

Project results on supplemental feeding of vultures in Ustyurt State Nature Reserve (Kazakhstan) in 2016



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Five species of vultures (scavenger birds) occur in Republic of Kazakhstan (RoK): Egyptian Vulture (*Neophron percnopterus*) (Endangered (EN), IUCN Red List version 3.1), Cinereous Vulture (*Aegypius monachus*) (Near Threatened (NT), IUCN Red List version 3.1), Bearded Vulture (*Gypaetus barbatus*) (Near Threatened (NT), IUCN Red List version 3.1), Himalayan Vulture (*Gyps himalayensis*) (Near Threatened (NT), IUCN Red List version 3.1) and Griffon Vulture (*Gyps fulvus*) (Least Concern (LC), IUCN Red List version 3.1). Until now, only Egyptian Vulture, Bearded Vulture and Himalayan Vulture are listed in the Red Data Book of Kazakhstan, however, according to experts, Cinereous Vulture and Griffon Vulture also require special measures of protection and should be included in this list of protected species.

Three species of vultures can be found in Mangistau Region, which is located in the south-west of the Republic of Kazakhstan: Egyptian Vulture, Cinereous Vulture and Griffon Vulture. To date, Egyptian Vulture and Cinereous Vulture have been confirmed as breeding species within this area. According to preliminary estimates there are about 30 pairs of Egyptian Vultures and a few pairs of Cinereous Vultures in Mangistau Region. Within the Ustyurt State Nature Reserve, which is located in the Karakiya district in the southern part of Mangistau Region, the number of nesting vultures has been roughly estimated at 3-4 pairs of Cinereous Vultures and 4-8 pairs of Egyptian Vultures. In addition, for the first time in Mangistau, there was a reported sighting of a young Bearded Vulture in the Ustyurt State Nature Reserve in 2011. Probably it was the same bird that was also observed by the staff of the Reserve in 2013-2014.

According to some experts, the main limiting factor for scavenger birds in Kazakhstan, including Mangistau, is a shortage of food supply caused by the sharp decrease in livestock and wild ungulate populations, especially Saiga, in the last decades since the collapse of the Soviet Union. Besides that, in Mangistau Region there were isolated incidents of electrocution of Cinereous Vultures and Egyptian Vultures on medium voltage power lines (6-10 kV). The problem of vulture mortality from diclofenac poisoning is not relevant because this drug is not used for livestock treatment in Kazakhstan.

In 2016 our team implemented a pilot project on vulture feeding in the Ustyurt State Nature Reserve. This work was done for the first time in Kazakhstan with the support of the Rufford Small Grants Foundation: http://www.rufford.org/projects/zhaskairat_nurmukhambetov

The Usturt State Nature Reserve was established in 1984 on the area of 223,342 hectares in order to preserve the pristine unique ecosystems, historical monuments, desert flora. The Reserve includes a southern part of the Western Chink (chink is a local name for chalk escarpment) of plateau Ustyurt stretching over 120 km, extensive depression of Kendirli sor (salt lake) with mountain Karamaya and small area of sand massif Karynzhyryk. The Ustyurt Chinks are quite steep cliffs rising to a height more than 100 m. It is the chinks in combination with deep canyons and skerries determine the unique identity of the landscape reserve which are the best place for nesting of a number of raptors that occur in the region, including vultures.

From April to October, twice a month we put down around 20 kg of offal at each of 3 supplementary feeding stations (lures), all located on the edge of cliffs along the Western "Chink" of the Ustyurt Plateau within the Reserve (chink is a local name for chalk escarpment). During the course of 11 field trips more than 600 kg of offal in total was laid out. The offal was obtained from the slaughter house in Zhanaozen and delivered in plastic barrels to the Reserve by means of a UAZ off-road vehicle. The first deposition of offal at the feeding stations was performed on 15 April 2016 and the last one on 26 October 2016.

Due to low vulture attendance at feeding station №3 located at the southern end of the Reserve (only one observation of one immature Egyptian Vulture), we decided to move it to a new location between feeding stations №1 and №2 and rename it as feeding station №4. Thus, the duration of activity at feeding stations was different:

15.04.2016- 10.11.2016 for feeding stations № 1 and № 2;

16.04.2016- 04.06.2016 for feeding station № 3;

23.06.2016- 10.11.2016 for feeding station № 4.

At each of the stations, two camera traps with different angles were mounted at different distances from the site: at 1.5-2 m and 3-4 m, respectively. Thus, the nearest camera trap was supposed to provide us close-up shots and the more distant one a wider coverage of the site.

During our observations we received some thousands of photos and most of them proved to be informative – these included images of mammals as well as birds. Among other species recorded, we obtained numerous photos of Egyptian Vulture as well as photos of Cinereous Vulture and Griffon Vulture.

The results of the analysis of photographs of different species of raptors and corvids from the camera traps are presented in **Table 1**.

Table 1. Attendance of Raptors and Common Ravens at the feeding stations in the Ustyurt State Nature Reserve in April-October 2016

Species of birds observed on the feeding stations	Feeding Station 1 15.04.-10.11. 2016		Feeding Station 2 15.04.-10.11. 2016		Feeding Station 3 16.04.-04.06. 2016		Feeding Station 4 23.06.-10.11. 2016	
	Number of days*	Number of ind.**	Number of days	Number of ind.	Number of days	Number of ind.	Number of days	Number of ind.
<i>Neophron percnopterus</i>	56	2	16	2	1	1	5	1
<i>Aegypius monachus</i>	2	1	-	-	-	-	-	-
<i>Gyps fulvus</i>	4	1	-	-	-	-	-	-
<i>Aquila nipalensis</i>	3	1	-	-	-	-	2	1
<i>Milvus migrans</i>	2	1	-	-	-	-	1	1
<i>Falco tinnunculus</i> ***	-	-	-	-	-	-	3	1
<i>Bubo bubo</i> ***	-	-	-	-	-	-	2	1
<i>Asio flammeus</i> ***	-	-	-	-	-	-	2	1
<i>Athene noctua</i> ***	-	-	-	-	-	-	1	1
<i>Corvus corax</i>	59	14	23	6	4	2	83	2

Note:

*The number of days during which this species is observed on the feeding station for the entire period of observation,

** The maximum number of individuals of this species in the one frame of the camera trap,

*** Species, whose presence on the feeding station is not directly related to the consumption of offal.

From the photographs it was found that three species of vultures visited our feeding stations. Predictably, the most frequent visitor of the stations was Egyptian Vulture. Accordingly, these birds were captured at all four feeding stations and the maximum number of birds in the frame was 2. Maximum attendance has been recorded at feeding station №1: Egyptian Vultures were observed at the site over a period of 56 days out of 210 days (27 % of the total duration of observations). The birds visited the feeding stations only in daytime, between 06:40 hrs and 20:40 hrs. Maximum duration of stay at the station was about one hour, but in most cases it did not exceed 10-20 minutes. The first appearance of Egyptian Vulture at one of the feeding sites was recorded on 19 April 2016 and the last one on 12 September 2016.

The most interesting photos were received at station №1 on 30 August 2016, when at 18:29 hrs, a Cinereous Vulture joined 5-6 Common Ravens feeding on the site and then at 19:10 hrs an Egyptian Vulture arrived on site and finally three minutes later a Griffon Vulture joined the feast, and then for 6 minutes all these birds were at the station together.

Cinereous Vulture was only captured on film at feeding station №1 twice in daytime: on 25 May 2016 for 10 minutes (12:48-12:58 hrs) and on 30 August 2016 for 40 minutes, along with Common Ravens, Egyptian Vulture and Griffon Vulture. Such low attendance of the feeding stations by Cinereous Vultures - over a period of 2 days out of 210 days (1% of the total duration of observations) was an unpleasant surprise for us, given the presence of breeding pairs of this species in the Reserve. Perhaps this low attendance is associated with a rather narrow food specialisation: unlike the other two vulture species, Cinereous Vulture prefers the meat and skin of dead animals, which were absent at our stations. Indirect confirmation of this assumption is the fact that none of more than 70 taken photos of Cinereous Vultures at the stations showed them feeding on offal.

Griffon Vulture was also observed only at feeding station №1 in daytime during the course of 4 days (about 2 % of the total duration of observations): on 22 April 2016 for 56 minutes (18:29-19:25 hrs); on 16 July 2016 for 18 minutes (19:34-19:52 hrs); on 18 July 2016 for 4 minutes (10:34-10:38 hrs) and on 30 August 2016 for 6 minutes (19:13-19:19 hrs)– together with Cinereous and Egyptian Vultures and a few Common Ravens. Some photos from camera traps showed these birds eating offal. Fairly low attendance of the feeding stations by Griffon Vultures was broadly in line with its status of rare, vagrant and non-breeding species in this area.

Aside from vultures, camera traps captured another species of birds. Among them, the most frequent and numerous visitors at the feeding stations were Common Ravens (*Corvus corax*): they were observed at all four stations. Maximum attendance was recorded at station №4 – Common Ravens were observed at the site over a period of 83 out of 142 days (58 % of the total duration of observations) and at station №1 – over a period of 59 out of 210 days (28 % of the total duration of observations). The maximum number of these birds in the frame (14 individuals) was captured by camera trap at feeding station №1 on 4 September 2016.

Birds of prey that were captured by camera traps on one occasion only included: Steppe Eagle (*Aquila nipalensis*), Black Kite (*Milvus migrans*), Common Kestrel (*Falco tinnunculus*), Eagle Owl (*Bubo Bubo*), Short-eared Owl (*Asio flammeus*) and Little Owl (*Athene noctua*). The presence of Common Kestrel and owls at the stations was not related to feeding on offal.

Among mammals recorded at the feeding sites were: Wolf (*Canis lupus*) (1-2 individuals in the frame), Red Fox (*Vulpes vulpes karagan*) (1-3 in the frame), Caracal (*Caracal caracal*) (1 in the frame), Wild Cat (*Felis silvestris lybica*) (1 in the frame), Brandt's Hedgehog (*Paraechinus hypomelas*) (1-2 in the frame), Long-eared hedgehog (*Hemiechinus auritus*) (1 in the frame), Tolai Hare (*Lepus tolai*) (1-2 in the frame), Libyan Jird (*Meriones libycus*) (1 in the frame), Yellow Ground Squirrel (*Spermophilus fulvus*) (1 in the frame), Goitered Gazelle (*Gazella subgutturosa*) (1 in the frame) and Ustyurt Urial (*Ovis vignei arkal*) (1-4 in the frame).

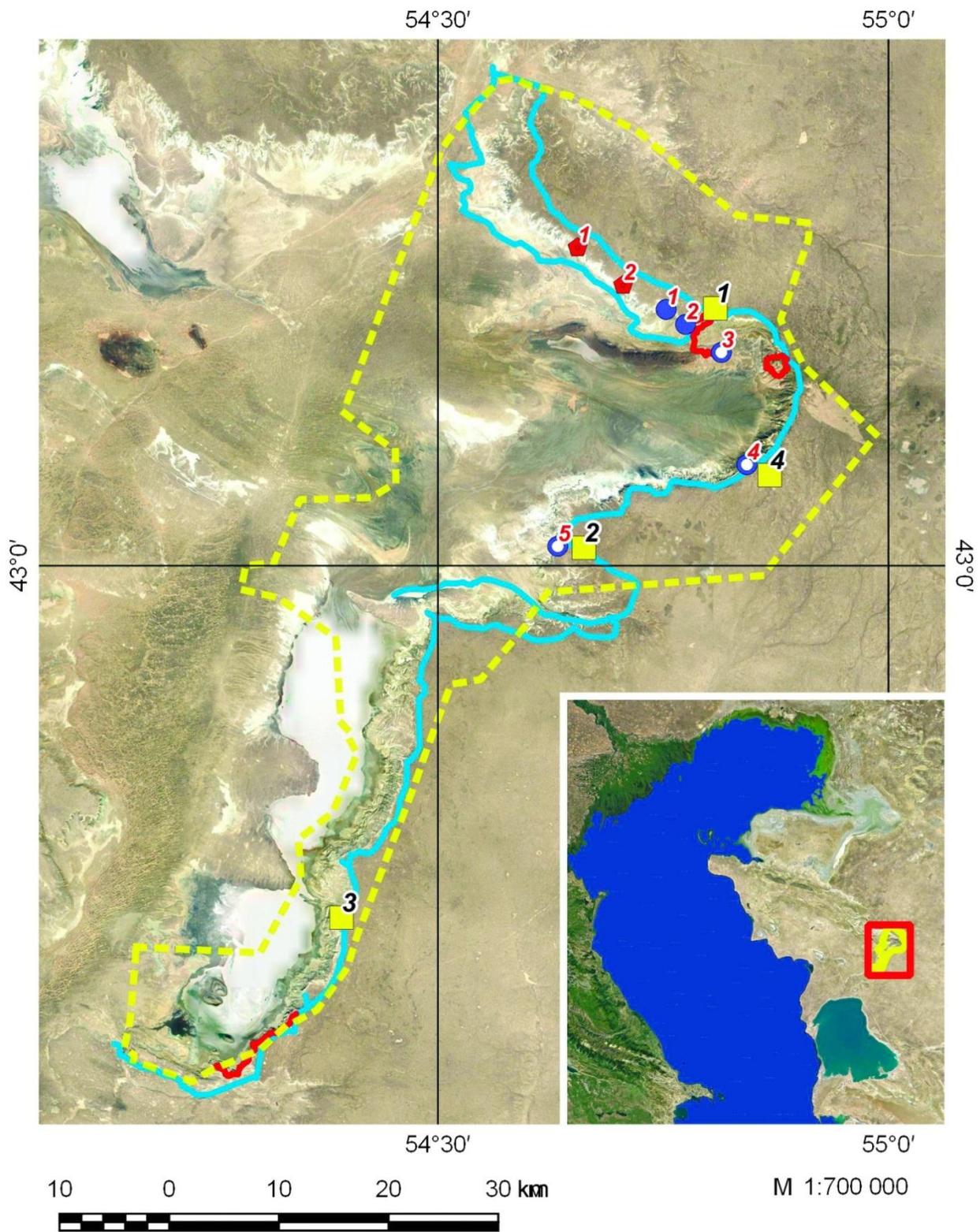
Of most interest are night photos of Caracal, captured at station №4 on 15 September 2016 (00:37-00:39 hrs). This is only the second piece of evidence supporting the presence of Caracal within the Ustyurt State Nature Reserve over the past several decades. The first confirmation was also received with a camera trap, near a spring of saline water in the Kenderli area on 18 December 2014.

From 31 May to 6 June 2016, we conducted a vulture/raptor nest counting survey using both off-road vehicle routes (about 230 km) and walking routes (about 40 km). For bird observation and nest detection we used spotting scopes and binoculars. Locations of the survey routes and examined nests of vultures and raptors are shown in **Figure 1**.

During the survey we checked already “known” nests of Cinereous Vultures built in different years (№ 1,3,4,5) and found a new one (№ 2). All nests were situated uniformly, whether on flat tops of rocks-outcrops or on rocky ledges at the base of the escarpment, and were, as a rule, clearly visible from a distance. Such location of vulture nest sites is typical for treeless, semiarid areas in Kazakhstan, including Ustyurt. At nests № 1 and №2 located in the northern part of the Reserve at the section of the escarpment between the cordon of Mamekkazgan and Kokesem site (close to Atzhol area with feeding station № 1) we spotted one adult bird taking off at our approach. Close to nest №2, a second adult bird was also observed.

It should be noted that, on 15 April 2016, when we were looking for an appropriate place to establish a feeding site, we observed from a distance an adult Cinereous Vulture sitting on nest №4. However, when we revisited the place on 2 June 2016, we found the nest empty and abandoned. Probably this was due to the death of the fledgling for some unknown reason. Other Cinereous Vulture nests (№3, №5) were also identified as abandoned at the time of inspection. To avoid any disturbance to birds and their breeding success and also due to the peculiarities of nest locations we did not carry out an inspection of the contents of occupied nests.

Unlike Cinereous Vultures, Egyptian Vultures usually build nests in niches in the upper part of steep cliffs. Accordingly, the search for Egyptian Vulture nest sites is a more difficult task and identifying the expected location of the nest is possible only by observing the regular presence of adult birds in the niche and the white streaks of droppings, which is hardly noticeable on the limestone cliffs of Ustyurt Chink. During the survey we managed to find only two Egyptian Vulture nest sites at the section of the escarpment between the cordon of Mamekkazgan and Kokesem site. Two adult birds were observed in the vicinity of each of them.



Labels:

- living nest of the Cinereous Vulture *Aegypius monachus*
- empty nest of the Cinereous Vulture
- ◆ living nest of the Egyptian Vulture *Neophron percnopterus*
- feeding station
- ▭ boundaries of the Ustyurt State Nature Reserve
- ⋯ raptor accounting routes
- vehicle routes
- pedestrian routes

Fig. 1. Locations of the feeding stations, nests of vultures and survey routes within the territory of the Ustyurt State Nature Reserve.

The distances between occupied vulture nests and the feeding stations, measured with the QGIS tool Distance Matrix in UTM projection 40, are shown in **Table 2**. A relatively compact distribution of identified occupied nests of Cinereous Vultures and Egyptian Vultures in the northern section of the escarpment within the Ustyurt State Nature Reserve in 2016, correlates well with high attendance of feeding stations № 1 and № 4, located at the least distance from occupied vulture nesting sites.

Table 2. Distances between living nests of the vultures and feeding stations in the Ustyurt State Nature Reserve in 2016

	Nest of <i>Aegypius monachus</i> N. 1	Nest of <i>Aegypius monachus</i> N. 2	Nest of <i>Neophron percnopterus</i> N. 1	Nest of <i>Neophron percnopterus</i> N. 2	Feeding station N. 1	Feeding station N. 2	Feeding station N. 3	Feeding station N. 4
Nest of <i>Aegypius monachus</i> N. 1	-	2.2	9.8	4.5	4.5	23.5	62.7	16.1
Nest of <i>Aegypius monachus</i> N. 2	2.2	-	12.0	6.7	2.8	23.1	62.4	14.2
Nest of <i>Neophron percnopterus</i> N. 1	9.8	12.0	-	5.3	13.9	27.0	64.6	25.2
Nest of <i>Neophron percnopterus</i> N. 2	4.5	6.7	5.3	-	8.8	24.3	63.0	20.0
Feeding station N. 1	4.5	2.8	13.9	8.8	-	25.1	64.4	14.0
Feeding station N. 2	23.5	23.1	27.0	24.3	25.1	-	39.3	18.6
Feeding station N. 3	62.7	62.4	64.6	63.0	64.4	39.3	-	55.2
Feeding station N. 4	16.1	14.2	25.2	20.0	14.0	18.6	55.2	-

Thus, new data obtained during the pilot project on supplemental feeding of vultures, confirm estimates of numbers of breeding vultures within the Ustyurt State Nature Reserve: 2-3 pairs of Cinereous Vulture and 3-5 pairs of Egyptian Vultures.

As part of this project, we also raise awareness about vulture species among the wider public:

- Project information was posted on the website of the Ustyurt State Nature Reserve (<http://www.ustirt.kz/?lang=ru>), on the website of Russian Raptor Research and Conservation Network (RRRCN) (<http://rrrcn.ru/archives/28367>), in ACBK online bulletin “Green World” ([http://www.acbk.kz/cms/uploads/files/Вестник%20АСБК Зеленый%20мир_6.pdf](http://www.acbk.kz/cms/uploads/files/Вестник%20АСБК%20Зеленый%20мир_6.pdf)). More detailed article will be published in the Raptors Conservation Journal.

- A poster on vultures of the Ustyurt State Nature Reserve (500 copies in A2 format) was published and is currently being distributed to target groups (environmental agencies and educational institutions) <http://rrrcn.ru/wp-content/uploads/2017/03/Plakat-rgb-um.jpg>.

Unfortunately, project results do not allow us to predict the successful use of supplementary feeding to attract birdwatchers to Mangistau Region. The scavenger birds are not abundant here and do not form significant gatherings even at the feeding stations.

Work on this project proved to be successful and useful, both for birds and for us in terms of replenishment data about these vulnerable species.

We are sincerely thankful to Rufford Small Grants Foundation for supporting our project. We hope to continue supplemental feeding of vultures in the Ustyurt State Nature Reserve and are looking for partners to implement this exciting project in 2017.



Supplementary Feeding Project team on the feeding station. Photo by A. Gnetneva.



Cinereous Vulture (*Aegypius monachus*) on the nest in 24/04/2011; in 2016 this nest was abundant. Photo by M. Pestov.

Annex: photos taken by camera traps at the feeding stations.



Cinereous Vulture (*Aegyptius monachus*), Griffon Vulture (*Gyps fulvus*), Egyptian Vulture (*Neophron percnopterus*) and Common Ravens (*Corvus corax*) on the feeding-station.



Aerial dance: a couple of Egyptian vultures (*Neophron percnopterus*) take off from the site.



Egyptian Vulture (*Neophron percnopterus*) carries a piece of offal away from the feeding station.



Egyptian Vulture (*Neophron percnopterus*) and Common Raven (*Corvus corax*) on the feeding station.



Egyptian Vulture (*Neophron percnopterus*) chase away Common Raven (*Corvus corax*) from the feeding site.



Common Ravens (*Corvus corax*) and a couple of Egyptian vultures (*Neophron percnopterus*) at the feeding site.



Griffon Vulture (*Gyps fulvus*) is a rare visitor at the feeding site.



Griffon Vulture (*Gyps fulvus*) is non-breeding species in the Ustyurt State Nature Reserve.



Steppe Eagle (*Aquila nipalensis*) on the feeding station.



Black Kite *Milvus migrans* at the feeding site.



Eagle Owl (*Bubo bubo*) was attracted to the feeding station by the hedgehogs that often become its prey.



Hoopoe (*Upupa epops*), as well as the small passerine species, was attracted to the station by numerous flies and its larvae.



Ustyurt Urial (*Ovis vignei arkal*) is listed in IUCN Red List and the Red Data Book of Kazakhstan.



Ustyurt Urial (*Ovis vignei arkal*): a female with her lamb.



Goitered Gazelle (*Gazella subgutturosa*) is listed in IUCN Red List and the Red Data Book of Kazakhstan.



Caracal (*Caracal caracal*) is one of the rarest species of the Ustyurt State Nature Reserve and is listed in IUCN Red List and the Red Data Book of Kazakhstan.



Wild Cat (*Felis silvestris lybica*).



Common Ravens (*Corvus corax*) and Wolf (*Canis lupus*) are food competitors for vultures at the feeding site.



Red Fox (*Vulpes vulpes karagan*) is the most common predator within the Reserve.



Tolai Hare (*Lepus tolai*) is common inhabitant in the Reserve.