search of food. It has been found that the species nests in Tangiduvol, Oltikunliksoy, Gordara and Mukhkaptarkhana. It sometimes places its nest near a Eurasian griffon colony. It is always found in small numbers in the Kugitang range.

Egyptian vulture (*Neophron percnopterus*) is a weak, declining, patchy species. (Red Book of Uzbekistan, 2019). It is included in the National Red Book, the International Red List, Appendix II of CITES and SMC. It was taken under protection in the Surkhan Nature Reserve.

It nests in the foothills of the Kugitang ridge (Salikhbaev, Ostapenko, 1964). It looks for food in the lower zones of the mountain. The population density of this species is not high in the study area. In particular, it comes close to villages in search of carcasses of domestic animals. 37 breeding pairs are listed in Kugitang and Bobotog (Red Book of Uzbekistan, 2019). During our research, there were no nesting cases of this bird.

Short-toed Snake-Eagle (*Circaetus gallicus*) is a weak, shrinking, flying, nesting subspecies of Turkestan (Red Book of Uzbekistan, 2019). Included in the National Red Book, Appendix II of CITES and SMC. According to I.A.Ivanov (1969), Zarudny met him in 1910 in the forest of fir tree of Kugitang. On May 22-24, 2008, two birds were found in Kyzylolma and Tangiduvol (Mitropolsky, Filatova, Soldatov, 2012). This bird was not found in the Kugitang area during our field research in 2012-2022.

Western Marsh Harrier (*Circus aeruginosus*) is a species characteristic of water swamp biotopes in the plains, but it can be found in the zones up to the hilly region. 2016 was noted to be changing around the village of Bedak, located in the lower zone of Kugitang. It is not found in the middle of the mountain. Listed in Appendix II of CITES and SMC for conservation purposes.

Hen Harrier (*Circus cyaneus*) is a migratory, wintering species. During the years 2013-2017, it was found several times in the process of searching for food from November to the second half of March around the villages of Aktash and Tuzkon in the south-eastern part of Kugitang. Listed in Appendix II of CITES and SMC for conservation purposes.

The Pallid harrier (*Circus macrourus*) – *C. macrourus*, flying species. It feeds on small birds, rodents, lizards (Red Book of Uzbekistan, 2019). It is included in the National Red Book, the International Red List, Appendix II of CITES and SMC. It was found on the eastern slopes of Kugitang and around the Sherabad River, in the low mountains of Kelif-Sherabad. It was found during foraging in the lower zones of Kugitang mountain (Zarabog, Maidan villages, 2013-2017).

The Montagu's harrier (*Circus pygargus*) - flies during seasonal migration. On the eastern foothills of the Kugitang ridge near the village of Vandob, on August 17, 1956, the obtained specimen of birds is preserved in the ornithological collection of the Institute of Zoology of the Academy of Sciences of Uzbekistan. During 2012-2017, we met in the pastures around the villages of Pashkhurt, Aktash, Tuzkan in the eastern part of Kugitang. Compared to the information given in the sources about the number of species, the number is now several times less. Listed in Appendix II of CITES and SMC for conservation purposes.

The Shikra (*Accipiter badius*) is a migratory nesting species. Found in gardens of villages such as Vandob, Shalkan and Tangiduvol in the east of Kugitang (Salikhbaev, Ostapenko, 1964). Currently, it nests in large walnut trees, orchards, roadside trees in the villages of Khojanqo, Tangiduvol, Khatak, Kampirtepa in all the foothills of Kugitang. Nesting birds form 15-18 pairs. Listed in Appendix II of CITES and SMC for conservation purposes.

The Eurasian sparrowhawk (*Accipiter nisus*) is a flying, wintering species. Salikhbaev H.S., Ostapenko M.M. recorded that the Eurasian sparrowhawk is met in Kugitang after the second half of November (1964). It is often found in the lower and middle parts of the Kugitang mountain, mainly in the winter season. In 2015, it was found in the gardens of Khodjanko village. There are probably pairs involved in nesting in the montane forests of the northern part of the range.

The Goshawk (*Accipiter gentilis*) is a migratory wintering species. They visit to Kugitang late autumn, winterer. In spring migration is rare. It is always found in small numbers throughout the foothills and mid-mountain regions. Listed in Appendix II of CITES and SMC for conservation.

The common buzzard (*Buteo buteo*) is a migratory wintering species. It is found in the winter season in the eastern part of Kugitang, in the foothills, in the low mountains of Kelif-Sherabad. In 2015, it was found below the village of Gurjak. Distribution areas in the eastern part of Kugitang have not been fully studied. Listed in Appendix II of CITES and SMC.

The Long-legged buzzard (*Buteo rufinus*) is an inhabiting species. Nests in the foothills of Kugitang (I.A. Ivanov, 1940). It was found in the village of Vandob on May 18, 2008 (Mitropolsky, Filatova, Soldatov, 2012). In the observations of the following years, nests of Long-legged buzzards were not found on the eastern slopes of Kugitang, but birds looking for food were found in the mountain and foothills. In recent years, the trend of the number is decreasing. For the purpose of protection, it is included in Appendix II of CITES.

The Greater Spotted Eagle (*Aquila clanga*) is a vulnerable, rare, migratory species that winters in the south in small numbers. Included in the National Red Book, International Red List, CITES II and Annexes I of SMC. It mainly migrates in the plain region and through low mountain areas. During research, it was found in 2016 around the village of Vandob in the eastern part of Kugitang.

The Golden eagle (*Aquila chrysaetos*) is a vulnerable, naturally rare, inhabiting, locally distributed species. Included in the National Red Book, Appendix II of CITES and SMC. It was found by N.A. Zarudnyi as a nesting species on the eastern slope of Kugitang (Ivanov, 1969). The eagle is found in normal numbers in the southern and northern parts of the reserve. Its nest was found in Shamoli, Gordara, Zaravutsoi, Oltikunlikdara. This species is always found in the Gardon massif, Kuruqkoldara, Boglidara, Zaravutsoi, Daroyigul regions in the eastern part of Kugitang (Surkhan State Nature Reserve Nature Chronicle, 2016).

The booted eagle (*Hieraaetus pennatus*) is a weak, declining, flying subspecies native to Central Asia. Included in the National Red Book, Appendix II of CITES and SMC. It was taken under protection in the Surkhan Nature Reserve. It is found in Kugitang during the flight period (T. Kholikov, S. Mamarajabov, 2016). Abdunazarov (1982) recorded nesting in the juniper forests of the southern slopes of Kugitang. As migratory birds, we were noted in the period of spring migration.

The Bonelli's eagle (*Hieraaetus fasciatus*) is a critically endangered migratory nominative subspecies. Included in the National Red Book, Appendix II of CITES and SMC. Previously found in flight and nesting in study areas. We did not observe cases of bird encounters during the research. According to the information of a local resident who is interested in birds of prey (Normatov Abdusalam), this bird was found in the low plains of the southern part of Kugitang in March 2022. Observations are currently being made in places where nesting birds are likely to be present.

4 Conclusion

5 species of birds of prey belonging to the *Accipitridae* family found in this area are included in the Red List of the International Committee of the Red Cross, 10 species in the Red Book

of Uzbekistan, 19 species in the Appendices of CITES and SMC as rare and endangered species.

Although the nature reserve has been established in the eastern part of Kugitang, if the areas where they are found are turned into a protected area, the reduction of the population of these species and the reduction of their distribution areas would be prevented.

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