Bash 500MW Wind Farm

Republic of Uzbekistan

Critical Habitat Assessment

Stage 2

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List of Abbreviations

Abbreviation	Meaning
ADB	Asian Development Bank
AoI	Area of Influence
AZE	Alliance for Zero Extinction
CHA	Critical Habitat Assessment
CO	Collapsed, IUCN Red List of Ecosystems Category
CR	Critically Endangered, IUCN Red List of Threatened Species Category
DD	Data Deficient, IUCN Red List of Threatened Species Category
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EOO	Extent of Occurrence
EN	Endangered, IUCN Red List of Threatened Species Category
IBA	Important Bird Areas
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Areas
LC	Least Concern, IUCN Red List of Threatened Species Category
NT	Near Threatened, IUCN Red List of Threatened Species Category
OHTL	Overhead Transmission Line
SAC	Special Areas of Conservation
SPA	Special Protection Areas
VP	Vantage Point
VU	Vulnerable, IUCN Red List of Threatened Species Category

1 INTRODUCTION

1.1 Background

As part of the Uzbekistan 2030 Energy Strategy, ACWA Power has signed an implementation agreement with the Ministry of Energy in Uzbekistan for developing, building and operating 500MW wind farm in Bash. ACWA Power has since established a Project Company ' FE ACWA Power Bash Wind LLC' registered in the Republic of Uzbekistan with registration number 839862. ACWA Power Bash Wind LLC has entered into a 25-year Power Purchase Agreement (PPA) with JSC 'National Electric Grids of Uzbekistan', which is based on the ultimate operations of the Project.

The Project includes the development, financing, construction, operation and maintenance of the Wind Farm including the Wind Farm electrical substation. In addition, it will also include development, financing, construction and transfer of Purchase Electrical Facilities (OHTL and common electrical facilities shared with Dzhankeldy 500MW Wind Farm), switchyard (with transformers) or 500/220kV pooling station.

This Report constitutes the CHA Stage 2 Report which has been prepared in support of the Environmental and Social Impact Assessment (ESIA). Further information is provided in the following subsections.

1.2 Critical Habitat Assessment

'Critical Habitat' is a concept applicable to several international financial lending institutions, designed to enable the identification of areas of high biodiversity value in which development would be particularly sensitive and require special attention. The concept has been developed in consultation with numerous international conservation organisations and thus takes into account many pre-existing conservation approaches, such as Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites. This comprehensive approach has meant that it has seen high levels of interest and uptake.

The concept is further defined in the following documents:

- European Bank for Reconstruction and Development (EBRD) Performance Requirement 6 (PR6) Biodiversity Conservation and Sustainable Management of Living Natural Resources
- International Finance Corporation (IFC) IFC Performance Standard 6 (PS6) on Biodiversity Conservation and Sustainable Management of Living Resources.

- A number of multilateral banks have policies closely aligned with PS6, and more than 75 private banks signed up to the Equator Principles have an implicit commitment to PS6.
- Asian Development Bank (ADB) Safeguard Policy Statement (SPS) 2009, ADB Environment Safeguards A Good Practice Sourcebook Draft Working Document

The objective of undertaking a Critical Habitat Assessment (CHA) is to arrive at definitive conclusions regarding whether or not the area where a development has been proposed meets the definitions of a Critical Habitat, per the classifications set out in IFC PS6, EBRD PR6, and the ADB Safeguards following the criteria and processes for CHA described therein.

1.3 Overview of CHA Process

The CHA process includes a three-stage approach:

- Stage 1 – Desktop Assessment and Stakeholder Engagement
- Stage 2 – Field Surveys and Data Collection
- Stage 3 – Assessment of Findings against Critical Habitat criteria

The full CHA Methodology is available in the CHA Methodology Report.

The findings of the CHA process will feed into and further inform the overall project ESIA and subsequent environmental management and monitoring programmes.

1.4 Determining Study Area Boundaries (based on AoI/ EAAA)

An integral part of the CHA is the appropriate delineation of study area boundaries. As the project in question is for a wind farm, it was deemed prudent to acknowledge a large area of influence (AoI) for birds and bats, with consideration of Important Bird Areas within 20 km during initial screening, as well as the known migratory flyways of the region.

For all other biodiversity aspects, it was considered adequate to consider the physical project boundaries as well as up to a 1km buffer zone. Thus, the Ecologically Appropriate Area of Analysis (EAAA) has been developed by assuming the AoI is no further than the 1km boundary for all WF and OHTL corridor aspects except for birds and bats.

1.5 Purpose/Scope of Report

The outcomes of the field surveys and data collection will culminate in the provision of a CHA Stage 2 Report. This Stage 2 Report includes:

- Detailed methodology followed for all surveys;

- Results of surveys and findings, presented in a series of summary statistics and tables;
- Narrative on the conclusions that can be drawn on the basis of the survey findings, especially on the condition of the overall biodiversity features and relative sensitivity of the study area ecosystem.

2 THREATENED SPECIES

2.1 Sociable Lapwing

The Sociable Lapwing *Vanellus gregarious* is listed as Critically Endangered on the IUCN Red List, due to rapid population decline thought to be driven by hunting pressures.

It is a passage migrant through Uzbekistan, crossing southbound in the autumn months and returning northbound in the spring months to breed in Northern Kazakhstan and Russian in the summer months.

Preferred habitat during migration is typically sandy plains with short grass, dry meadows, fallow land and cultivated fields. The primary threat is presumed to be illegal hunting during migration and on wintering grounds, resulting in low adult survival.

Current estimations calculate a possible total population size of 5,600 breeding pairs, i.e., 11,200 mature individuals, roughly equivalent to 16,000-17,000 individuals in total.

Research indicates that the species generally follows one of two migratory pathways, the eastern pathway which upon initial inspection may pass near the project site.

Figure 2-1Distribution of the Social Lapwing

2.1.1 Baseline Survey

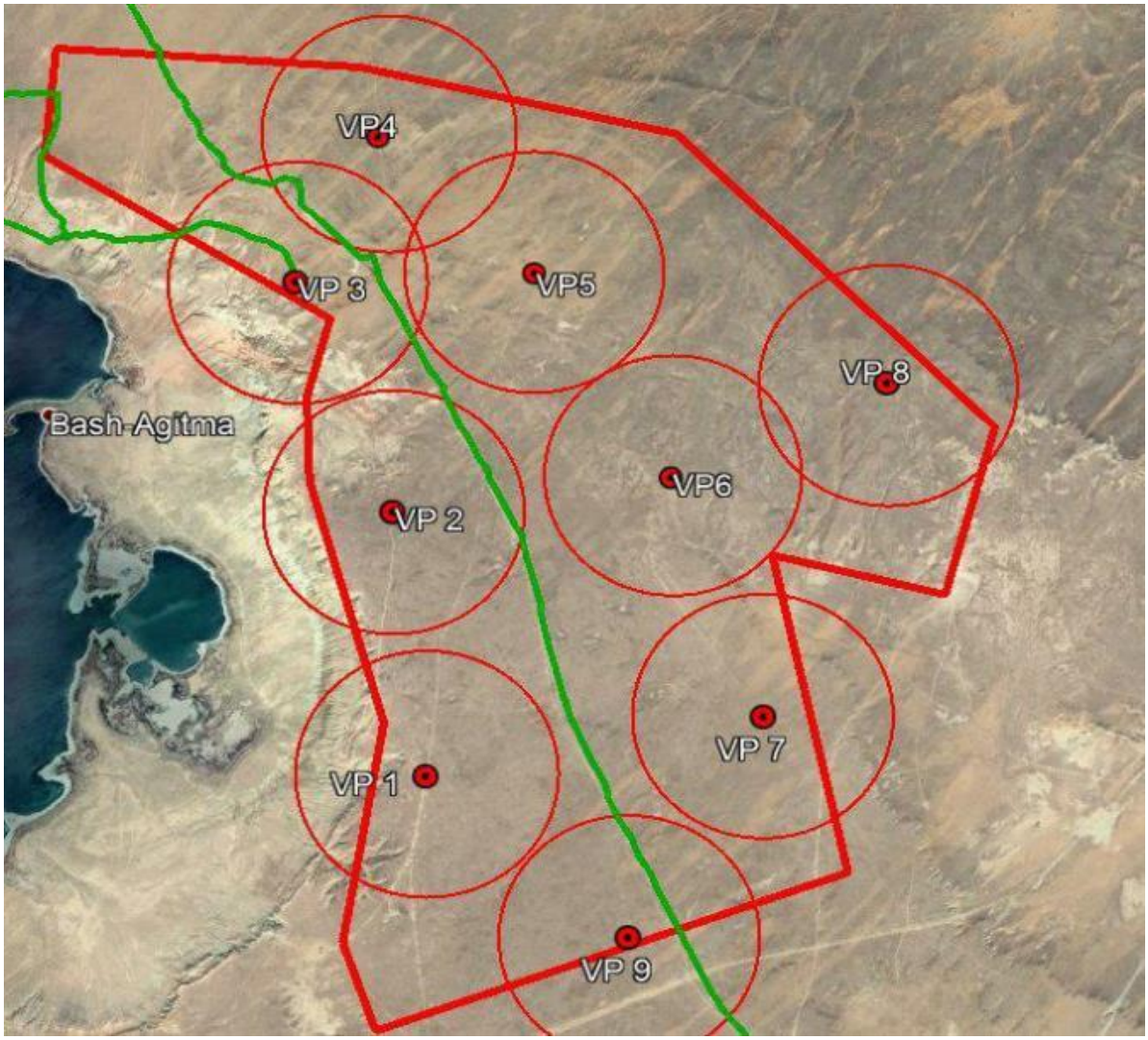
2.1.1.1 Methods

2.1.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The points are located so as to cover the territory as completely as possible (Figure 2-2).

Figure 2-2 Vantage Points at Bash Wind Farm Site (green line – railway road)



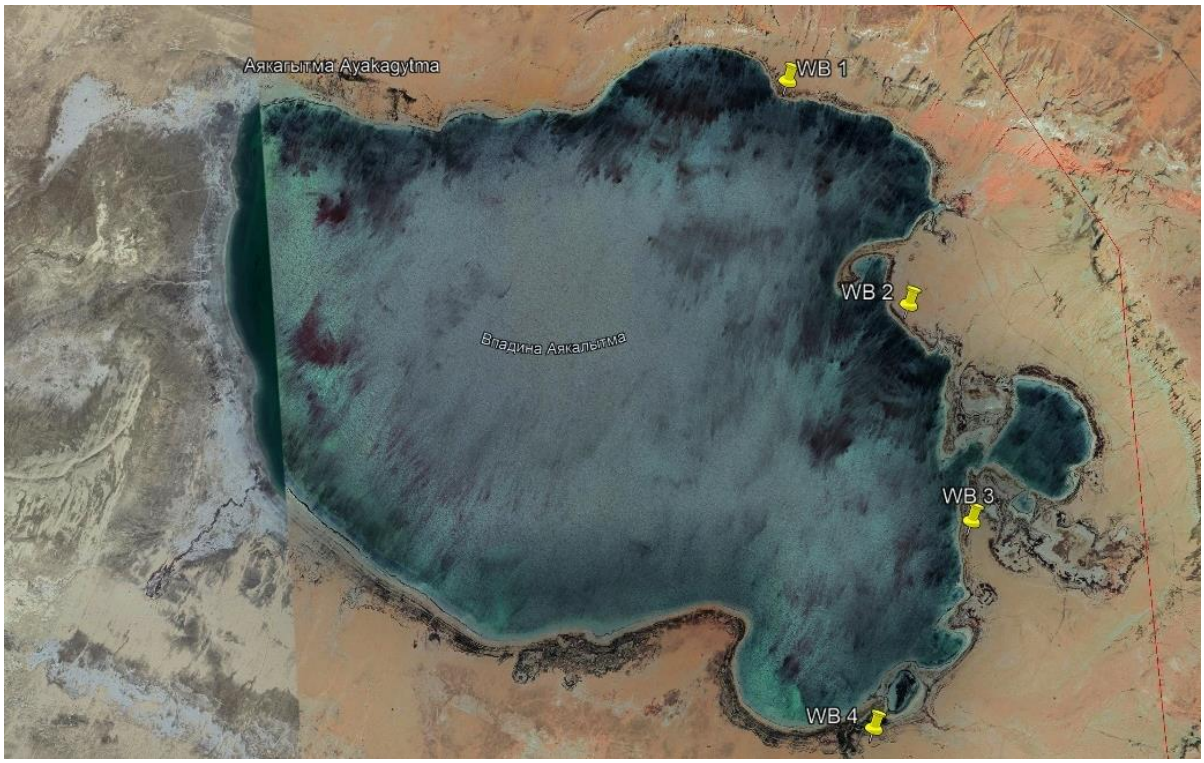
The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-3 Survey Locations of Winter 2022 at Lake Ayakagytma



2.1.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-4 Vantage points of the projected OHTL route in May

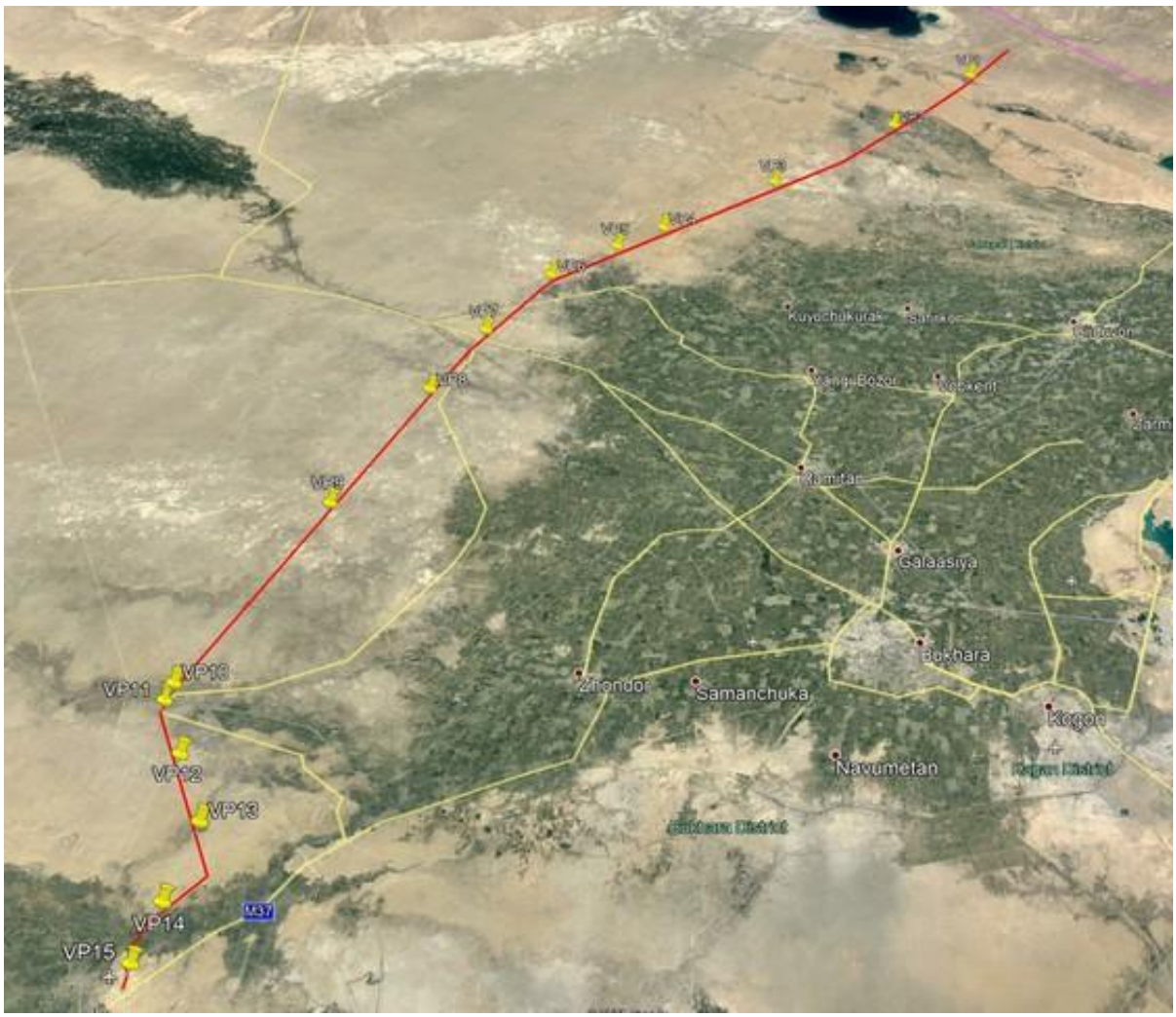


Figure 2-5 Vantage points of the projected OHTL route in June

2.1.1.2 Results

2.1.1.2.1 Bash Wind Farm

Although critically endangered Sociable Lapwing are possibly occurring within the region and known to associate with agricultural fallow lands during migration, there have been no recorded sightings documenting the species during the Wind Farm survey to date.

2.1.1.2.2 Bash-Karakul OHTL

There have been no recorded sightings documenting the Social Lapwing species during OHTL surveys.

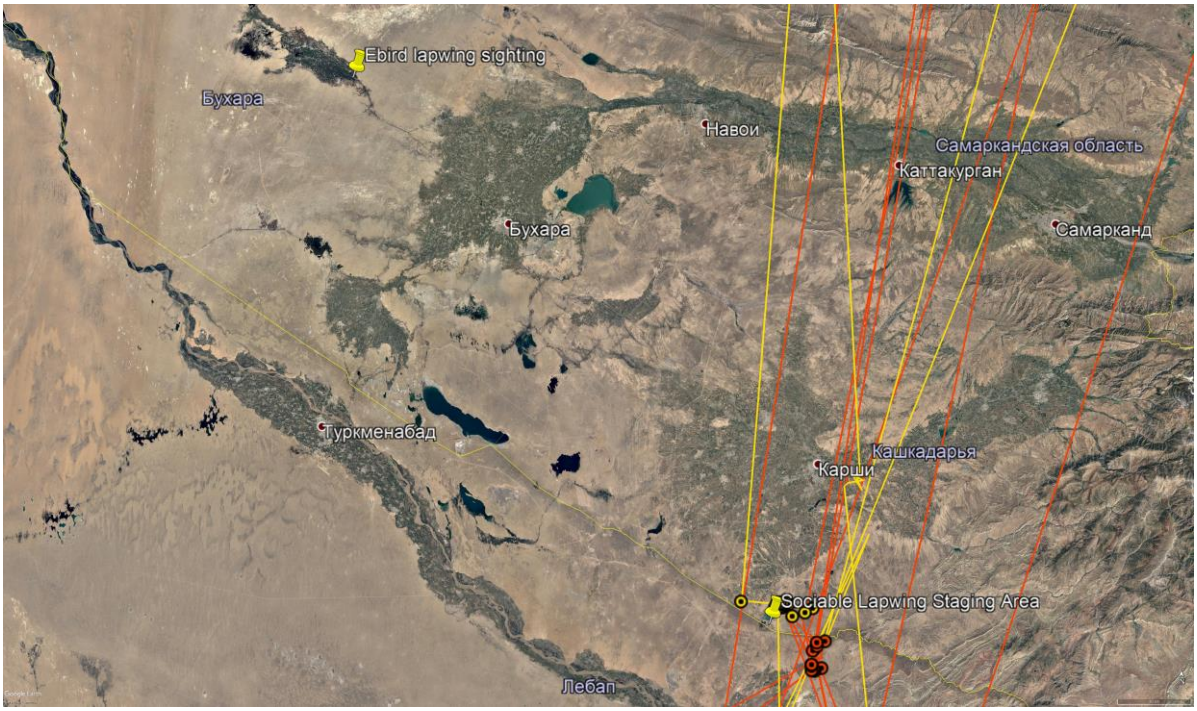
2.1.2 Stakeholder Engagement

No known occurrence of Sociable Lapwing has been recorded by stakeholders within the project area of influence. Tracked birds have been shown to utilize migratory flyways in excess of 100km east of the project site (Figure 2-6).

The following have been excerpted from the response received from Maxim Koshkin, expert ornithologist consulted during the stakeholder engagement exercises of the CHA Stage 2 process.

"… there is a very important staging area for the species located further south in Kashkadarja region, according to satellite data, birds arriving there do not seem to stop within Bukhara region for any prolonged periods of time."

Figure 2-6 Migratory flyways of satellite tracked Sociable Lapwings



2.2 Southern Even-fingered Gecko

The Southern Even-fingered Gecko (*Alsophylax laevis)* is listed as Critically Endangered on the IUCN Red List, due to a historic population crash and low numbers of sightings in the past 20-30 years.

The species occurs in "takyrs", which are bare, flat clay areas free from vegetation. Significant habitat loss is ongoing through ploughing and irrigation of this habitat for crop cultivation. There is no reliable global population estimate as no robust population studies have been undertaken in recent years.

2.2.1 Baseline Survey

2.2.1.1 Methods

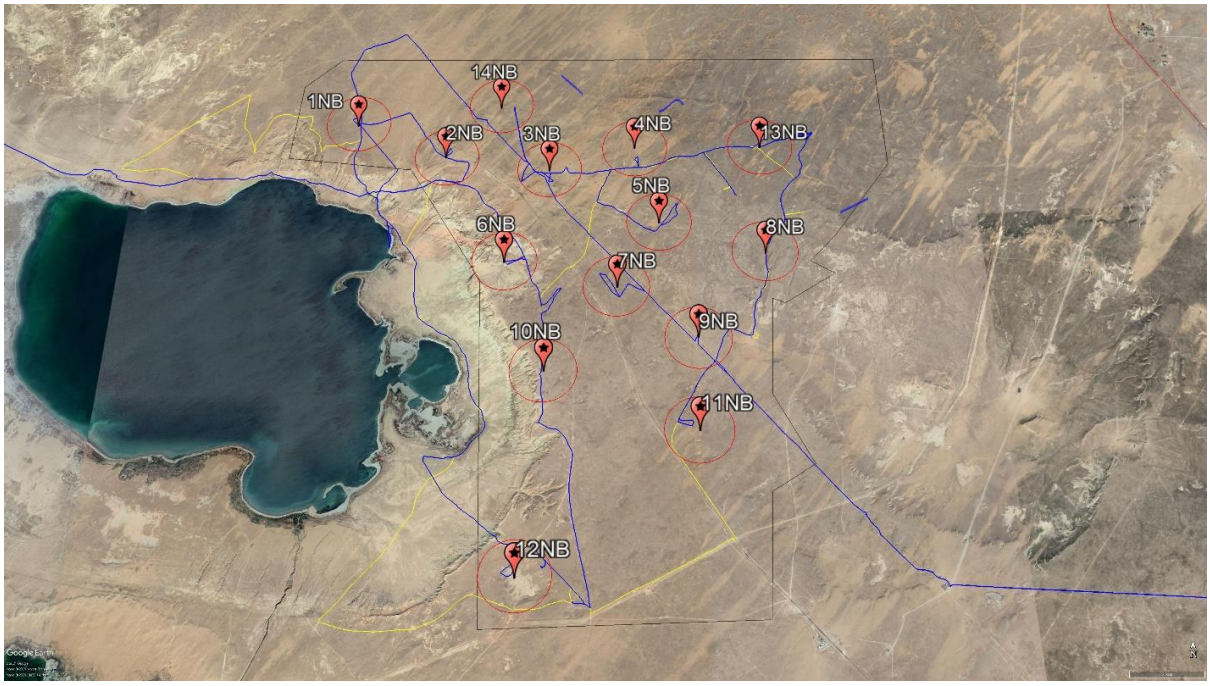
2.2.1.1.1 Bash Wind Farm

Surveying was undertaken in late Spring 2021 and mid-Summer 2021, as these represent the seasons of highest reptile activity.

Being an elusive species, this nocturnal reptile was tracked by the clicking sound it makes when it vocalises. The males are generally more audible and can be heard within a radius of 100 metres or more. With two males to every female, the resulting survey count was multiplied by a factor of 0.3 to account for both sexes. Their abundance was estimated using the following population density scale for 1 hectare (Kuzyakin, 1962): 0.1 – 0.9 – rare, 1.0 – 9.9 – common, 10.0 and higher – abundant.

During the spring survey in April 2021, the transects and points within biotope suitable for Southern Even-fingered Gecko were examined for the possibility of conducting surveys in the summer.

Figure 2-7 Observation points and transects on the Bash project territory in spring



The second field trip to the survey points near the Ayakagytma lake was carried out from June 22 to 24, 2021. The priority of this field visit was to conduct the quantitative assessment of Southern Even-fingered Gecko population at the points identified in spring as the most suitable. During the summer survey of the project area, a total of 13 km was covered. The transects passed through pre-selected survey points and their 1 kilometer radius (Figure 2-2).

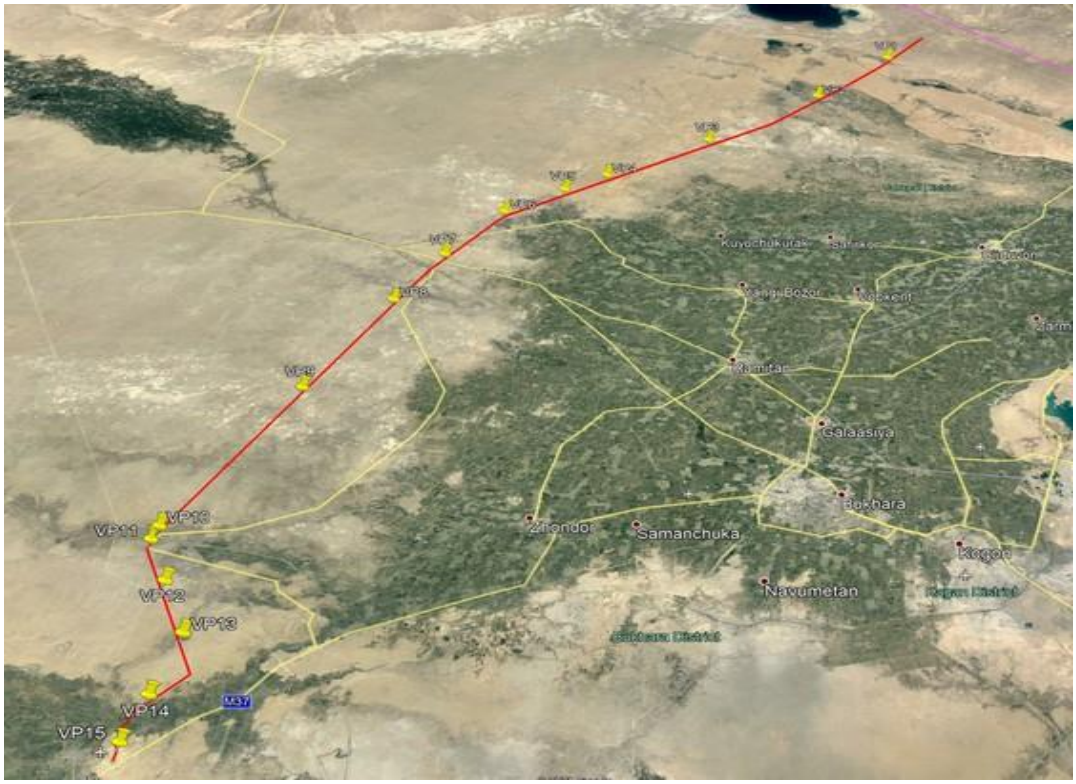
2.2.1.1.2 Bash-Karakul OHTL

15 points along the Bash-Karakul OHTL were surveyed in May 2021. The transect passed through pre-selected survey points and their 1 kilometer radius.

Reptile survey was carried out both during the day and at night. Both day and night surveys were carried out at points that were identified as potential habitats of the Southern Even-fingered Gecko. In places that were identified as unsuitable biotope for the Southern Even-fingered Gecko, night records were not carried out.

Nocturnal survey was carried out after sunset, until about 2 am, when the activity of the Southern Even-fingered Gecko decreases.

Figure 2-8 Survey points on the Bash-Karakul OHTL Route



2.2.1.2 Results

2.2.1.2.1 Bash Wind Farm

The spring survey yielded no records likely due to the cold night temperatures and unstable weather.

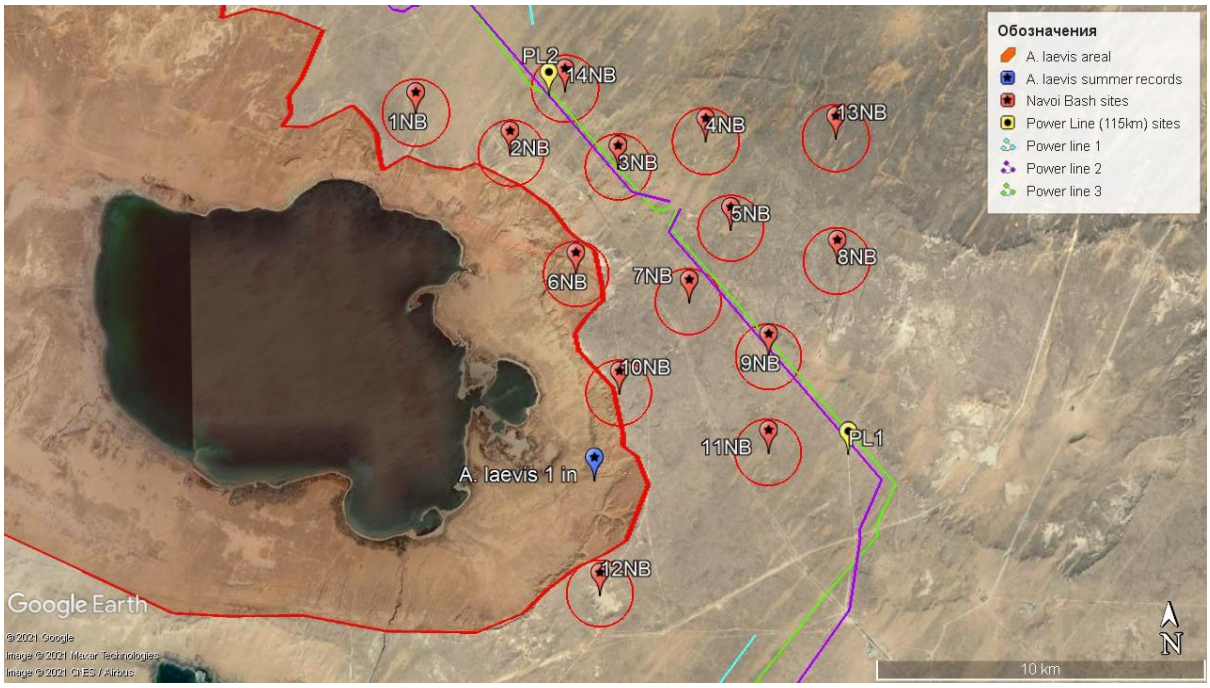
One individual of this species was observed during the summer survey in June 2021 at the Bash project site indicating a density of 1.3 individuals per hectare.

The average night air temperature in June was 27°C, the soil temperature was 28°C, the air humidity wa8s 20%. These values are ideal for the nocturnal reptile survey, including the Southern Even-fingered Gecko.

The meteorological conditions during surveying were not ideal for recording SE Gecko, due to strong winds in the order of 10-12 m/s.

However, it has been stated by the surveying expert that the species likely has a viable population and has indicated the extent of suitable habitat for the species (Figure 2-2).

Figure 2-9 Record of Southern Even-fingered Gecko was observed in summer (Blue pin) and its population range in the area (Red polygon)



2.2.1.2.2 Bash-Karakul OHTL

There were no recorded sightings documenting the Southern Even-fingered Gecko during the OHTL survey and no potential habitats for the Southern Even-fingered Gecko were identified along the route.

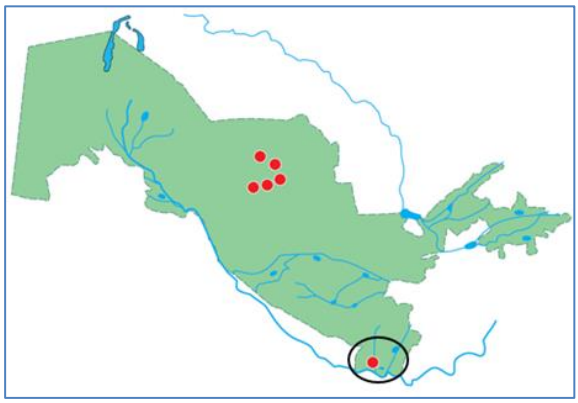
2.2.2 Stakeholder Engagement

As part of the CHA Stage 2 process, requests for information related to identified biodiversity aspects of concern were distributed to known experts in the field.

One such expert that was consulted as part of stakeholder engagement exercises is Roman Nazarov, expert herpetologist who has studied the Southern Even-fingered Gecko in central Uzbekistan.

The following passages have been excerpted from the response received from Roman Nazarov.

- "According to our data obtained during a recent National Geographic funded study conducted by an international group of scientists in 2019, the results from the DNA analysis of this population that indicates this population unique and distinct from all others in the area. Based on these data, the status of the population inhabiting Central Kyzylqum will be revised and described as a new locally endemic species to Uzbekistan."
- The below information relating to the natural history of the species has also been provided by Roman Nazarov.



Species Name: *Alsophylax laevis* Nikolsky, 1907

English Name	Uzbek Name	Russian Name
Southern Even-fingered Gecko	Силлиқ гекконча	Гладкий гекончик

Size. The adult body size of this species does not exceed 4 cm, with its tail approximately equal to the length of the body.

Identifying Features. The Smooth even-fingered gecko is morphologically similar to *Alsophylax pipiens*, but can be separated by the absence of enlarged tubercles on the dorsal surface of the body and males having 8–13 cloacal pores.

Colouration. The colour of the dorsal surface of the body is from light grey to sandy-buffy. There is a wide dark brown stripe that extends from the tip of the muzzle, through the eye and above the ear opening, closing on the back of the head, forming a horseshoe shape. On the dorsal surface of the body there are four to seven transverse dark bands, and the intervals between these bands are usually less than the width of the dark bands themselves. Up to 11 transverse bands occur on the tail and the upper surface of the limbs have an indistinct dark pattern. Lastly, the ventral surface of the body is immaculate white.

Distribution and Subspecies. The range of the species consists of two isolated areas in Uzbekistan and Turkmenistan. Within Uzbekistan there are only two isolated populations in the Central Kizilqum Desert and in South Uzbekistan along the border of Afghanistan. Only a few specimens are known from Surkhandarya, from the Karasu riverbank near Termez.

Preferred Habitat. This species avoids saline areas and occurs on flat areas practically devoid of vegetation (takir). Deep cracks in the ground and insect holes serve as refuge. However, in the Uchquduk region it is found under small flat rocks on the slopes of low clay hills.

Ecology. *Diet* comprises small arthropods. *Activity*. These geckos are nocturnal, and leave their shelters at dusk, with a peak in activity between 22-23 hours. There is a sharp decline in activity after midnight. Like other members of the genus, *A. laevis* have acoustic communication. The territorial signal consists of a series of individual clicks, which can be restarted approximately up to 30 m.

Reproduction. The females lay eggs from late May to early July, possibly producing two or three clutches during the season, each consisting of one or two eggs. The first record of a juvenile, with body size is 1.5–2 cm, was observed on the beginning of August. Sexual maturity is probably reached at one year old.

Threatened Status. IUCN Red List Status - CR, URDB (2019) classifies the gecko as VU. Philip Bowles, chair of the IUCN Snake and Lizard Group (SLG) explained that *A. laevis* has been listed as CR on the IUCN Red List due to its population decline primarily within Turkmenistan. There appears to be a sharp downward trend and an increased focus of attention on this species is urgently needed to prevent its possible disappearance.

Known Threats and Conservation. The main threat to the southern even-fingered gecko is habitat loss, with over half its historical habitat having disappeared in the last 20 to 30 years. The species does not occur within any protected areas so the creation of a special reserve would be beneficial (Edge of Existence website) to this species but also all the others in the area. Recommended conservation actions (Table 2) include (i) creating of a special reserve in the southeast of Turkmenistan (IUCN Red List), (ii) developing methods to estimate the abundance for this secretive and nocturnal species and (iii) clarification of the taxonomic status of isolated populations (URDB).

Current Research. The natural history of *A. laevis* has been studied and described in several previous studies (Bogdanov,1968; Szczerbak and Golobev, 1986). Numerous specimens of this species were collected during 1960's to 1980's but were not assessed based on DNA analysis. Despite intensive survey efforts to update the taxonomy of *A. laevis* in recent years, only a few

specimens of have been collected in Central Uzbekistan, which may be a result of decline in the population density, its elusive behavior, habitat destruction, or a combination of all of these issues. An international group of scientists from Uzbekistan, Russia, China and USA funded by National Geographic, conducted a joint study on the current status of several populations of the *A. laevis* in Central and South Uzbekistan. Dr. Roman Nazarov, an Uzbekistan-based herpetologist, is the coordinator of this scientific group and an invited expert of the SLG. Dr. Nazarov's results on the taxonomic and conservation status of *A. laevis* are in the process of being published. Preliminary genetic and anatomical data reveal that the population within Central Uzbekistan is a new species and deserves a critically endangered status.

2.3 Egyptian Vulture

The Egyptian Vulture (*Neophron percnopterus*) is listed as Endangered on the IUCN Red List, due to rapid decline proposed to be caused by secondary poisoning (after consumption of livestock carcasses treated with the veterinary drug diclofenac). However, general disturbance and habitat loss are also listed as threats of concern, along with the risk for power line electrocution and wind turbine collision.

It is a listed as a native breeder through much of Uzbekistan during the summer season.

Although the migration strategy of the Egyptian Vulture differs between regions and sometimes between birds, the majority that breed in the project area can be expected to migrate southwards towards India or Africa to overwinter in warmer locales.

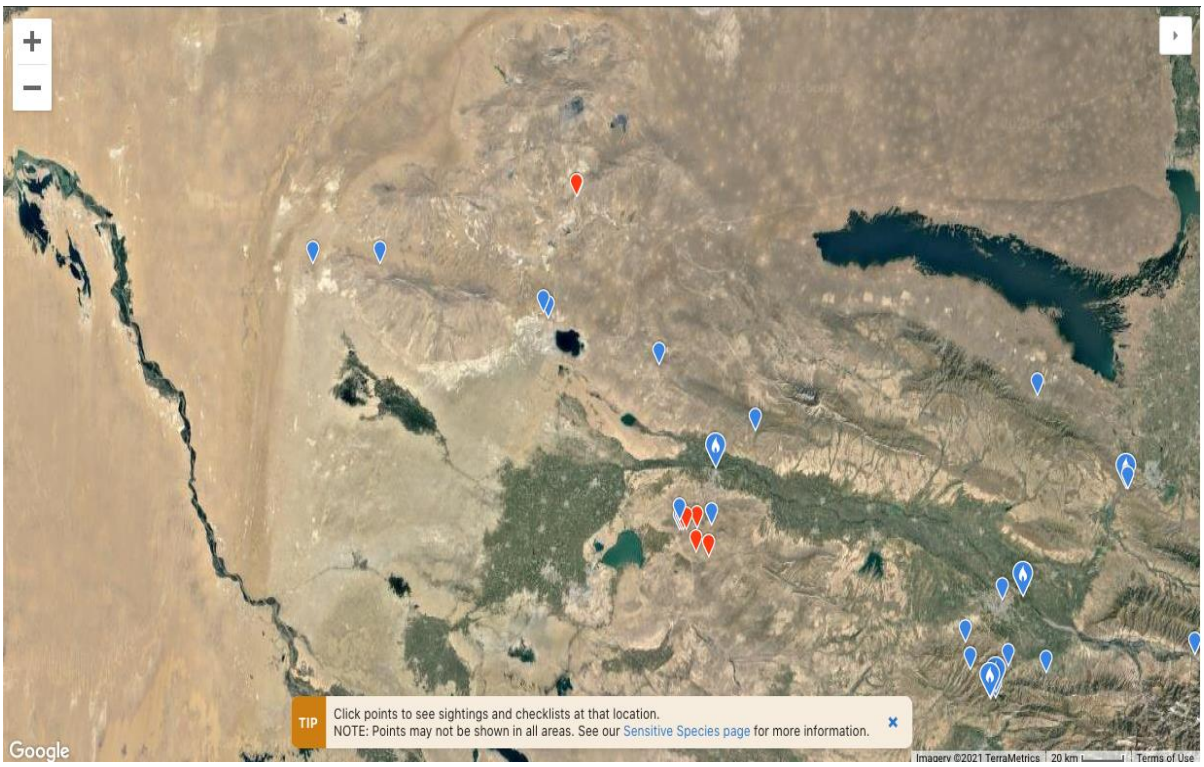
Preferred habitat includes lowland and montane regions over open, often arid, country, but this species also scavenges at human settlements.

The most recent estimate of the global population size is 18,000-57,000 individuals, roughly equivalent to 12,000-38,000 mature individuals.

This species has been recorded to occur within the area, both by citizen scientists as well as researchers. A total of 3-4 breeding pairs were found nesting in the adjacent cliffs in 2011.

The following map provides locations of sightings uploaded to *Ebird* by citizen scientists, documenting Egyptian Vulture in localities within 5km away from the project site.

Figure 2-10 Egyptian Vulture Ebird Records (Red and Blue)



2.3.1 Baseline Survey

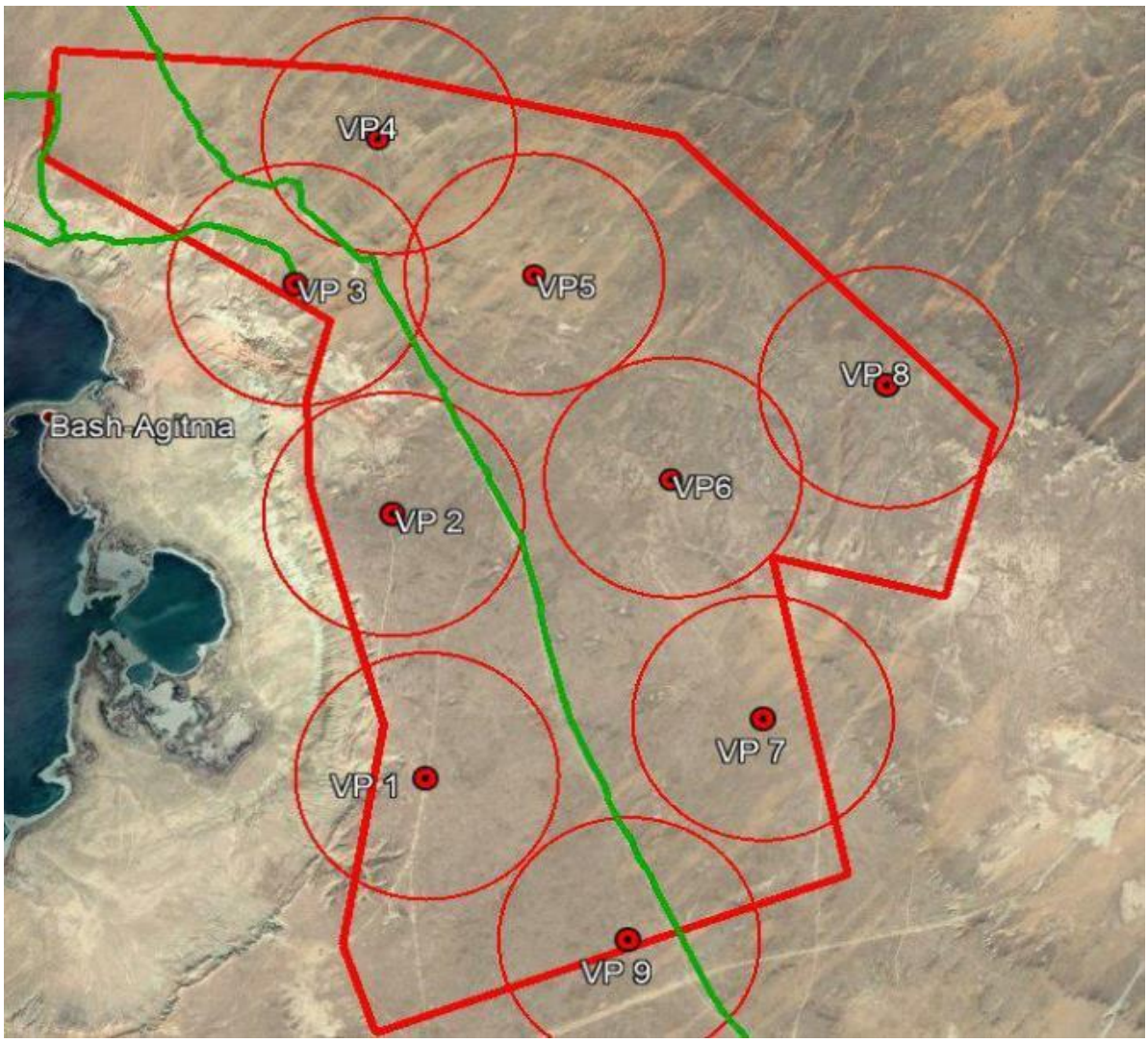
2.3.1.1 Methods

2.3.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-11 Vantage Points locations (green line – railway road)



The range of detection and identification of large species such as the Egyptian vulture was up to 2 km.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

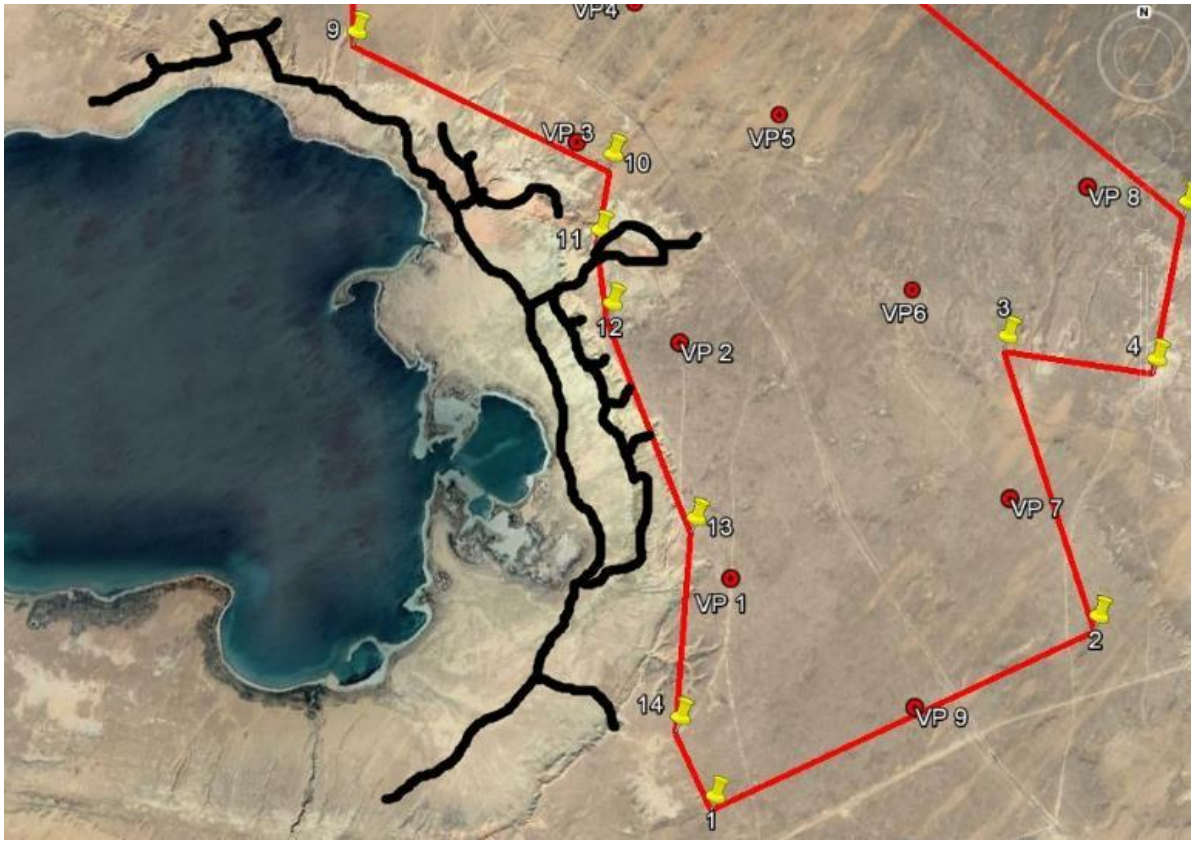
The cliffs that border the Lake Ayakagytma basin lie immediately west of the WF extending from the northern to the southern limits of the area, are the most likely areas in which this species could possibly nest within the project's larger area of influence. The height of the cliffs is about 25-40 meters and have many indentions that provide a lot of cavities, cracks, and gouges, where birds of prey could nest.

Nest-searching surveys were undertaken in the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

Figure 2-12 Cliffs bordering the Lake Ayakagytma

Figure 2-13 Nest survey route of spring 2020

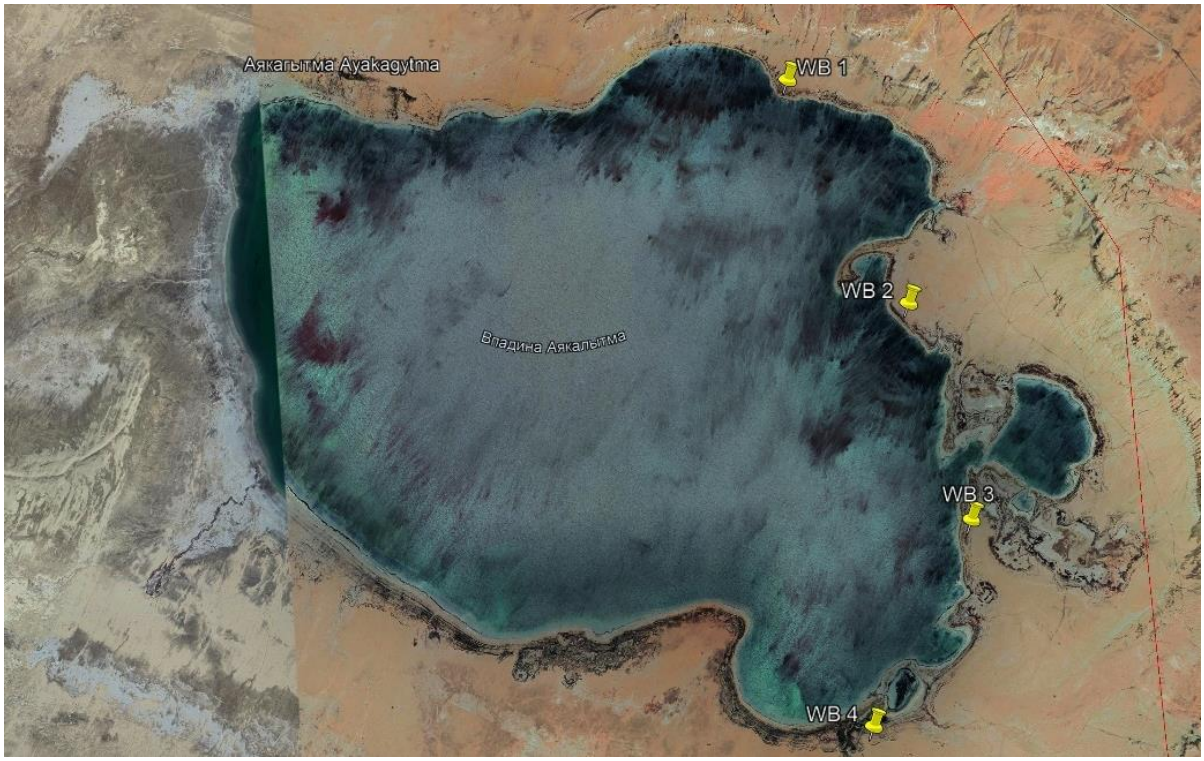
Figure 2-14 Nest survey route of summer 2020



On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-15 Survey Locations of Winter 2022 at Lake Ayakagytma



2.3.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio

recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-16 Nest survey route of summer 2020

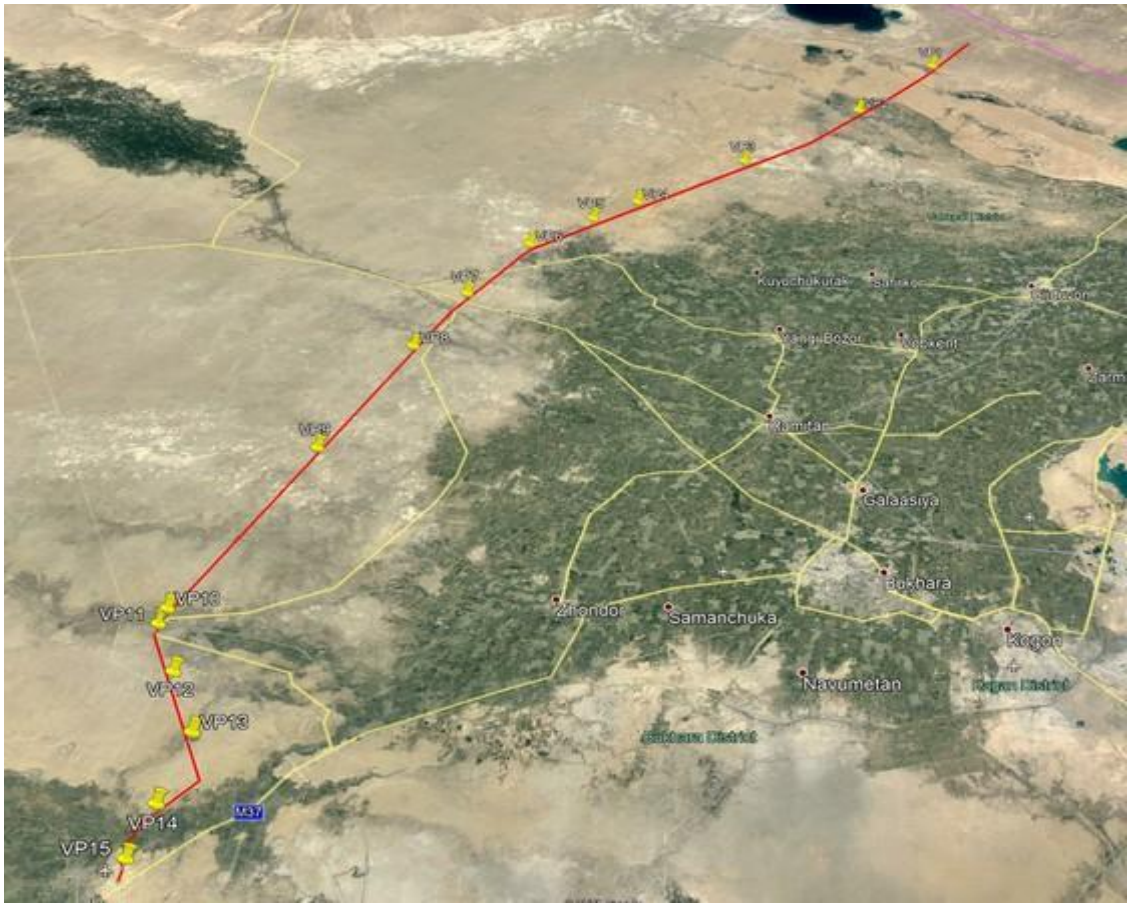


Figure 2-17 Vantage points of the projected OHTL route in June

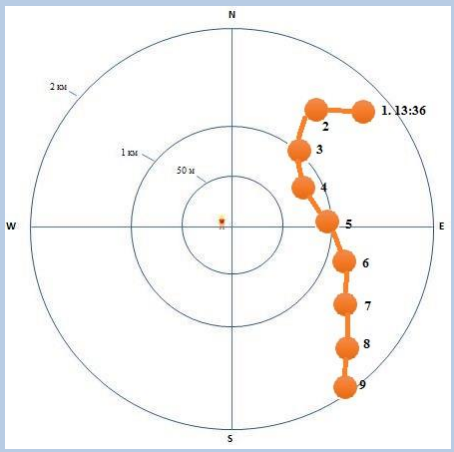
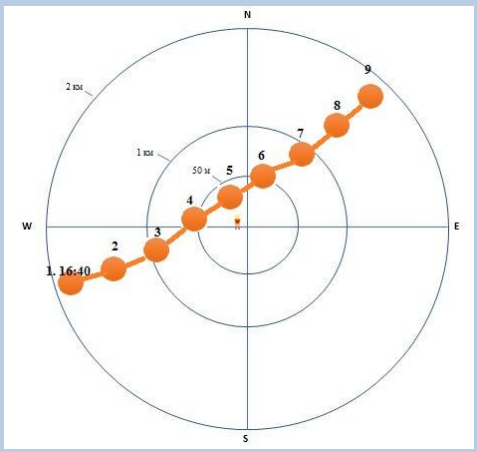
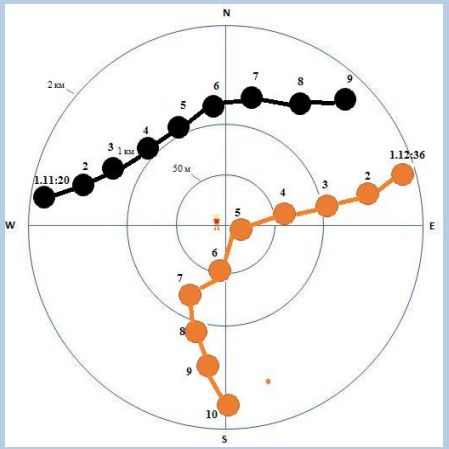
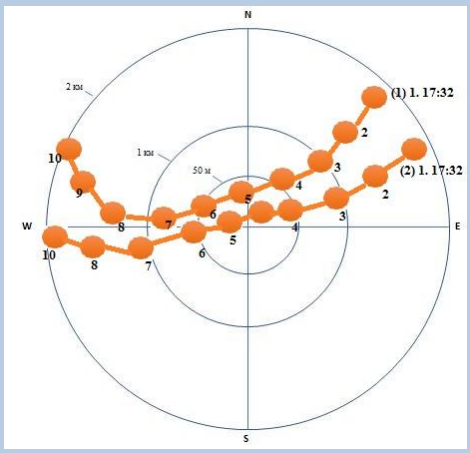
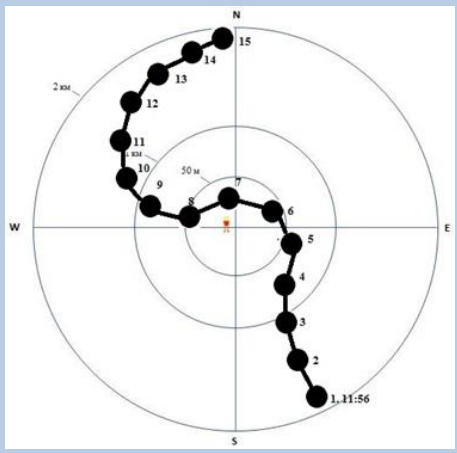
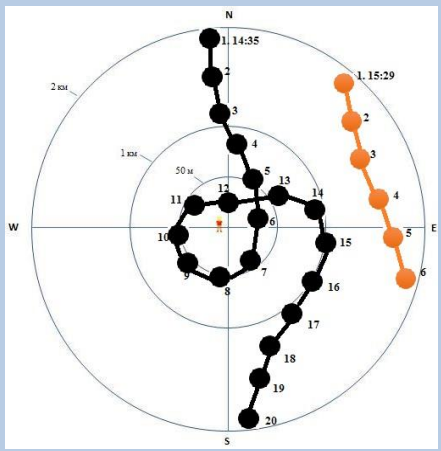
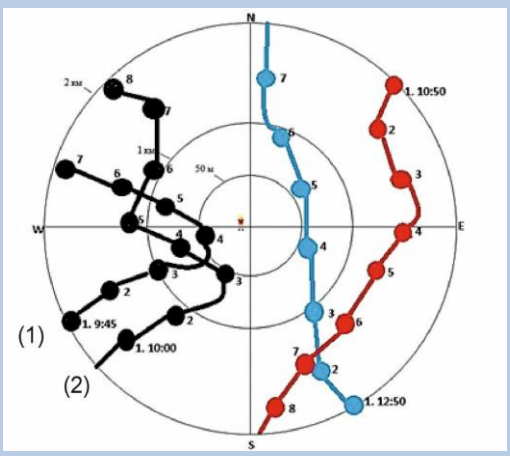
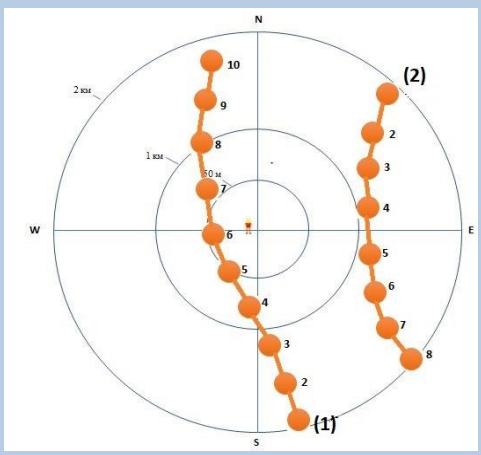
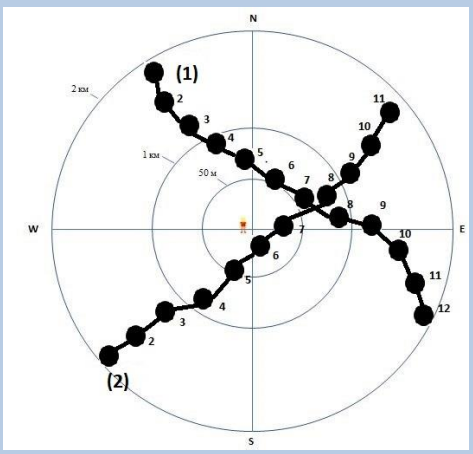
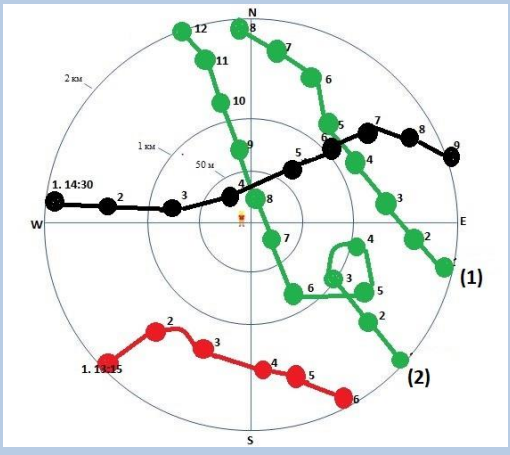
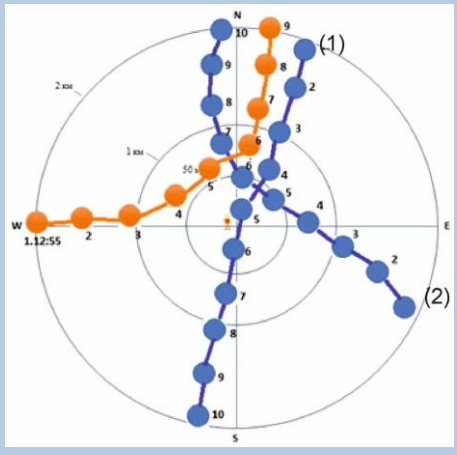
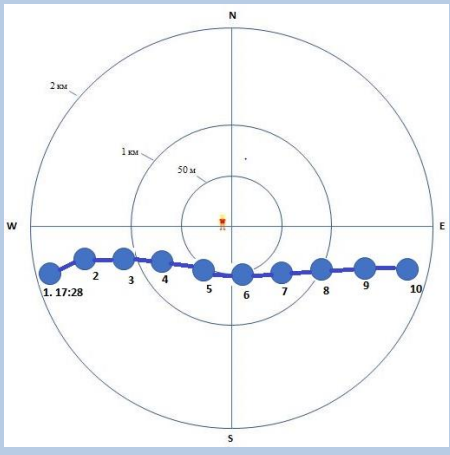
2.3.1.2 Results

2.3.1.2.1 Bash Wind Farm

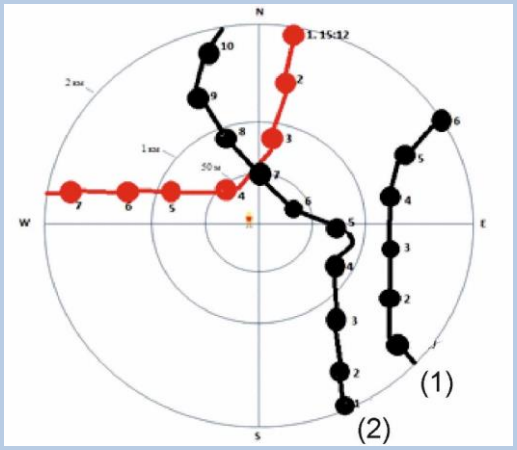
Project surveys of the wind farm area recorded a total of 64 individuals over the course of one year. Bird activity was highest during the month of April and lowest in July with 20 and 3 observations respectively. At least one individual was almost always recorded at VP 1.

33 Egyptian vultures were recorded in the spring with as highest numbers observed in April (20) across all VPs except VP 9. Relatively fewer numbers were recorded in March and May (7 and 6 respectively). Spring survey records of flight paths of each individual from the different vantage points are tabulated below.

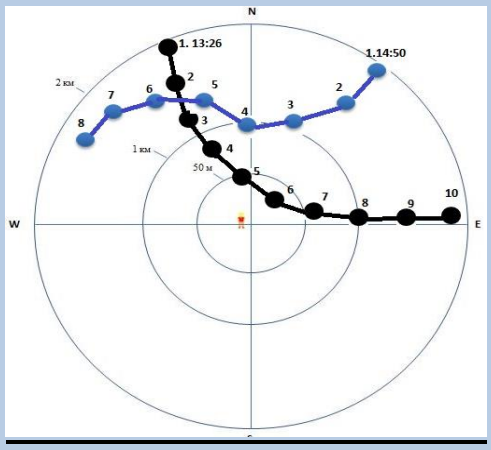
Table 2-1 Flight path of Individual Egyptian Vultures recorded during the Spring Survey

VP 2 on 14.03.2020	VP5 on 14.03.2020	VP4 on 26.03.2020 (Orange)
		
VP6 on 26.03.2020	VP7 on 29.03.2020	VP 8 on 29.03.2020 (Orange)
		
VP 4 on 04.04.2020 (Blue)	VP 2 on 06.04.2020	VP 4 on 07.04.2020
		
VP 6 on 10.04.2020 (Red)	VP 7 on 11.04.2020 (Orange)	VP 8 on 11.04.2020
		

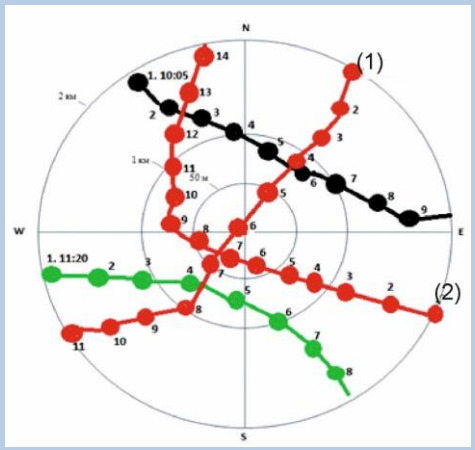
VP 4 on 14.04.2020 (Red)



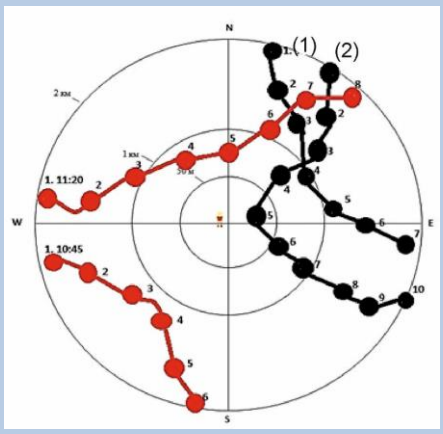
VP 1 on 12.04.2020 (Blue)



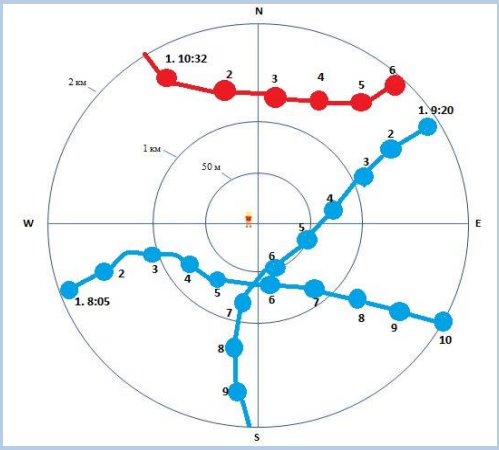
VP 5 on 14.04.2020 (Black)



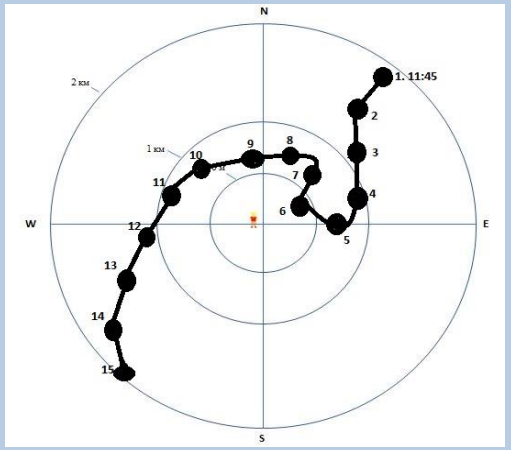
VP 7 on 14.04.2020 (Red)



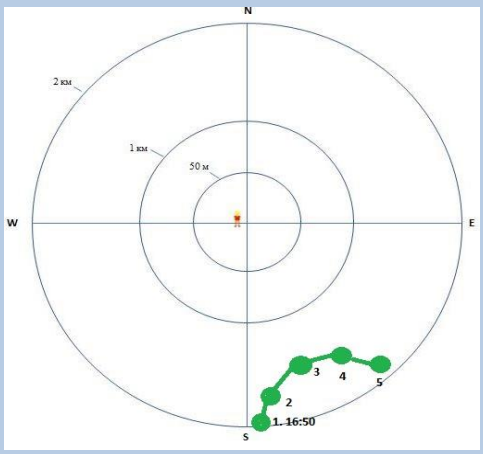
VP 8 on 20.04.2020 (Blue)



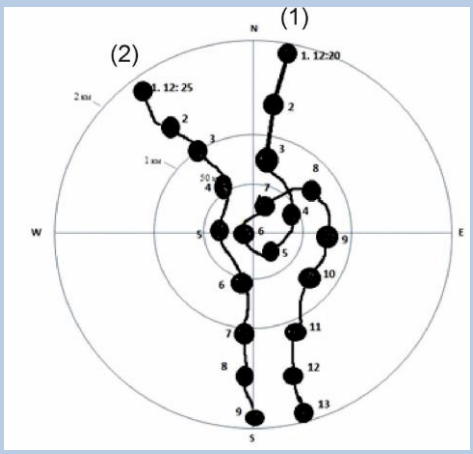
VP 1 on 21.04.2020



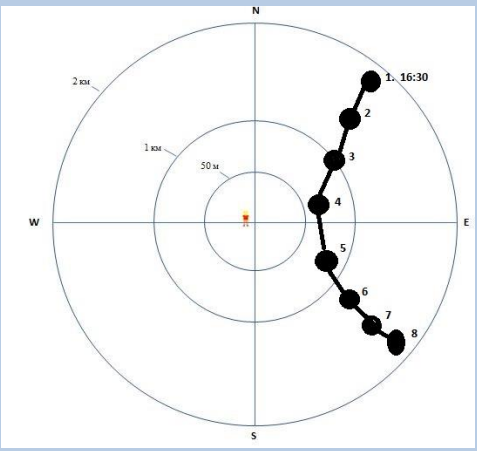
VP 6 on 24.04.2020



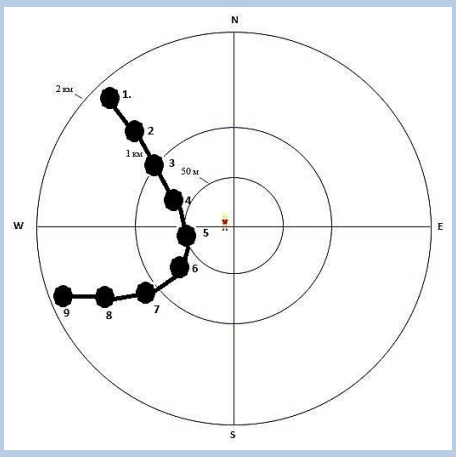
VP 3 on 23.04.2020



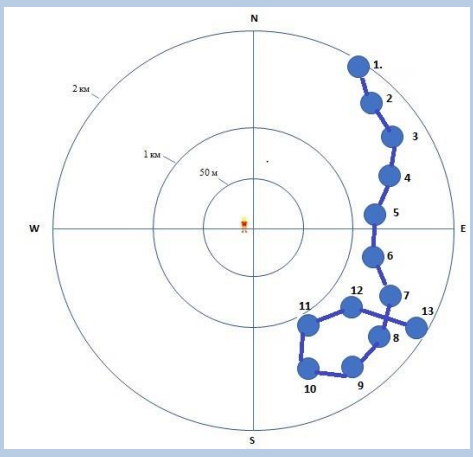
VP 5 on 26.04.2020



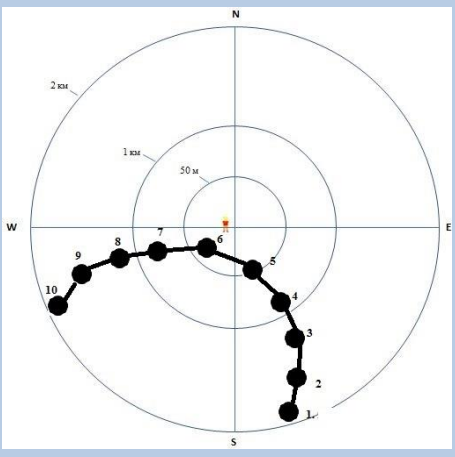
VP 2 on 01.05.2020



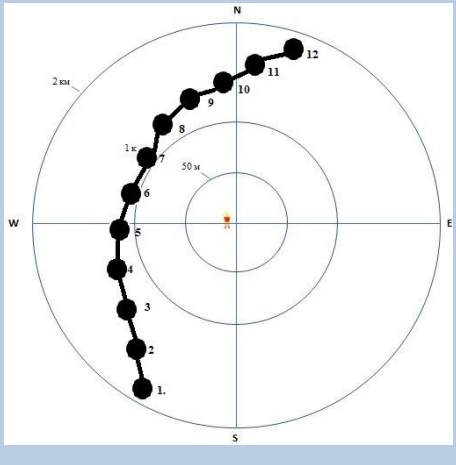
CP 4 02.05.2020



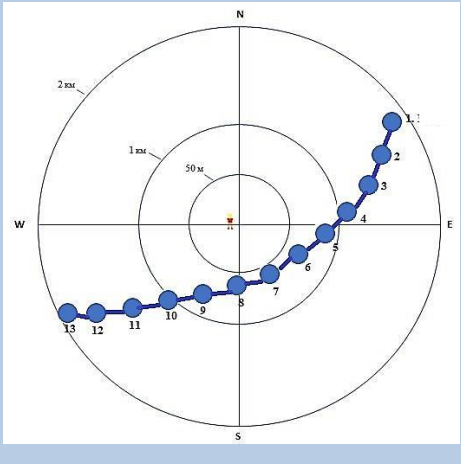
VP 9 on 04.04.2020



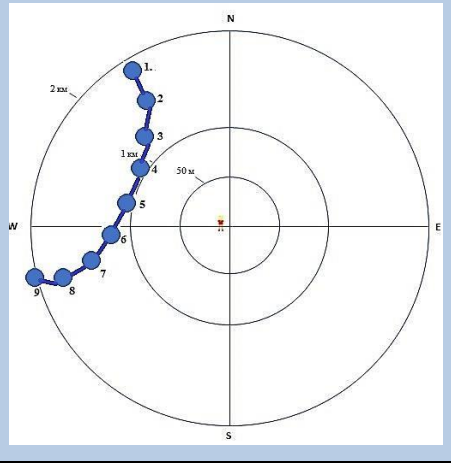
VP 3 on 05.05.2020



VP 5 on 06.05.2020



VP 1 on 11.05.2020



The nest surveys on the cliffs that border the lake found no occupied nests in the spring survey of 2020. However, the ornithologists who conducted the survey have previous records of nests found in the same area in 2011 and 2018.

The summer VP survey saw similar numbers to that of the spring survey with a total of 30 vultures recorded. During these months bird activity was highest in May and June with individuals recorded each month. The numbers dropped down to 3 in July and increased to 7 observations in August when the species was also spotted in the water bird survey at the lake. Table 2-2 shows a record of the flight paths recorded over the summer survey.

Figure 2-18 Summer sighting of the Egyptian Vulture

Figure 2-19 Egyptian vulture on the shores of Ayakagytma Lake

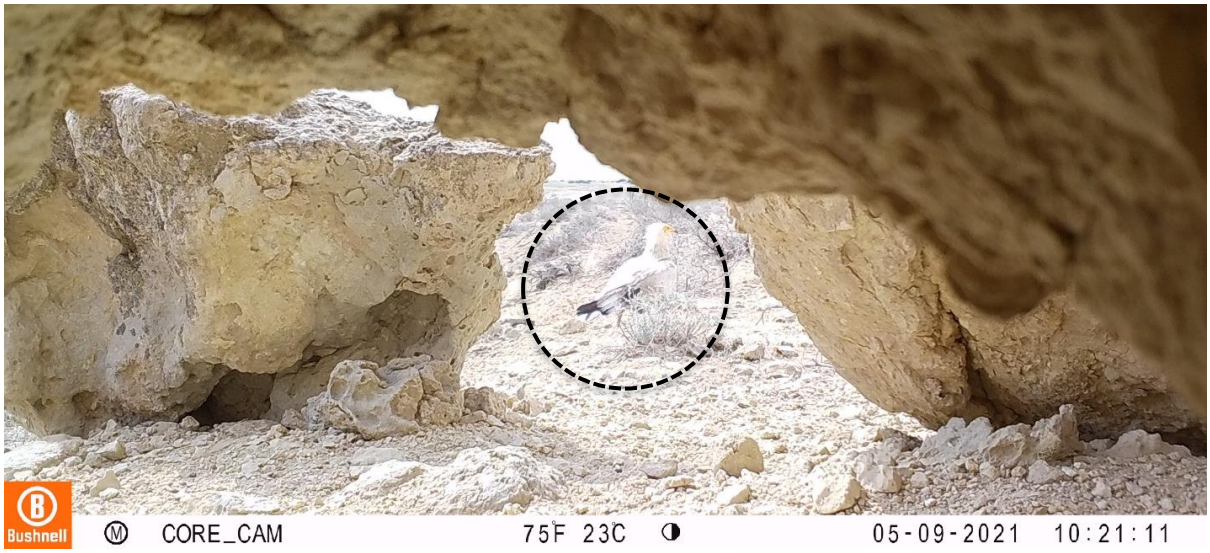
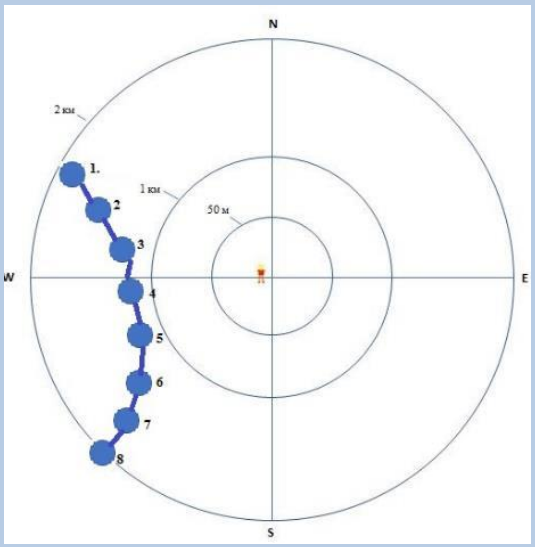
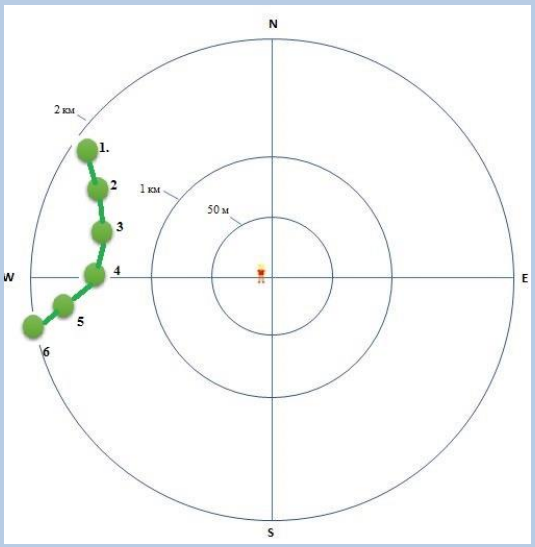
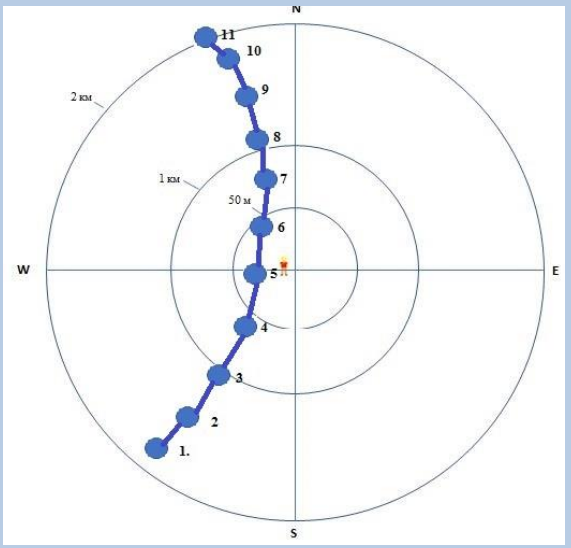
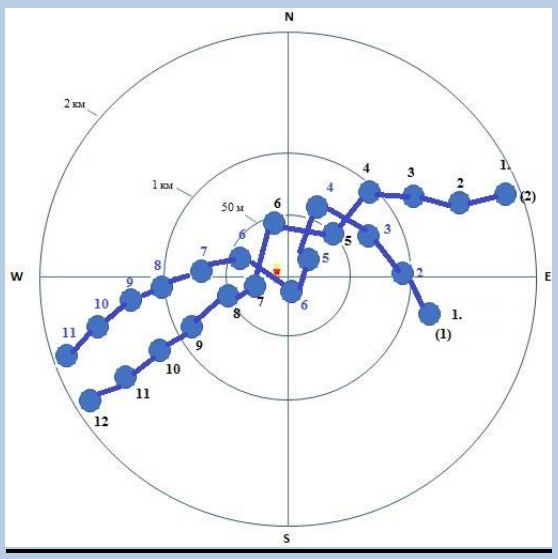
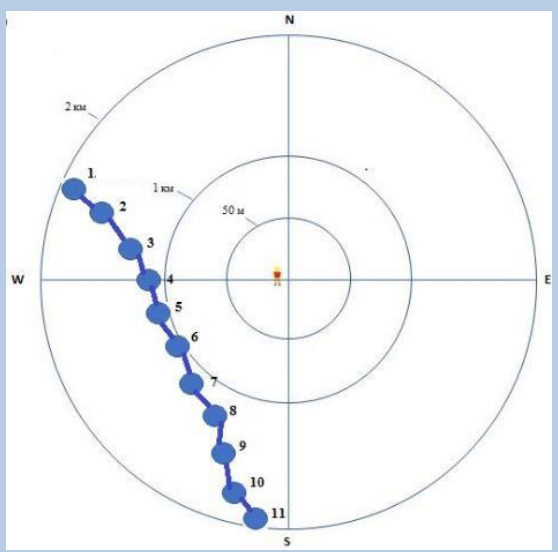
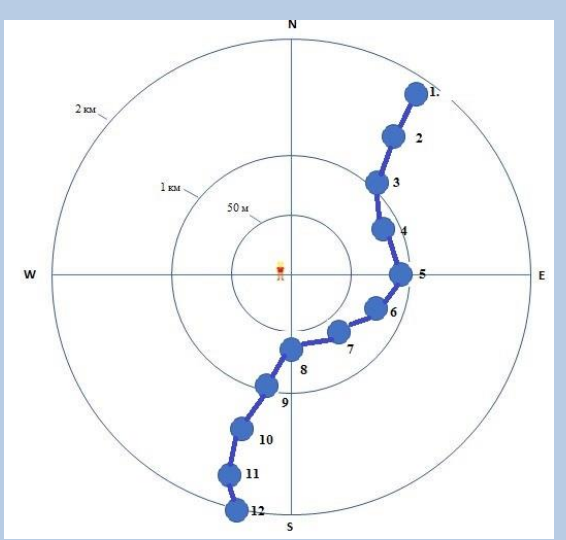
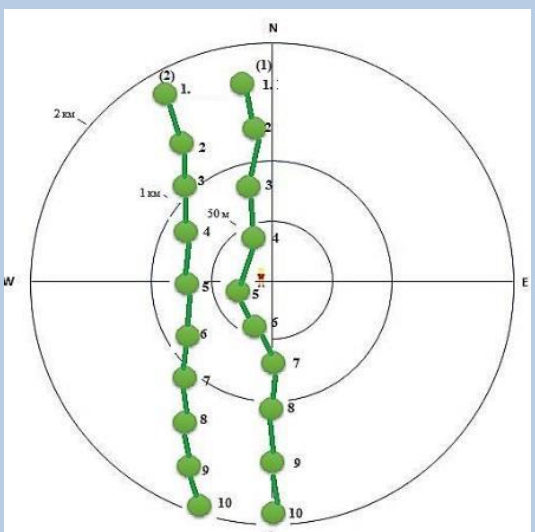
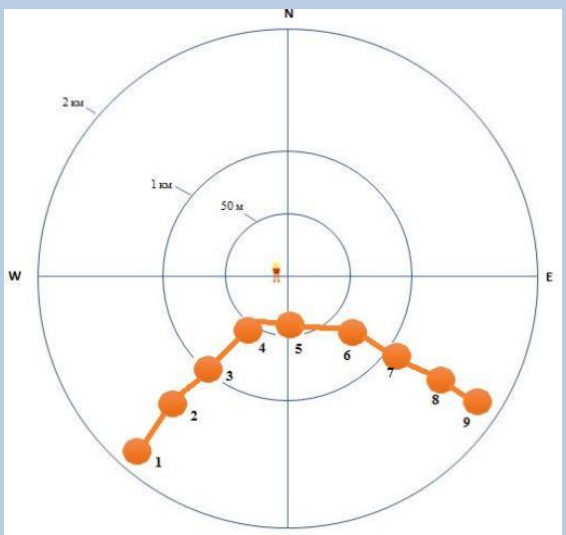
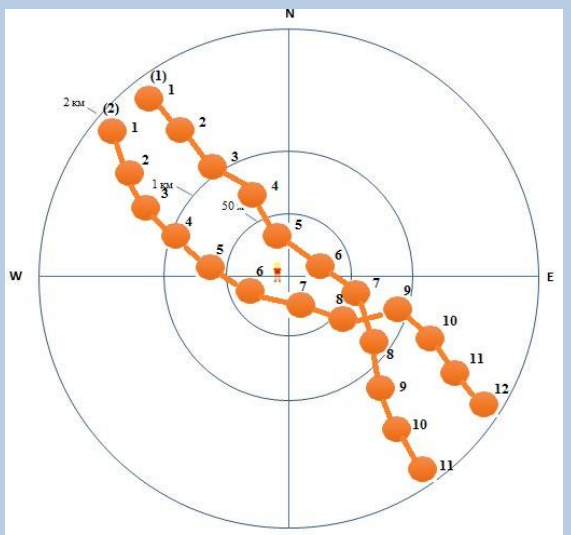
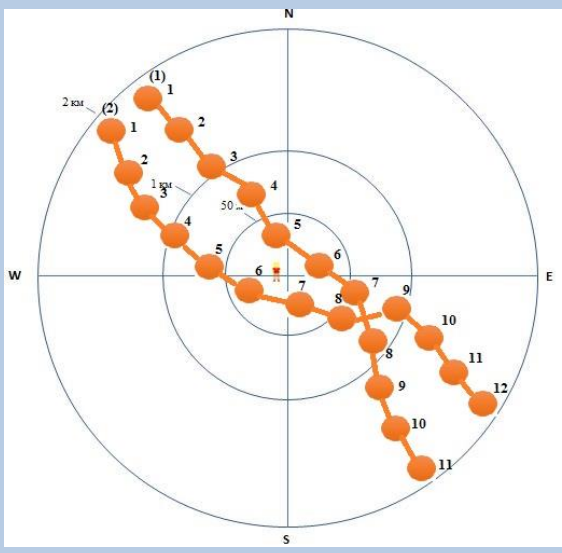
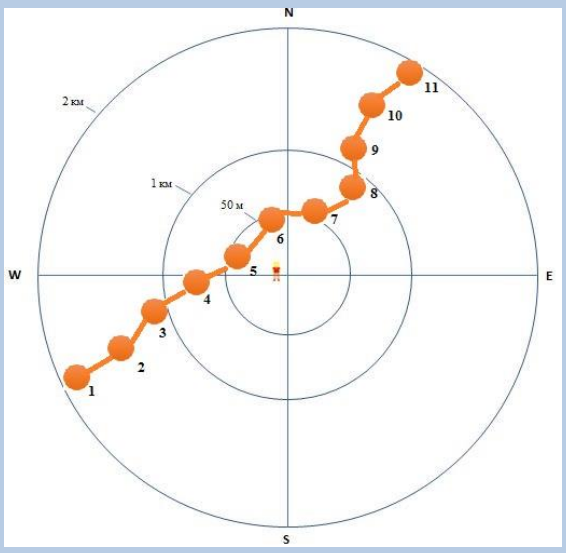
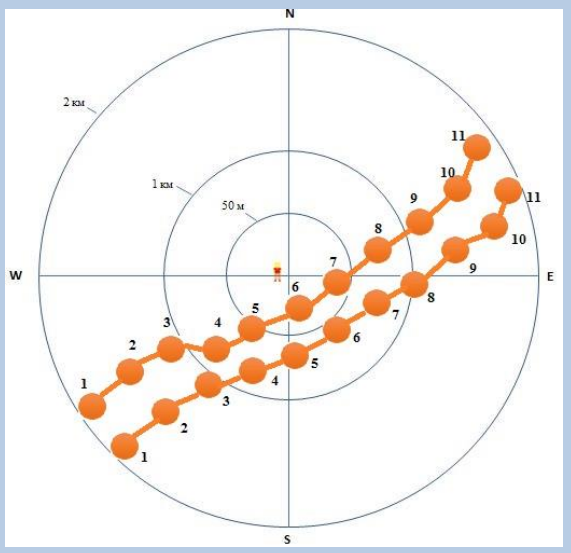
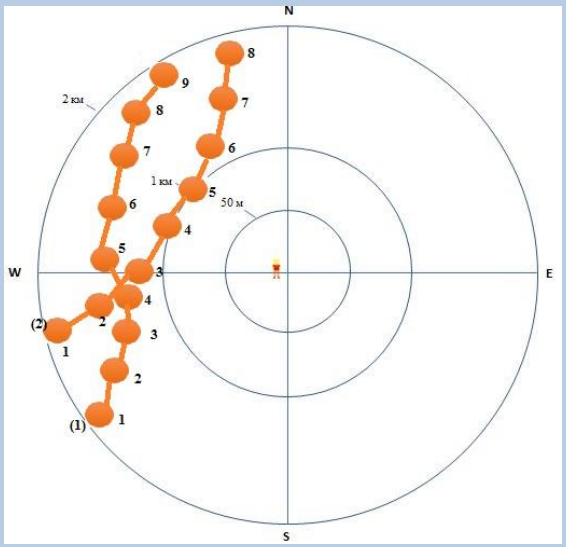


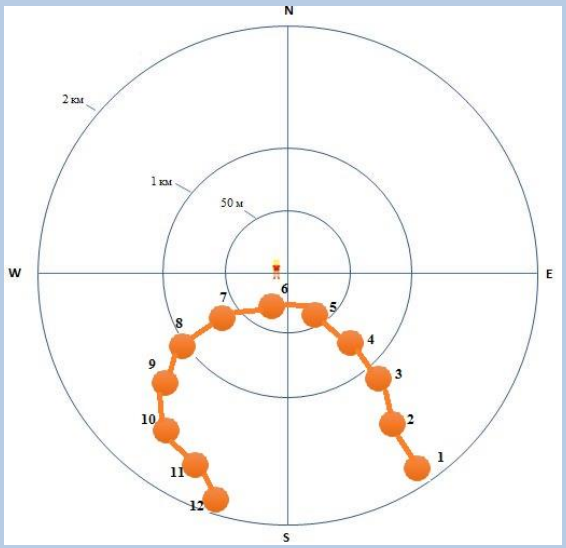
Table 2-2 Flight path of Individual Egyptian Vultures recorded during the Summer Survey

VP 1 on 17.05.2020 	VP 2 on 17.05.2021 	VP 3 on 23.05.2020 
VP 3 on 25.05.2020 	VP 2 25.05.2020 	VP 6 26.05.2020 
VP 3 on 30.05.2020 	VP 8 on 02.06.2020 	VP 3 on 03.06.2020 
VP 3 on 03.06.2020 	VP 2 on 11.06.2020 	VP 1 on 14.06.2020 

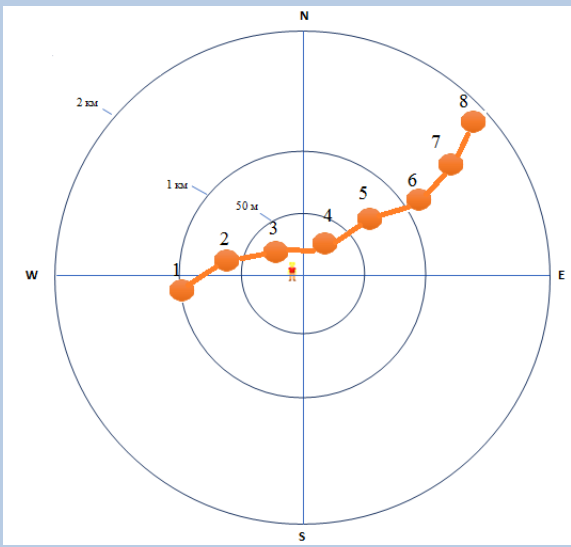
VP 5 on 19.06.2020



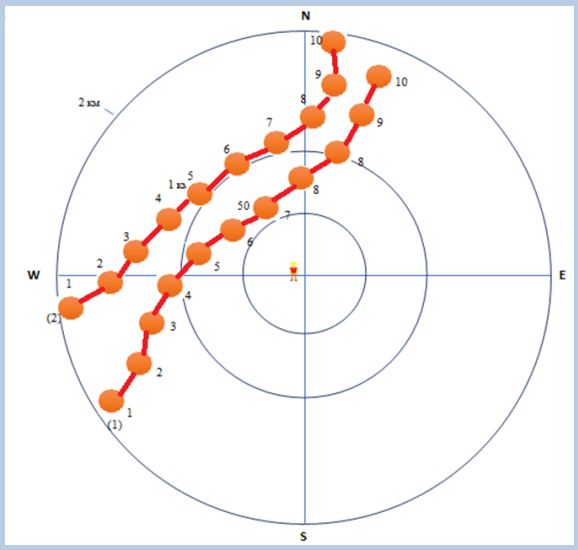
VP 3 on 24.06.2020



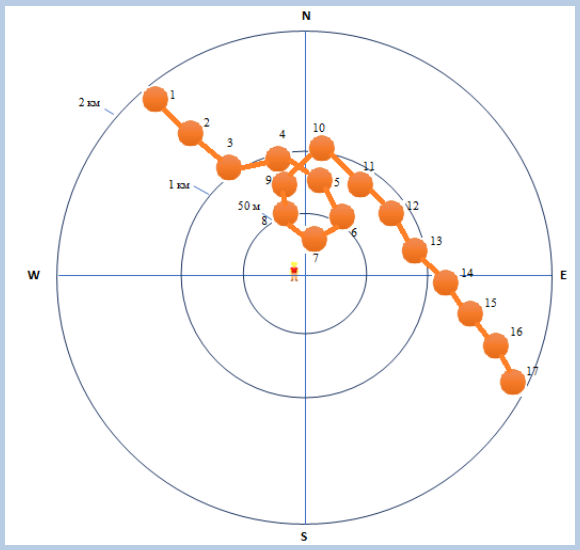
VP 3 on 02.07.2020



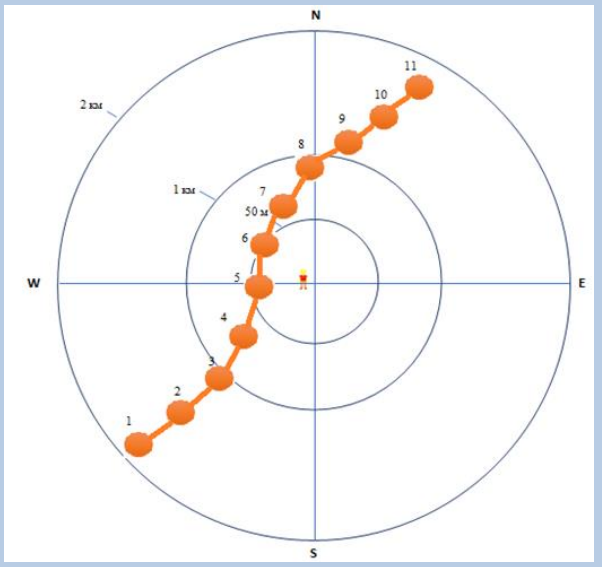
VP 1 on 08.07.2020



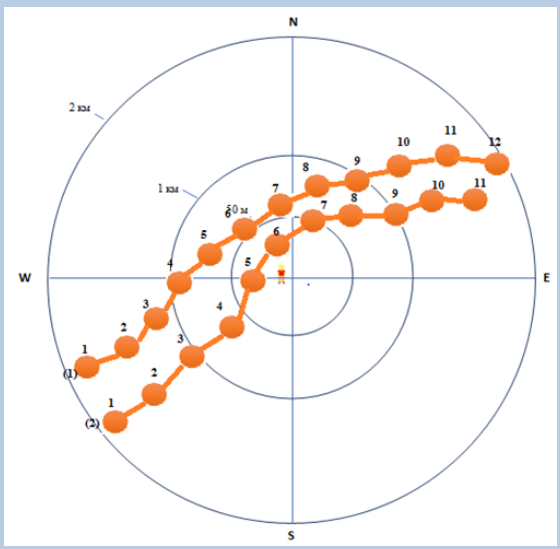
VP 3 on 22.07.2020



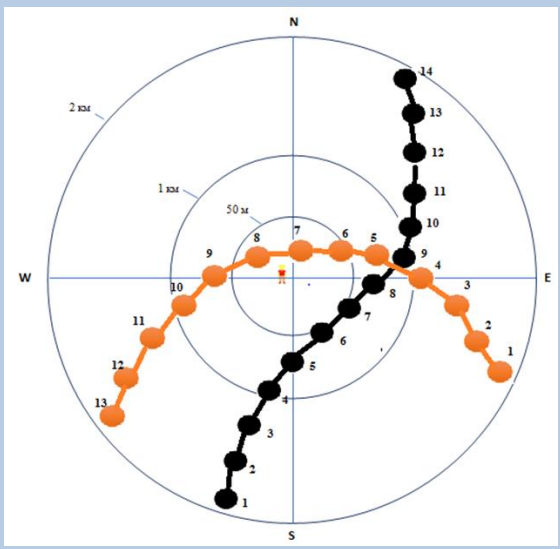
VP 3 on 01.08.2020



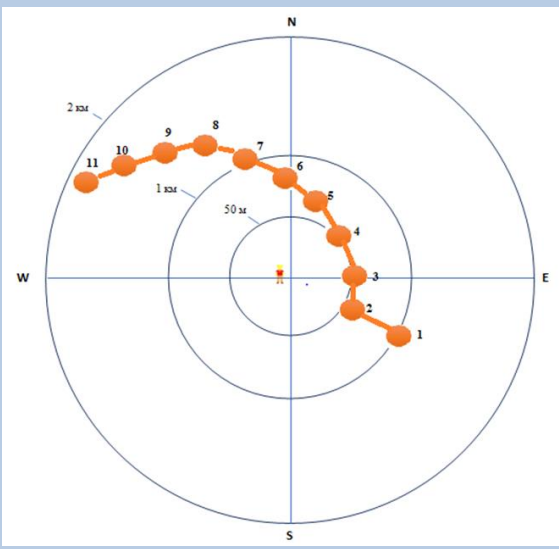
VP 3 on 05.08.2020



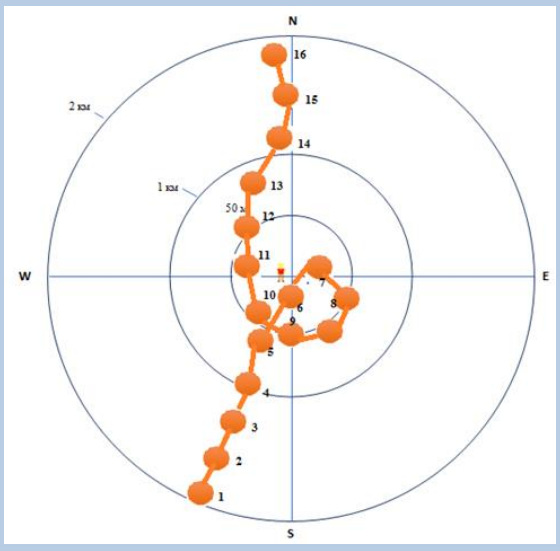
VP 1 on 11.08.2020 (Orange)



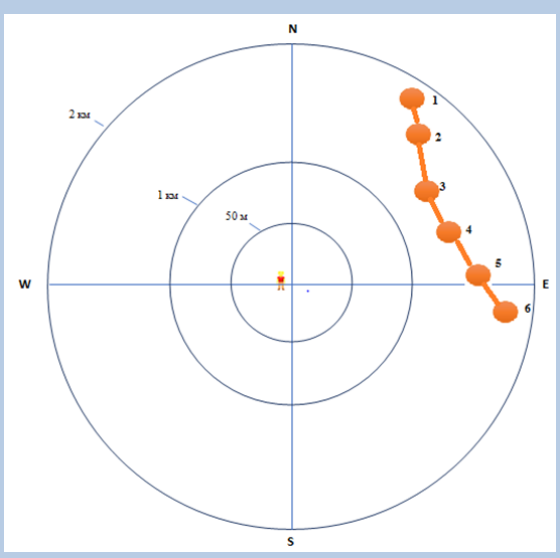
VP 3 on 12.08.2020



VP 1 on 14.08.2020



VP 7 on 18.08.2020

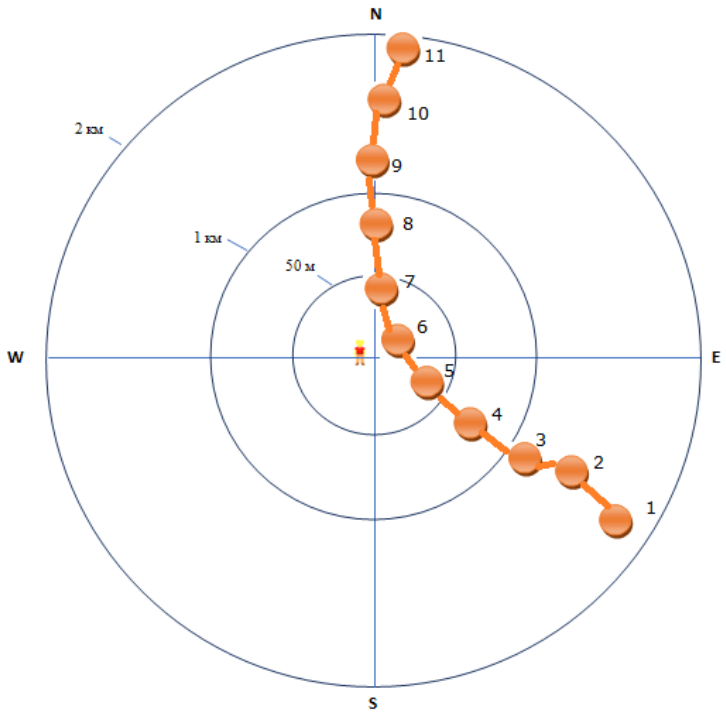


Four large bird of prey nests were found during the search on the cliffs. With raptor species also breeding in the same area, it was not confirmed whether any of the nests belonged to the vultures. It is likely however, as their presence was noted on the cliffs during the nest survey.

Figure 2-20 Large nests recorded during the summer survey of 2020

During the autumn period, only one individual was recorded in September at VP1. Its flight path is outlined in Figure 2-21.

Figure 2-21 Flight path of the single Egyptian Vulture recorded during Autumn



No Egyptian Vultures were recorded during the Winter 2022 survey.

2.3.1.2.2 Bash-Karakul OHTL

A total of 7 Egyptian Vultures were recorded during the OHTL surveys. Two individuals were recorded at VP 1 and one other between VP 3 and VP 4. Four more sightings were made along the existing power line survey within the Bash Wind Farm site.

Figure 2-22 Observation points of Egyptian Vulture (NP) along Bash-Karakul OHTL

2.3.2 Stakeholder Engagement

As part of the CHA Stage 2 process, requests for information related to identified biodiversity aspects of concern were distributed to known experts in the field.

One such expert that was consulted as part of stakeholder engagement exercises is Anna Ten, expert ornithologist who conducted bird surveys in the area in 2011, 2018 and most recently in the summer of 2021. Ten has observed Egyptian Vultures on all three survey efforts. Most notable, was her record of 4 breeding pairs in 2011 and again in 2018. This number increased to 5 during the 2021 survey she conducted in the summer. The passage below is an excerpt of the response received from Ten.

"In 2018, we found 4 pairs of vultures. But in 2021, during a summer expedition, we recorded 5 pairs of vultures on IBA Ayakagytma, which indicates the global importance of this territory for the conservation of this species."

Figure 2-23 Records of Egyptian Vulture sightings at Lake Ayakagytma and Bash WF site in 2018

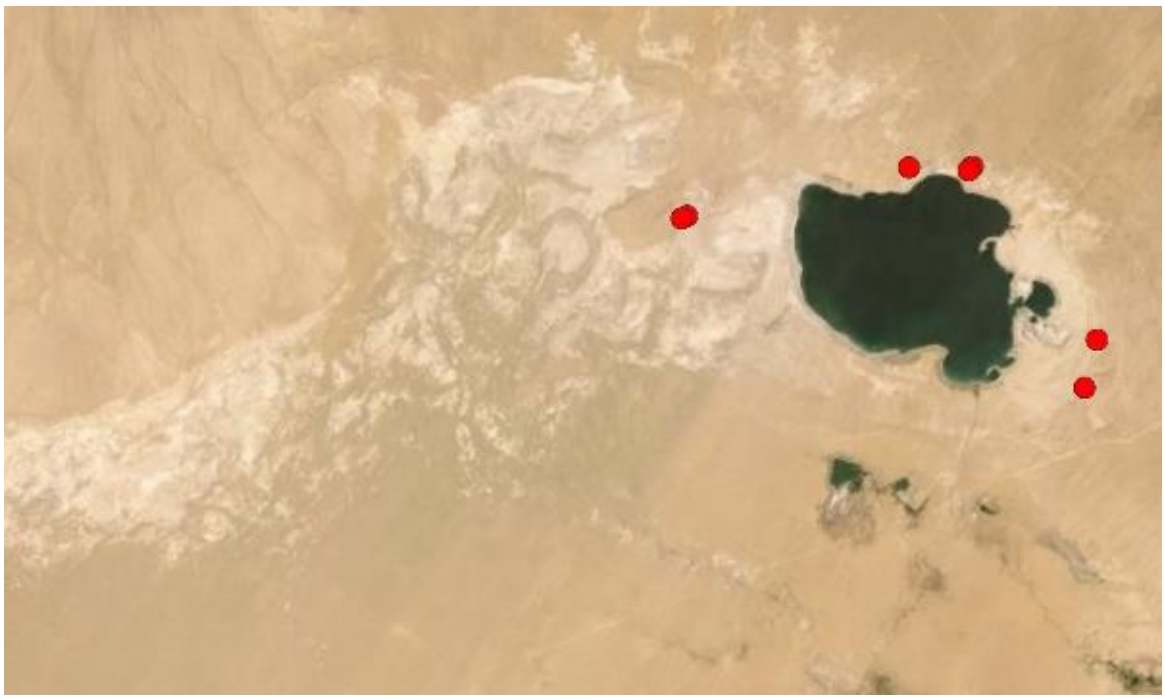
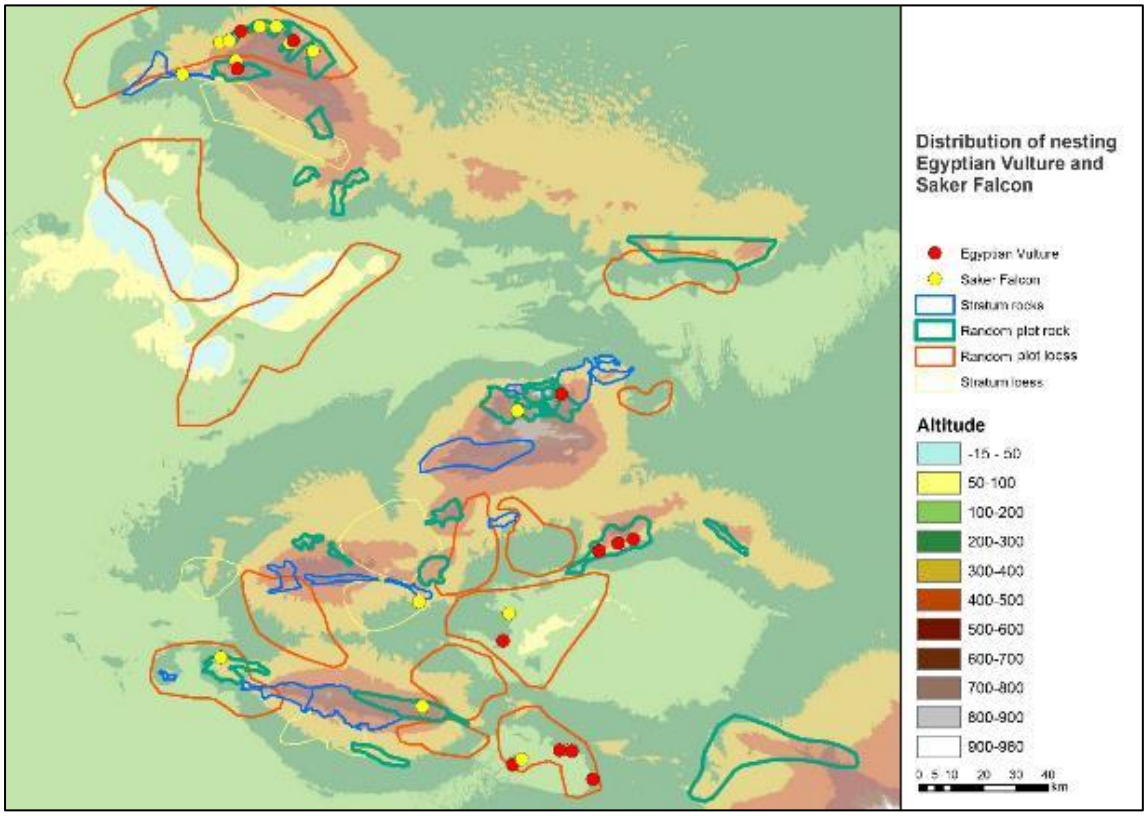


Figure 2-24 Distribution of Breeding Egyptian Vulture (Red) near the Bash WF site



F

Another expert ornithologist, Maxim Koshkin has also confirmed the presence of breeding Egyptian vultures at the Bash Wind Farm site, "These birds are known to be breeding in close proximity to the Bash site."

Luiza Mardonova, from the State Committee of Uzbekistan on the Ecology and Environment, responses to the request for information in kind, "Loess rocks bordering the Ayakagytma depression are good for nesting birds of prey; vulture, common kestrel, saker falcon, owl and other species that nest on the rocks."

The ornithologists who conducted the bird surveys in 2020 shared records of a nesting Egyptian vulture documented by Anna Ten in 2011.

Figure 2-25 Egyptian Vulture nesting in Ayakagytma cliffs in 2011

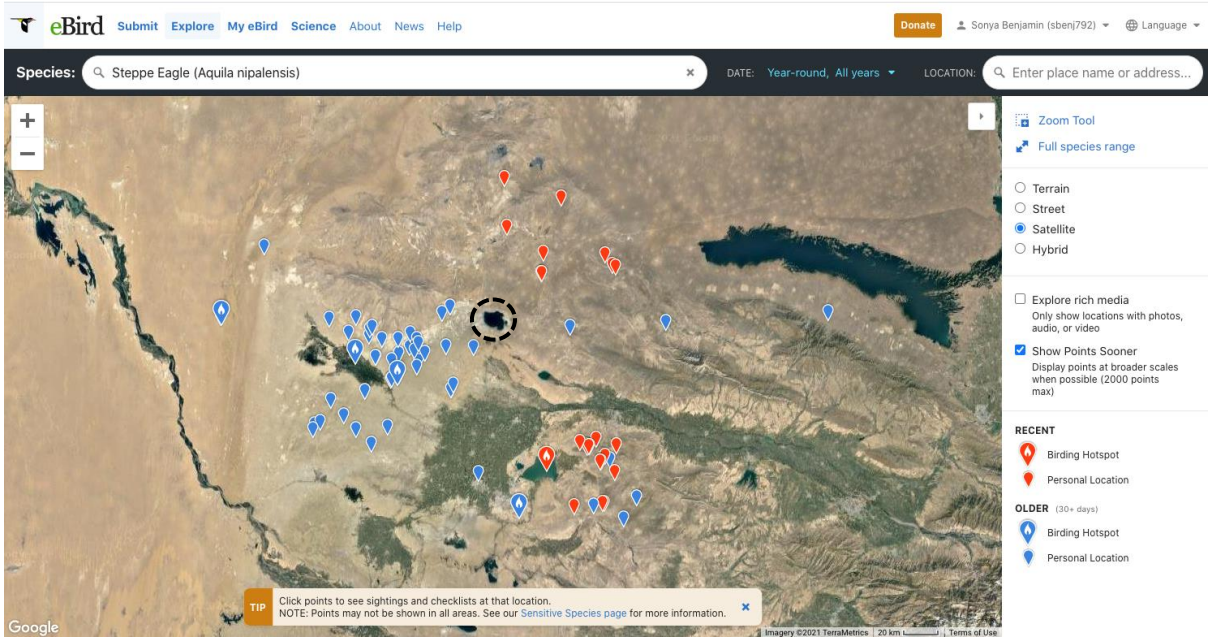
2.4 Steppe Eagle

The Steppe Eagle (*Aquila nipalensis)* is listed as Endangered on the IUCN Red List, due to rapid population decline across much of its global range.

It is a passage migrant through Uzbekistan, crossing southbound in the autumn months and returning northbound in the spring months to breed in the summer months. Migrants leave their breeding grounds between August and October/November, returning between January and May. It avoids sea crossings and thus forms large concentrations at bottleneck sites. The species is considered to be highly vulnerable to wind farms and power line impacts.

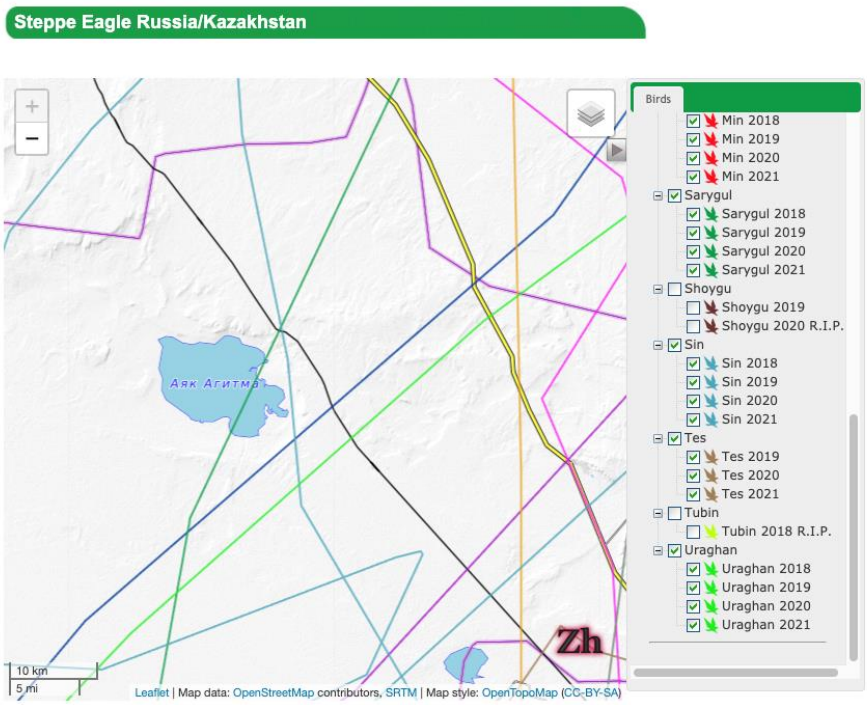
The global population is assumed to be below 37,000 pairs. Less than 10 individual migrants were recorded at the lake in 2008 and 2011. The following records are available on Ebird, documenting Steppe Eagle in localities within 15km away from the project site (dotted circle).

Figure 2-26 Steppe Eagle Ebird Records (Red and Blue) near the project site



The map below showcases satellite tracking data on multiple individuals whose recorded flight paths were adjacent to or within the project's airspace.

Figure 2-27 Steppe Eagle Migration Flight Paths (near project area)



2.4.1 Baseline Survey

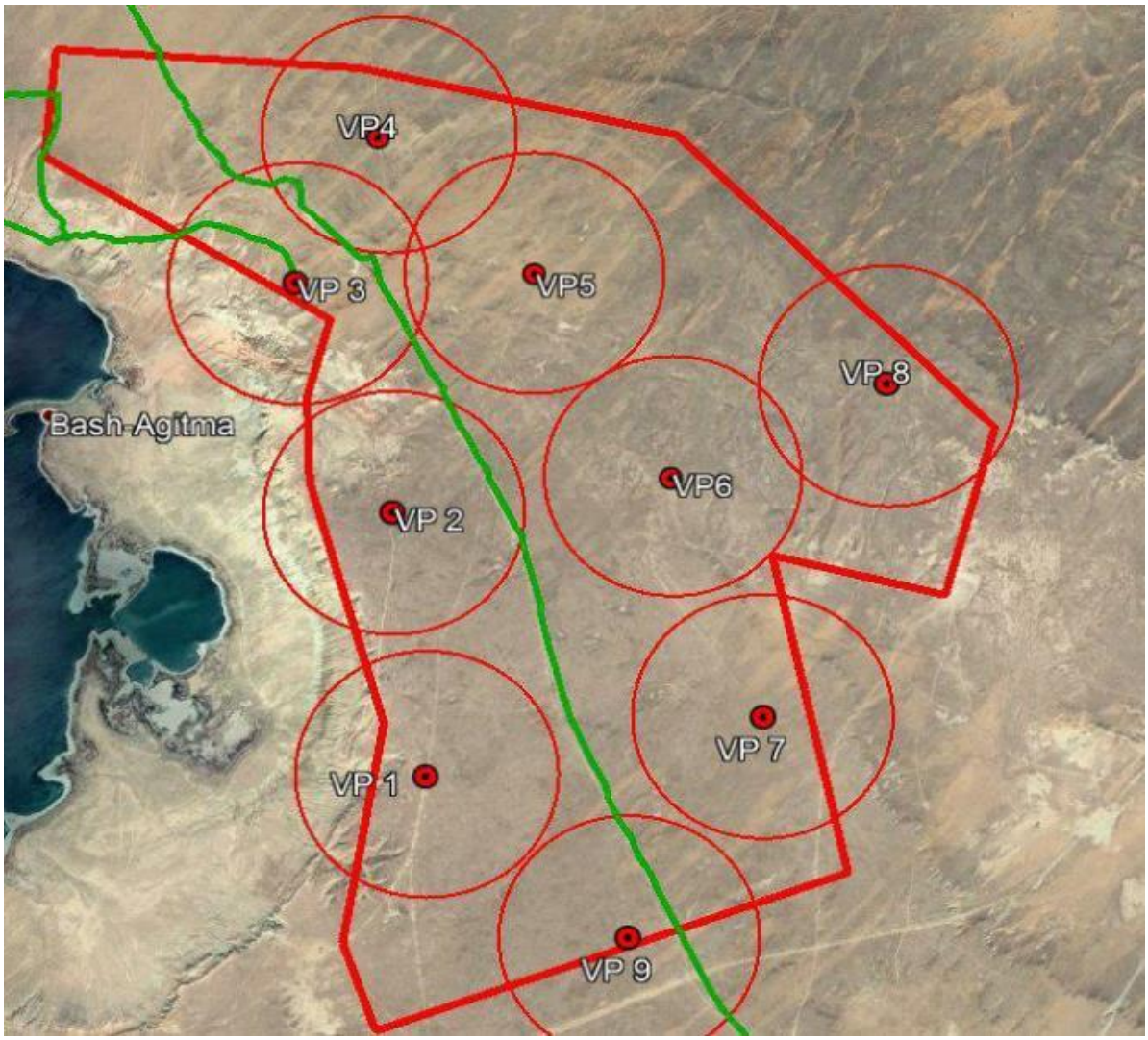
2.4.1.1 Methods

2.4.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-28 Vantage Points locations (green line – railway road)



The range of detection and identification of large species such as the Steppe Eagle was up to 2 km.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the eagles were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

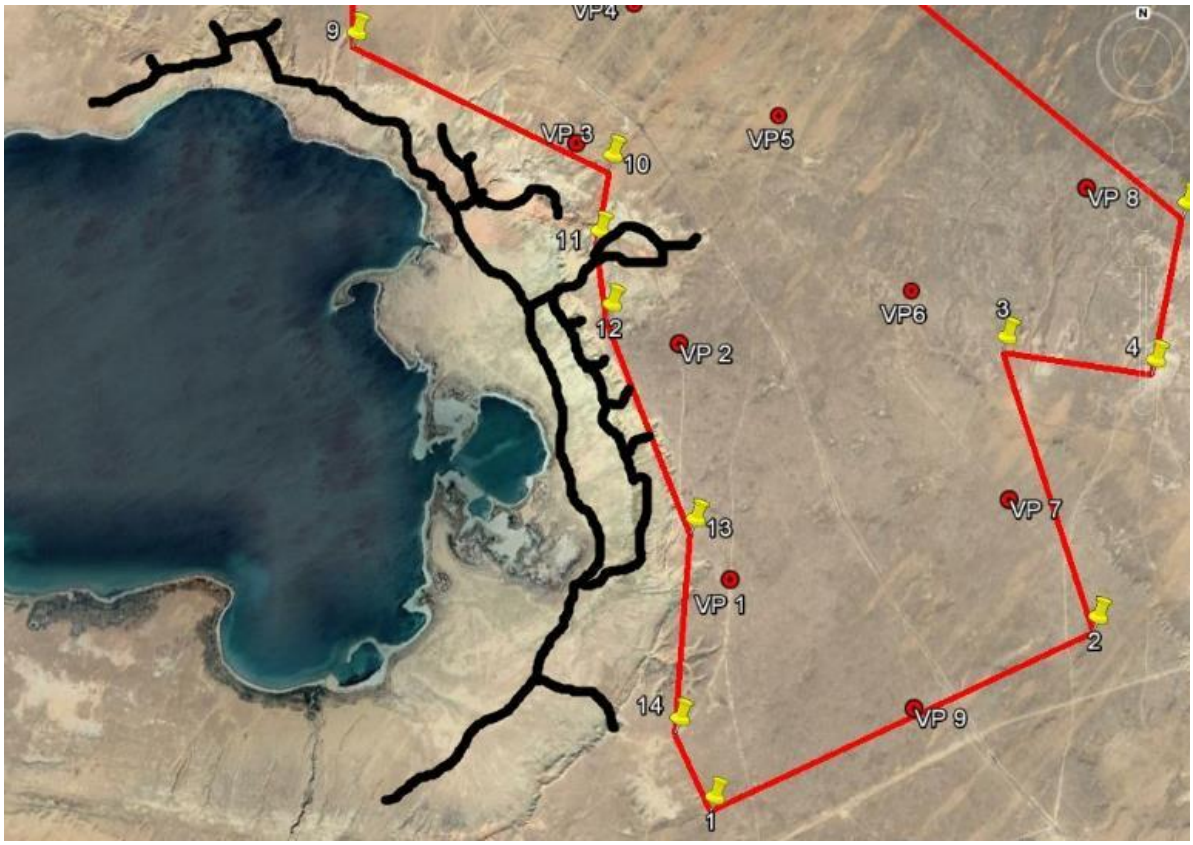
Nest-searching surveys were undertaken in loess cliffs near the project site during the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

The cliffs that border the Lake Ayakagytma basin, lie west of the WF area, extending from its northern to the southern limits. The cliff are about 25-40 meters high and have many indentions that provide a lot of cavities, cracks, and gouges, that make ideal nesting habitats for large birds of prey

Figure 2-29 Cliffs bordering the Lake Ayakagytma

Figure 2-30 Nest survey route of spring 2020

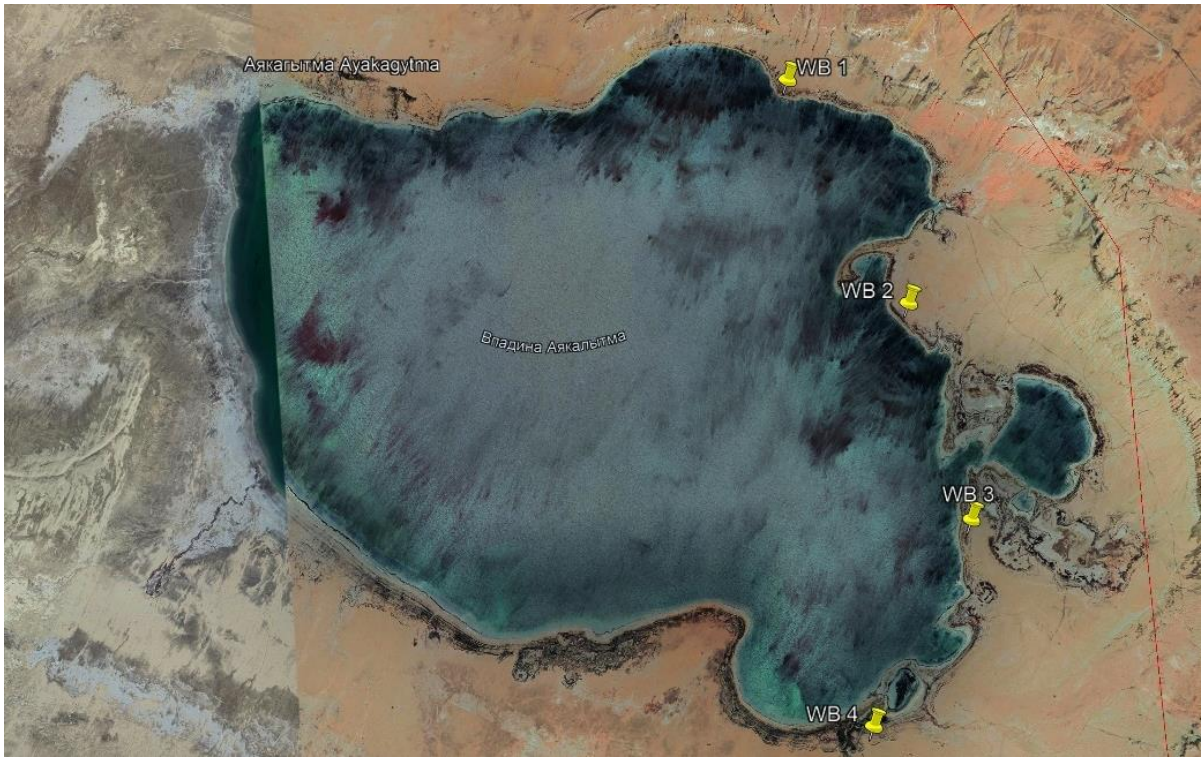
Figure 2-31 Nest survey route of summer 2020



On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-32 Survey Locations of Winter 2022 at Lake Ayakagytma



2.4.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of

bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-33 Vantage points of the projected OHTL route

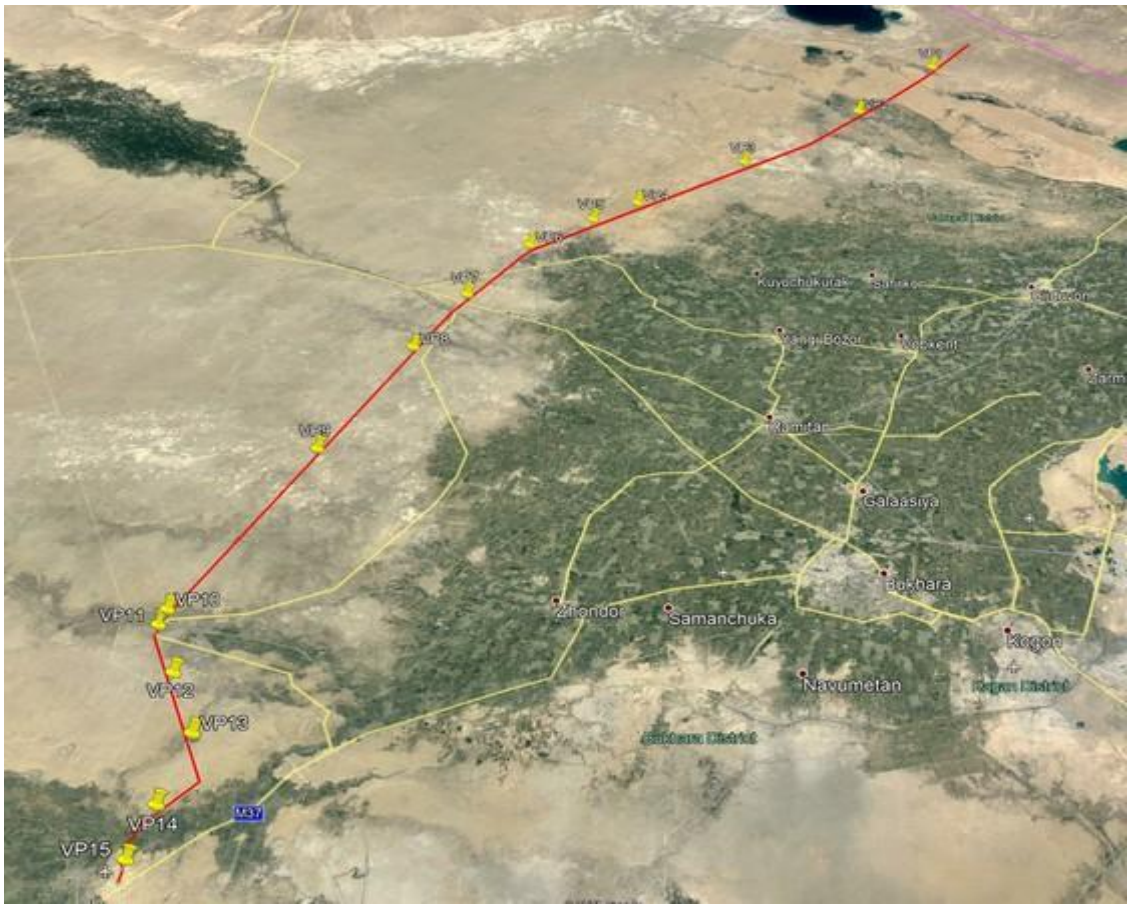


Figure 2-34 Vantage points of the projected OHTL route in June

2.4.1.2 Results

2.4.1.2.1 Bash Wind Farm

Project surveys of the wind farm area recorded a total of 54 individuals over the course of one year. Bird activity was highest during the Autumn and lowest in the Summer with 27 and 10 observations respectively.

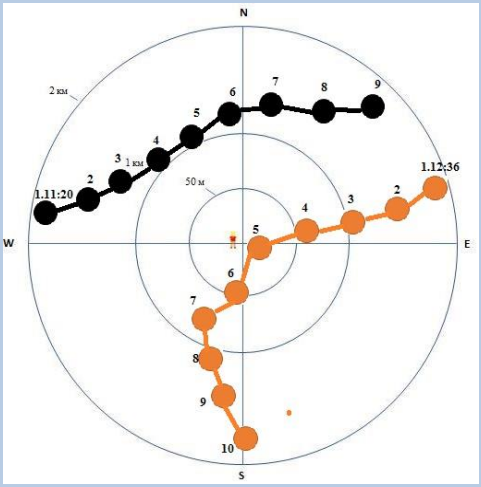
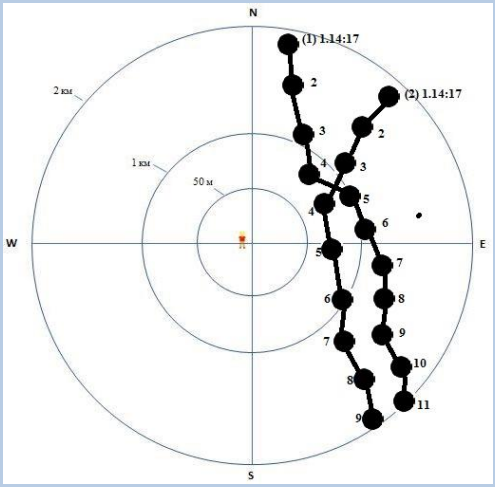
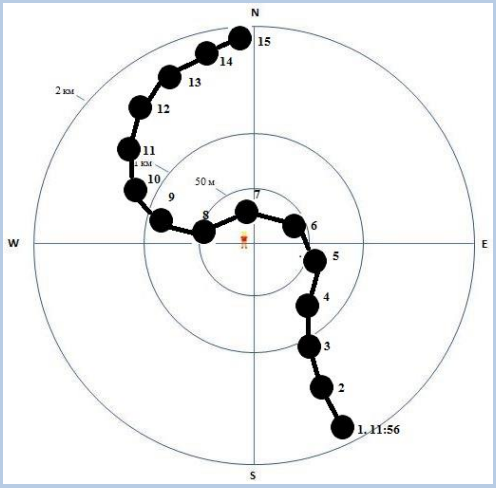
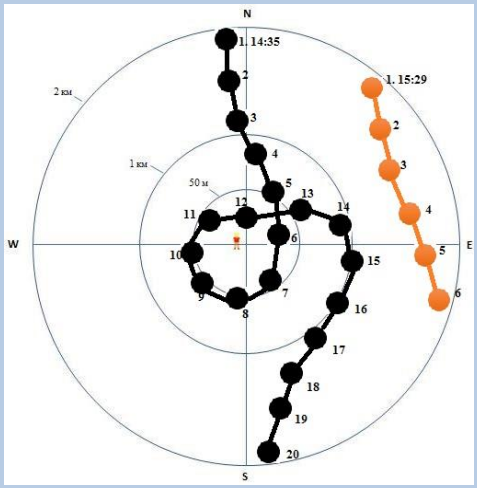
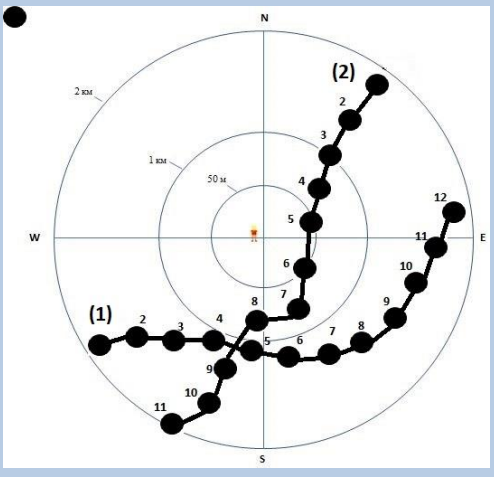
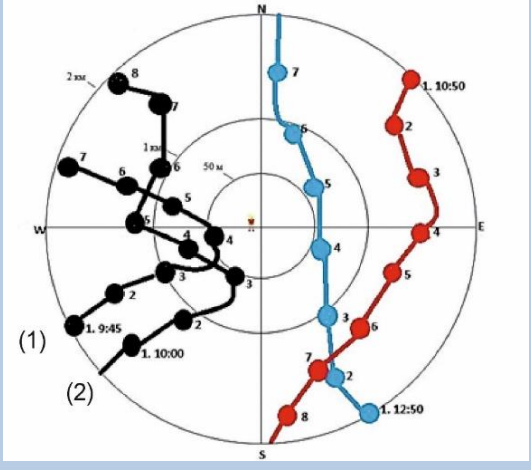
16 individuals of this species were recorded in the Spring. Larger numbers were seen in April (10) across five vantage points. Spring survey records of flight paths of each individual from the different vantage points are tabulated in Table 2-3.

During the summer survey 10 Steppe eagles were observed with four seen in both June and August and only one in May. Summer survey records of flight paths of each individual from the different vantage points are tabulated in Table 2-4. Two individuals were recorded among the cliffs during the survey.

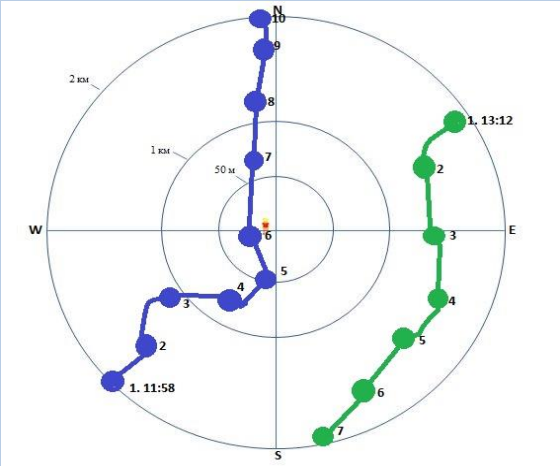
Over the Autumn survey, sightings peaked during the month of September (15) at all VPs except one and three. Eagle sightings decreased to seven in October and again to five in November (Table 2-5).

During Winter 2022 surveying, 1 individual was recorded in January at VP 4 and a further 9 were observed at 5 vantage points in March.

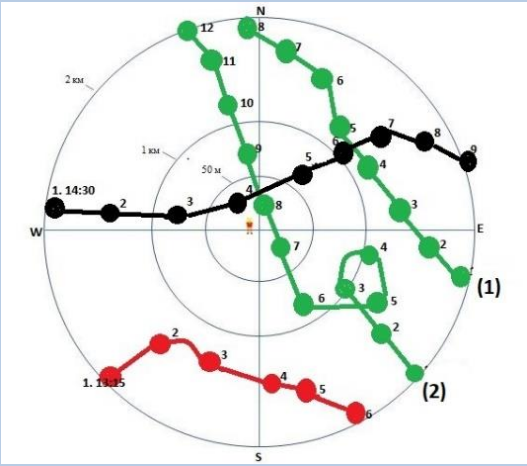
Table 2-3 Flight paths of the Steppe Eagles recorded during the spring survey

VP4 on 26.03.2020 (Black) 	VP5 on 26.03.2020 
VP7 on 29.03.2020 	VP 8 on 29.03.2020 (Black) 
VP 5 on 03.04.2020 	VP 4 on 04.04.2020 (Red) 

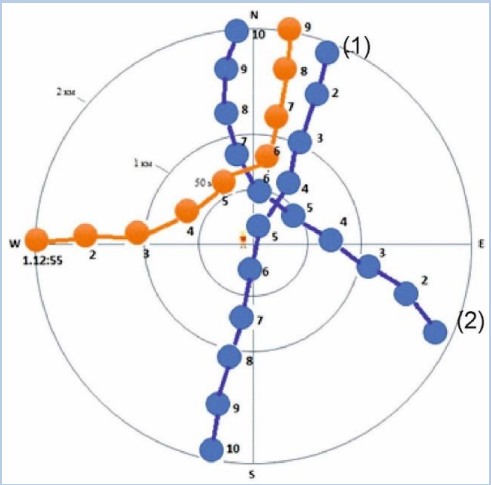
VP 7 on 05.04.2020 (Green)



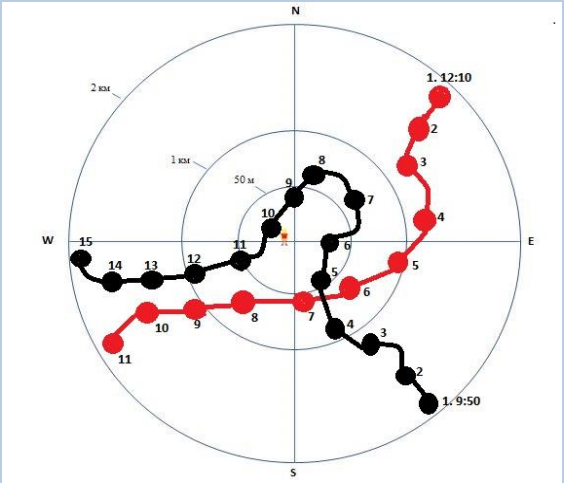
VP 6 on 10.04.2020 (Black)



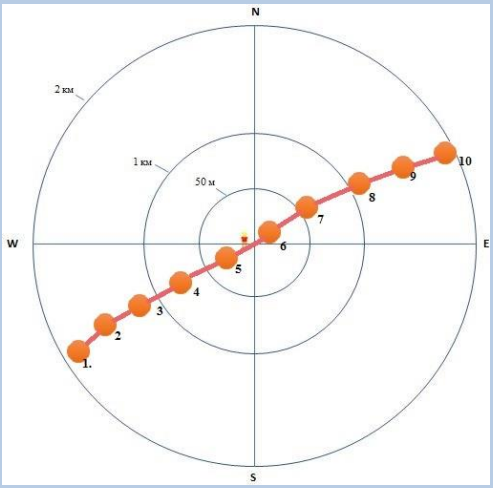
VP 7 on 11.04.2020 (Blue)



VP 4 on 15.04.2020 (Red)



VP 5 on 02.05.2020



VP 8 on 10.05.2020

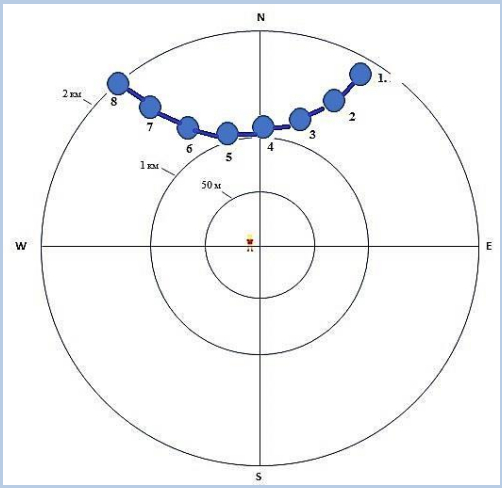
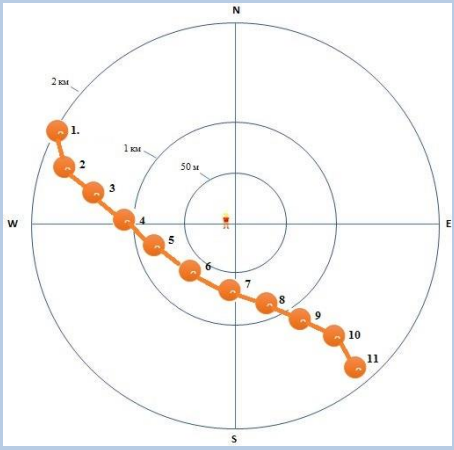
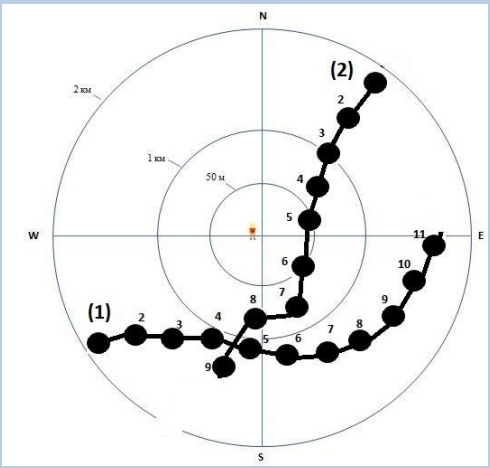


Table 2-4 Flight paths of the Steppe Eagles recorded during the summer survey

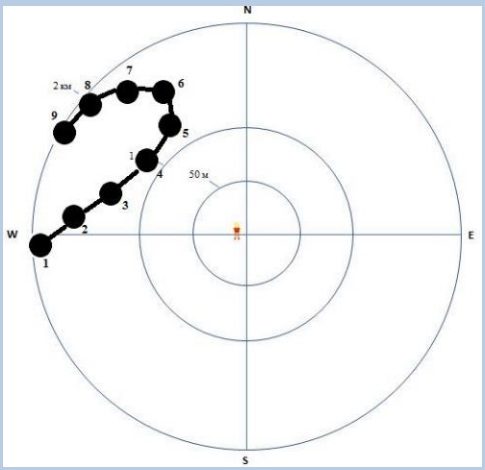
VP 7 on 31.05.2020



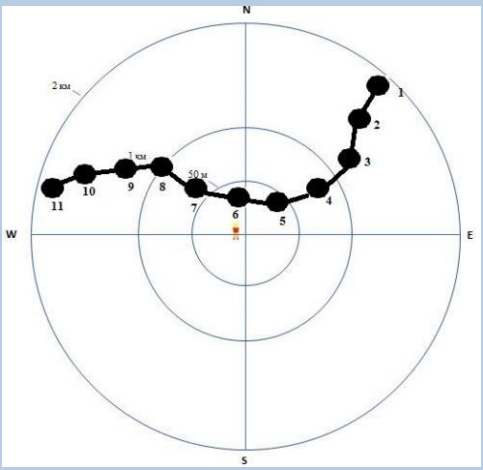
VP 4 on 01.06.2020



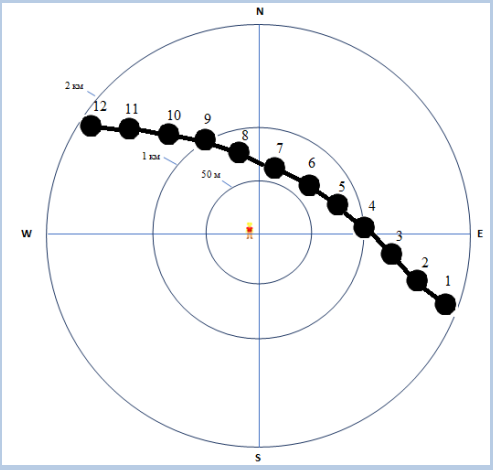
VP 1 on 03.06.2020



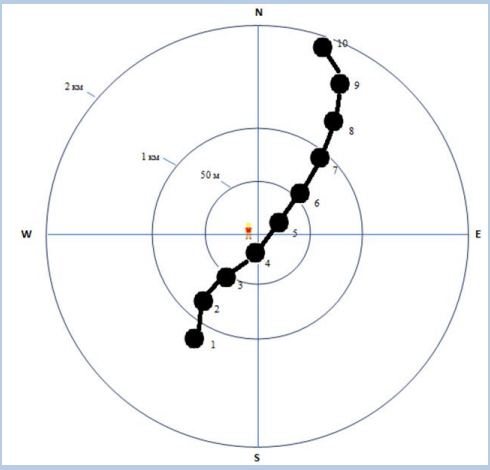
VP 4 on 05.06.2020



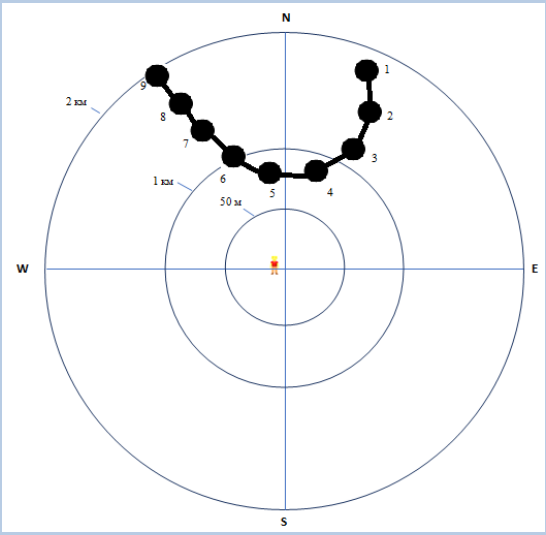
VP 6 on 03.07.2020



VP 7 on 16.07.2020

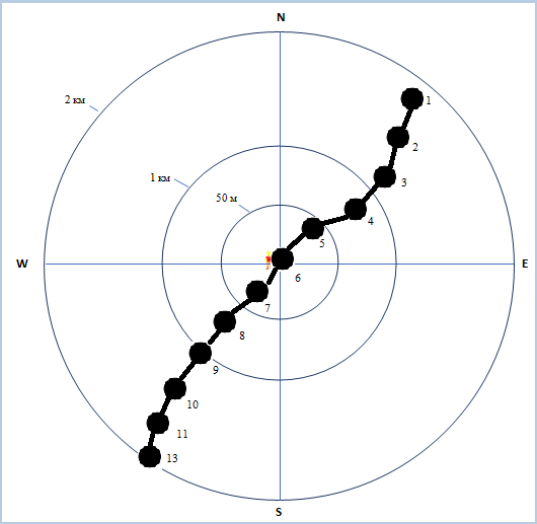


VP 7 on 02.08.2020

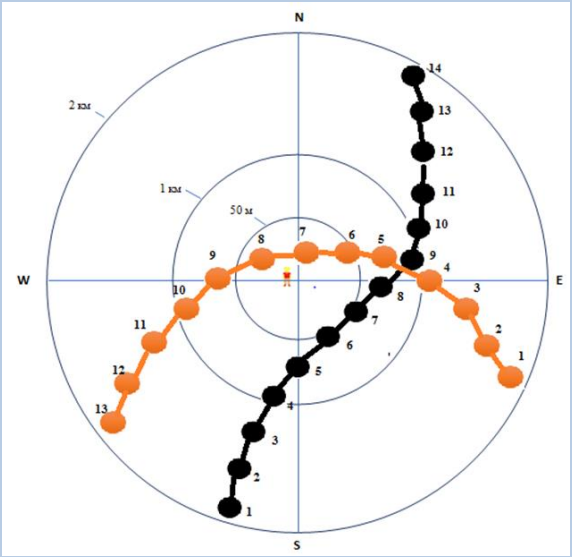


)

VP 6 on 03.08.2020



VP 1 on 11.08.2020 (Black)



VP 7 on 16.08.2020

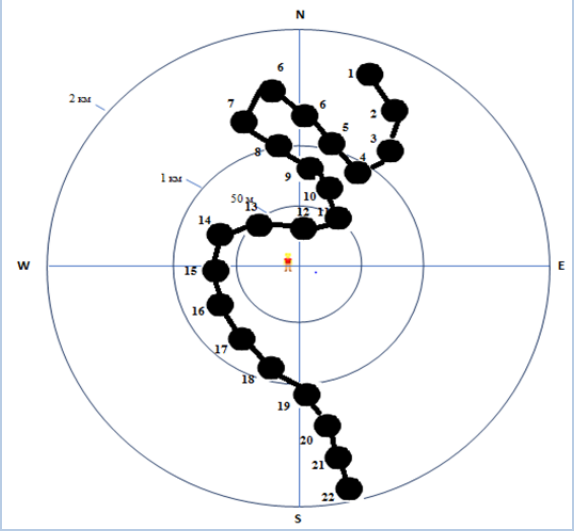
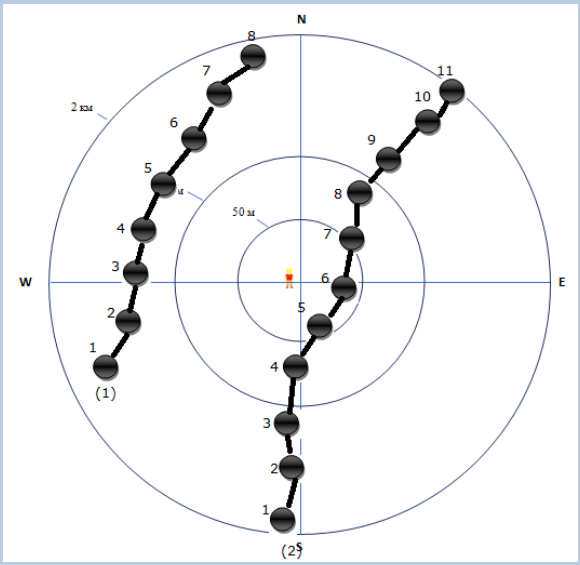
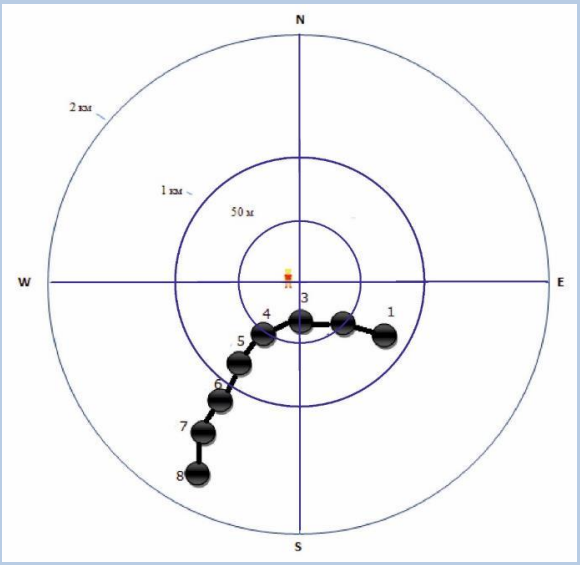
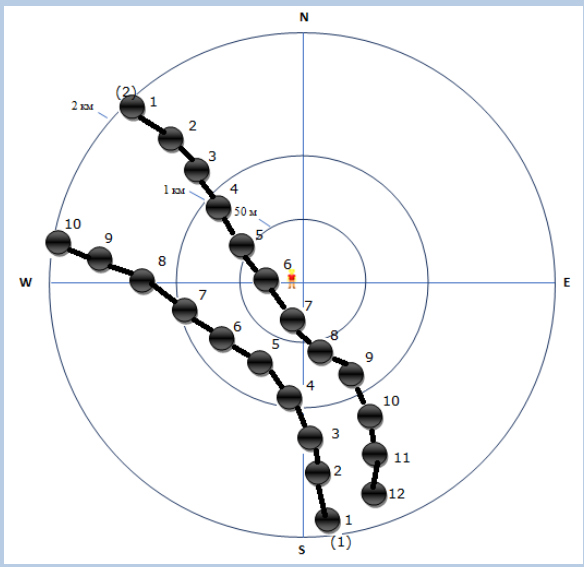
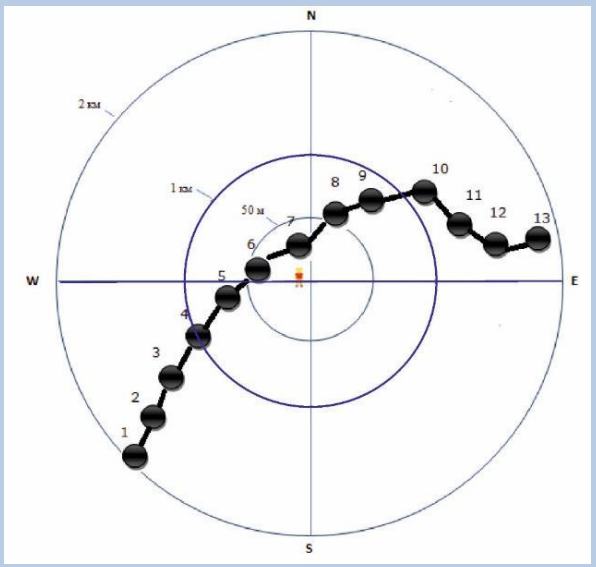
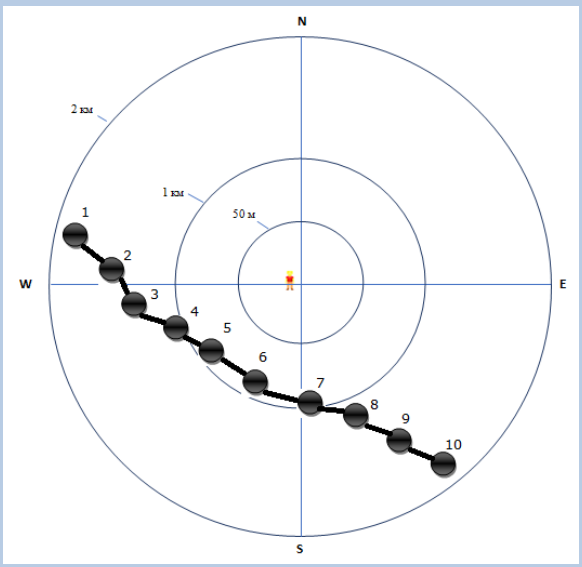
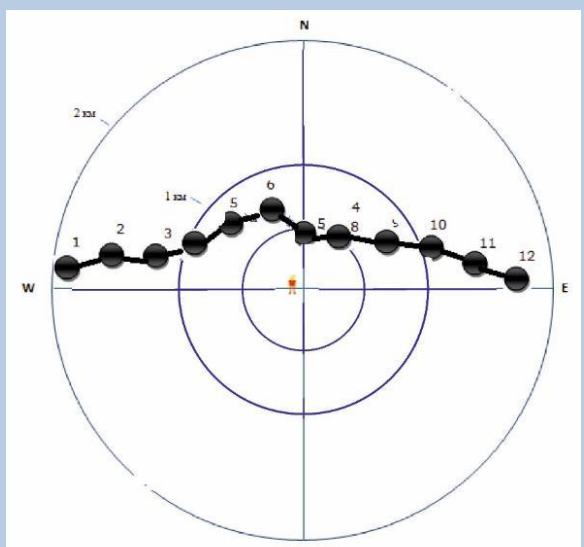
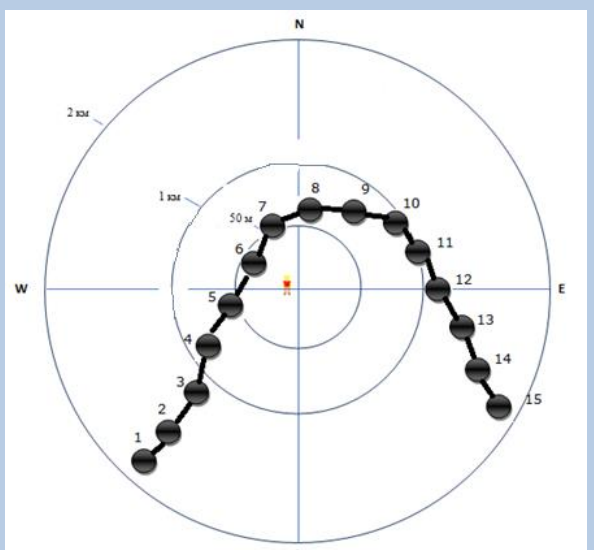
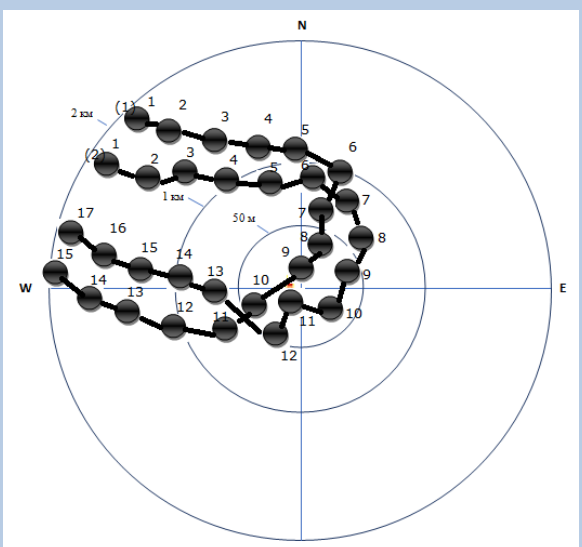
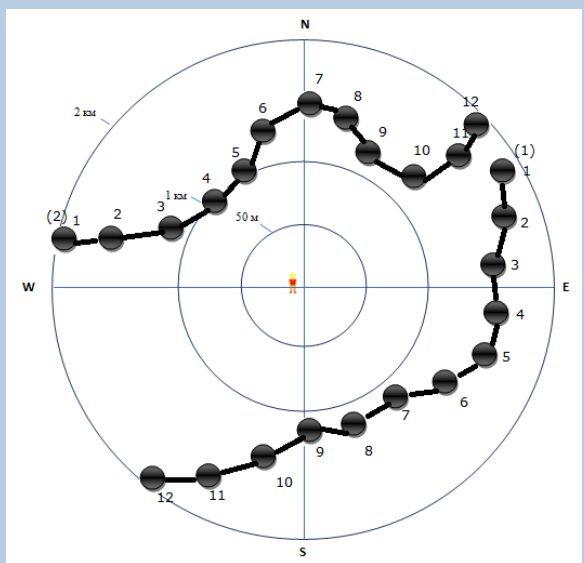
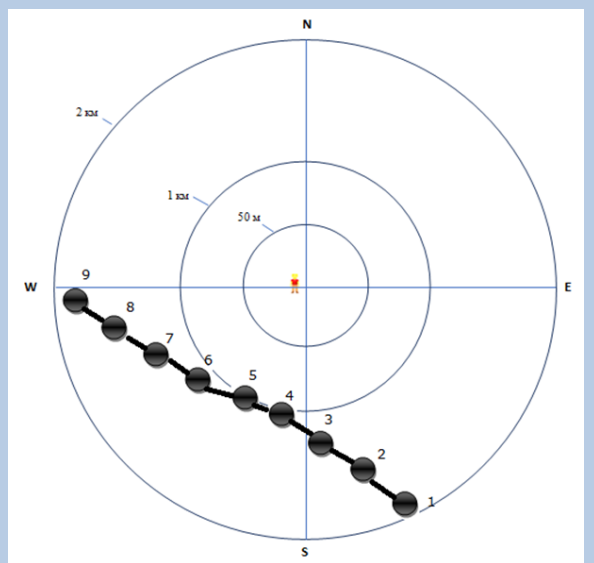
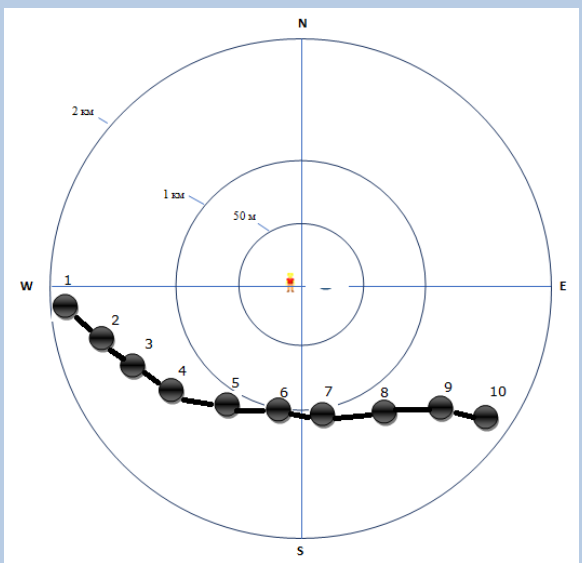
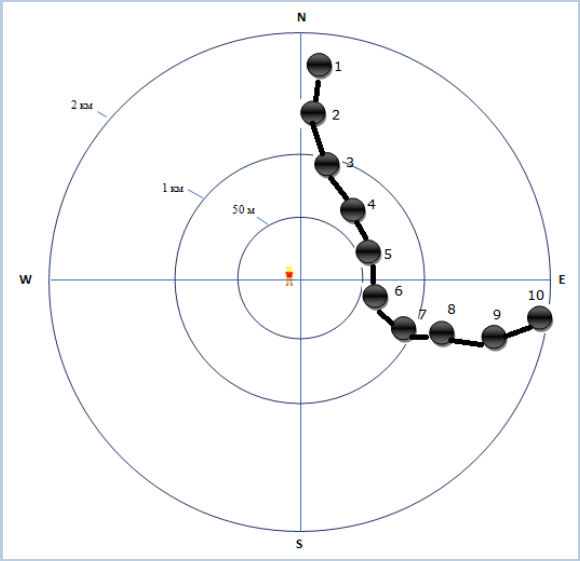


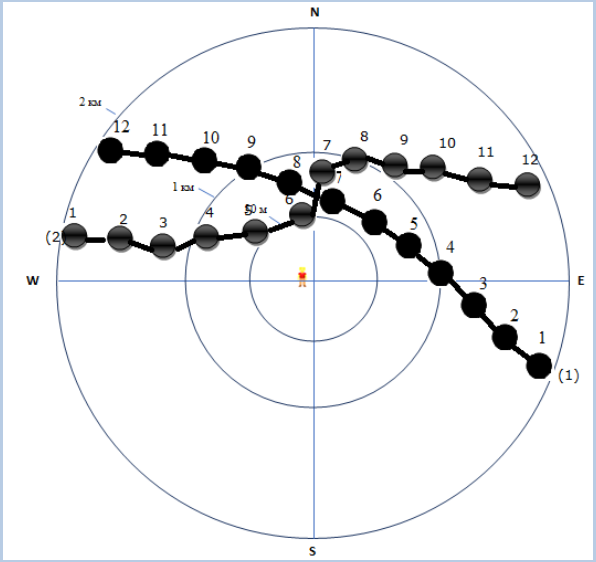
Table 2-5 Flight paths of the Steppe Eagles recorded during the autumn survey

VP 2 on 02.09.2020	VP 2 on 05.09.2020	VP 2 on 13.09.2020
		
VP 2 on 16.09.2020	VP 2 on 25.09.2020	VP 4 03.09.2020
		
VP 4 on 11.09.2020	VP 5 on 22.09.2020	VP 7 on 12.09.2020
		
VP 8 on 07.09.2020	VP 9 on 15.09.2020	VP 2 on 14.10.2020
		

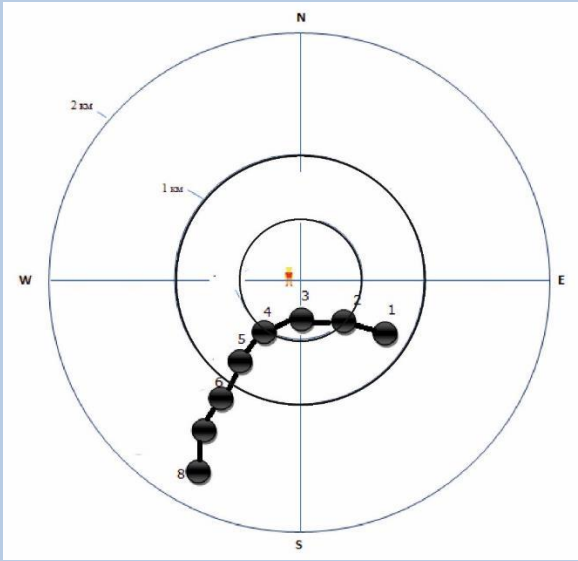
VP 3 on 03.10.2020



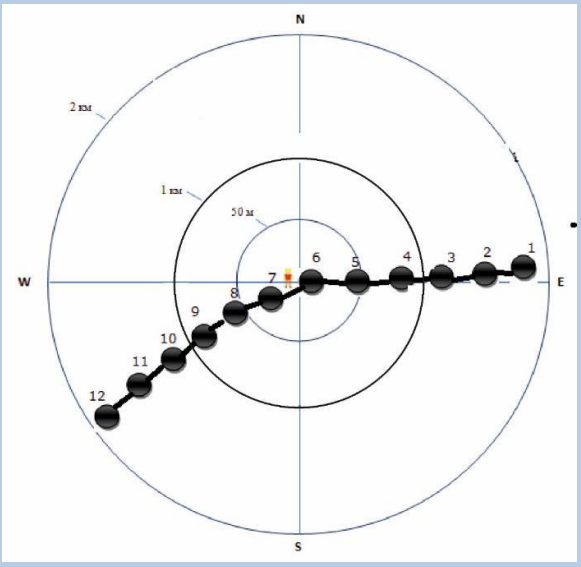
VP 4 on 08.10.2020



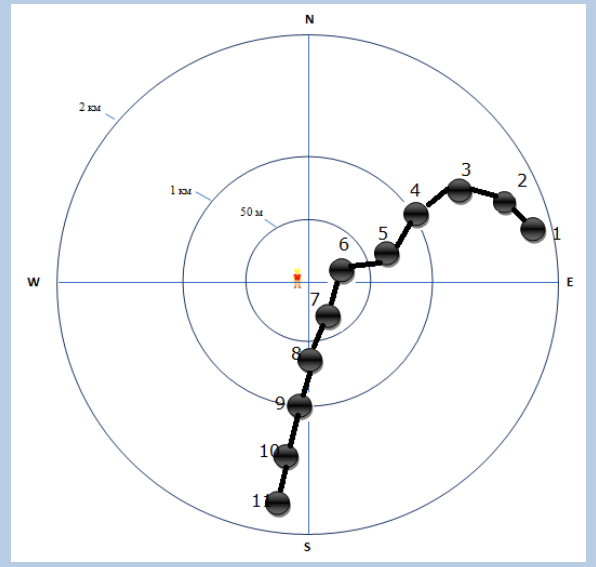
VP 5 on 23.10.2020



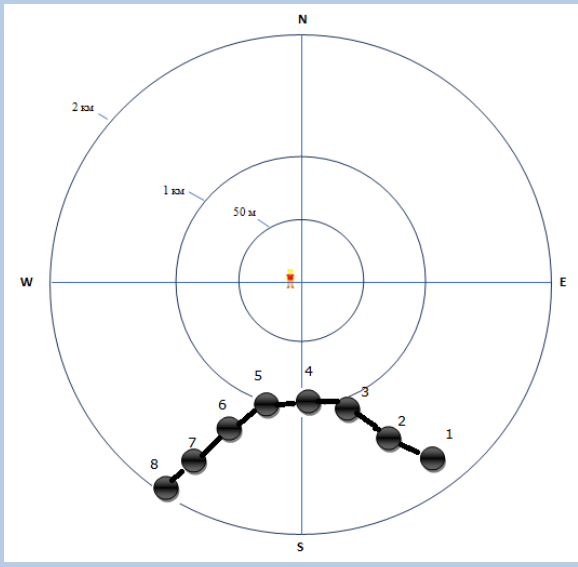
VP 6 on 16.10.2020



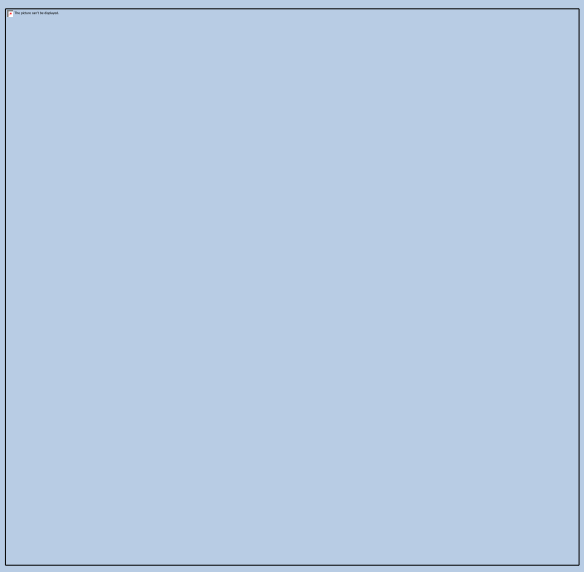
VP 8 on 17.10.2020



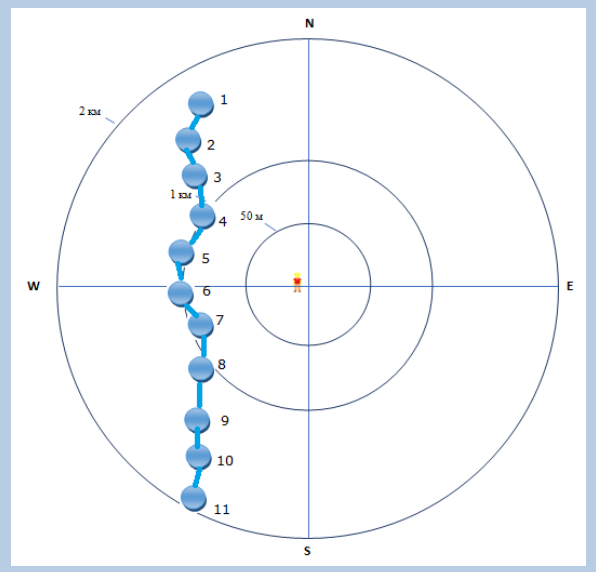
VP 3 on 11.10.2020



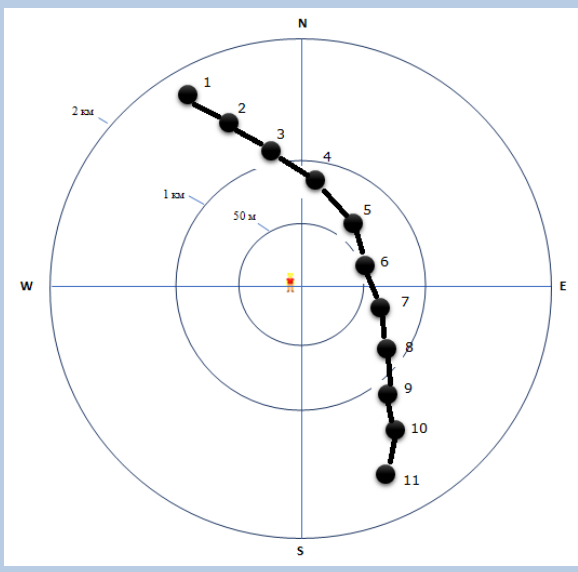
VP 5 on 05.11.2020



VP 7 on 02.11.2020



VP 8 on 02.11.2020



VP 9 on 09.11.2020

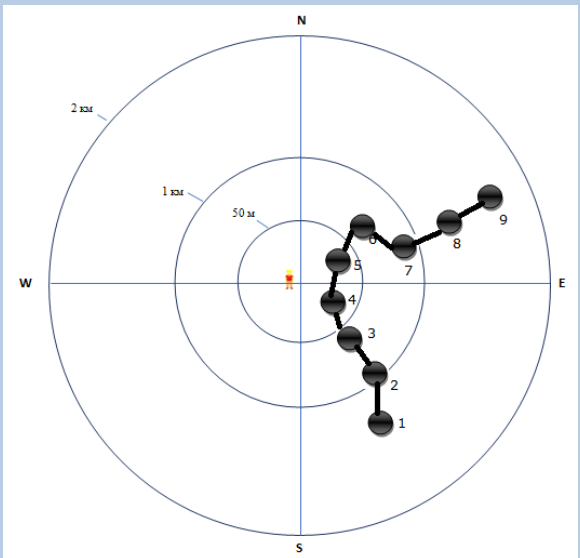
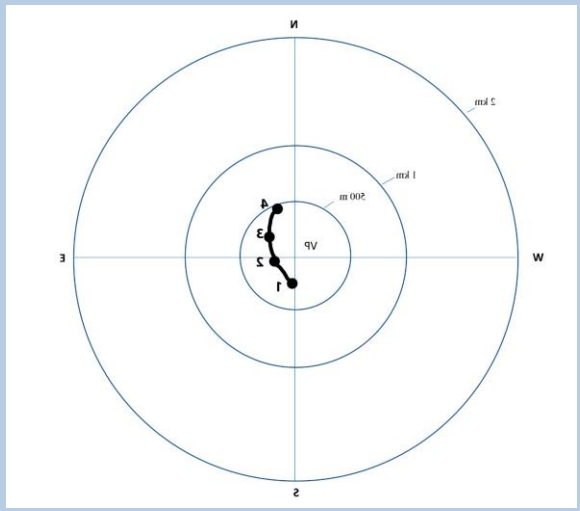
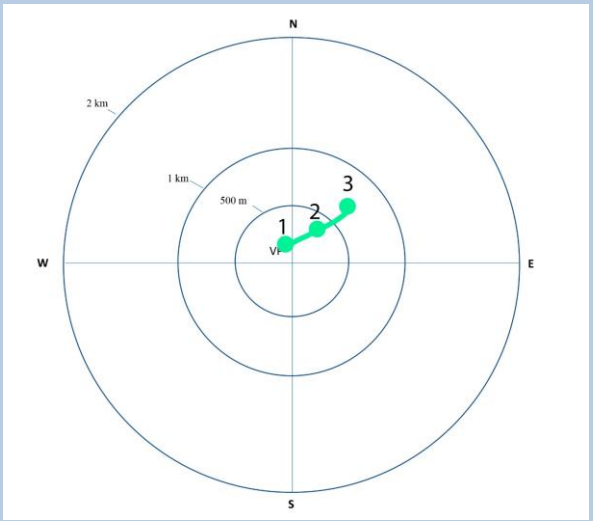
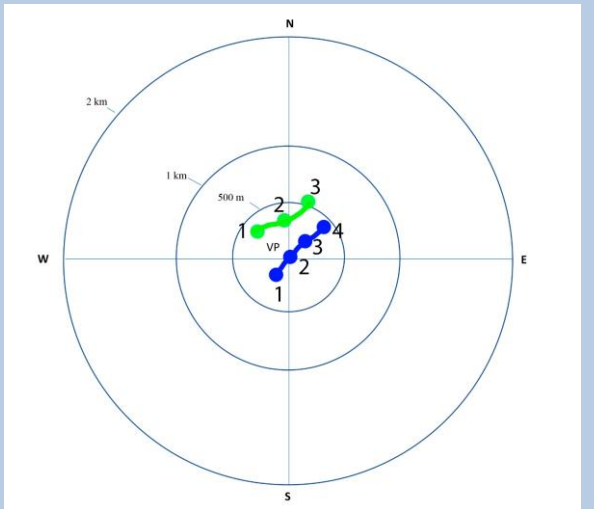
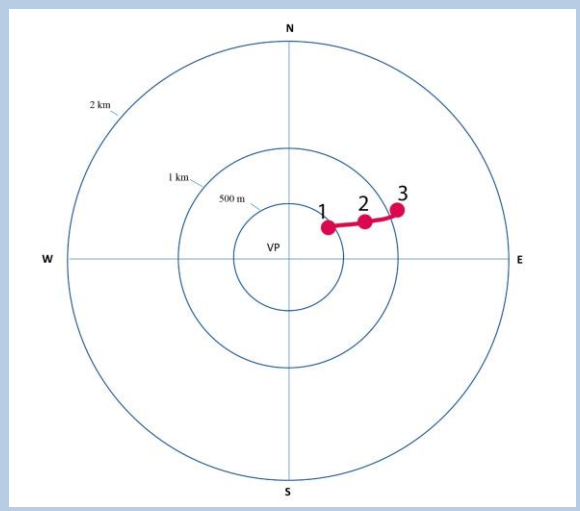
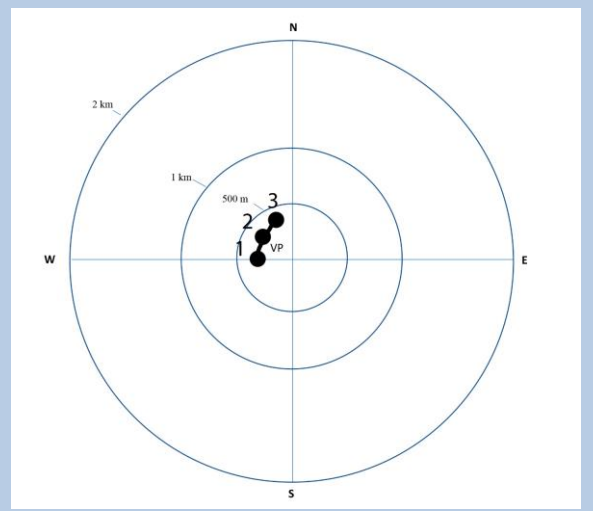
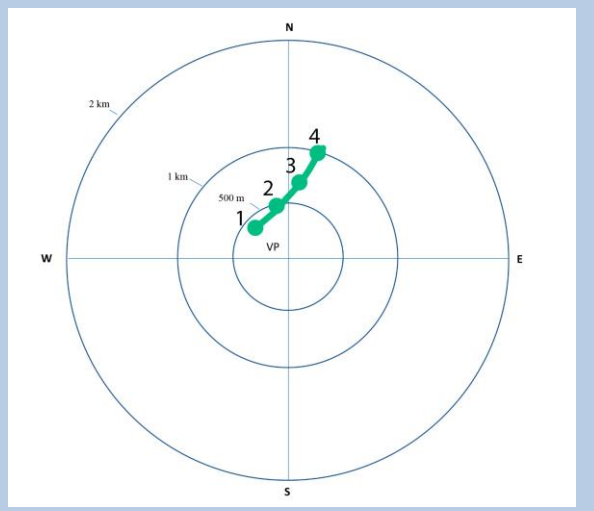
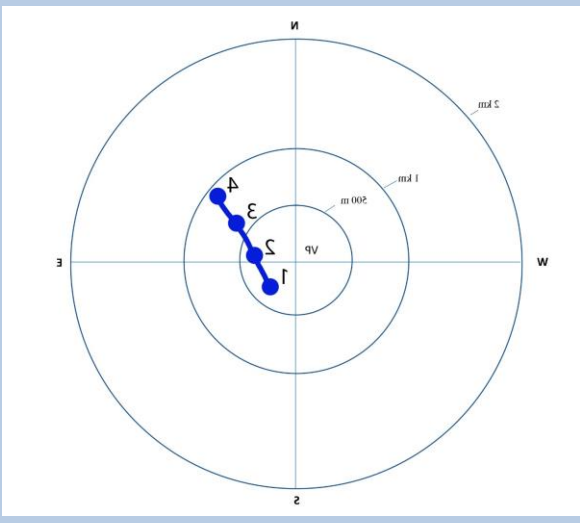
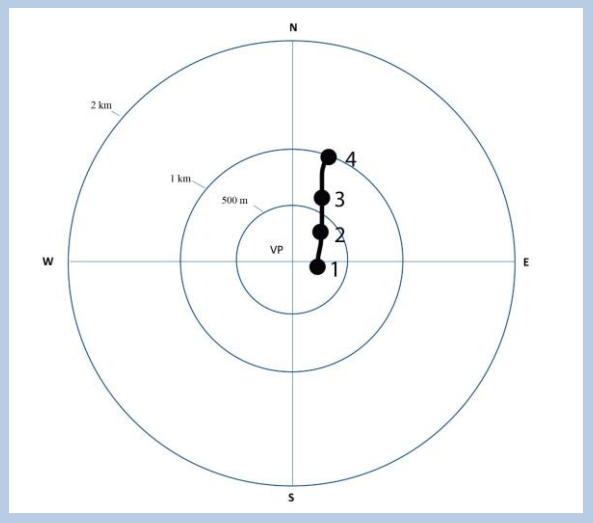
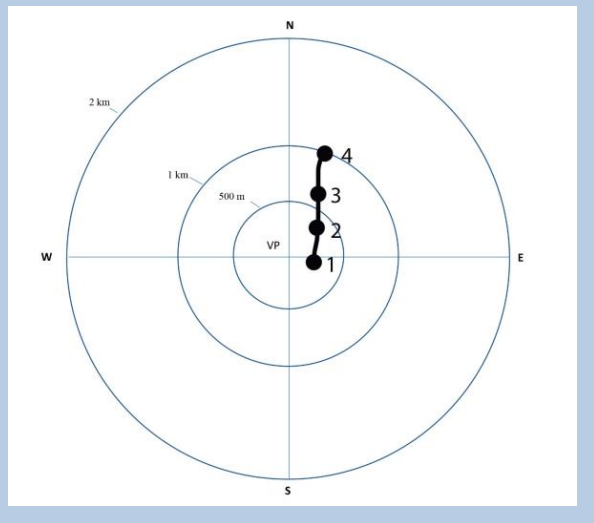


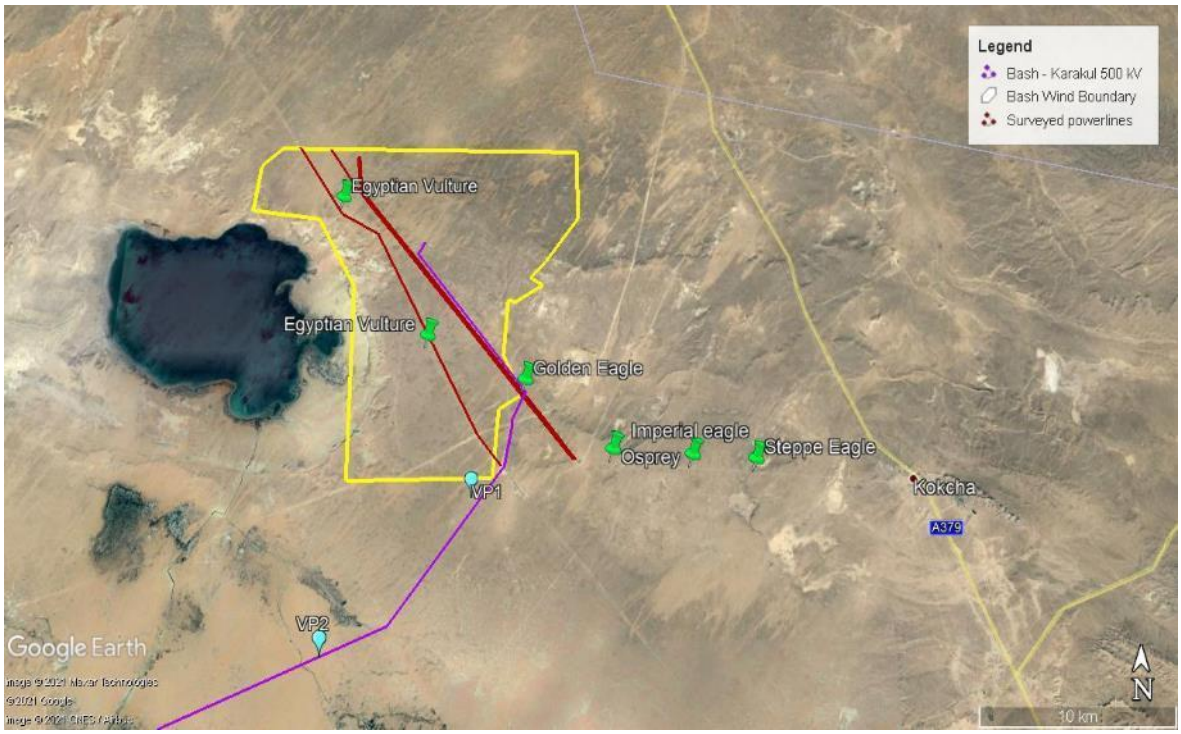
Table 2-6 Flight paths of the Steppe Eagles recorded during the Winter survey

VP 4 on 27.01.2022	VP 1 on 01.03.2022	VP 1 on 04.03.2022
		
VP 2 on 27.02.2022	VP 2 on 06.03.2022	VP 5 on 28.02.2022
		
VP 7 on 05.03.2022	VP 9 on 06.03.2022	VP 9 on 06.03.2020
		

2.4.1.2.2 Bash-Karakul OHTL

There were no sightings of the Steppe Eagle along the Bash-Karakul OHTL survey route or in along the existing OHTL survey within the project site. One individual was recorded in the vicinity, outside the project boundary.

Figure 2-35 Observation points of Steppe Eagle outside the project boundary



2.4.2 Stakeholder Engagement

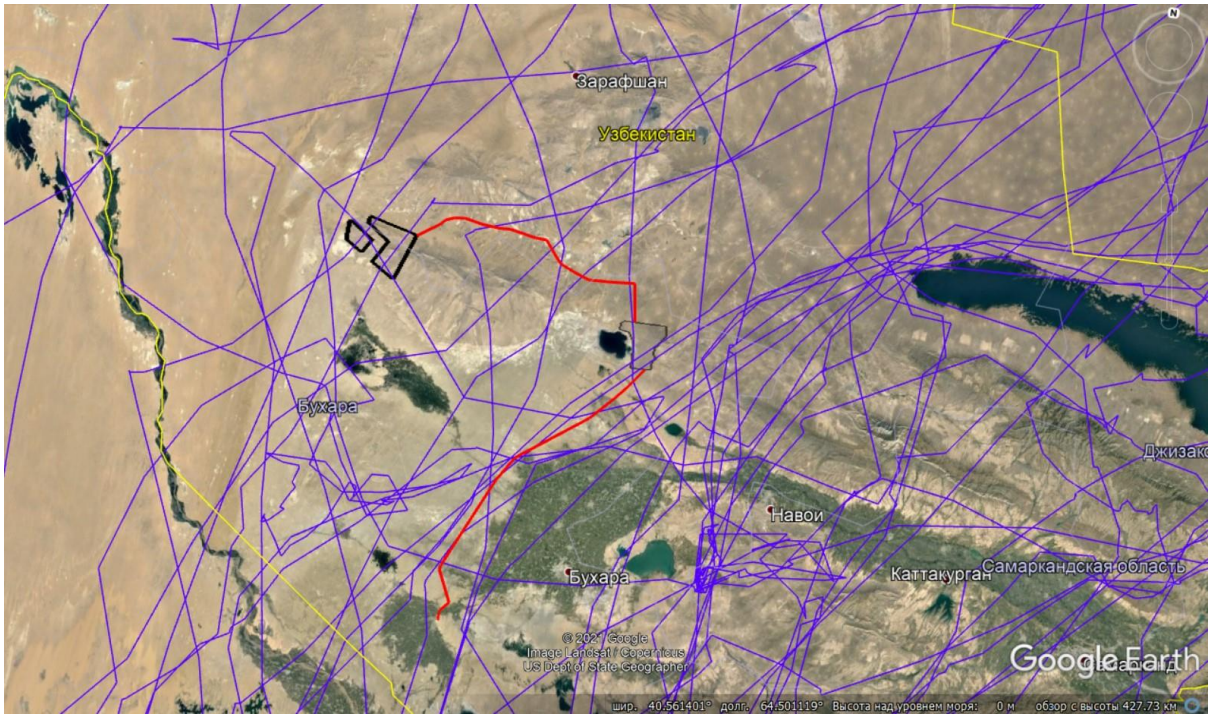
As part of the stakeholder engagement exercises of the CHA Stage 2 process, requests for information related to conservation concerns of the Steppe eagle were distributed to known experts in the field.

Anna Ten, expert ornithologist who conducted bird surveys in the project area in 2011, 2018 and most recently in the summer of 2021, has confirmed the presence of the Steppe eagle on the southern slopes of Kuldzhuktau, an area approximately 80km from the Bash WF site

Igor Koryakin, raptor expert from Russia who has tracked and studied the movement of Steppe eagles, their migration corridors, and nesting sites provided the map below which shows the movements of 14 satellite tracked Steppe Eagles with flight paths crossing through and near the Bash Wind Farm site. The passage below has been excerpted from the response received from him.

"The sites allocated for the wind farm are located in the western part of the eagle migration corridor, connecting nesting sites in Central and Eastern Kazakhstan, Western Mongolia and the Altai-Sayan region of Russia and wintering sites in Africa, the Arabian Peninsula, Iran and the Indu river."

Figure 2-36 Satellite tracked data of 14 tagged Steppe Eagles



The OHTL baseline survey provides an account of the historical data of Steppe Eagles deaths caused by power lines. The passage below is an excerpt from the survey.

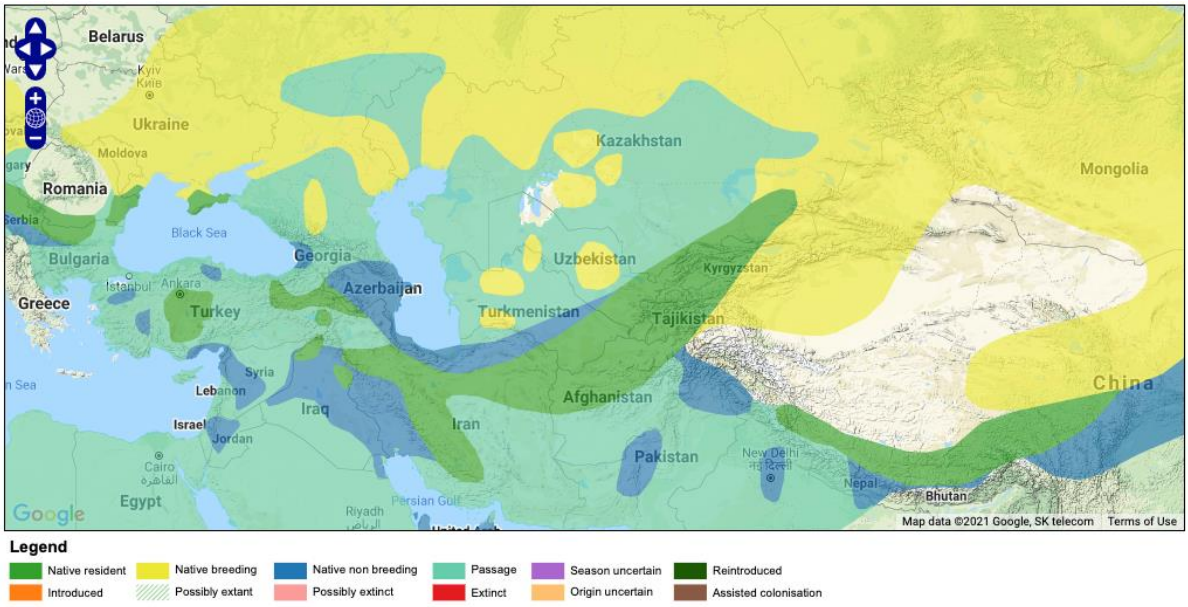
"In the central part of the Kyzylkum desert in September 2007, a Golden eagle, Steppe eagle, Griffon vulture and Houbara bustard were found dead from electrocution under the OHTL connected to the Navoi Mining and Metallurgical Plant (Kashkarov, 2007; IBA project newsletter in Uzbekistan, 2007). "

2.5 Saker Falcon

The Saker Falcon (*Falco cherrug*) is listed as Endangered on the IUCN Red List, due to a rapid population decline.

It is a potential summer breeder and sometime passage migrant through Uzbekistan, going southbound in the autumn months and returning northbound in the spring months to breed in the summer months. Migrant birds generally leave their breeding grounds in September and October, returning between February and May.

Figure 2-37 Saker Falcon Distribution



Saker Falcon hunts close to the ground in open terrain, combining rapid acceleration with high manoeuvrability, thus specialising on mid-sized diurnal terrestrial rodents (especially ground squirrels *Spermophilus*) of open grassy landscapes such as desert edge, semi-desert, steppes, agricultural and arid montane areas.

It uses copses or cliffs for nest sites and often occupies the old nests of other birds.

Major threats include:

- Collision and electrocution on power lines
- Decreased prey availability due to habitat loss
- Offtake for falconry

The global population is estimated at c.12,200-29,800 mature individuals.

2.5.1 Baseline Survey

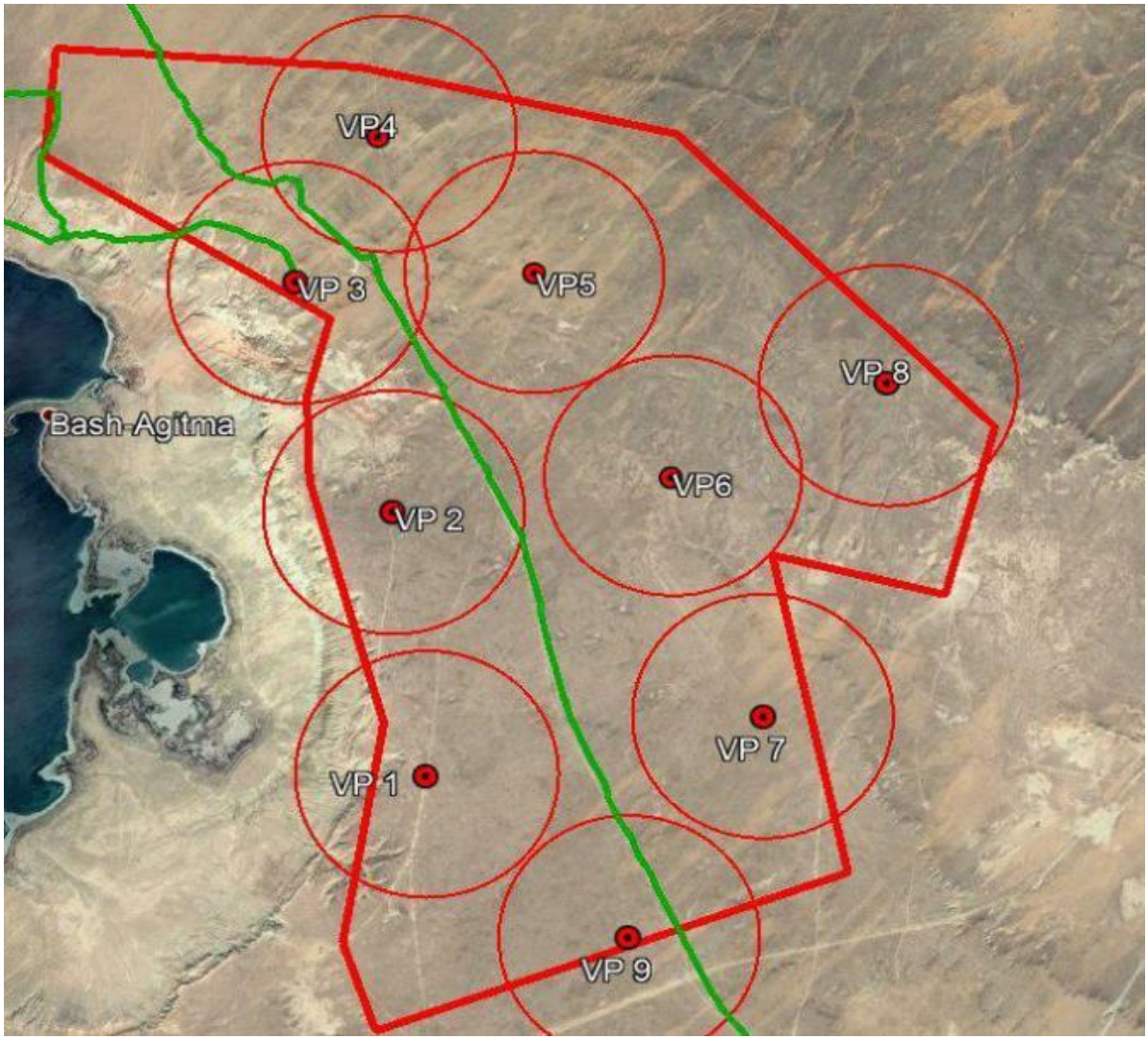
2.5.1.1 Methods

2.5.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-38 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

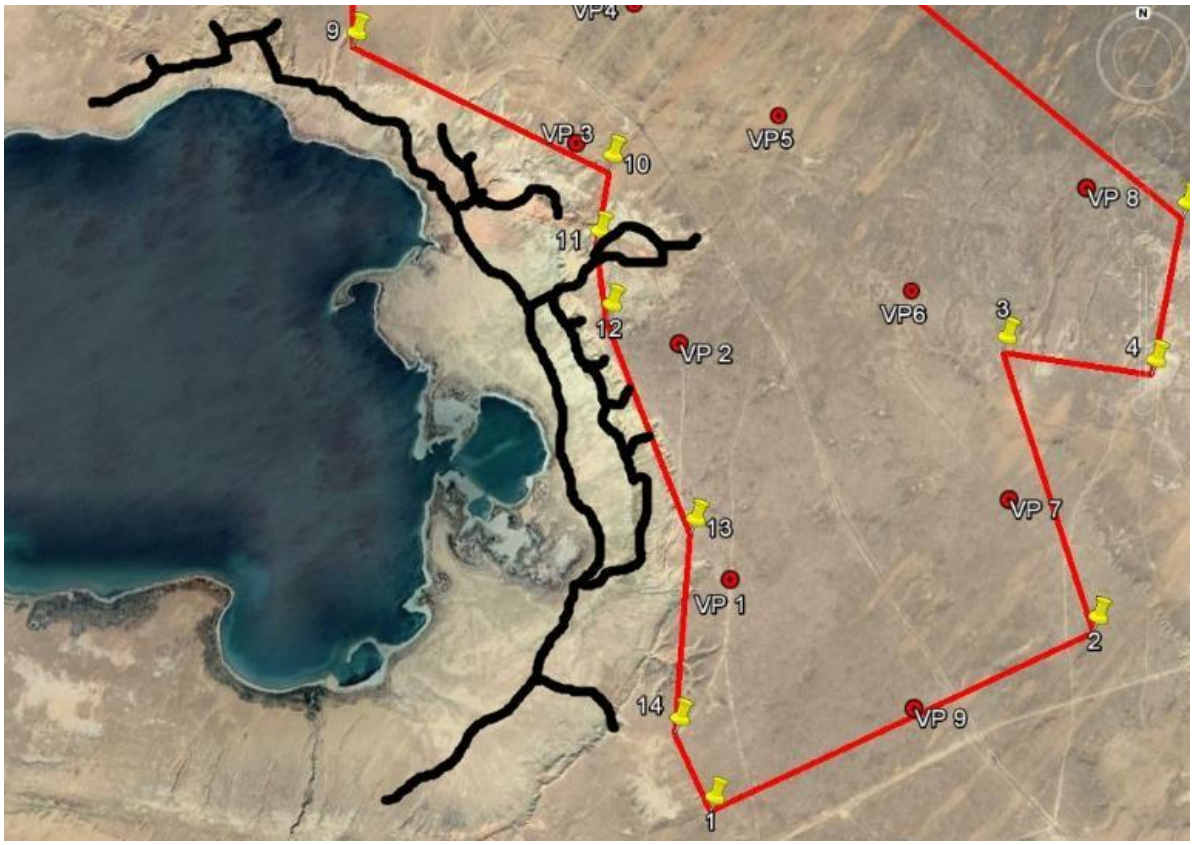
Nest-searching surveys were undertaken in loess cliffs near the project site during the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

The cliffs that border the Lake Ayakagytma basin, lie west of the WF area, extending from its northern to the southern limits. The cliff are about 25-40 meters high and have many indentions that provide a lot of cavities, cracks, and gouges, that make ideal nesting habitats for large birds of prey

Figure 2-39 Cliffs bordering the Lake Ayakagytma

Figure 2-40 Nest survey route of spring 2020

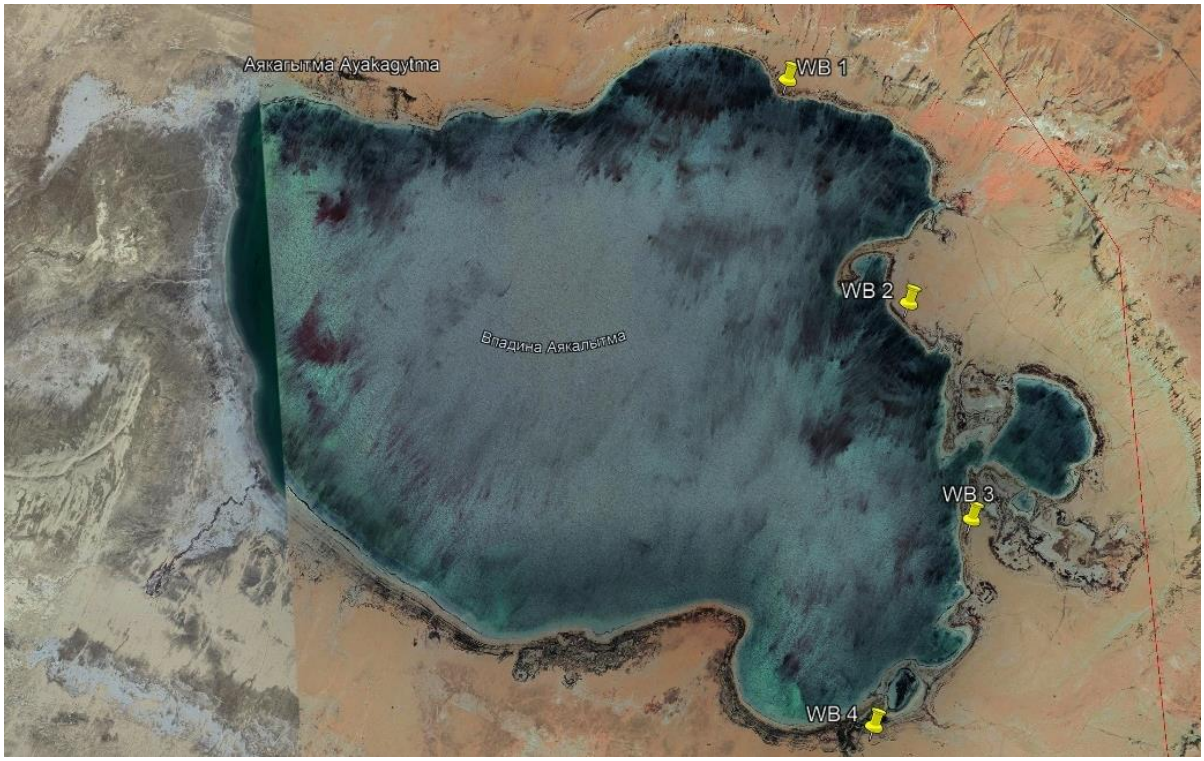
Figure 2-41 Nest survey route of summer 2020



On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-42 Survey Locations of Winter 2022 at Lake Ayakagytma



2.5.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio

recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-43 Vantage points of the projected OHTL route

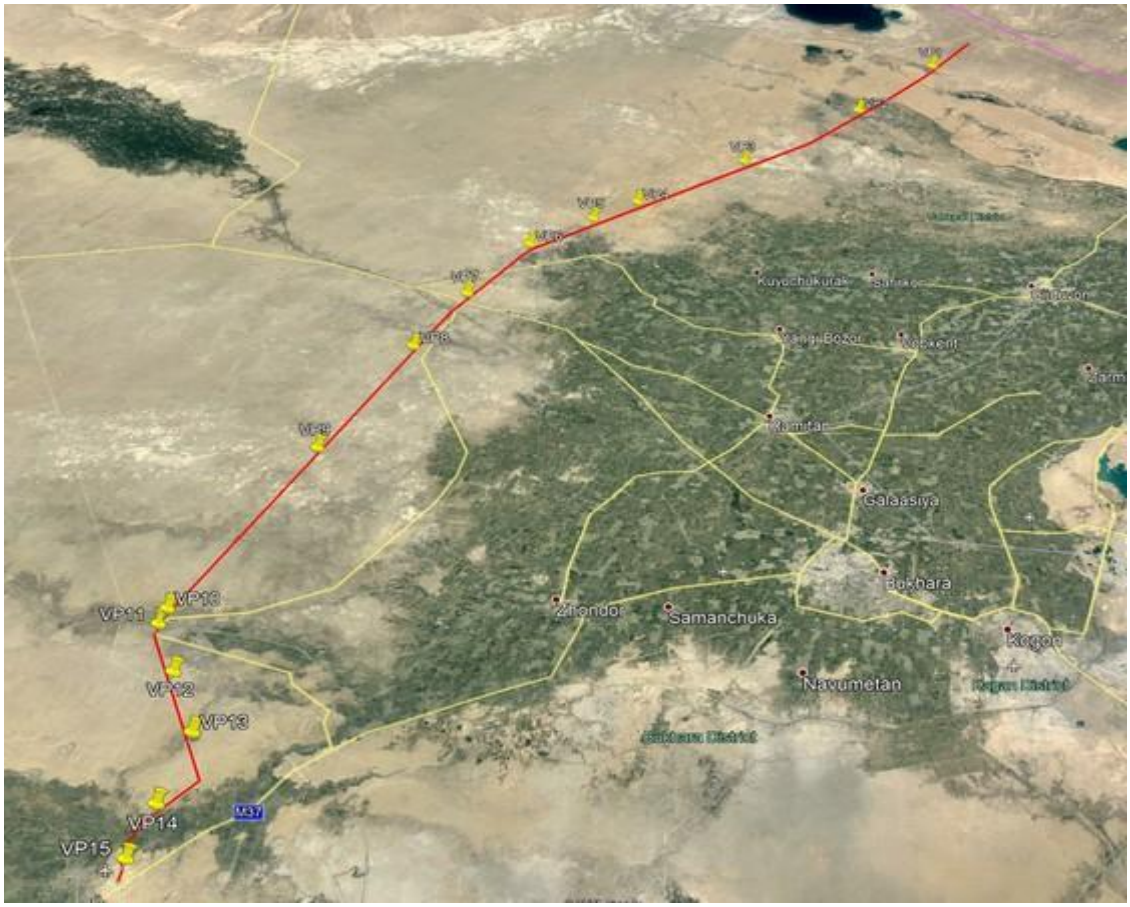


Figure 2-44 Vantage points of the projected OHTL route in June

2.5.1.2 Results

2.5.1.2.1 Bash Wind Farm

A single individual was recorded from one year of vantage point surveying in December at VP3 during the Winter 2022 survey.

2.5.1.2.2 Bash-Karakul OHTL

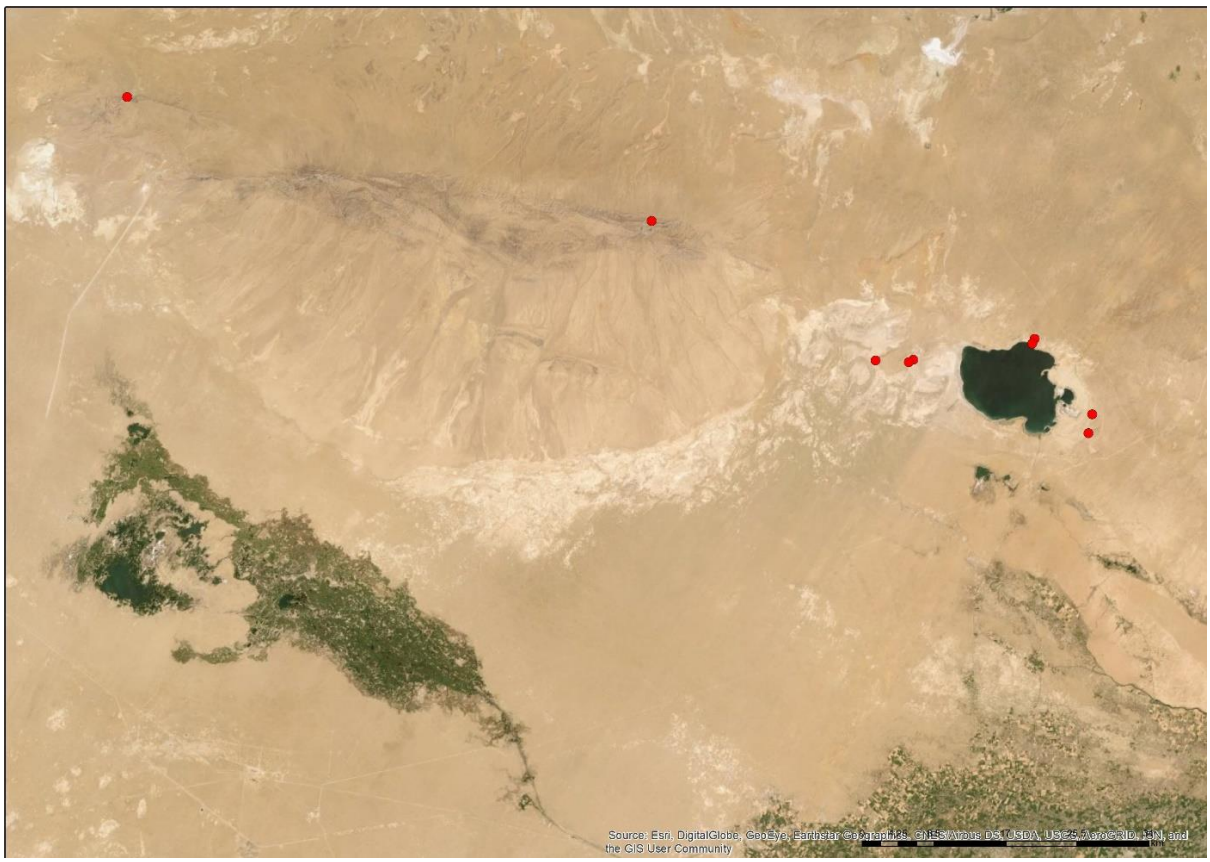
They were no sightings of Saker Falcons during the OHTL survey.

2.5.2 Stakeholder Engagement

Anna Ten, expert ornithologist who was consulted as part of stakeholder engagement exercises conducted bird surveys in the area in 2011, 2018 and most recently in the summer of 2021.

In the 2018 survey, 3 nesting pairs were identified. The map below shows the location of Saker falcon sightings near the lake and its wider area.

Figure 2-45 Saker falcon sightings in 2018 (image courtesy of Anna Ten)



Her paper, Akpetky lakes, Sarykamysh lake, Ayakaghytma lake, and their desert surrounds: three new Important Bird Areas in Uzbekistan' published in 2012 provides a record of one nesting pair and its nest in the loess cliffs bordering the wind farm site.

Figure 2-46 Distribution of Breeding Saker Falcons (Yellow) in the Project Area

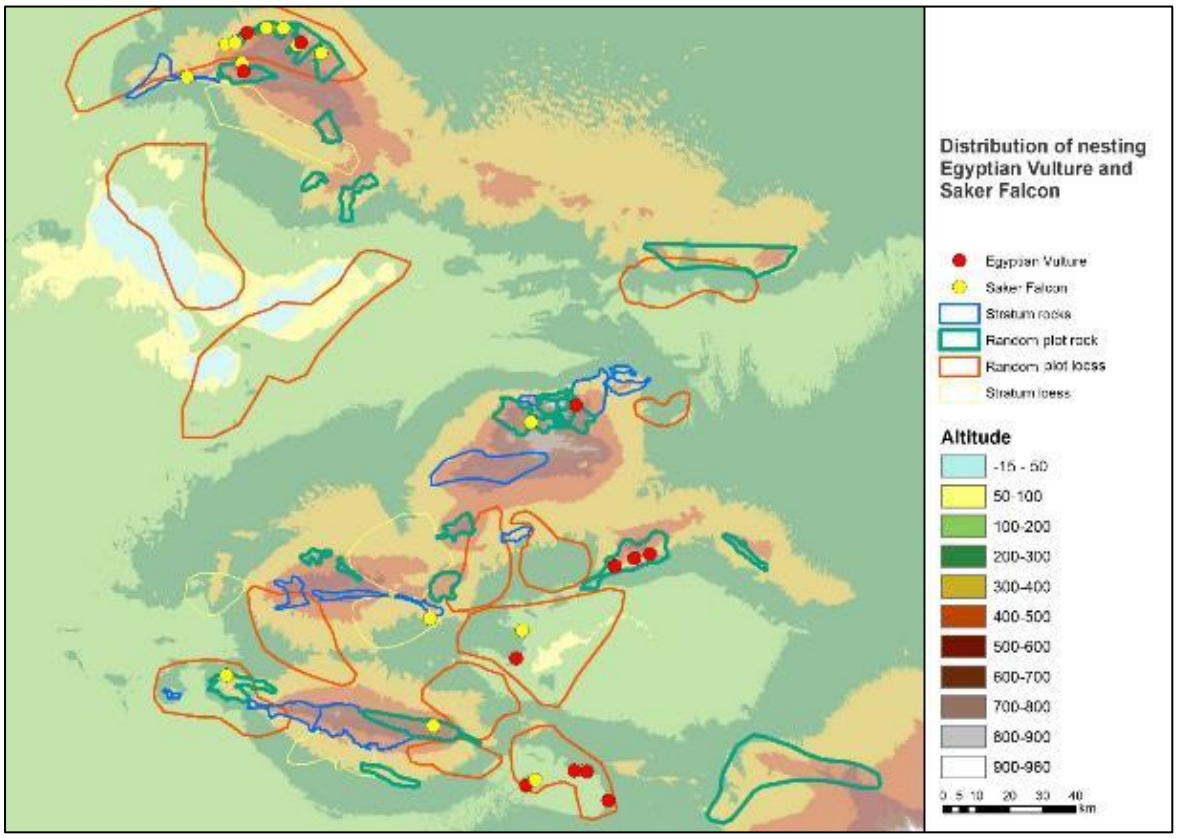


Figure 2-47 Saker falcon sighting in the cliffs near Ayakagytma (2011)

Figure 2-48 Saker falcon nest in the cliffs bordering the wind farm site (2011)

Another expert ornithologist, Maxim Koshkin was consulted as part of the stakeholder engagement exercises. In his response he confirmed the presence of breeding Saker falcons in the Kyzulkum.

- "This species is known to breed and migrate through Kyzylkum and there is a potential threat for some migrants to be electrocuted on power lines or hit by turbine rotors"

The OHTL baseline survey provides an account of the historical data of Saker Falcon nests on OHTL towers. The passage below is an excerpt from the survey.

"One of the features of modern bird ecology is their adaptation to nesting on OHTL towers. …Researches of O. Mitropolsky, E. Fotteler and G. Tretiakov (1987) established nesting of Golden eagle and Saker falcon on OHTL in Kyzylkum, which allowed these species to expand their breeding ground deep into the desert. According to Zinoviev S. estimate (1990), up to 40% of nests of the Golden Eagle and 33% of nests of the Saker Falcon were located in the Kyzylkum Desert on OHTLs."

2.6 Pallas's Fish Eagle

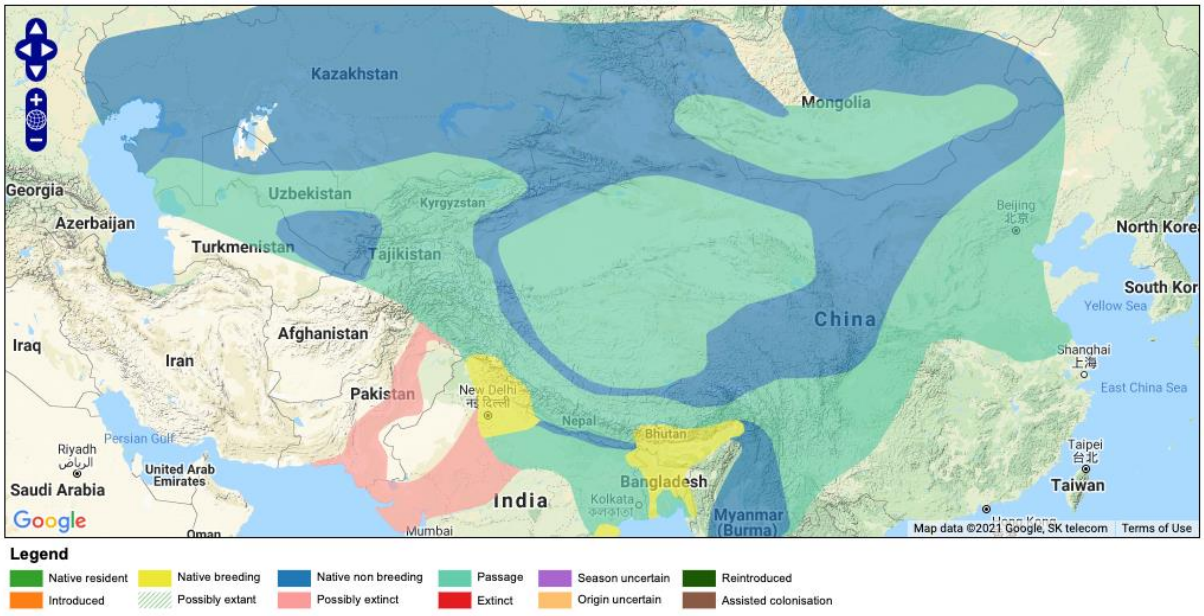
The Pallas's Fish-eagle (*Haliaeetus leucoryphus*) is listed as Endangered on the IUCN Red List, due to a small, declining population as a result of the widespread loss, degradation and disturbance of wetlands and breeding sites throughout its range.

It is a passage migrant and summer visitor through Uzbekistan, crossing southbound in the autumn months and returning northbound in the spring months. Breeding takes place from August-February in India, Myanmar and Bangladesh.

Global population is placed in the band of 1,000–2,499 mature individuals, which is considered to consist of a single migratory population.

This species was recorded in 2012 to be present in Dengizkul Lake, 160km to the south of the project area. No other records exist in the public literature for the project region.

Figure 2-49 Pallas's Fish Eagle distribution



2.6.1 Baseline Survey

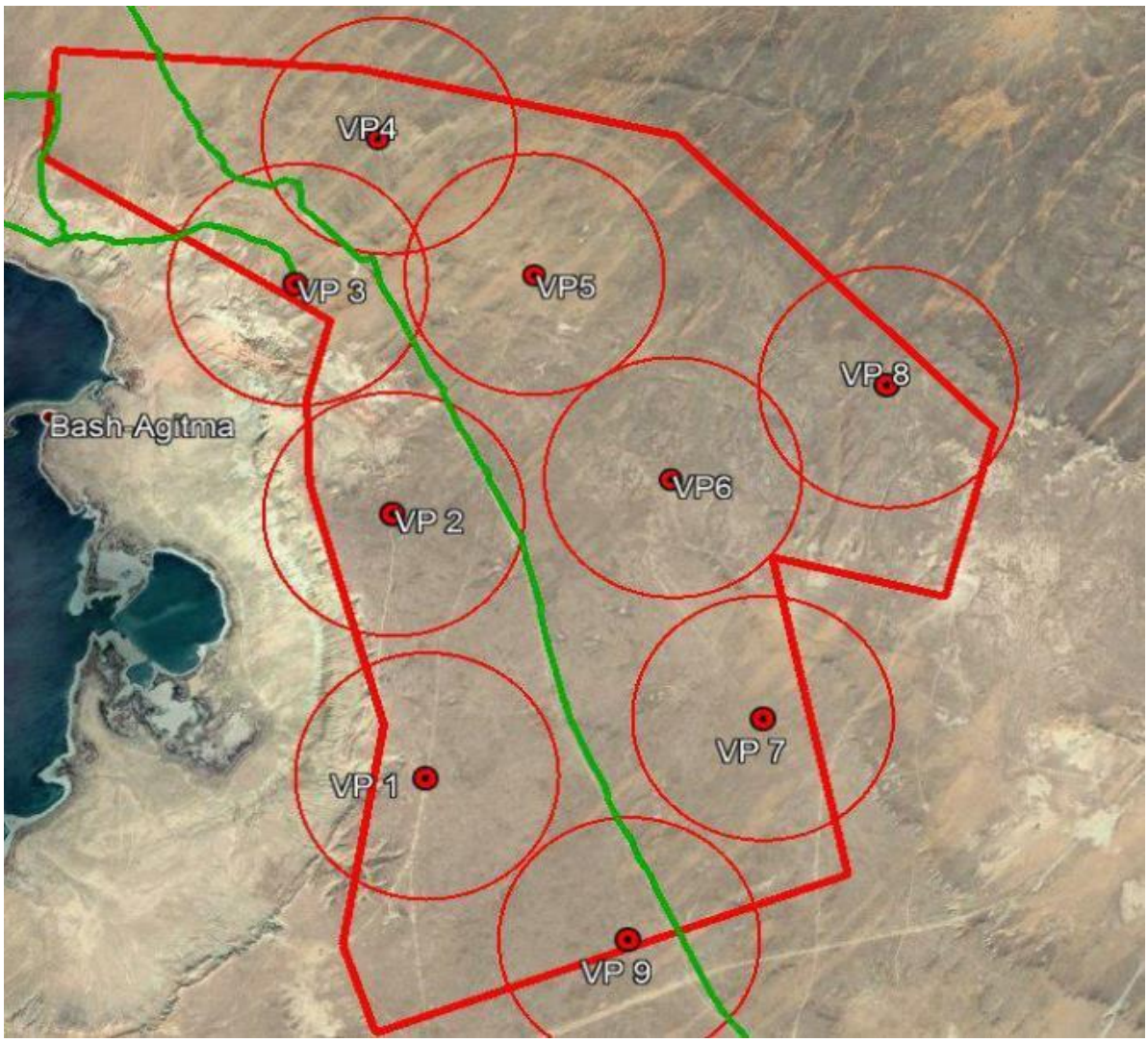
2.6.1.1 Methods

2.6.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-50 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

The cliffs that border the Lake Ayakagytma basin lie immediately west of the WF extending from the northern to the southern limits of the area, are the most likely areas in which this species could possibly nest within the project's larger area of influence. The height of the cliffs is about 25-40 meters and have many indentions that provide a lot of cavities, cracks, and gouges, where birds of prey could nest.

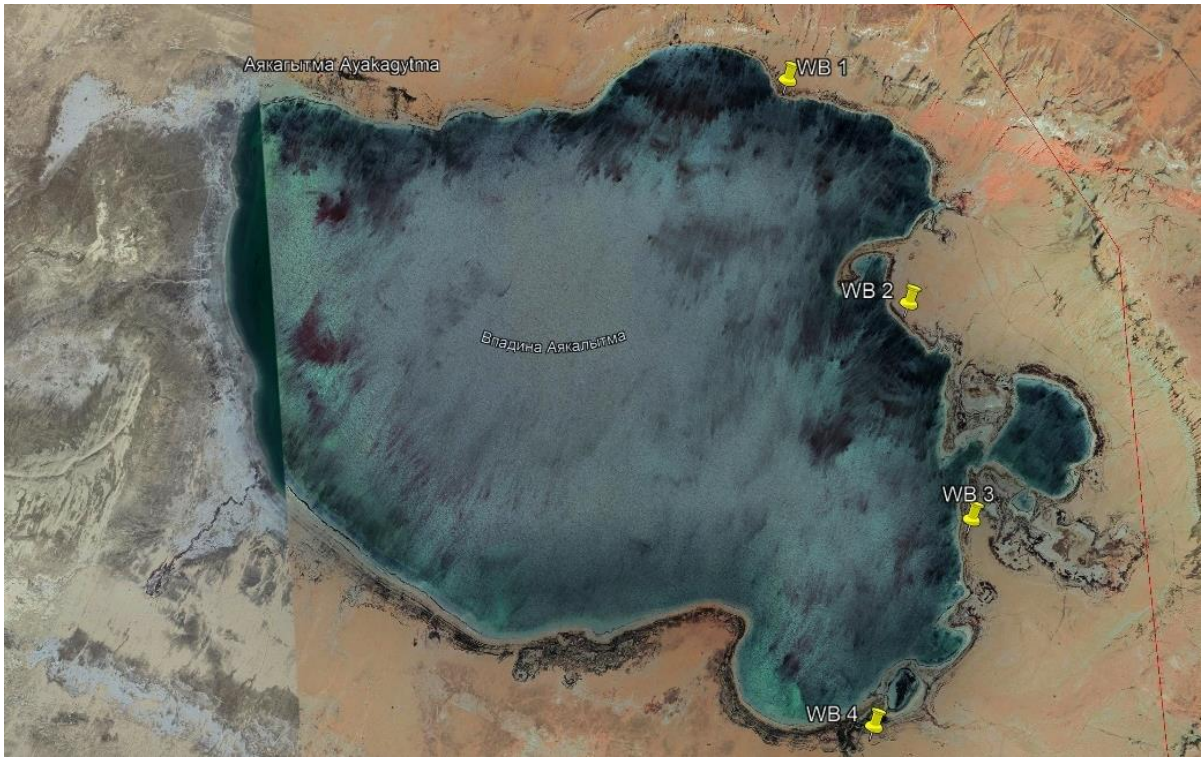
Nest-searching surveys were undertaken in the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-51 Survey Locations of Winter 2022 at Lake Ayakagytma



2.6.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-52 Vantage points of the projected OHTL route

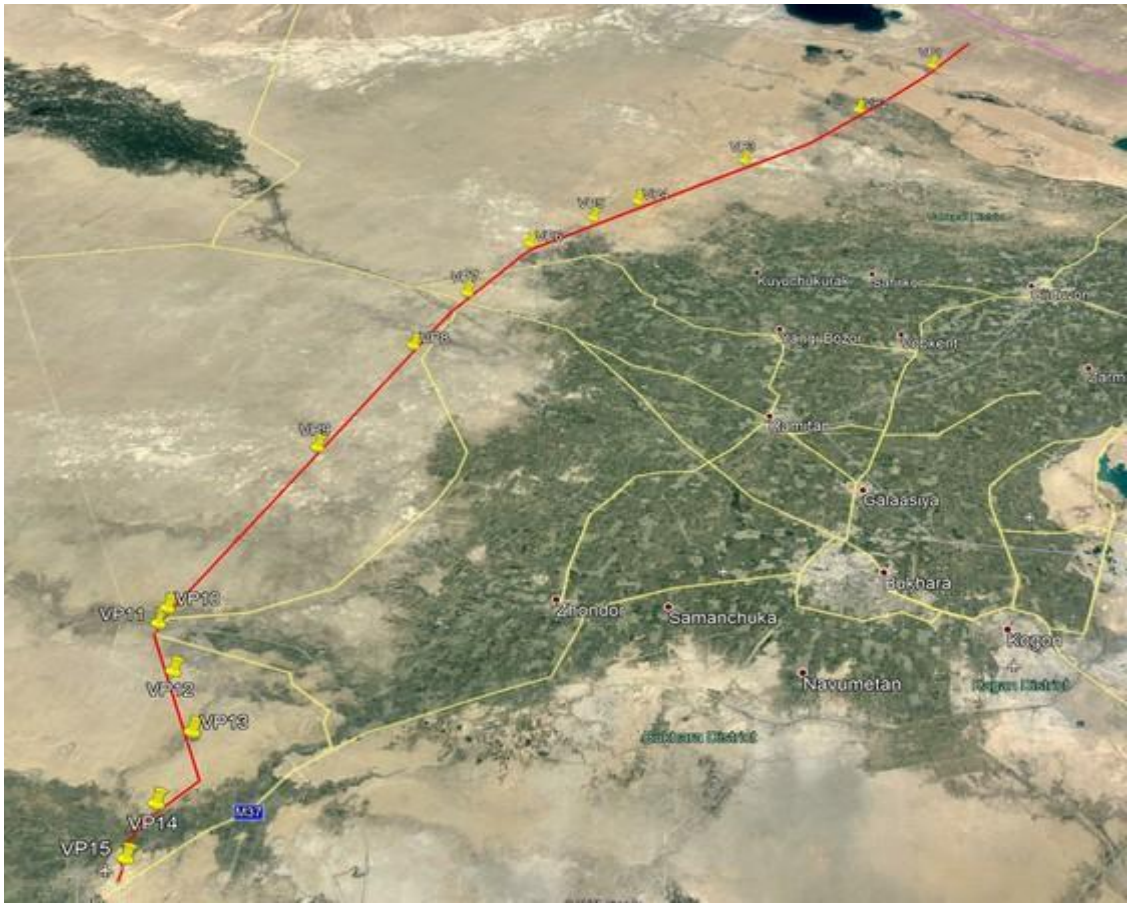


Figure 2-53 Vantage points of the projected OHTL route in June

2.6.1.2 Results

2.6.1.2.1 Bash Wind Farm

There were no recorded sightings documenting the Pallas's Fish Eagle during the surveys conducted in 2020 and 2021.

2.6.1.2.2 Bash-Karakul OHTL

There were no recorded sightings documenting the Pallas's Fish Eagle during the OHTL surveys conducted in 2021

2.6.2 Stakeholder Engagement

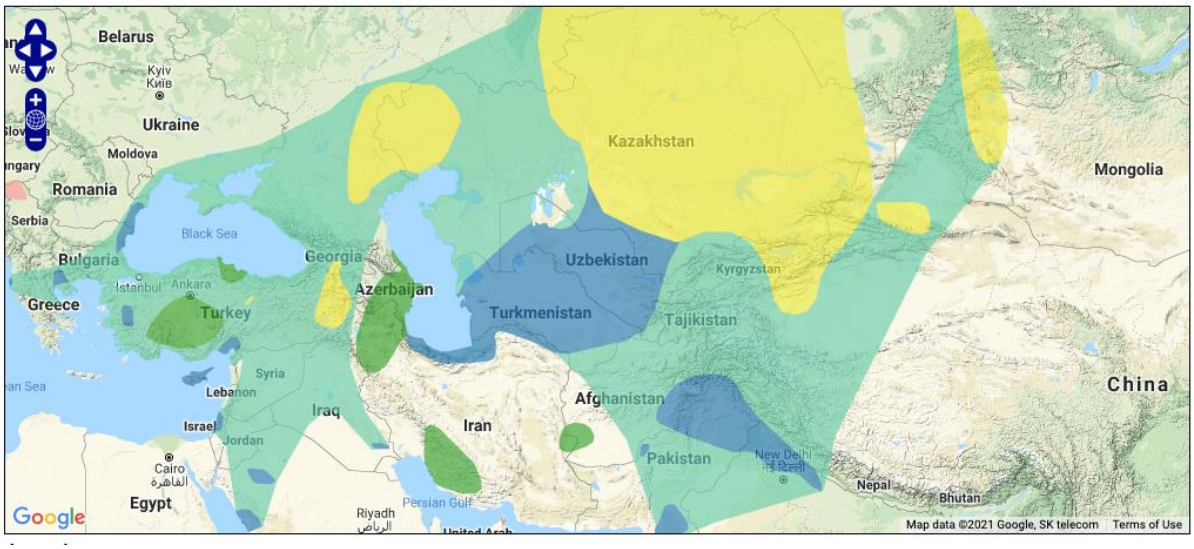
No known occurrence of the Pallas's Fish Eagle has been recorded by stakeholders within the project area of influence.

2.7 White-headed Duck

The White-headed Duck (*Oxyura leucocephala*) is listed as Endangered on the IUCN Red List, due to suspected population decline.

It is a passage migrant and potential winter visitor in Uzbekistan. It begins the migration to its wintering grounds in late August and generally arrives September-October. Birds depart in February and arrive back in the breeding range by early May.

Figure 2-54 White-headed Duck Distribution

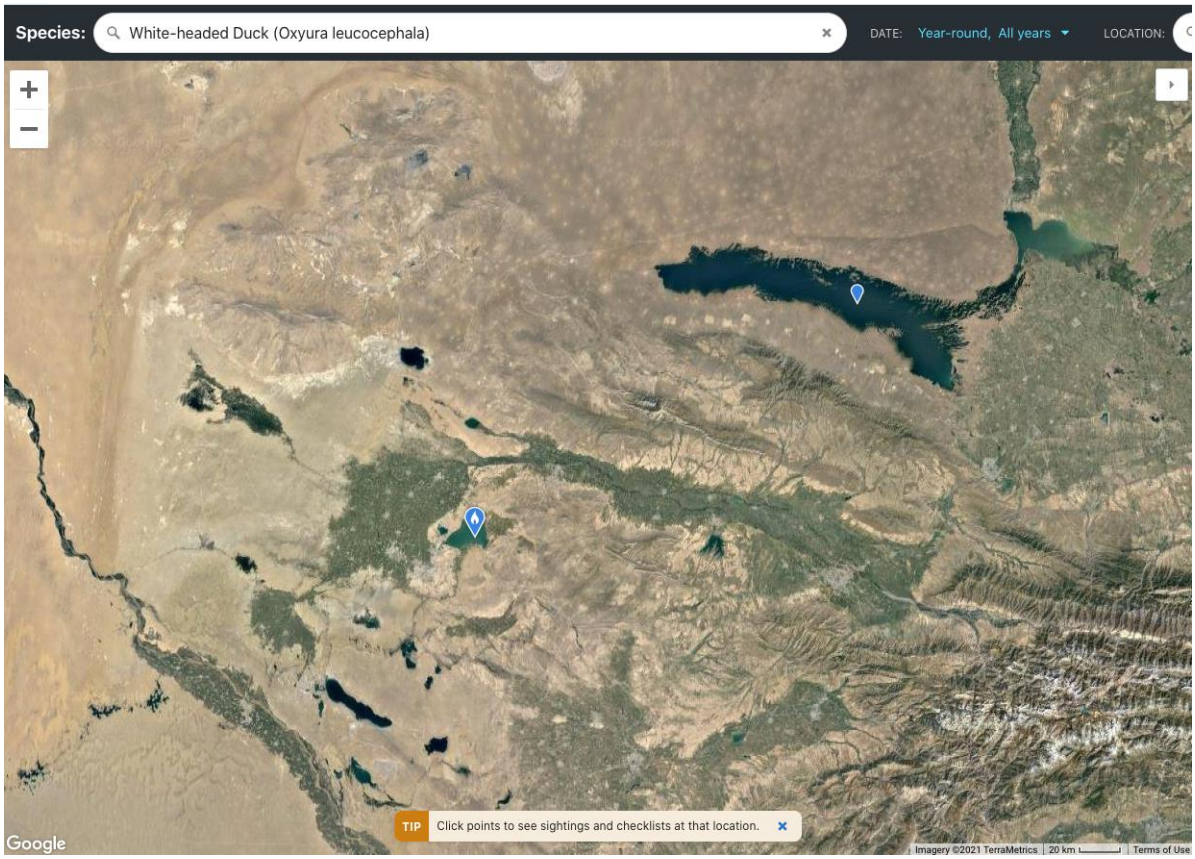


The species is highly gregarious outside of the breeding season with more than 10,000 gathering at some winter sites. During the winter the species inhabits larger, deeper alkaline or saline waters.

The greatest long-term threat to the species survival is thought to be competition and introgressive hybridisation with the North American Ruddy Duck *Oxyura jamaicensis.*

The following records are available on Ebird, documenting White-headed Duck in localities over 80km away from the project site.

Figure 2-55 EBird records of the White-headed Duck



A total of 4 individuals were recorded on the lake during the winter period in 2009.

2.7.1 Baseline Survey

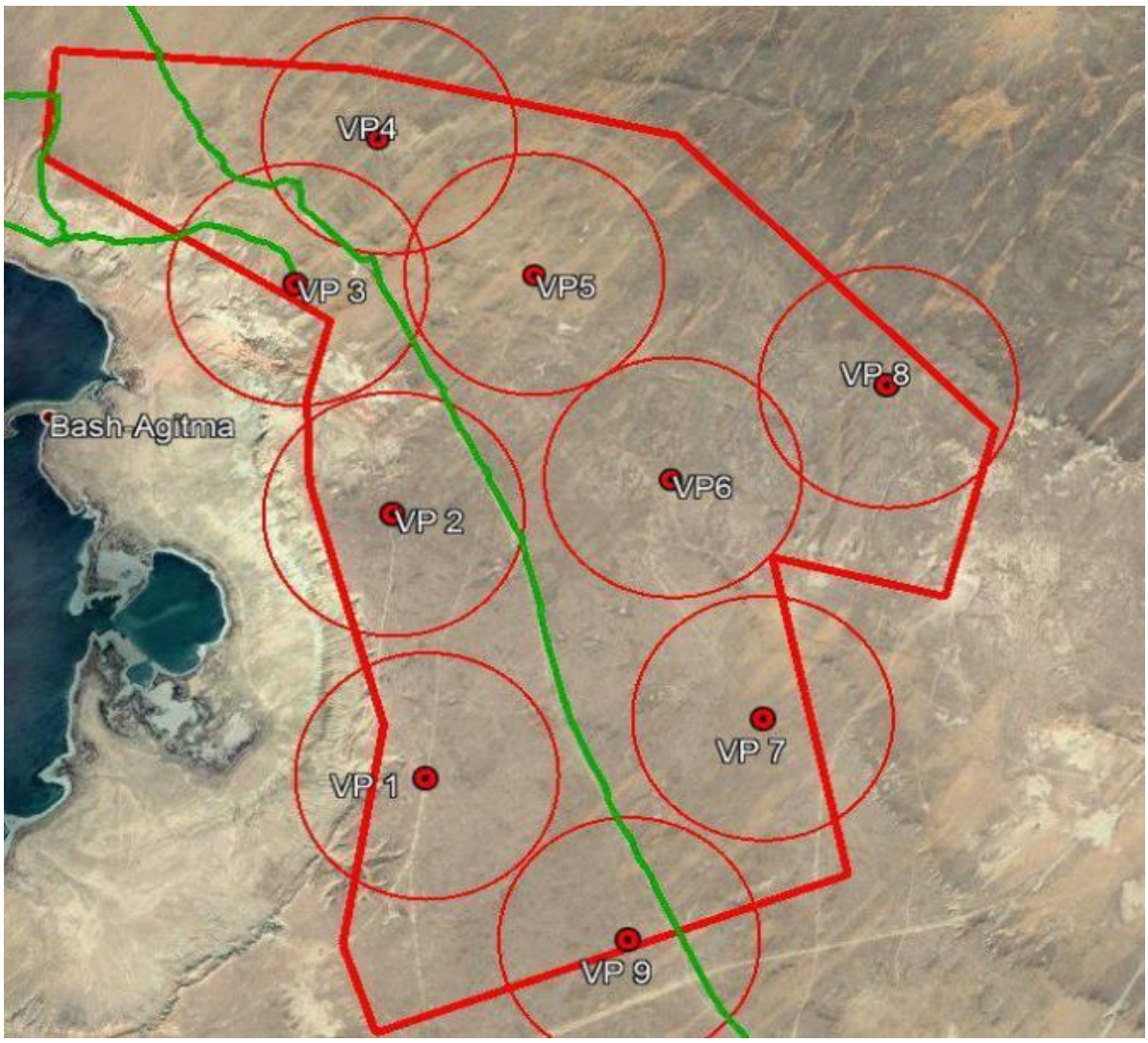
2.7.1.1 Methods

2.7.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-56 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

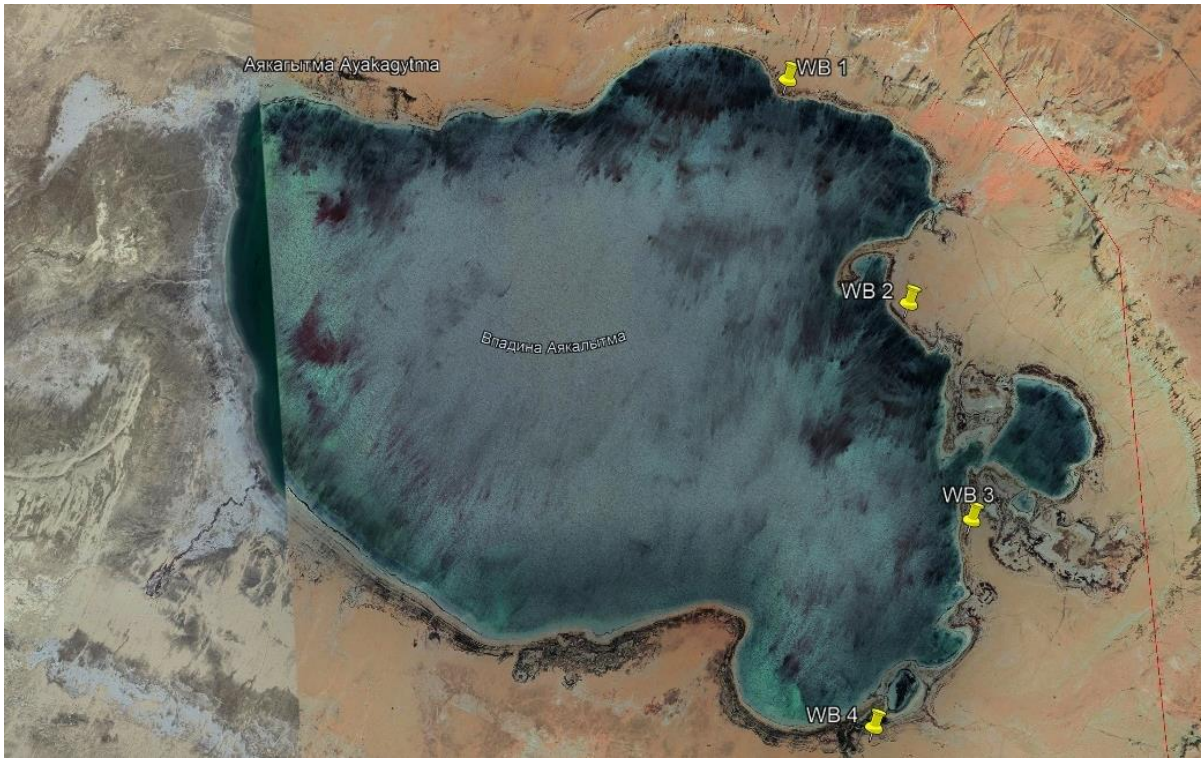
The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod

and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-57 Survey Locations of Winter 2022 at Lake Ayakagytma



2.7.1.1.2 Bash-Karakul OHTL

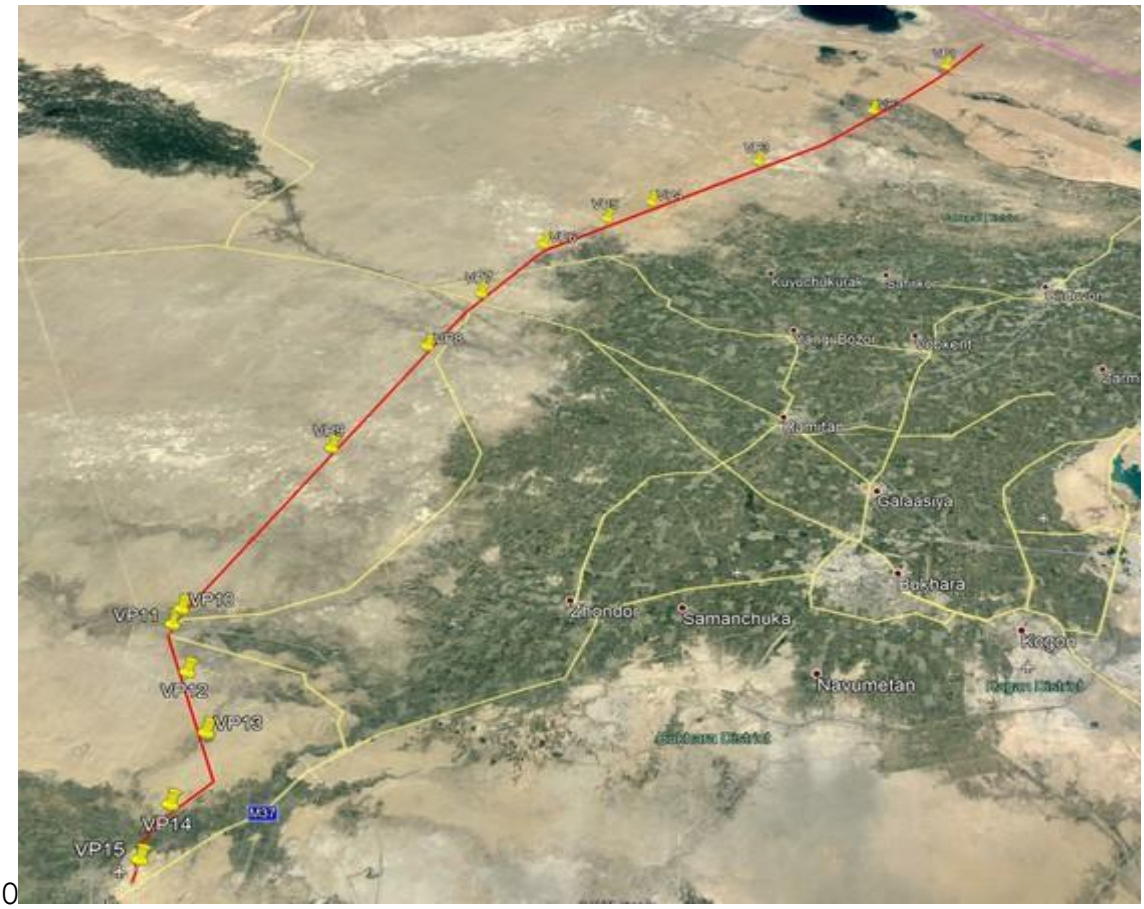
The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-58 Vantage points of the projected OHTL route



0

Figure 2-59 Vantage points of the projected OHTL route in June

2.7.1.2 Results

2.7.1.2.1 Bash Wind Farm

This species was not recorded during the seasonal vantage point surveys. However, the 2022 winter surveys of Lake Ayakagytma recorded 18 individuals at location WB-3.

2.7.1.2.2 Bash-Karakul OHTL

There were no sightings of the White-headed Duck during the OHTL survey.

2.7.2 Stakeholder Engagement

Stakeholder Anna Ten's records indicate the sighting of four individuals at the Lake Ayakagytma in 2009.

2.8 Goitered Gazelle

The Goitered Gazelle, *Gazella subgutturosa* inhabits a wide range of semi-desert and desert habitats. The spatial distribution covers a large portion of Uzbekistan. Being of high ecological value, this species is listed as Vulnerable (VU) on the IUCN Red List and the Uzbekistan Red Data Book.

The main threats to this species are illegal hunting (for meat and to a lesser extent for trophies) and habitat loss.

Current estimations of the global population are 42,000 to 49,000 individuals. The 1% threshold would therefore be 420 individuals. The regional population is estimated at approximately 125-150 individuals.

2.8.1 Baseline Survey

2.8.1.1 Methods

2.8.1.1.1 Bash Wind Farm

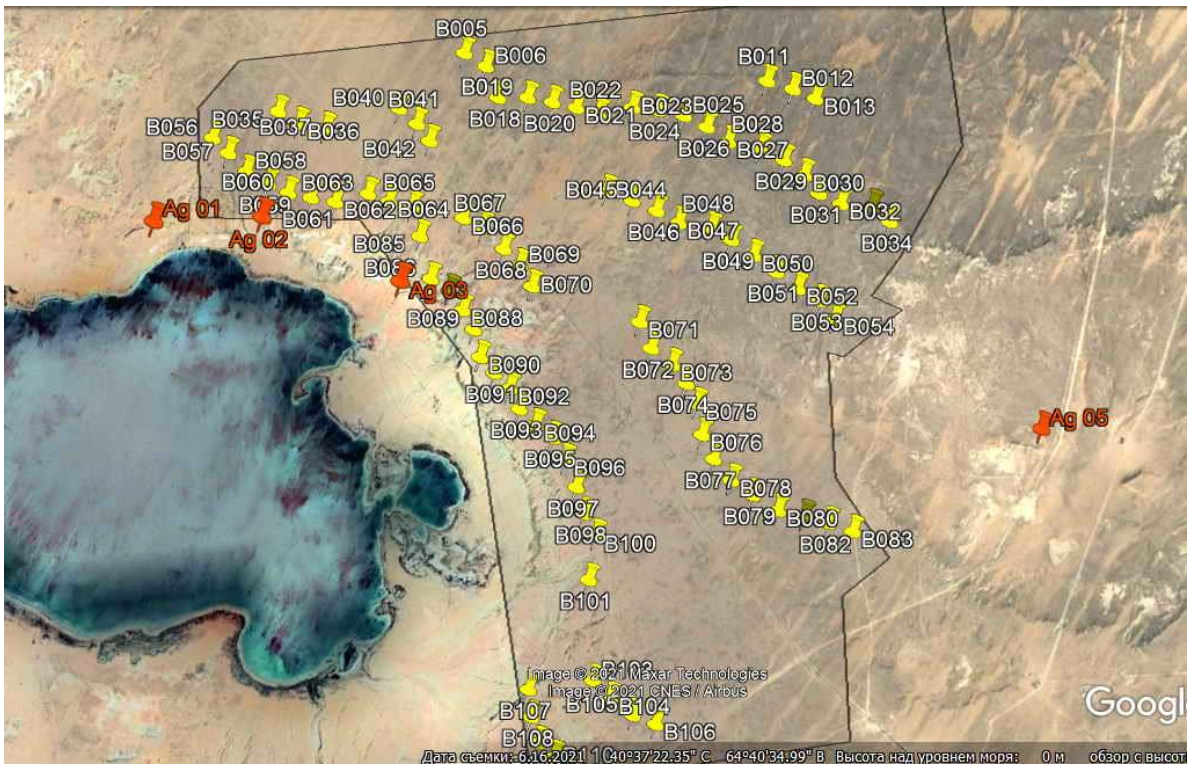
Surveying for the Bash WF site was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in area of Ayakagytma lake and adjacent territories

Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. Species number and composition were accounted for over the walking transect survey. Any signs of tracks and spoor were also recorded.

Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and that of the nocturnal spotlighting transect was 22 km.

Figure 2-60 Map of the Monitoring locations (red points –camera traps locations, yellow points - wind turbines locations)



2.8.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.8.1.2 Results

2.8.1.2.1 Bash Wind Farm

The manual survey recorded a single Goitered gazelle in a sparely vegetated area of the sandy desert close to the Ayakagytma lake. The camera trap at Ag-03 captured three gazelles, a male and a female with calf. Cameras recorded how gazelles in the morning walked towards the watering place on the Ayakagytma lake, and in the evening they returned back to the desert using canyon created in dry river bed as a corridor.

Since the presence of a wolf was not confirmed in the project area, it is possible that Goitered gazelle has no natural predators in the area. The main threats are poaching, habitat loss,

habitat degradation and fragmentation due to economic development of the region, lack of forage in snowy winters, shepherd's dog's depredation of calves, and human disturbance.

Figure 2-61 Goitered gazelle in a desert near Ayakagytma lake

Figure 2-62 Male Goitered Gazelle caught on the camera trap at Ag 03

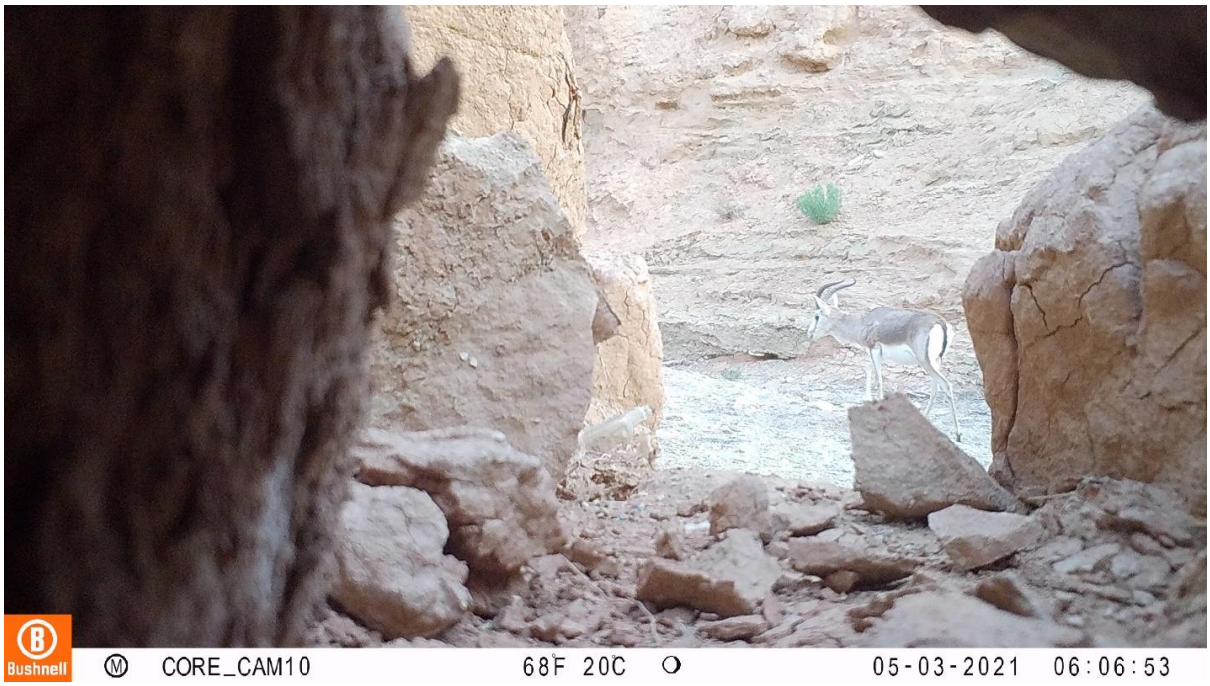


Figure 2-63 Female Goitered Gazelle with calf at Ag 03

2.8.1.2.2 Bash-Karakul OHTL

The were no recorded sightings of the Goitered gazelle during the OHTL surveys.

2.8.2 Stakeholder Engagement

Interviews with the local shepherds carried out by the ecologists of the mammal survey confirmed the presence of small groups of gazelles – groups of 2-5 individual in the Ayakagytma area and surrounding areas. According to the expert assessment, about 125-150 individuals are present in the project area.

State Committee on Ecology and Environmental Protection of the Republic of Uzbekistan were contacted as part of the stakeholder engagement exercises conducted to understand biodiversity aspects of concern. In the response received from them, they have confirmed the presence of the Goitered Gazelle in the project area.

2.9 Marbled Polecat

The Marbled Polecat, *Vormela peregusna* is classified as 'Vulnerable' on the IUCN red list and the Uzbekistan Red Book. This mammal inhabits a wide range of semi-desert and desert habitats; its spatial distribution covers a majority of Uzbekistan.

It is a specialised predator, feeding mainly on desert and steppe rodents such as gerbils, and ground squirrels. The major threat to Marbled Polecat is the loss of natural steppe and desert habitats.

2.9.1 Baseline Survey

2.9.1.1 Methods

2.9.1.1.1 Bash Wind Farm

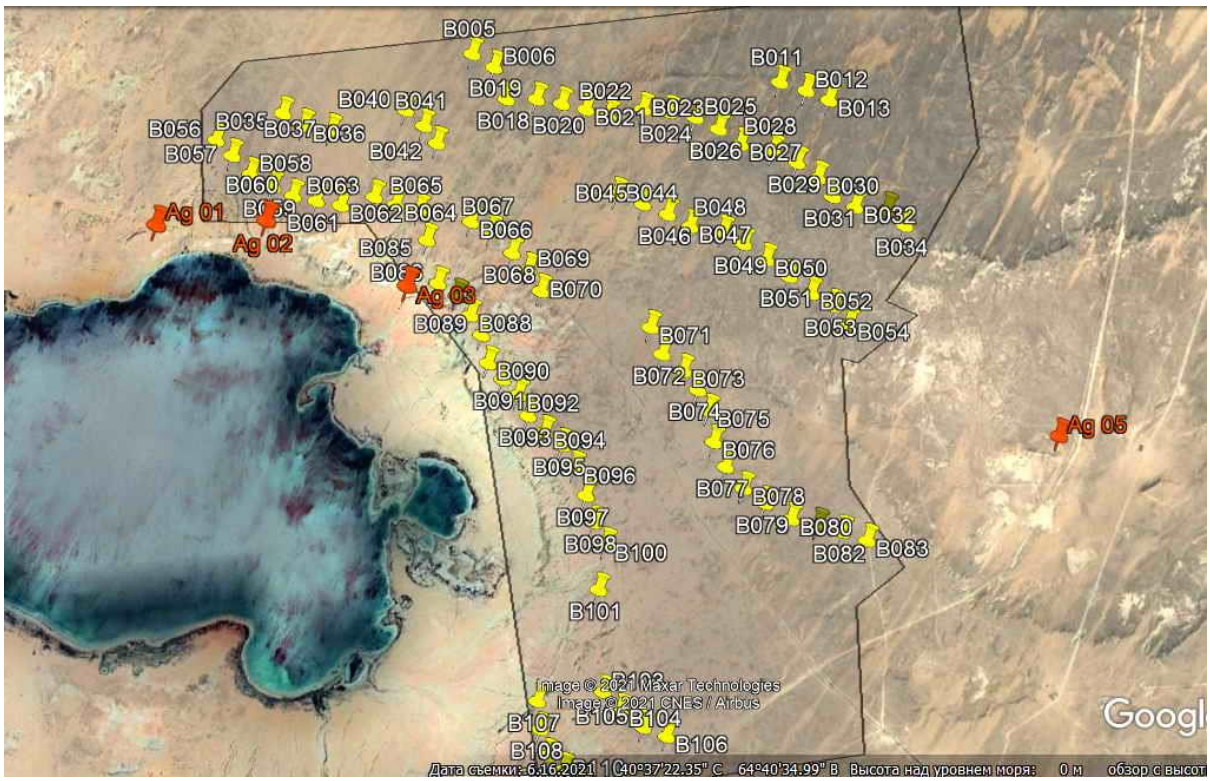
Surveying was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in the area of Ayakagytma lake and adjacent territories.

Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. The walking transect survey aimed to account for species number and composition. Data was recorded through visual observations, using 10x binoculars to identify far sightings. Any signs of tracks and spoor were also recorded.

Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and night time vehicle transect was 22 km.

Figure 2-64 Map of the Monitoring locations (red points –camera traps locations, yellow points - wind turbines locations)



2.9.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.9.1.2 Results

2.9.1.2.1 Bash Wind Farm

The baseline survey did not record this species. However, records of associated prey species such as rodents, ground squirrels and gerbils suggests its presence in the Bash Wind Farm site.

2.9.1.2.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.9.2 Stakeholder Engagement

No known occurrence of the Marbled Polecat has been recorded by stakeholders within the project area of influence.

2.10 Russian Tortoise

The Russian Tortoise *Testudo horsfieldii* is listed as Vulnerable on the IUCN Red List due to habitat loss and potential poaching for exotic wildlife trade. It inhabits both sandy and clayey deserts, plains, mountain slopes, depressions and valleys, gorges and mountain steppe up to 1,150 m above sea level. It avoids places with dense grass cover, as well as areas grazed intensively by livestock.

The spatial distribution of this species has not been mapped, however, it has been recorded to occur in Afghanistan; Armenia; Azerbaijan; China; Iran, Islamic Republic of; Kazakhstan; Kyrgyzstan; Pakistan; Russian Federation; Tajikistan; Turkmenistan; and Uzbekistan.

With little published information regarding their ecology or conservation, there are no global population estimates available for this species.

2.10.1 Baseline Survey

2.10.1.1 Methods

2.10.1.1.1 Bash Wind Farm

Surveying was undertaken in late Spring 2021 and mid-Summer 2021, as these represent the seasons of highest reptile activity.

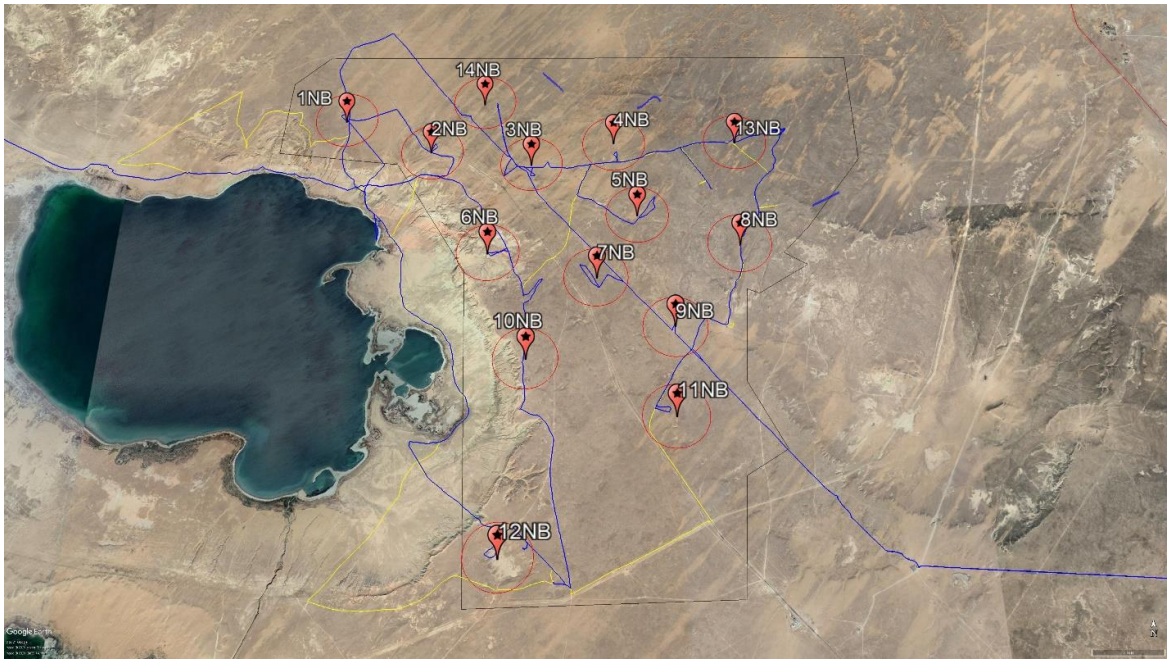
The transect survey method was employed to quantitatively assess the abundance of the Russian Tortoise. Individuals encountered along both sides of a fixed line transect, 1km long were counted regardless of the distance they were identified at.

The perpendicular distance between the transect axis and each individual was measured and used to calculate the population density of this reptile in the wind farm area. The use of perpendicular distances to carry out survey on a strip of limited width excludes underestimation of the population density of the Russian tortoise caused by a decrease in their

detectability in remote parts of the survey strip, regardless of the degree of its limitation (Bondarenko and Chelintsev, 1996).

The total distance covered over the transect survey was 14 km during the spring and 13 km during the summer. The transects passed through pre-selected survey points and their 1 kilometer radius.

Figure 2-65 Observation points and transects on the Bash Wind Farm project site

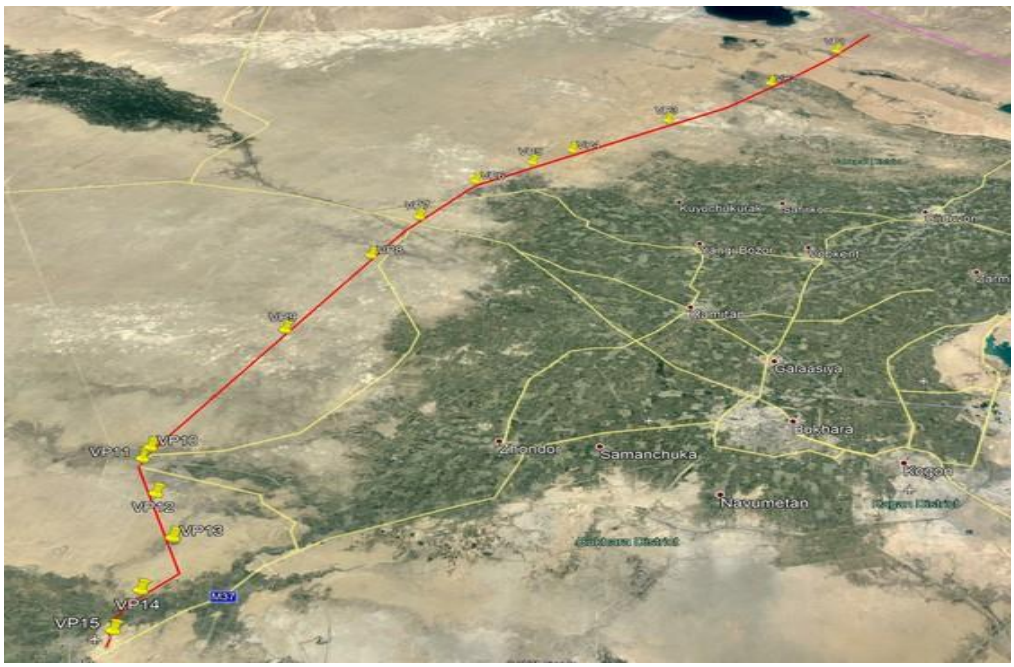


2.10.1.1.2 Bash-Karakul OHTL

15 points along the Bash-Karakul OHTL were surveyed in May 2021. The transect passed through pre-selected survey points and their 1 kilometer radius.

Reptile survey was carried out both during the day and at night. Nocturnal survey was carried out after sunset, until about 2 am.

Figure 2-66 Survey points on the Bash-Karakul OHTL Route



2.10.1.2 Results

2.10.1.2.1 Bash Wind Farm

The first field visit was conducted in April 20 to 22, 2021. The survey was carried out during the daytime since the night temperature was too low for reptile activity.

Wind speed reached 16-18 m/s. The average night air temperature in April was 14 ˚C, the soil temperature was 11-12 ˚C, the air humidity was 38%. These values were not high enough for the reptile nocturnal survey.

The second survey was conducted in June 22 to 24, 2021. With a focus on the Southern Even-fingered Gecko, the survey was carried out mainly at night – after sunset until about 2 am. The wind speed reached 10-12 m/s. The average night air temperature in June was 27°C, the soil temperature was 28°C, the air humidity was 20%. These values are ideal for a nocturnal reptile survey.

April is the period of the highest activity of the Russian Tortoise. Spring surveys registered a total of 34 individuals, while summer surveys registered none. In the summer months, it was almost impossible to find the Russian tortoise. This is consistent with the ecology of the species, as during this time the ephemeral vegetation dries up and the species enters a period of estivation (summer dormancy) which often flows into hibernation (winter dormancy).

Occasionally in summer, individual tortoises may be seen on the surface in places where fresh green grass is preserved. No such places were found on the project area.

The highest density of the Russian tortoise on the project territory during the spring survey was recorded at NB 8 point and amounted to 3.6 ind/ha. However, similar number of 2 tortoises per transect was observed at several other points: NB 3, NB 4 and NB 13. The Russian tortoise was found at 9 points, which is 64,3% of the total number of observation points (14 points).

2.10.1.2.2 Bash-Karakul OHTL

One individual was recorded at VP 12. Burrows were recorded at VP 9 and VP4.

2.10.2 Stakeholder Engagement

As part of the CHA Stage 2 process, requests for information related to identified biodiversity aspects of concern were distributed to known experts in the field.

- In habitat, the Russian tortoise is primarily a burrow-dweller. It prefers sandy or loamy ground in which to dig its burrow. The burrow is usually 30-78" (80-200 cm) long, ending in a widened chamber in which the tortoise is able to turn around. Spring rains are necessary to soften the soil sufficiently for the tortoise to dig its burrow. As the ground dries out, the soil hardens into a solid crust, making excavations virtually impossible. The Russian tortoise retires to its burrow during the midday heat, as well as at night during its active period. In favored locations, many burrow exist in close proximity. Tortoises are known to visit adjacent burrows, and sometimes several tortoises spend the night in a single burrow.
- The Russian tortoise in the wild has a rather short period of peak activity, only three months out of the year. The tortoises emerge from hibernation in early spring (March-May) and immediately begin seeking mates.
- In May or June, the female lays 2-6 eggs, and may lay two (possibly three) additional clutches during the same season. The eggs usually incubate for 80 to 110 days in the wild. Hatchlings emerge in August or September, but sometimes the hatchlings overwinter in the nest and do not emerge until the following spring. In an incubator in captivity, where eggs are kept at a relatively constant temperature of 87° F (30.5° C), an incubation period of 60 to 75 days is typical. Hatchlings normally measure 1.25-1.33 inches (32-34 mm) in length. Growth is slow in this tortoise. While they reach sexual maturity at 10 years, they are considered full-grown at 20 to 30 years of age.
- The Russian tortoise remains active until June or July when activity slows. Summer temperatures exceeding 85° F (29° C) can be problematic; so, the tortoise generally emerges from its burrow only at dawn or at dusk in order to forage when temperatures are lower. Their ephemeral food plants are gone by this time as well. Many tortoises spend the summer in estivation, emerging briefly at the end of summer to feed on dried grasses and twigs prior to hibernation.

The State Committee of the Republic of Uzbekistan on Ecology and Environmental Protected who was consulted as part of the CHA Stage 2 stakeholder engagement exercises have confirmed the presence of the Russian Tortoise in the project development area.

2.11 Greater Spotted Eagle

The Greater Spotted Eagle, *Clanga clanga* is a passage migrant through Uzbekistan. Birds leave their breeding grounds in October and November and return in February and March. It is a Vulnerable (VU) species on the IUCN red list.

It occurs in lowland forests near wetlands, and on small mammals, waterbirds, frogs and snakes, hunting over swamps and wet meadows; birds soar to c.100 m high when hunting. Threats include electrocution, poaching, shooting, disturbance, and habitat loss.

Birds migrate on a broad front, tending to pass in singles, twos and threes; they do not concentrate at bottleneck sites to the extent of many other raptors. The below showcases the migratory route of a single individual which was tracked from 2014 through 2018. The zoomed-in map shows that the individual passed within 10-15km of the project site.

Figure 2-67 Greater Spotted Eagle Satellite Tracking

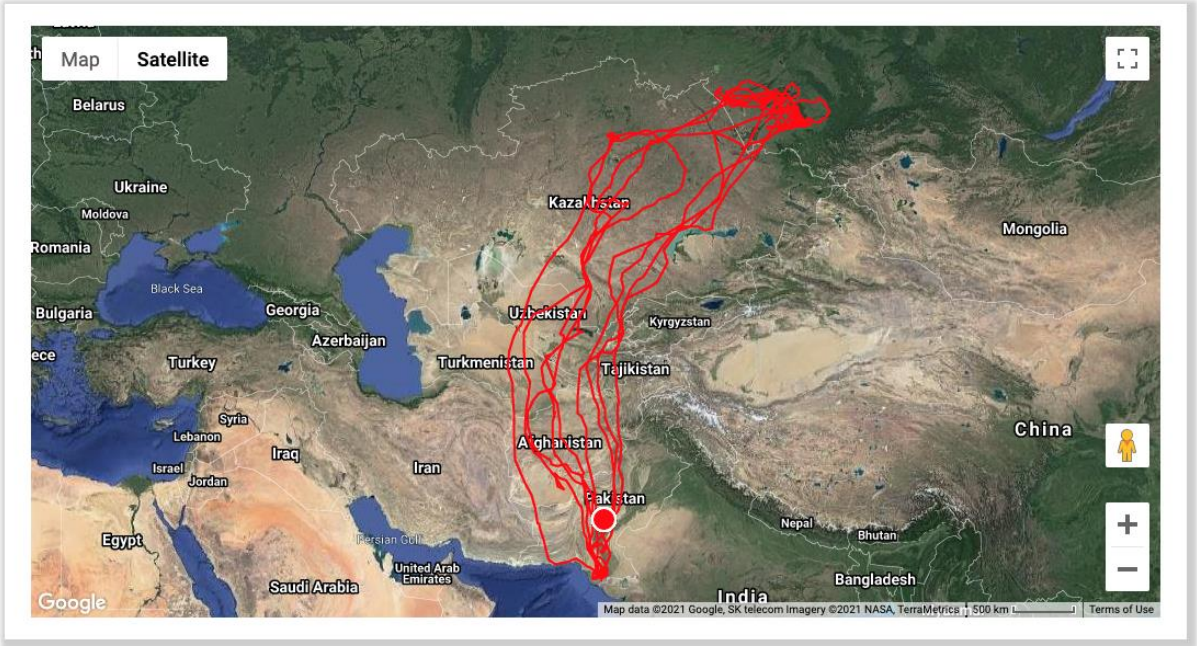
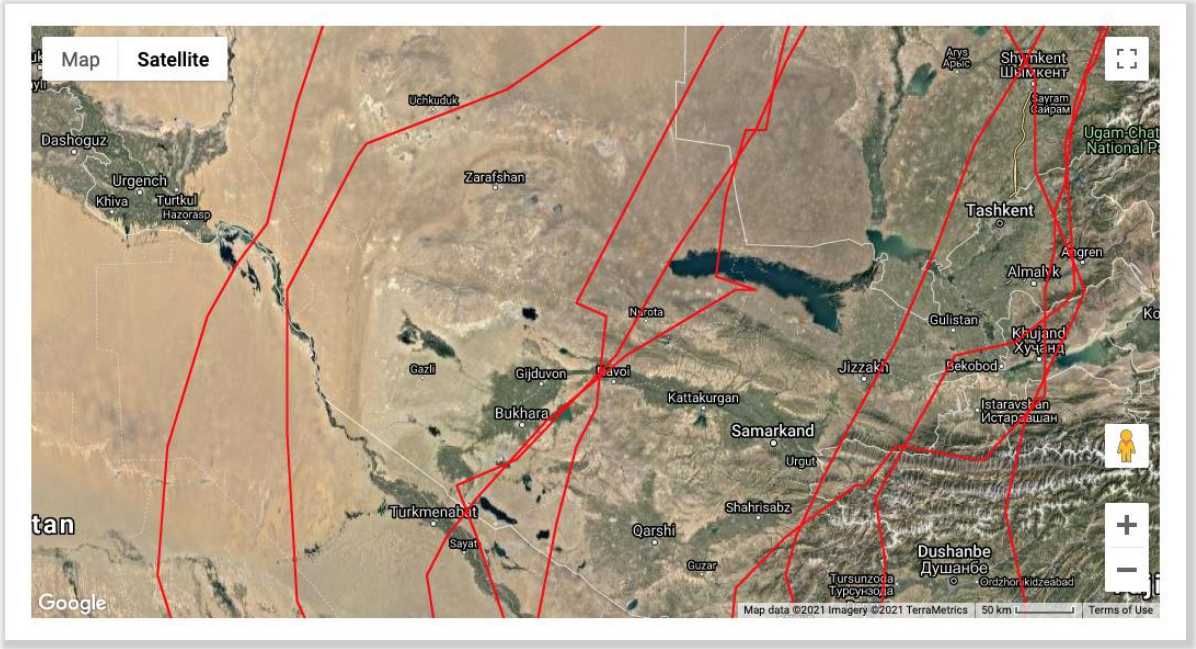


Figure 2-68 Greater Spotted Eagle Satellite Tracking (project region)



2.11.1 Baseline Survey

2.11.1.1 Methods

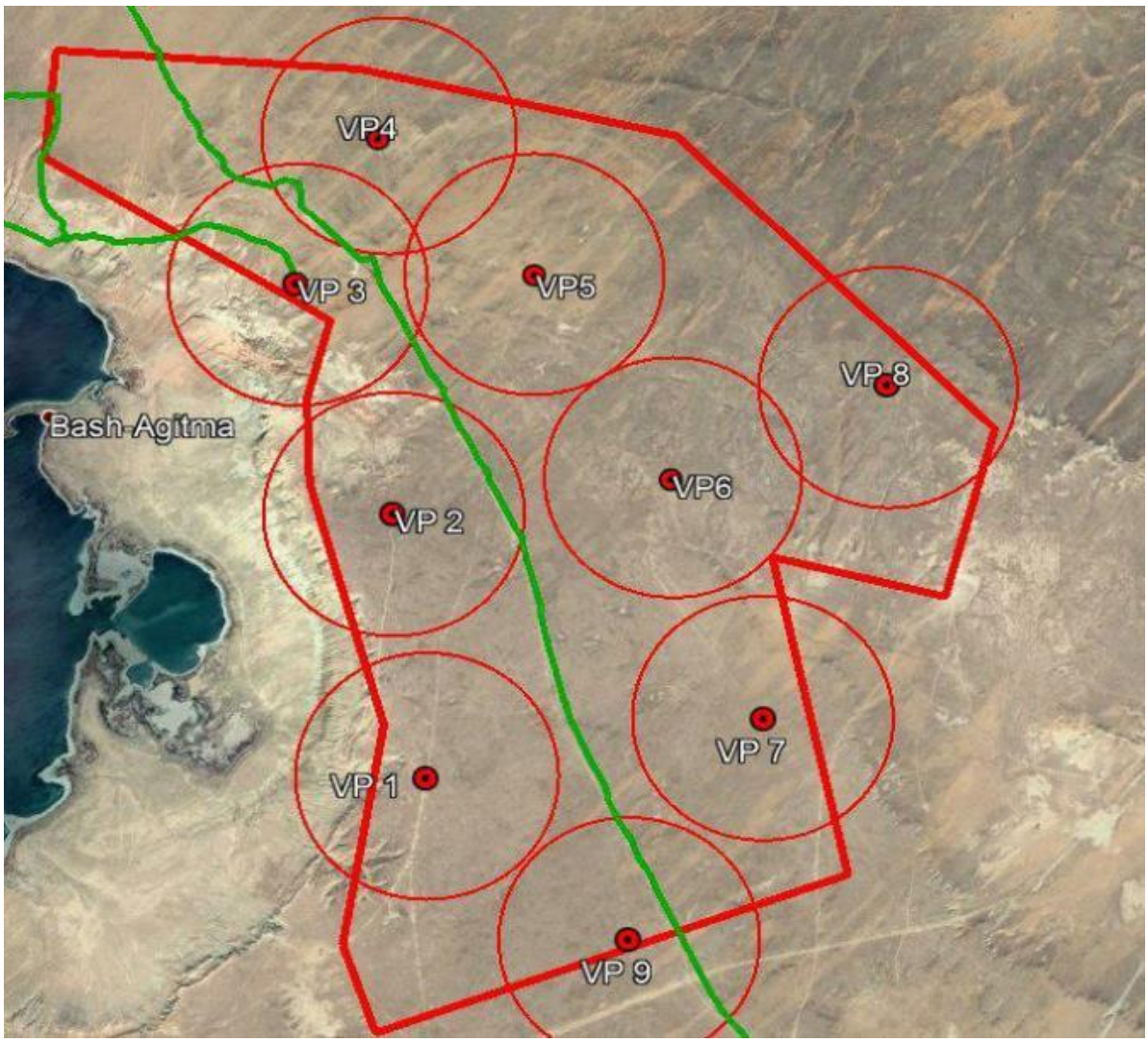
2.11.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

Figure 2-69 Vantage Points locations (green line – railway road)



The cliffs that border the Lake Ayakagytma basin lie immediately west of the WF extending from the northern to the southern limits of the area, are the most likely areas in which this species could possibly nest within the project's larger area of influence. The height of the cliffs is about 25-40 meters and have many indentions that provide a lot of cavities, cracks, and gouges, where birds of prey could nest.

Nest-searching surveys were undertaken in the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

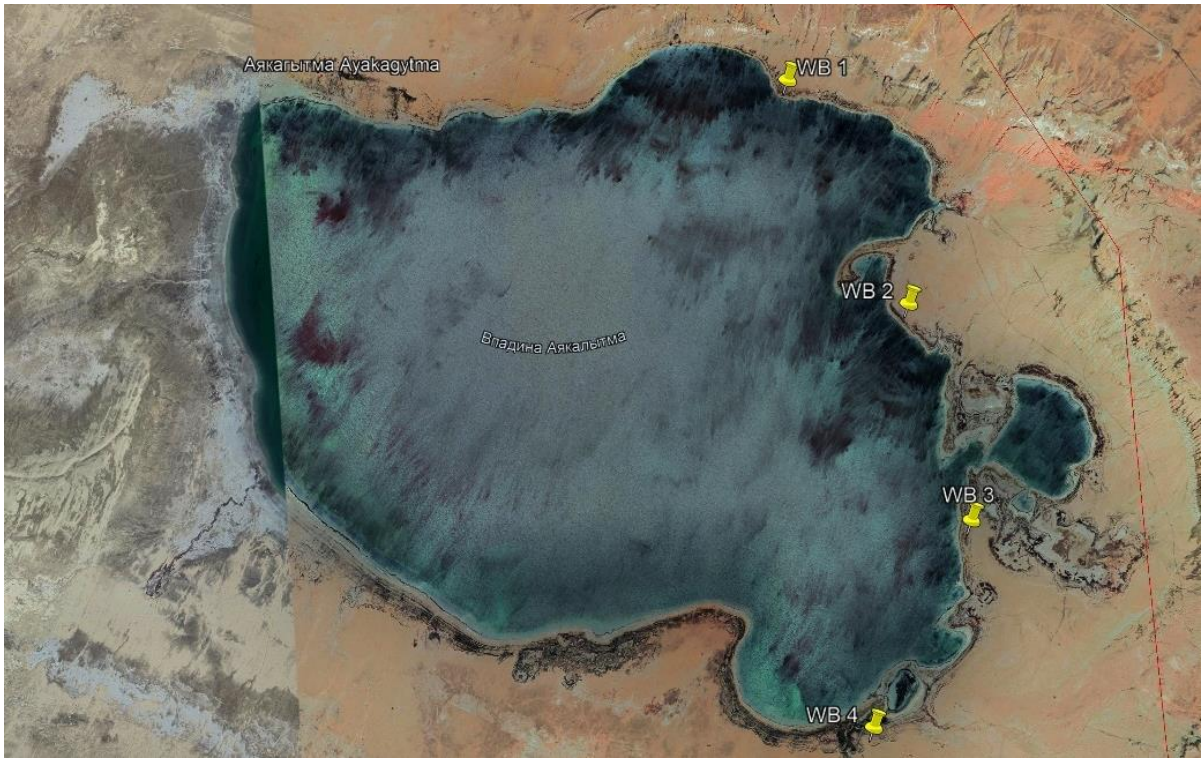
The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village

to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-70 Survey Locations of Winter 2022 at Lake Ayakagytma



2.11.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-71 Vantage points of the projected OHTL route

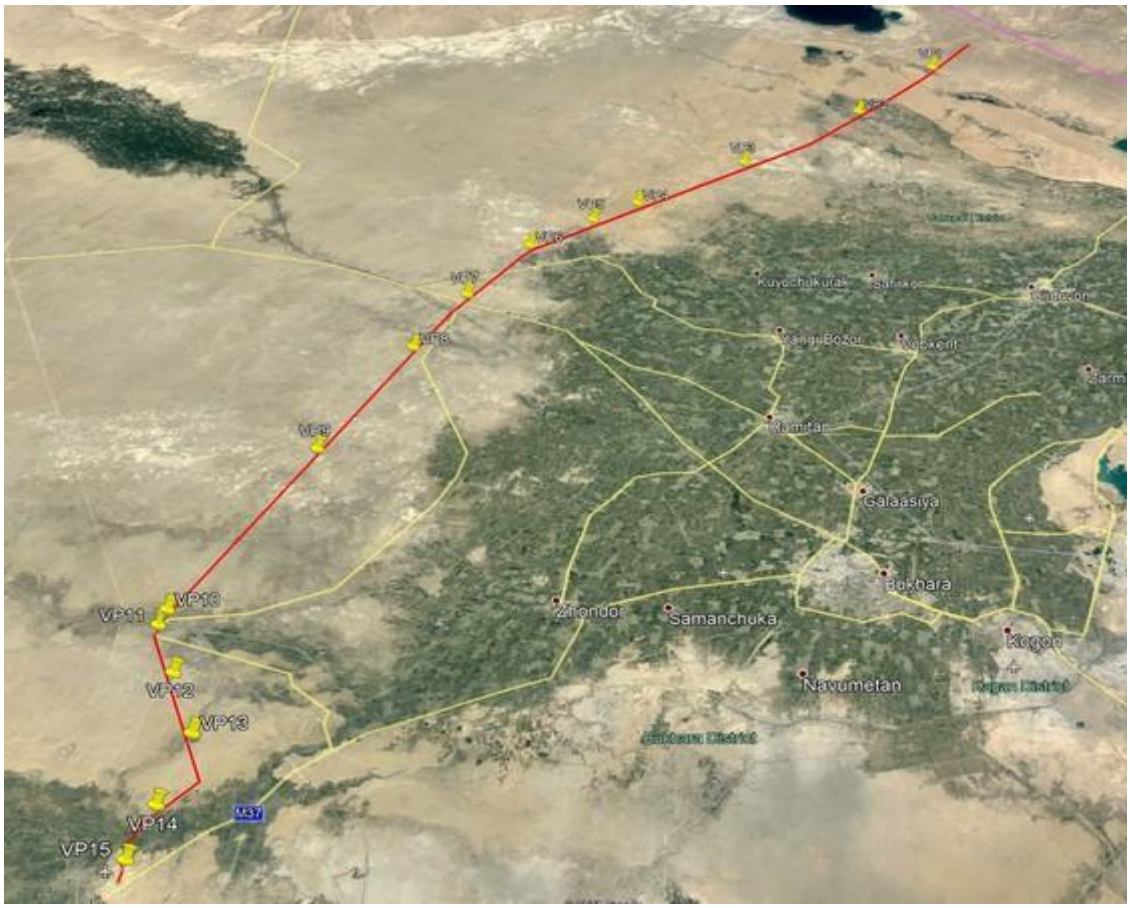


Figure 2-72 Vantage points of the projected OHTL route in June

2.11.1.2 Results

2.11.1.2.1 Bash Wind Farm

Two individuals were observed in March during the Winter 2022 survey over the course of one year of VP surveys.

2.11.1.2.2 Bash-Karakul OHTL

There were no sightings of the Greater-spotted Eagle during the OHTL survey.

2.11.2 Stakeholder Engagement

Stakeholder Anna Ten's records indicate the sighting of this species at the Lake Ayakagytma and its adjacent area in 2011. No known occurrence of the Greater Spotted Eagle has been recorded by stakeholders within the project area of influence since.

2.12 Eastern Imperial Eagle

The Eastern Imperial Eagle *Aquila heliaca* is a summer breeder and passage migrant through Uzbekistan. It is a Vulnerable (VU) species on the IUCN red list.

It occurs in steppe, lowland and riverine forests and semi-deserts. It breeds in forests up to 1,000 m and also in steppe and agricultural areas with large trees, and on electricity pylons.

Southward migration between September and November, and birds migrate to the summer grounds between February and May. Birds are usually seen singly or in pairs.

Main threats include loss of breeding trees, disturbance, habitat loss, and electrocution.

The following depicts the satellite tracked flight paths of several Eastern Imperial Eagles which show that some individuals may pass through the project area on autumn and spring migrations.

Figure 2-73 Eastern Imperial Eagle Satellite Tracking

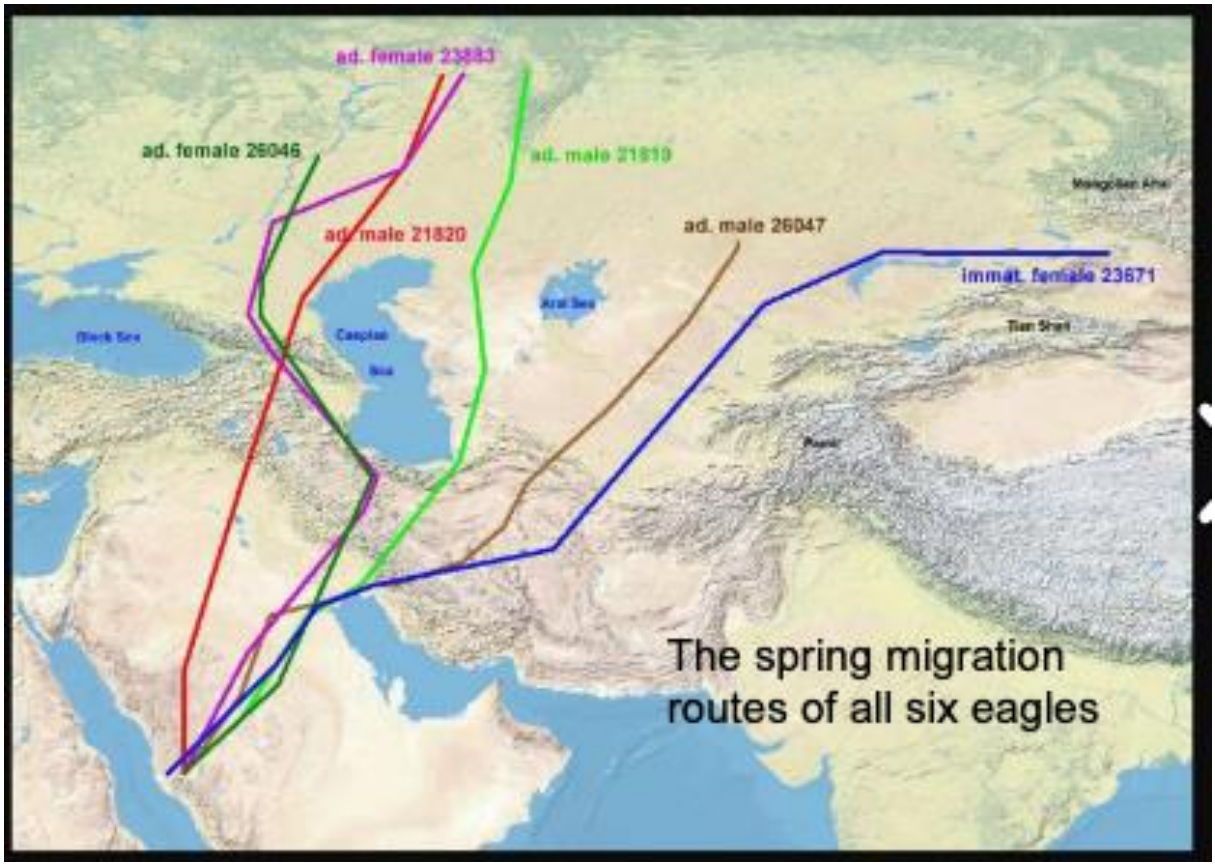


Figure 2-74 Eastern Imperial Eagle Satellite Tracking (cont.)

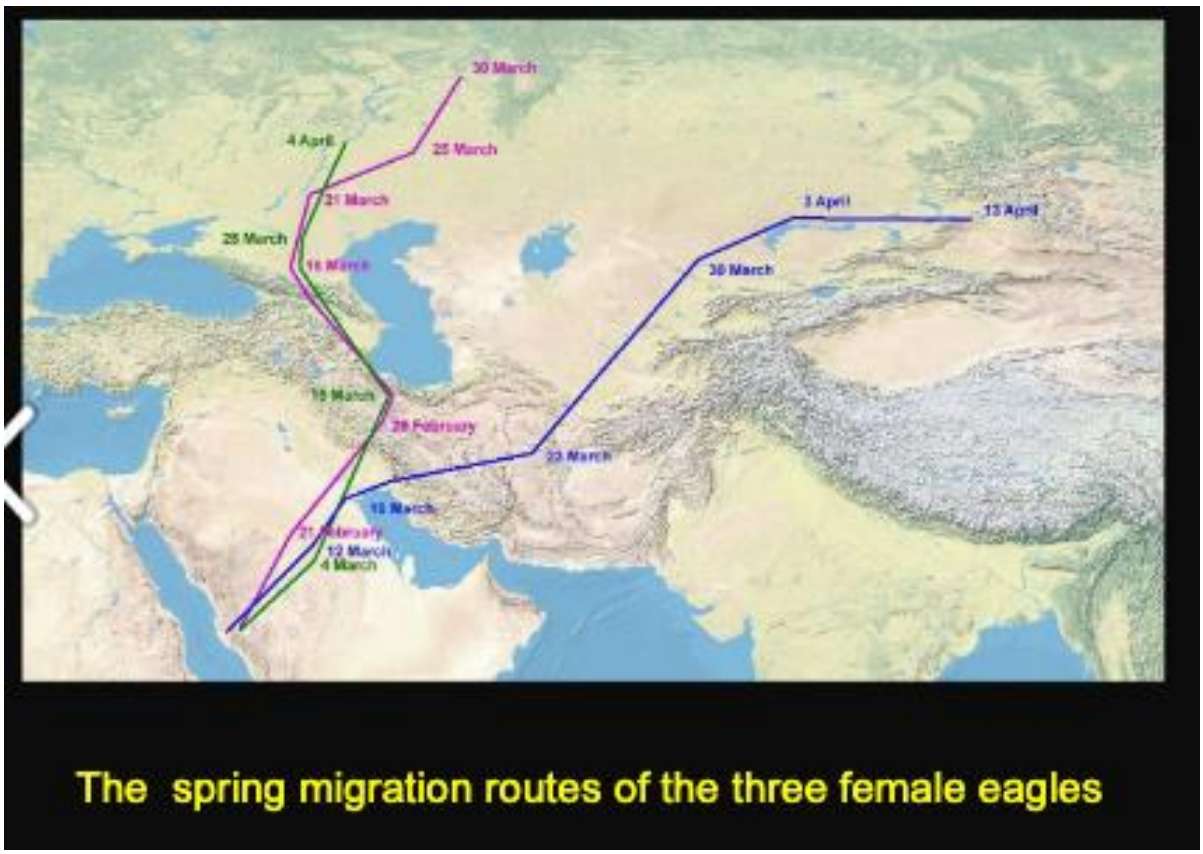
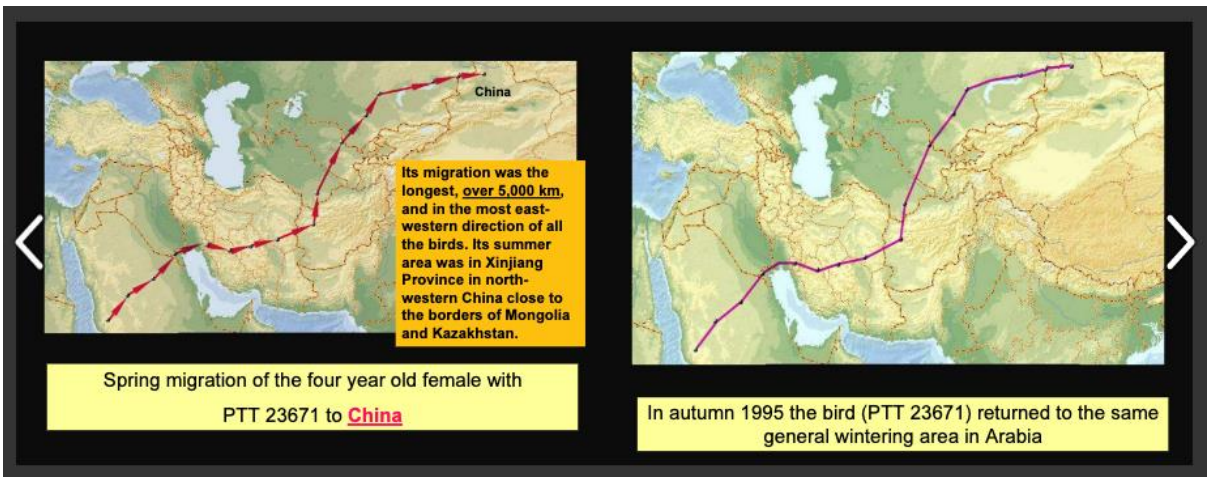


Figure 2-75 Eastern Imperial Eagle Satellite Tracking (cont.)



2.12.1 Baseline Survey

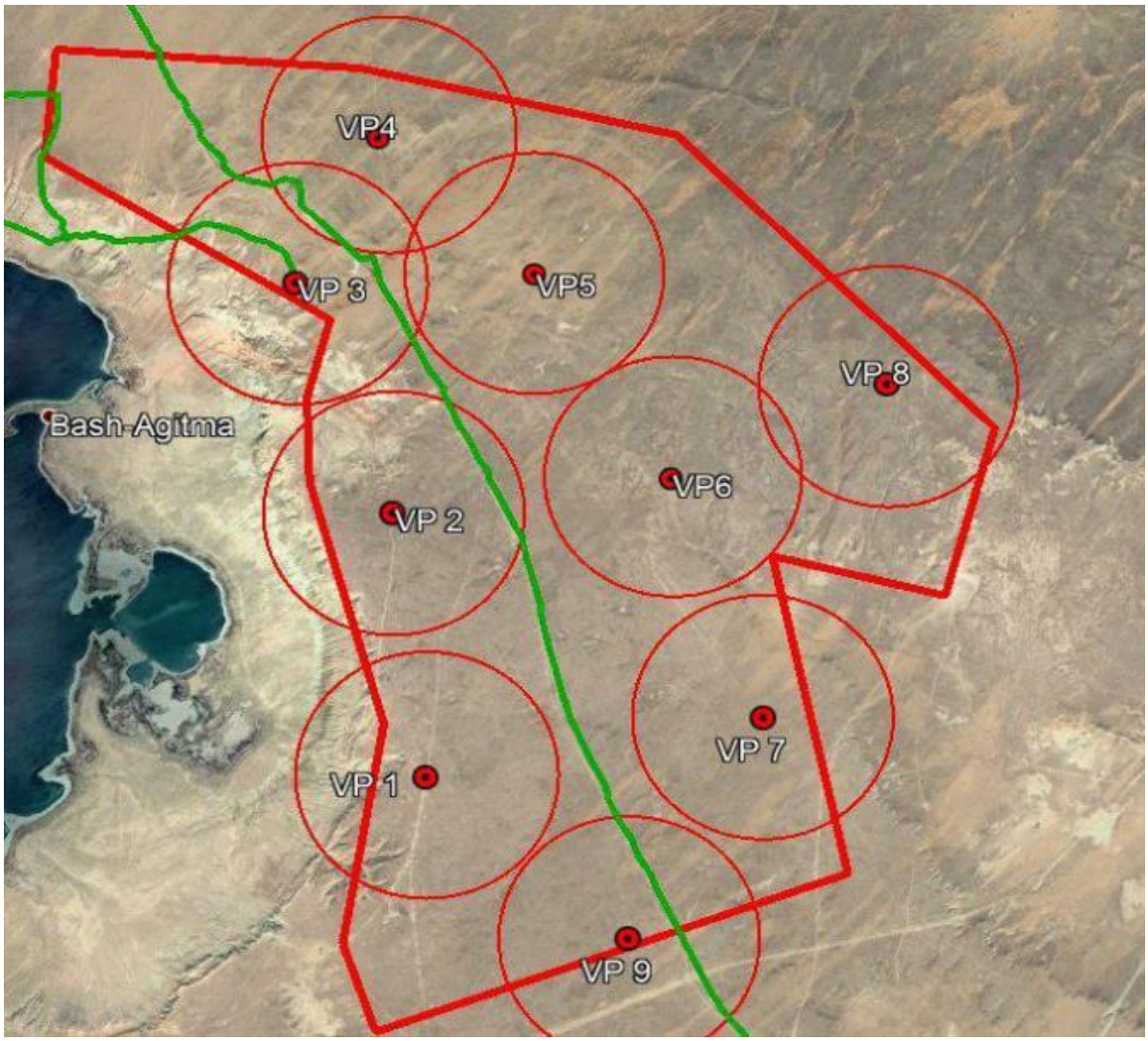
2.12.1.1 Methods

2.12.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-76 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

Nest-searching surveys were undertaken in loess cliffs near the project site during the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

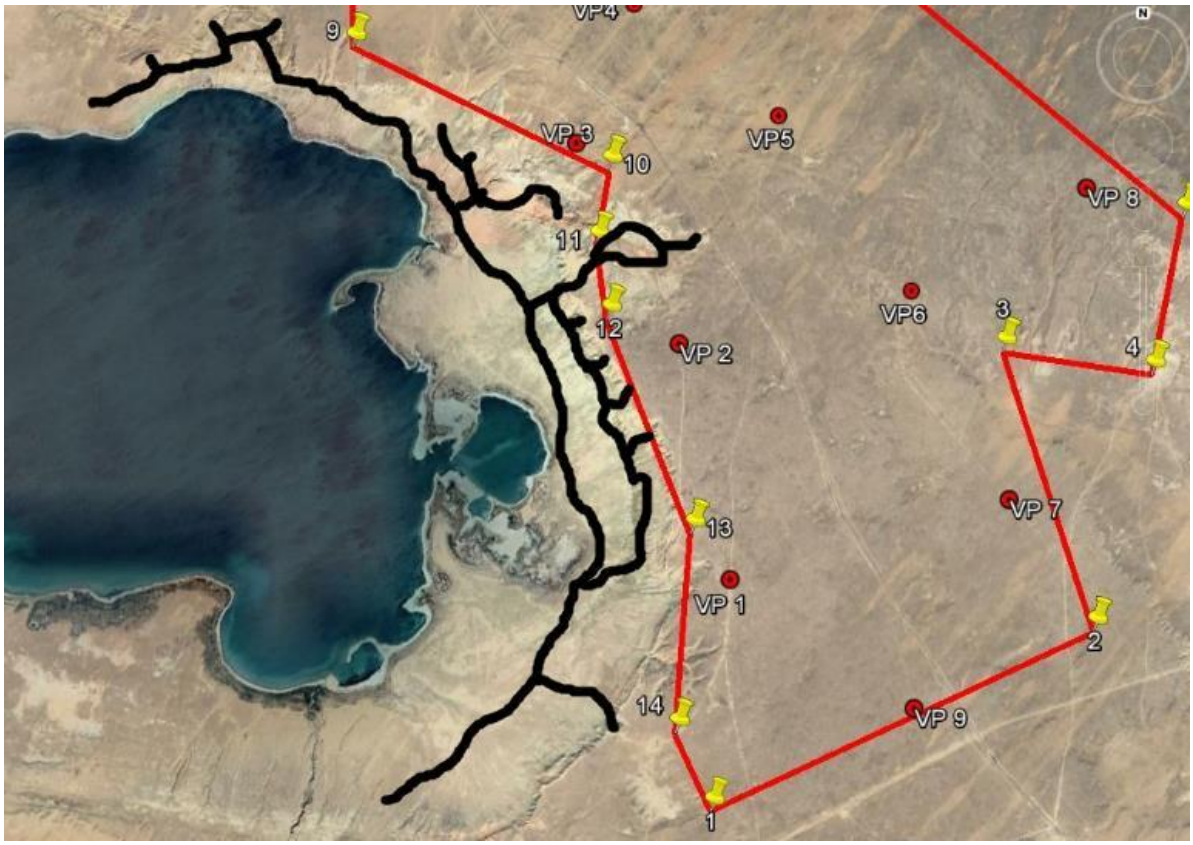
The cliffs that border the Lake Ayakagytma basin, lie west of the WF area, extending from its northern to the southern limits. The cliff are about 25-40 meters high and have many indentions that provide a lot of cavities, cracks, and gouges, that make ideal nesting habitats for large birds of prey

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

Figure 2-77 Cliffs bordering the Lake Ayakagytma

Figure 2-78 Nest survey route of spring 2020

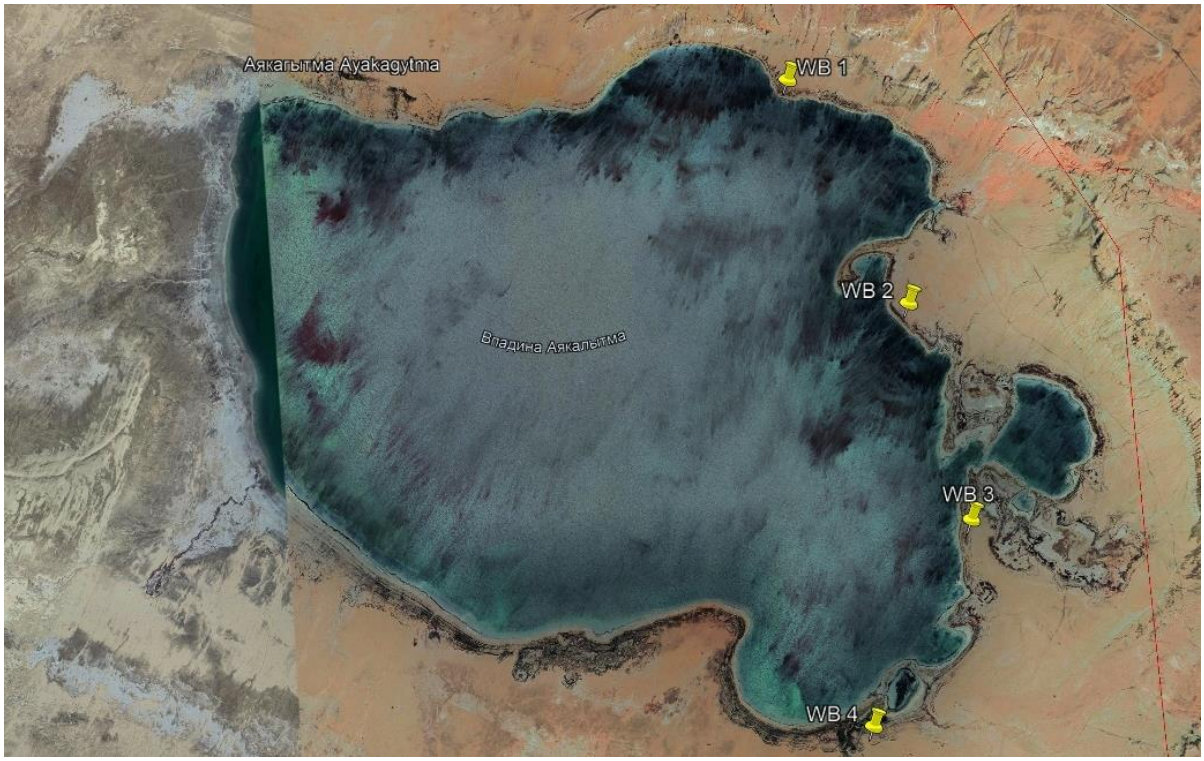
Figure 2-79 Nest survey route of summer 2020



On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-80 Survey Locations of Winter 2022 at Lake Ayakagytma



2.12.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars

with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-81 Vantage points of the projected OHTL route

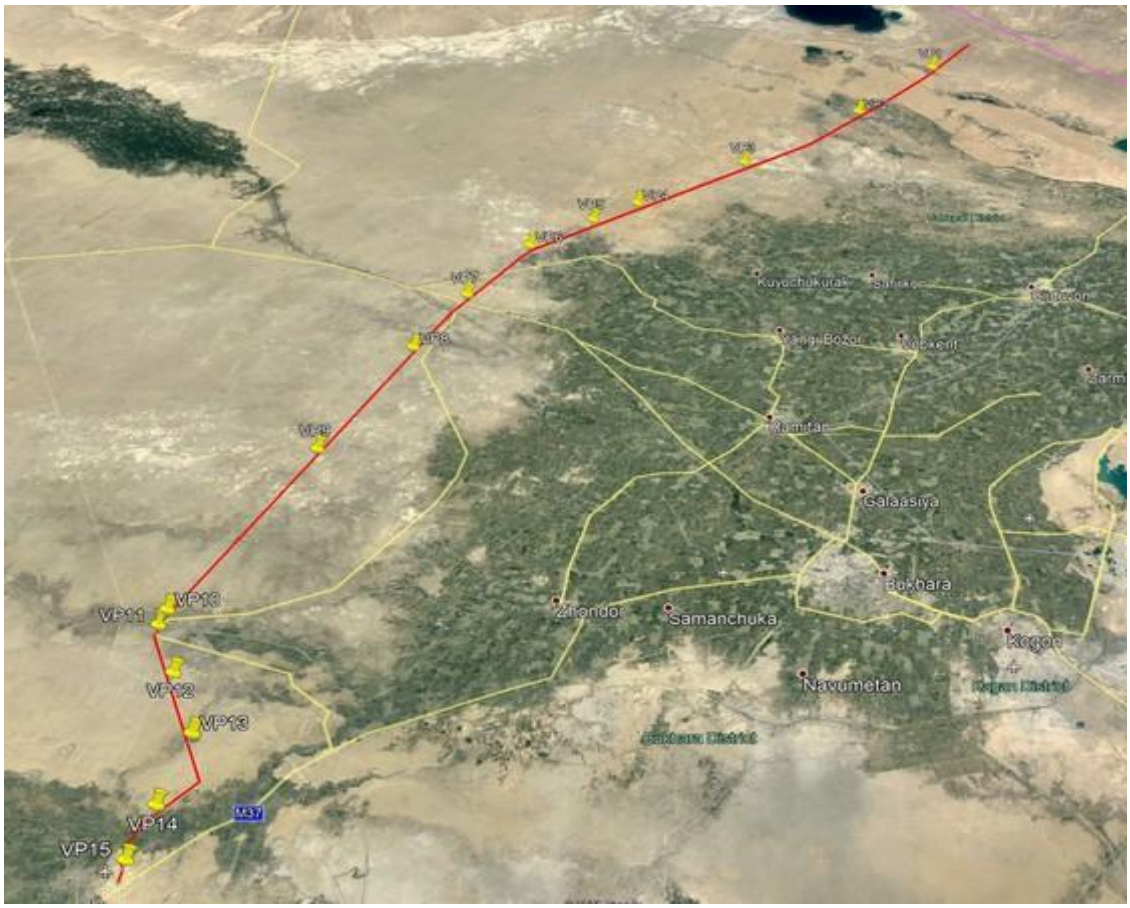


Figure 2-82 Vantage points of the projected OHTL route in June

2.12.1.2 Results

2.12.1.2.1 Bash Wind Farm

Two individuals were recorded over the cliffs during the summer nest survey and one individual was recorded in the vicinity of the project area during the OHTL survey. There were no recorded sightings of the species during the wind farm VP and Lake surveys.

Figure 2-83 Imperial Eagle recorded during the summer nest survey

2.12.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Eastern Imperial Eagle along the proposed OHTL route nor within the project boundary. However, one sighting was recorded with the vicinity

2.12.2 Stakeholder Engagement

No known occurrence of the Eastern Imperial eagle has been recorded by stakeholders within the project area of influence.

2.13 Marbled Teal

The Marbled Teal (*Marmaronetta angustriostis*) is a resident, potential breeder and sometimes passage migrant through Uzbekistan. It is a Vulnerable (VU) species on the IUCN red list.

It inhabits fairly dry, steppe-like areas on shallow freshwater, brackish or alkaline ponds with well vegetated shorelines.

It has very nomadic tendencies, dispersing in search of suitable habitat in response to changing conditions; and is also highly gregarious.

Major threats include hunting, polluted and loss of suitable habitat, and accidental entanglement in fishing gear.

2.13.1 Baseline Survey

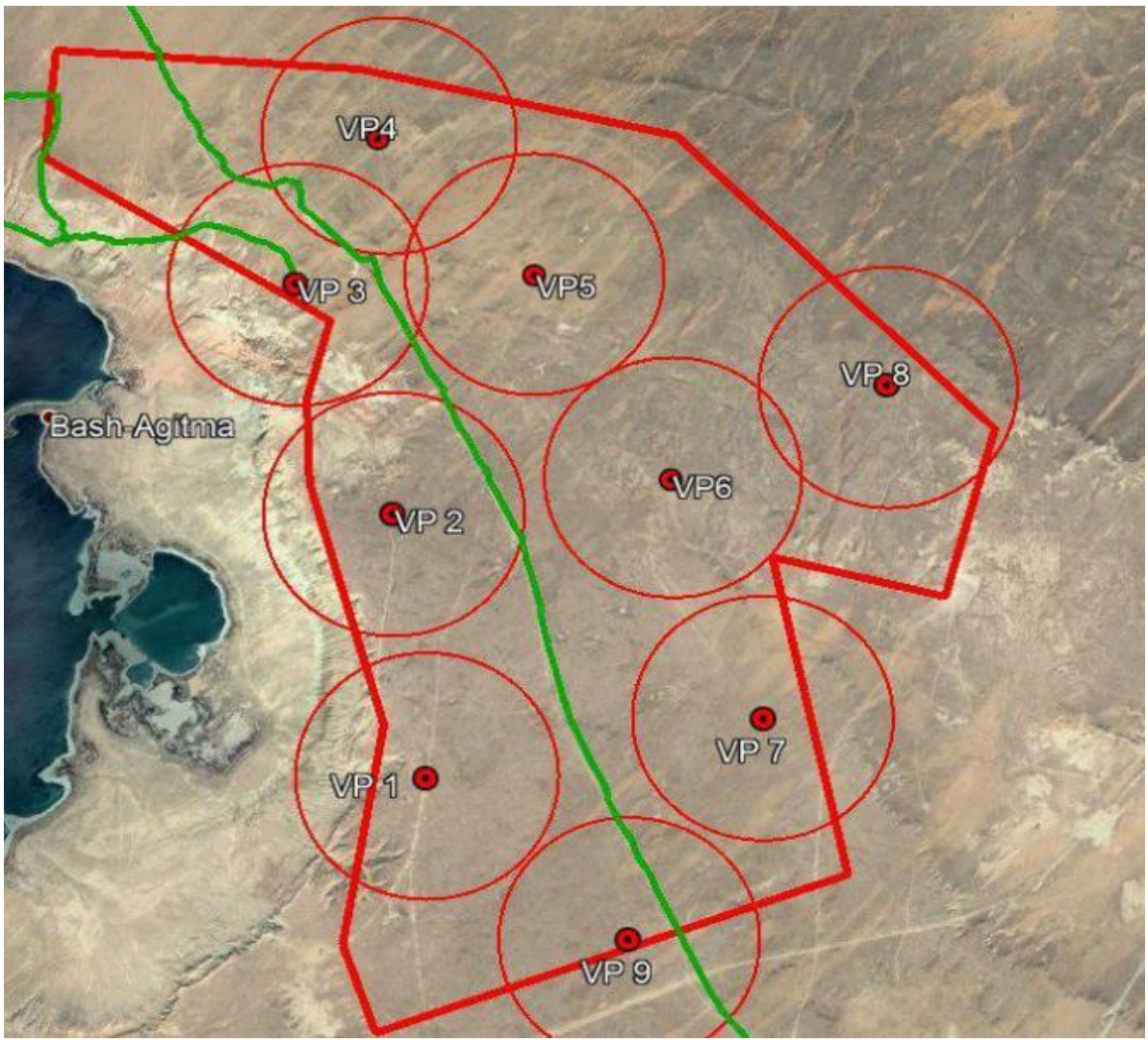
2.13.1.1 Methods

2.13.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-84 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

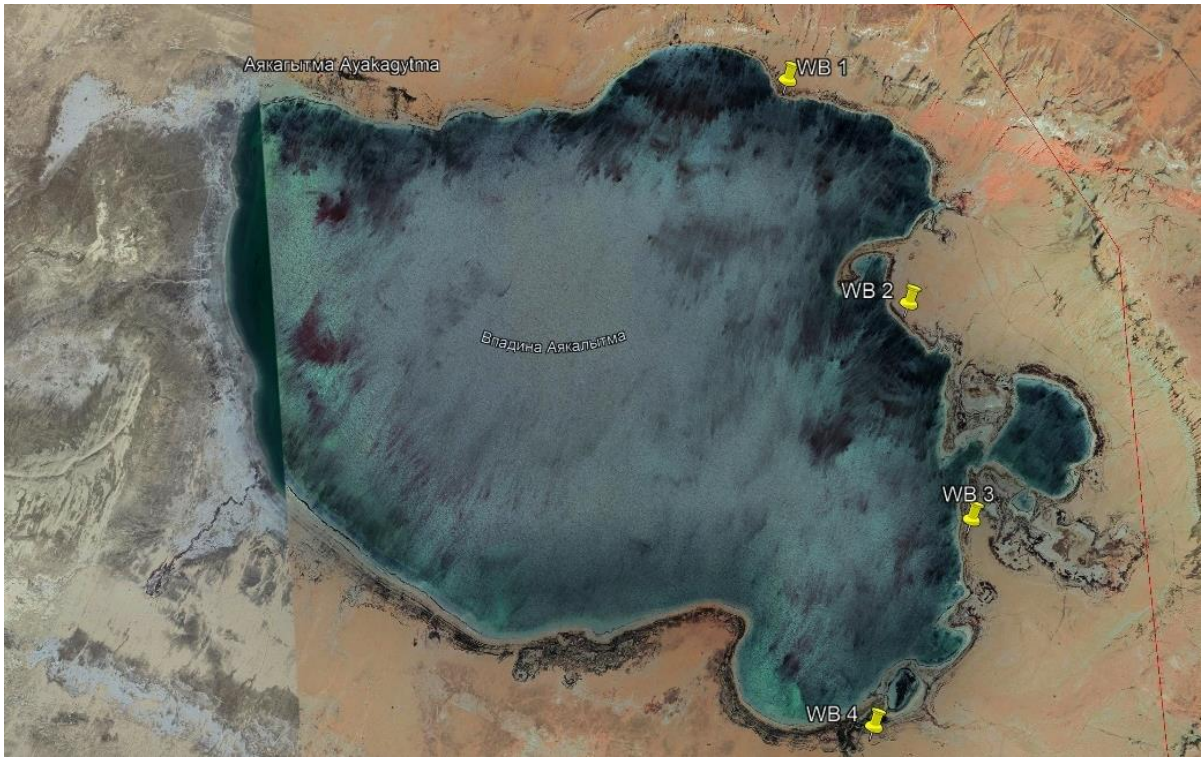
The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-85 Survey Locations of Winter 2022 at Lake Ayakagytma



2.13.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of

bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-86 Vantage points of the projected OHTL route

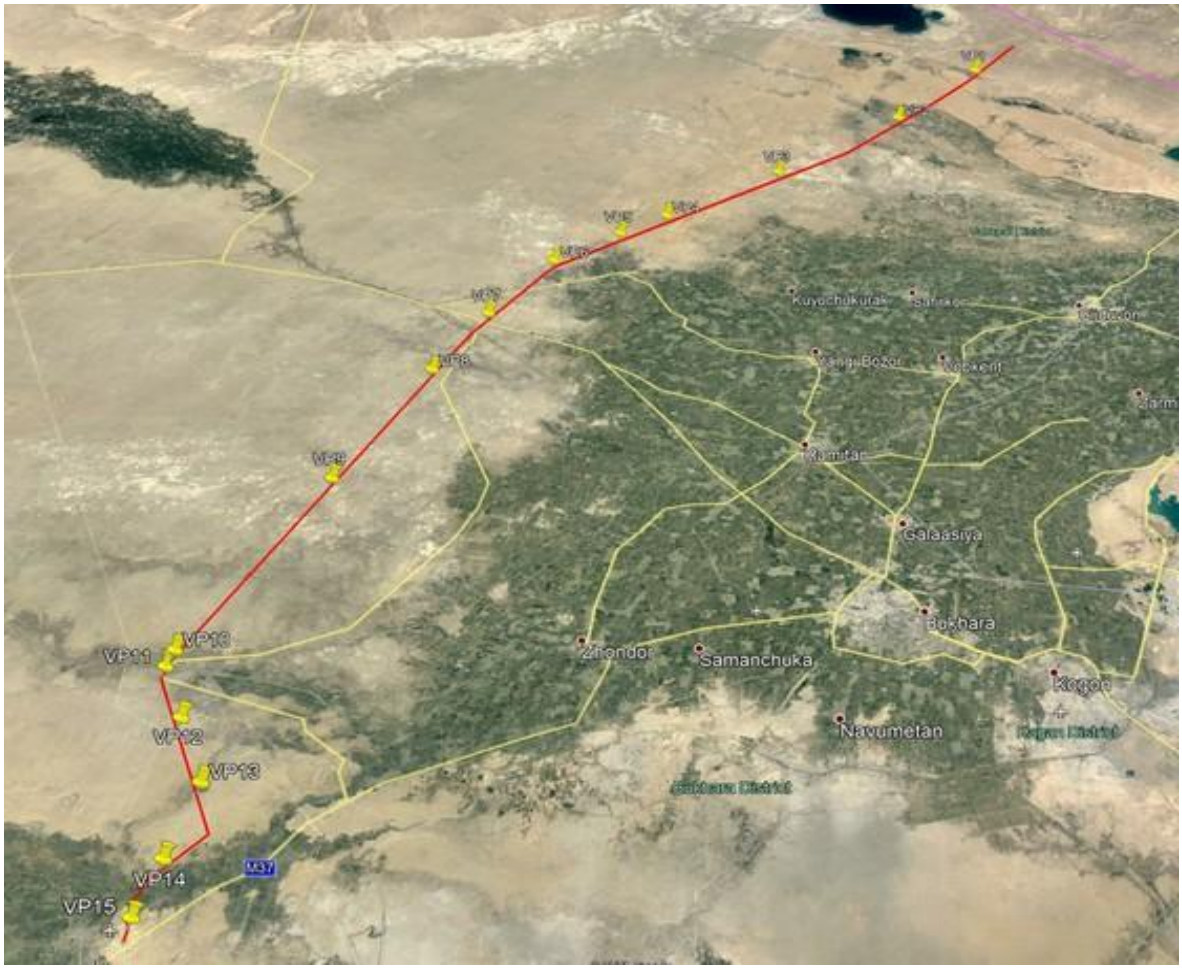


Figure 2-87 Vantage points of the projected OHTL route in June

2.13.1.2 Results

2.13.1.2.1 Bash Wind Farm

Although the Marbled Teal are known to occur in the region, there were no recorded sightings of the species during the VP and winter surveys.

2.13.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of this species during the OHTL surveys

2.13.2 Stakeholder Engagement

No known occurrence of the Marbled Teal has been recorded by stakeholders within the project area of influence.

2.14 Lesser White-fronted Goose

The Lesser White -fronted Goose (*Anser erythropus*) is a passage migrant throughout Uzbekistan. Southbound migration begins in August/September. Northbound migration begins in late February and return to breeding grounds occur in May/June.

During winter and on migration, this species frequents open short grassland in the steppe and semi-arid zones; winter roosting colonies are also formed on large lakes and rivers.

This species is highly gregarious outside of the breeding season.

Major threats include illegal poaching and accidental shooting, breeding disturbances, and climate change (as tundra habitat is required for breeding). It is a Vulnerable (VU) species on the IUCN red list.

2.14.1 Baseline Survey

2.14.1.1 Methods

2.14.1.1.1 Bash Wind Farm

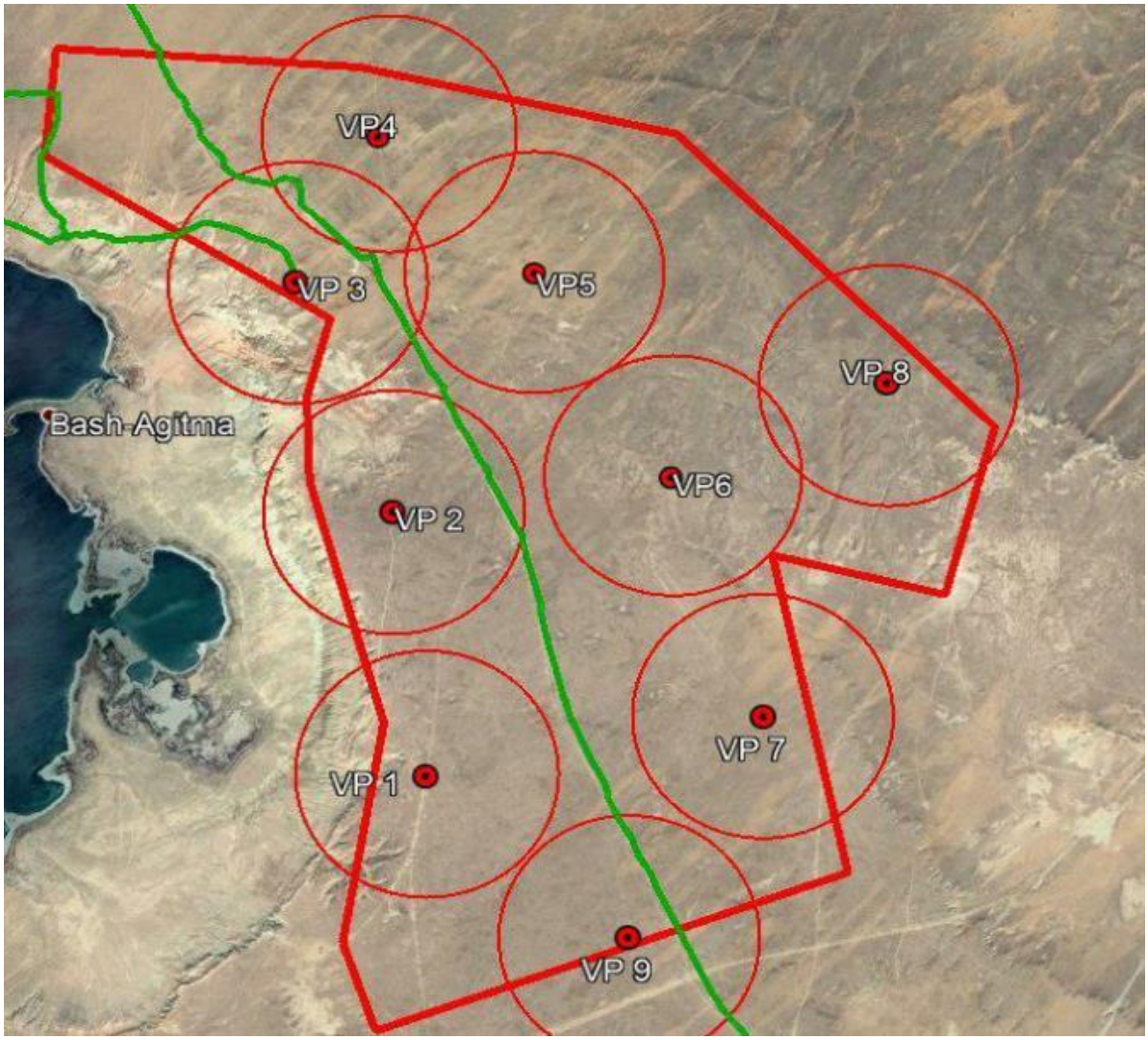
The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-88 Vantage Points locations (green line – railway road)

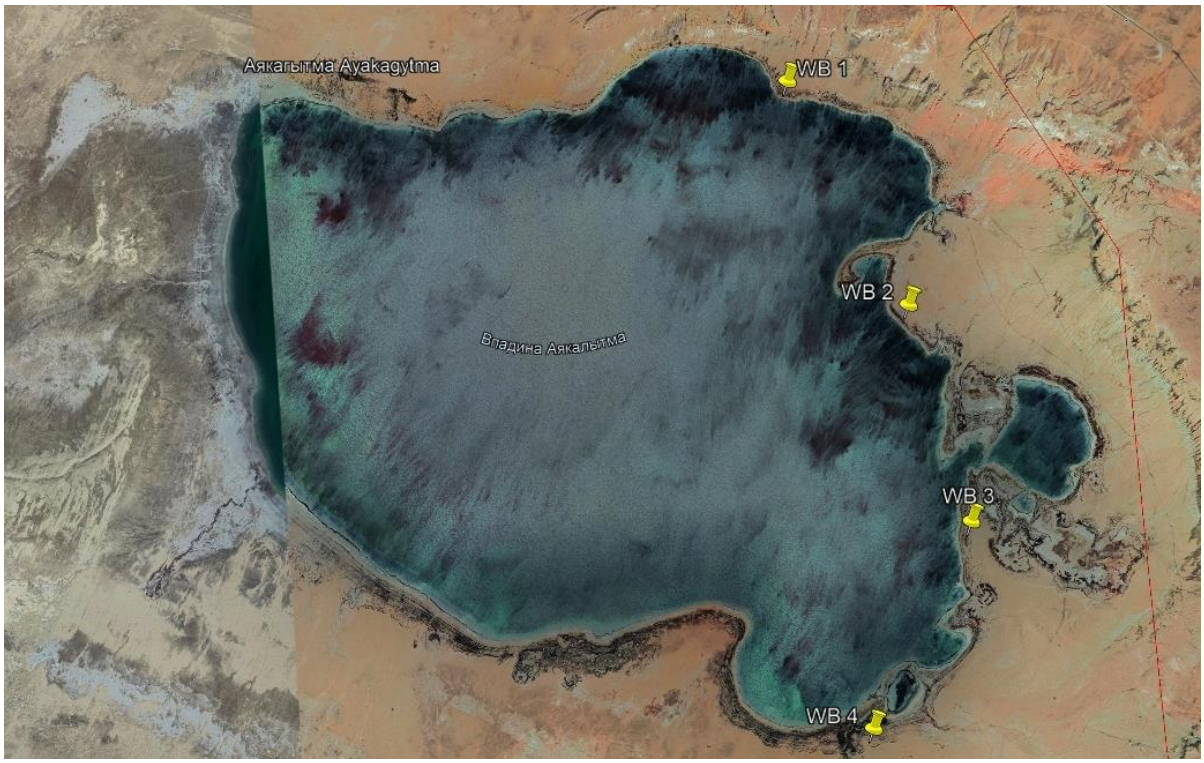


The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-89 Survey Locations of Winter 2022 at Lake Ayakagytma



2.14.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-90 Vantage points of the projected OHTL route

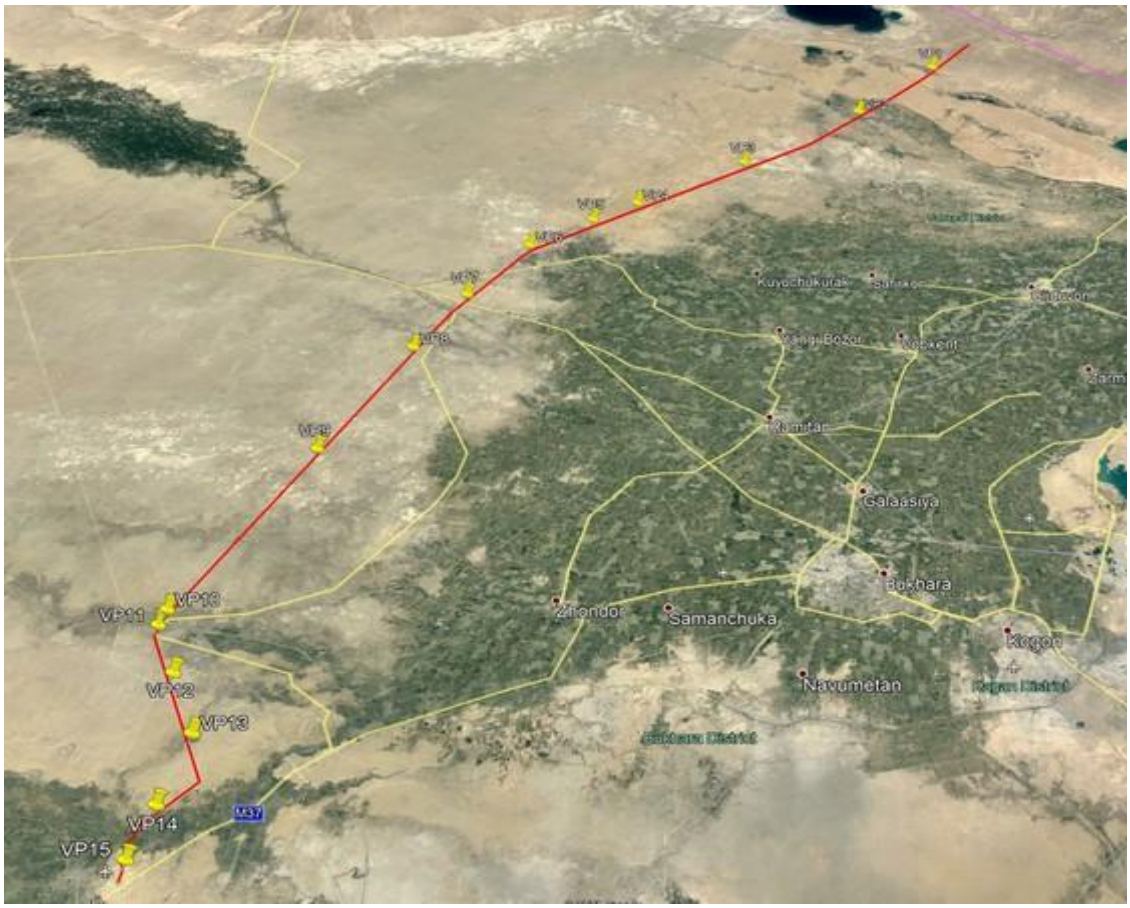


Figure 2-91 Vantage points of the projected OHTL route in June

2.14.1.2 Results

2.14.1.2.1 Bash Wind Farm

Although the Lesser White-fronted Goose are known to occur in the region, there were no recorded sightings of the species during the VP and winter surveys.

2.14.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of this species during the OHTL surveys.

2.14.2 Stakeholder Engagement

No known occurrence of the Lesser White-fronted Goose has been recorded by stakeholders within the project area of influence.

2.15 Common Pochard

The Common Pochard (*Aythya ferina*) is a potential breeder in Uzbekistan. It is a Vulnerable (VU) species on the IUCN red list.

Breeding begins in April/May. Breeds in habitat such as large lakes, slow-flowing rivers, reservoirs, brackish waters, marshes, weirs.

Major threats include nest predation from introduced mammals, habitat loss and disturbance, hunting, and decline in water quality.

2.15.1 Baseline Survey

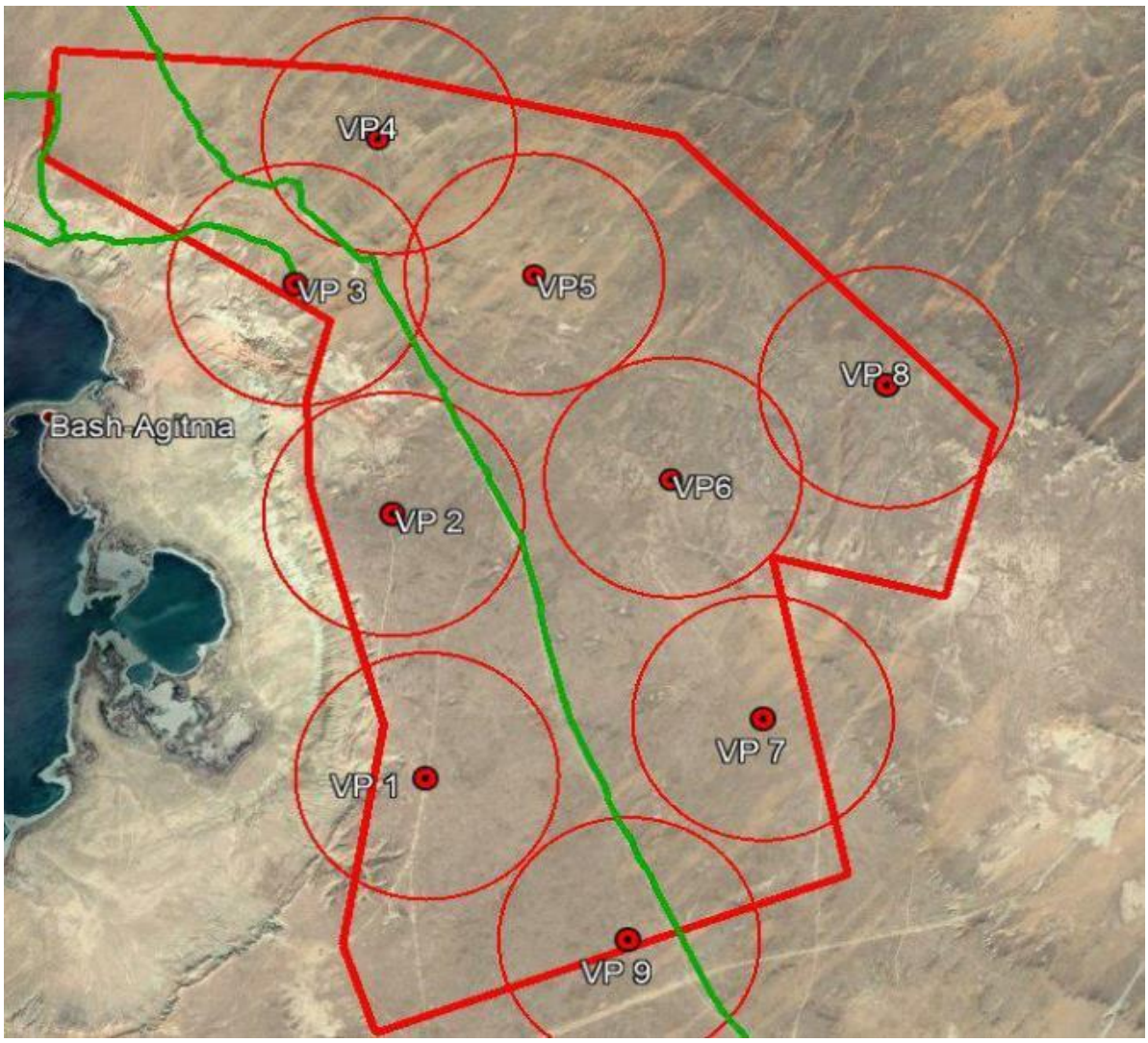
2.15.1.1 Methods

2.15.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-92 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

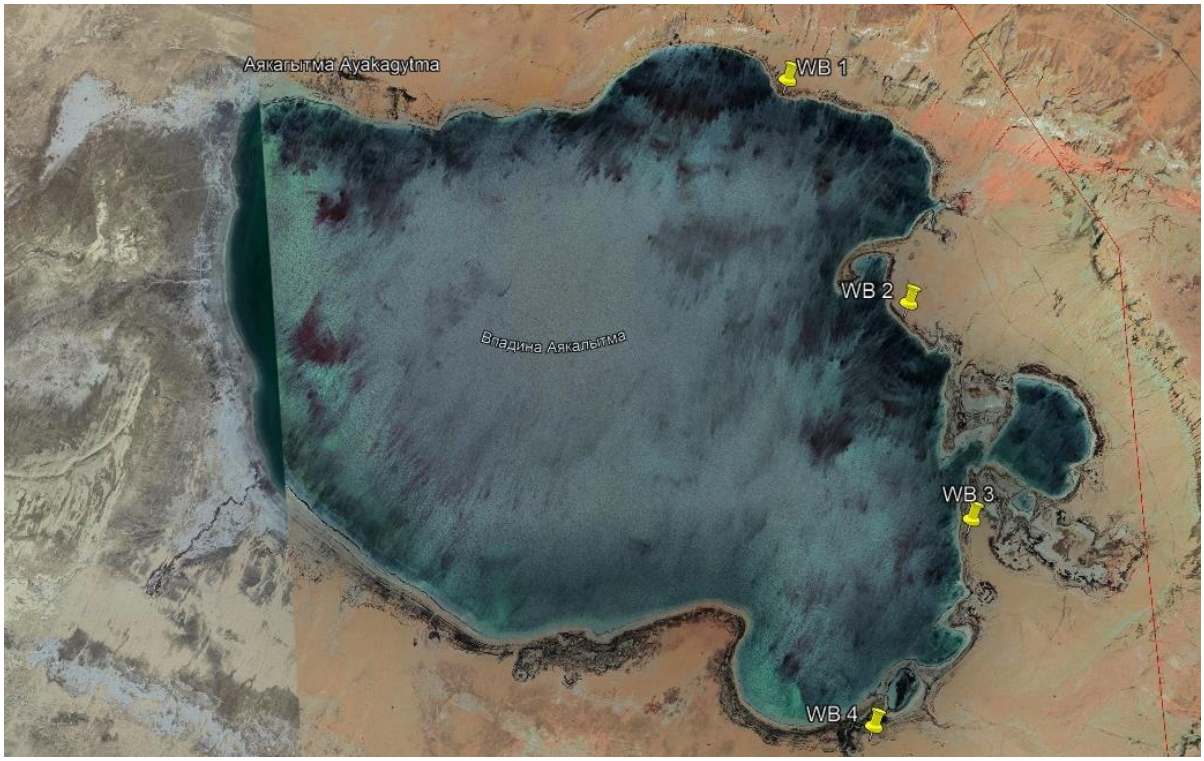
The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-93 Survey Locations of Winter 2022 at Lake Ayakagytma



2.15.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio

recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-94 Vantage points of the projected OHTL route

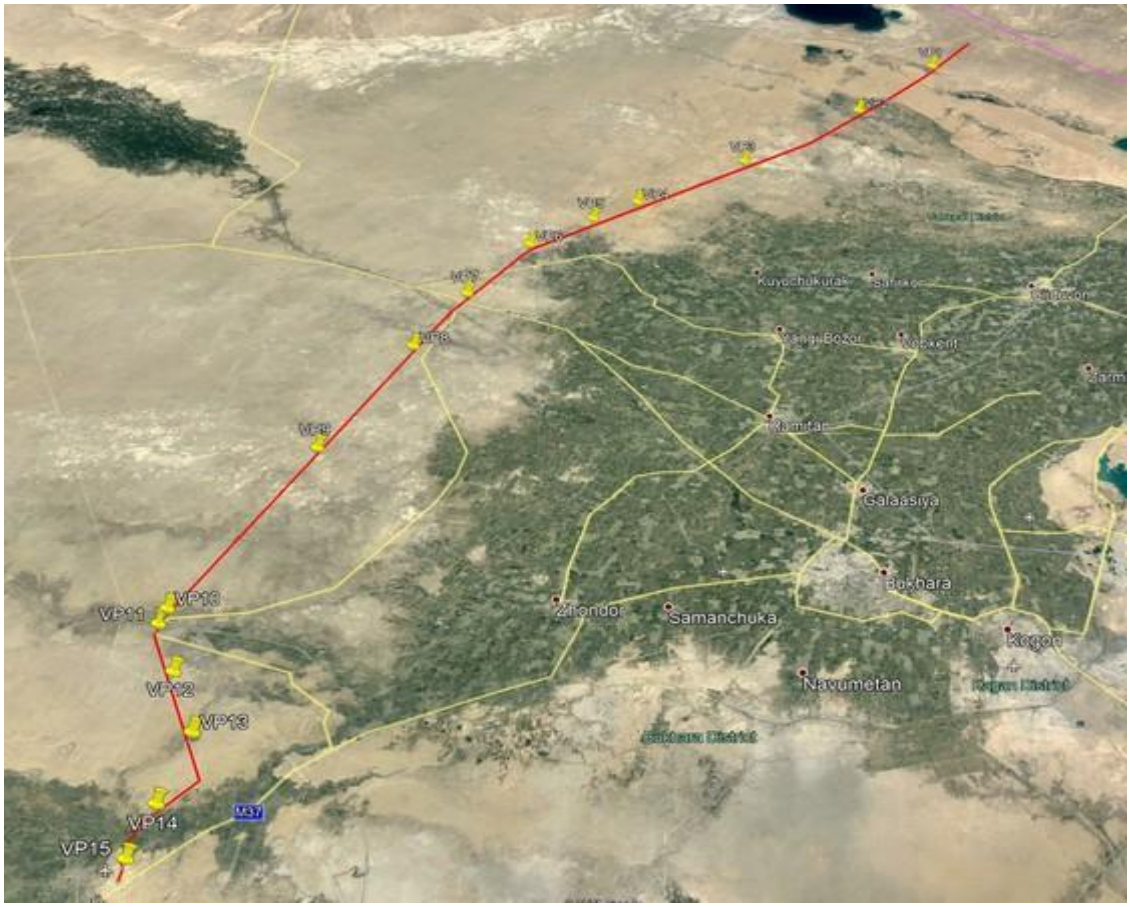


Figure 2-95 Vantage points of the projected OHTL route in June

2.15.1.2 Results

2.15.1.2.1 Bash Wind Farm

Common Pochard are known to occur in the region, the rapid winter survey in January 2021 recorded a total of 780 on the lake. The Winter 2022 surveys at the lake recorded 313 individuals over the course of 4 months.

2.15.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of this species during the OHTL surveys.

2.15.2 Stakeholder Engagement

4500 common pochards were recorded in this area during water bird surveys conducted by the Department of Biology of the Bukhara State University and the Bukhara State Medical Institute, employees of the Bukhara Regional Department of Ecology and Environmental Protection, the Bukhara regional branch of the Sports Association of Hunters and Fishermen of Uzbekistan in March 2020 Lake Ayakagytma.

2.16 Great Bustard

The Great Bustard (*Otis tarda*) is a passage migrant through Uzbekistan. It is a Vulnerable (VU) species on the IUCN red list.

Preferred habitat is open, flat or somewhat rolling landscapes, usually with a mixture of crops and grasslands/steppe.

Major threats include habitat loss, fragmentation and disturbance; as well as collision with powerlines and wind turbines.

2.16.1 Baseline Survey

2.16.1.1 Methods

2.16.1.1.1 Bash Wind Farm

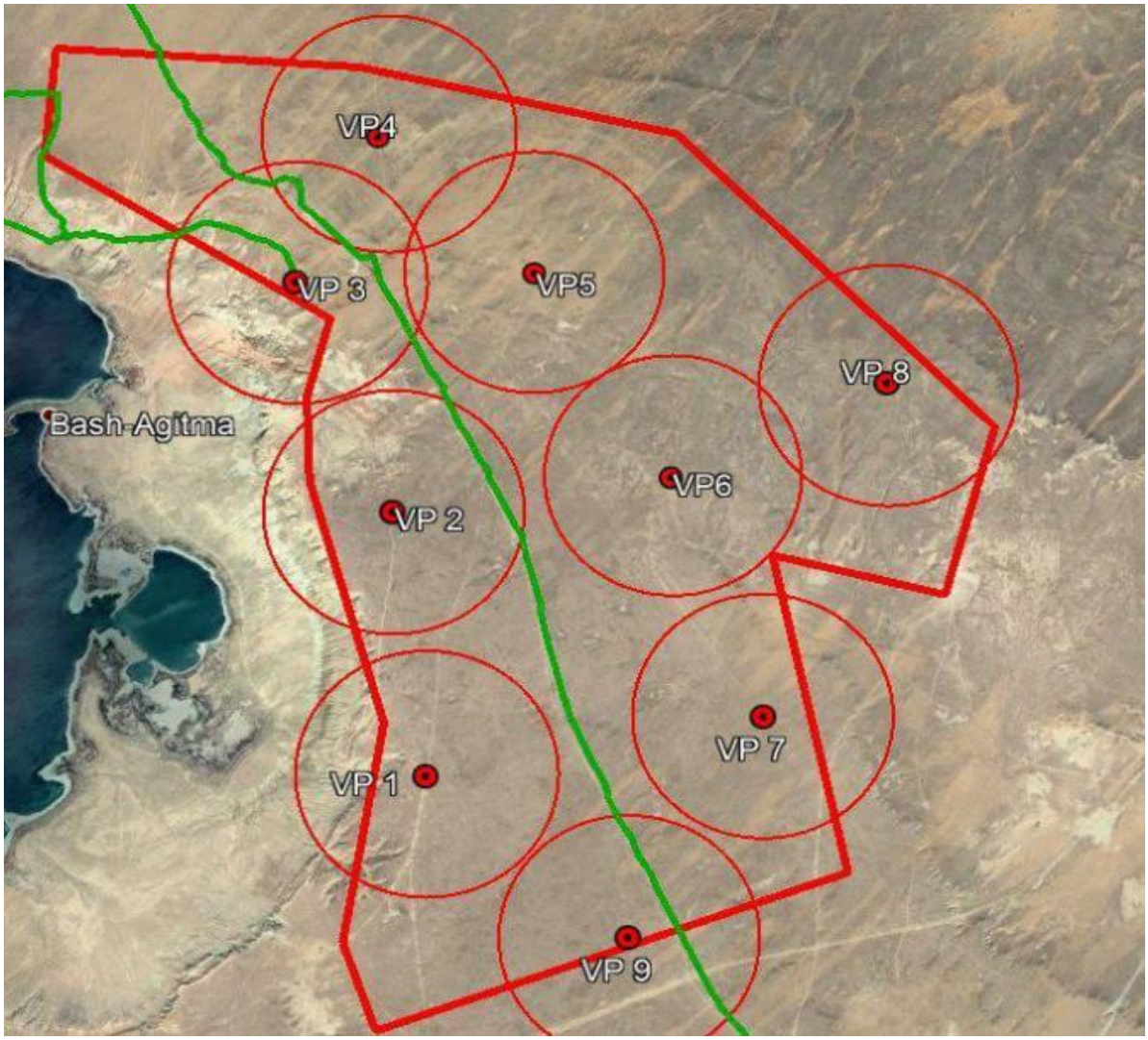
The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-96 Vantage Points locations (green line – railway road)

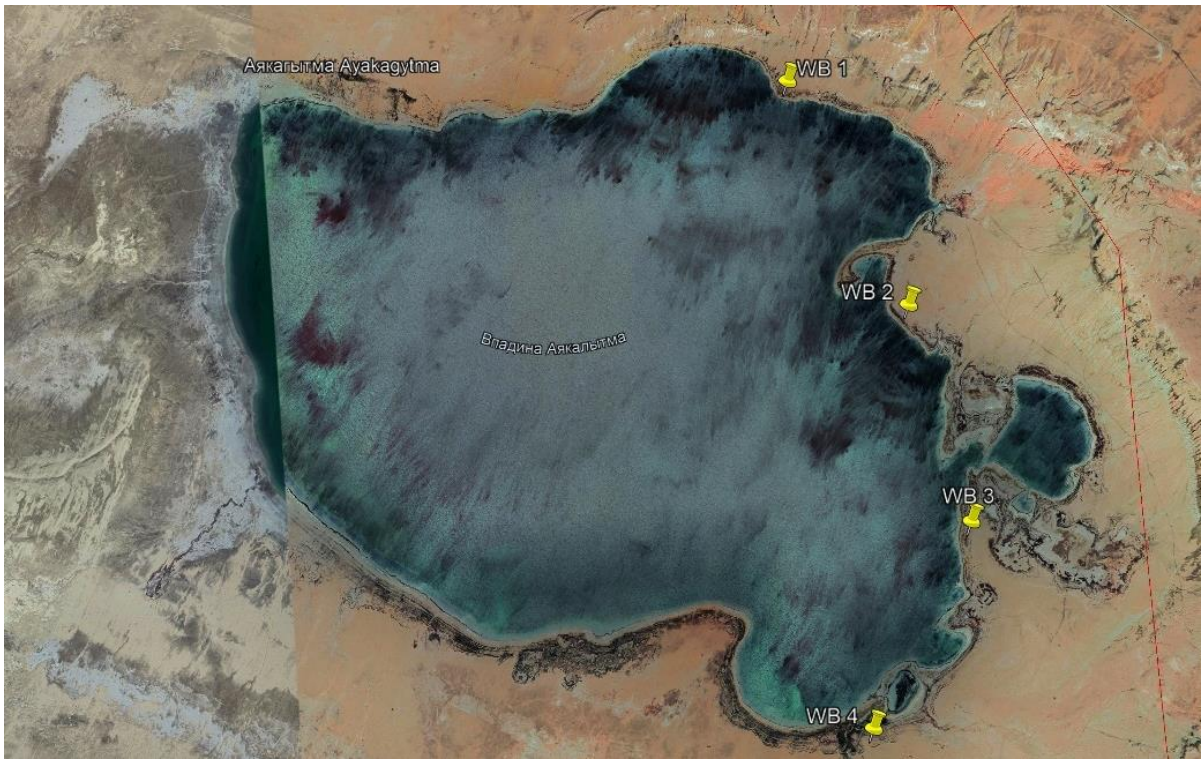


The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-97 Survey Locations of Winter 2022 at Lake Ayakagytma



2.16.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-98 Vantage points of the projected OHTL route

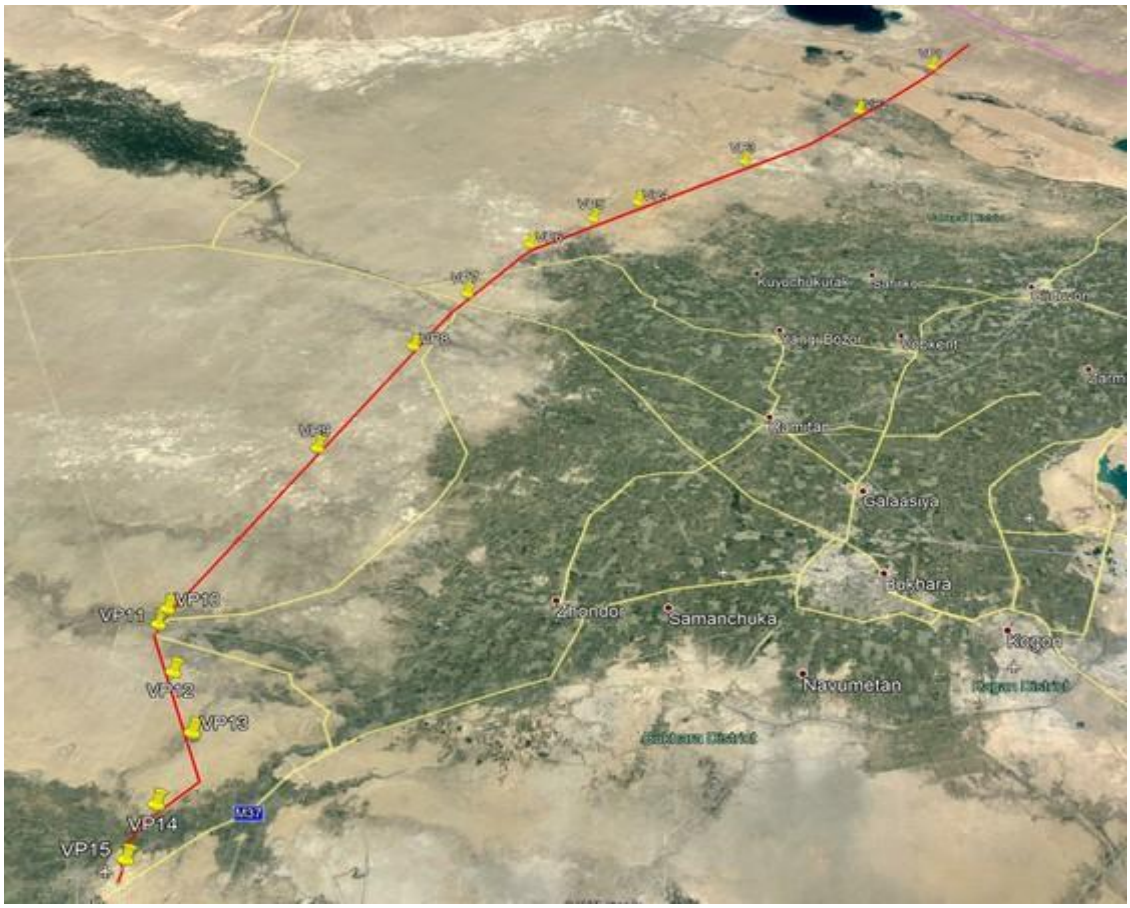


Figure 2-99 Vantage points of the projected OHTL route in June

2.16.1.2 Results

2.16.1.2.1 Bash Wind Farm

Although the Great Bustard are known to occur in the region, there were no recorded sightings of the species during the VP and winter surveys.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

In January 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to

the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

2.16.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of this species during the OHTL surveys.

2.16.2 Stakeholder Engagement

No known occurrence of the Great Bustard has been recorded by stakeholders within the project area of influence.

2.17 Asian Houbara

The Asian Houbara *Chlamydotis macqueenii* is a breeding resident in Uzbekistan. It is listed as Vulnerable, VU on the IUCN Red List.

Its preferred habitat is open, arid and sparsely vegetated steppe and semi-desert.

Major threats include habitat loss, fragmentation and disturbance; collision with powerlines; and hunting (falconry) or offtake (for falconry training).

The Houbara Bustard breeding program is being implementing in Uzbekistan by *Emirates Center for the Conservation of Houbara.* Ayakagytma lake and the project site are covered by Houbara Bustard breeding program.

The Bash WF is located in the research area of the scientific group of the University of East-Anglia UK (led by Dr. John Burnside). Their surveys indicate that the project area of Navoi Bash is important for nesting and migration of Asian Houbara [1,2].

[1] Burnside, R.J., Collar, N.J., Dolman, P.M. (2017) Comparative migration strategies of wild and captive-bred Asian Houbara Chlamydotis macqueenii. Ibis 159,374–389. doi: 10.1111/ibi.12462
[2] Burnside, Buchan, C., Salliss, D., Collar, N.J., Dolman, P.M. (2020) Releases of Asian houbara must respect genetic and geographic origin to preserve inherited migration behaviour: evidence from a translocation experiment. Royal Society Open Science, https://doi.org/10.1098/rsos.200250

2.17.1 Baseline Survey

2.17.1.1 Methods

2.17.1.1.1 Bash Wind Farm

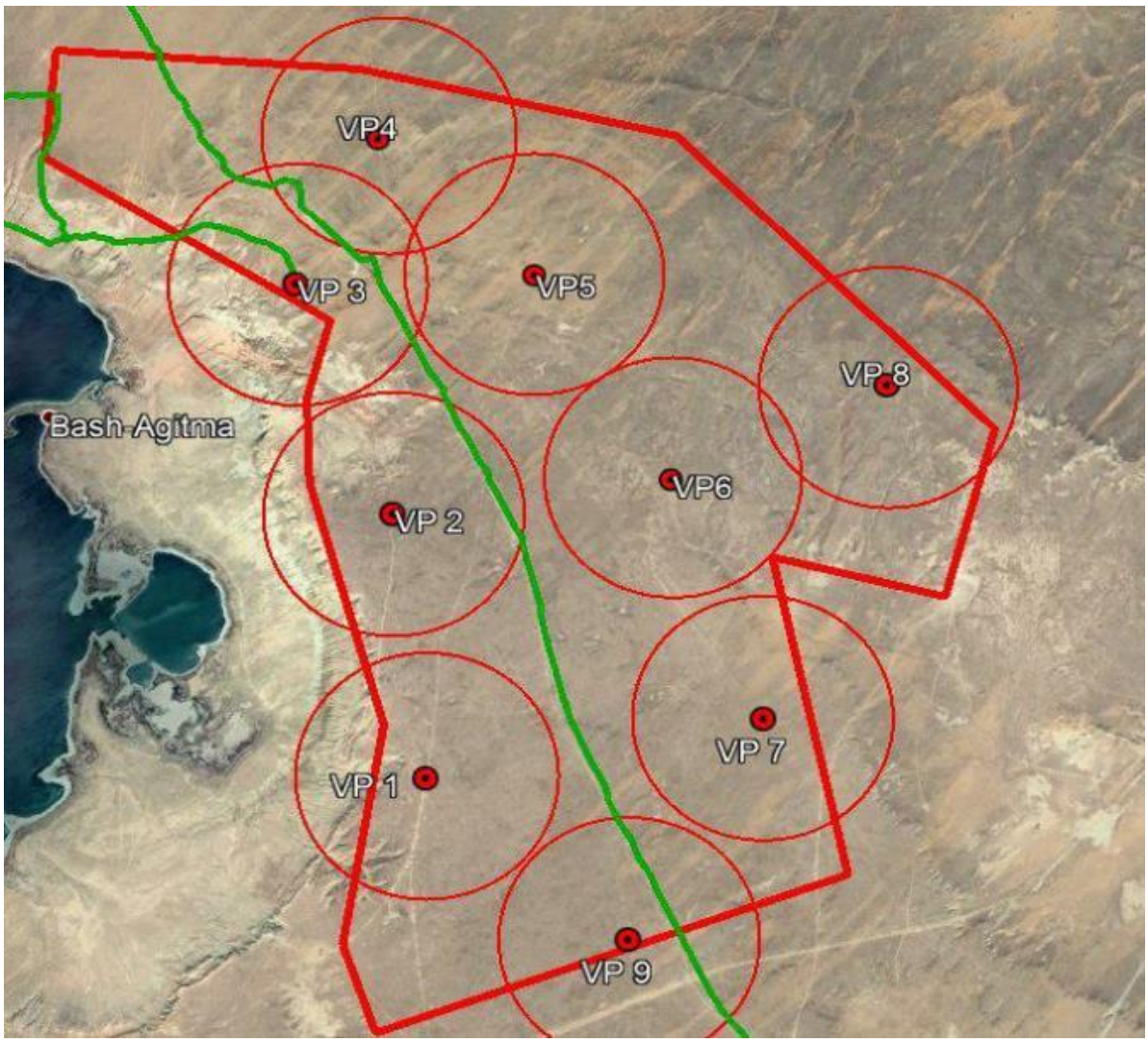
The Bash WF site was comprehensively surveyed for the Asian houbara over three seasons in 2020 (Spring, Summer and Autumn) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-100 Vantage Points locations (green line – railway road)

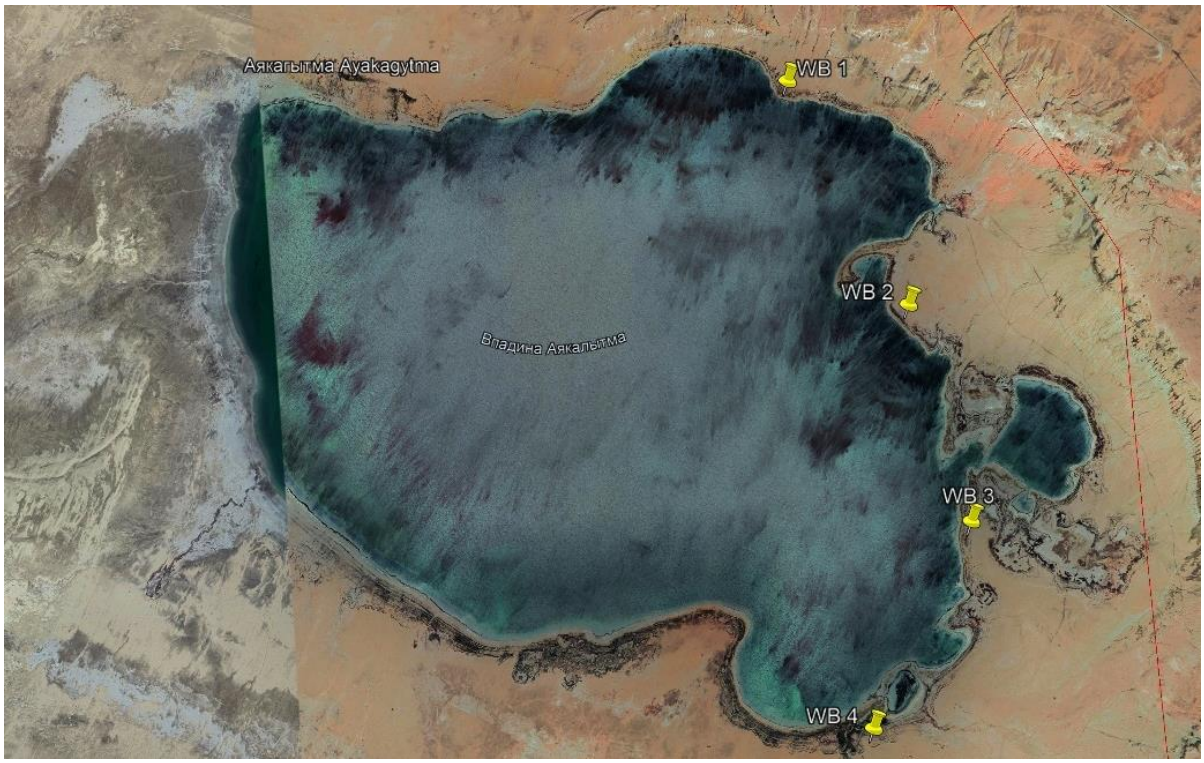


In January 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-101 Survey Locations of Winter 2022 at Lake Ayakagytma

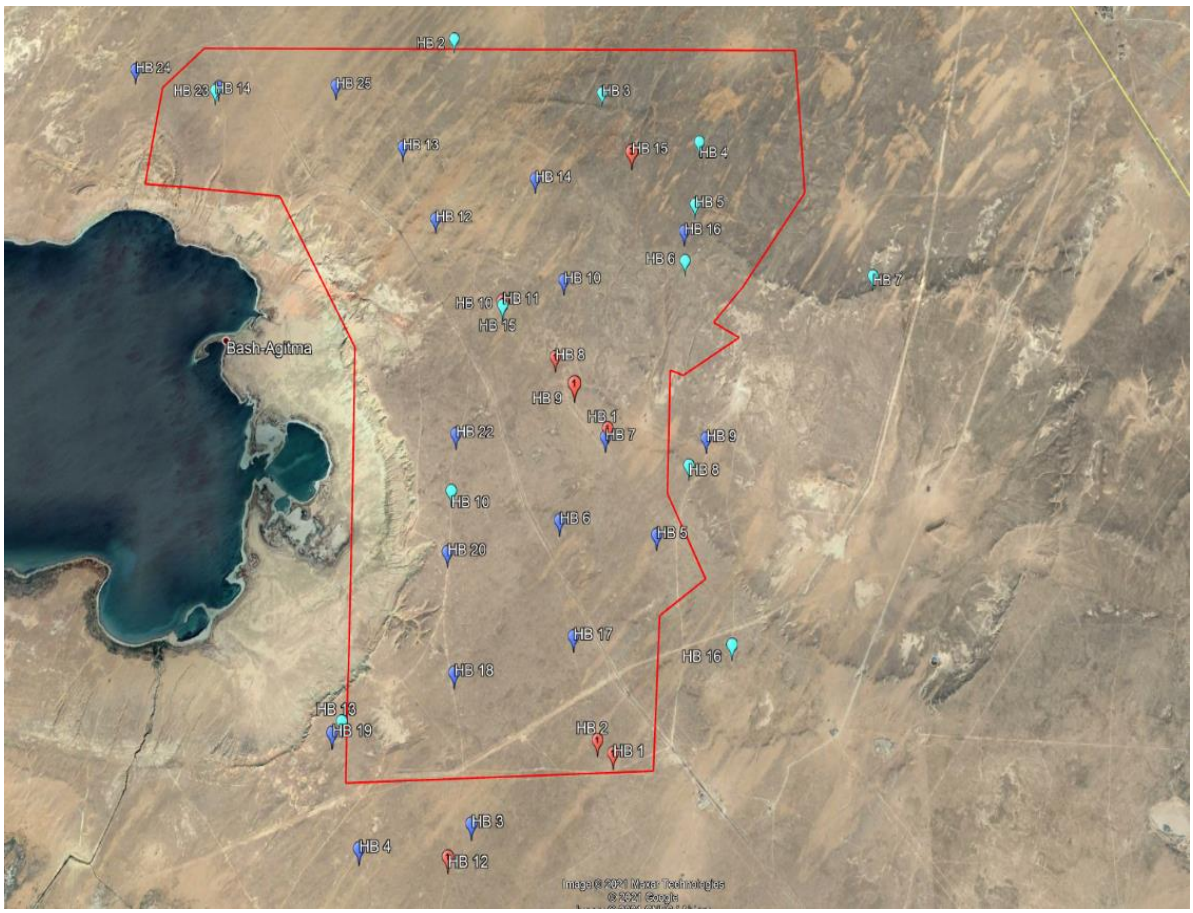


During spring 2021 specialized Asian Houbara surveys were undertaken during the peak Houbara mating season, which is one of the only times that Houbara can readily be viewed, due to the specie's intensively secretive and shy nature.

During the breeding season (March–May) displaying males (and also floating males) are conspicuous and can be apparent from long distances. This provides an opportunity for male population assessment with a relatively high degree of accuracy (Mullarney, 2016a)

Surveys were conducted on 19-22 April and 27-29 May 2021 during morning and evening hours from 6-10AM and 16-20 PM. The Houbara were surveyed from 15 points in April and 24 points in May with a minimum distance of 2-2.5km between each other from locations of high relief.

Figure 2-102 Asian Houbara survey point during the spring 2021



2.17.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-103 Vantage points of the projected OHTL route

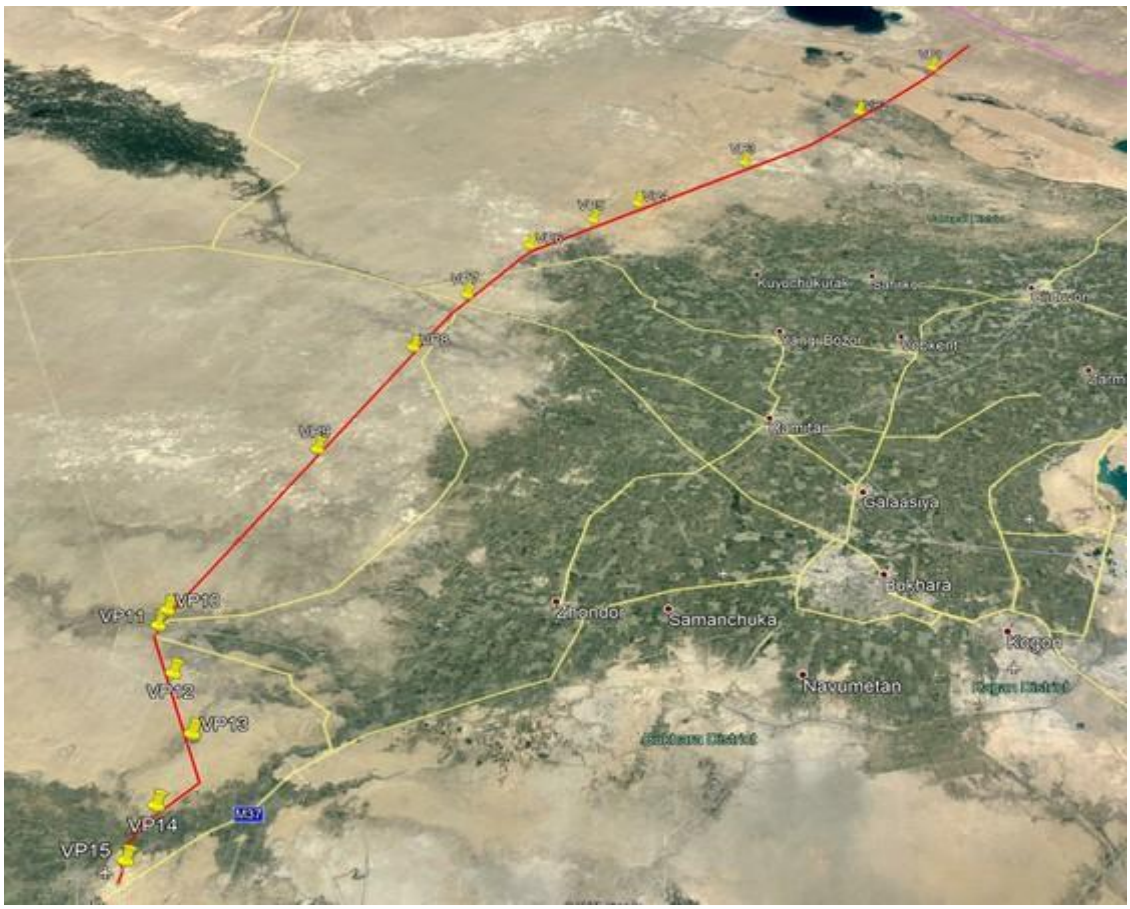


Figure 2-104 Vantage points of the projected OHTL route in June

2.17.1.2 Results

2.17.1.2.1 Bash Wind Farm

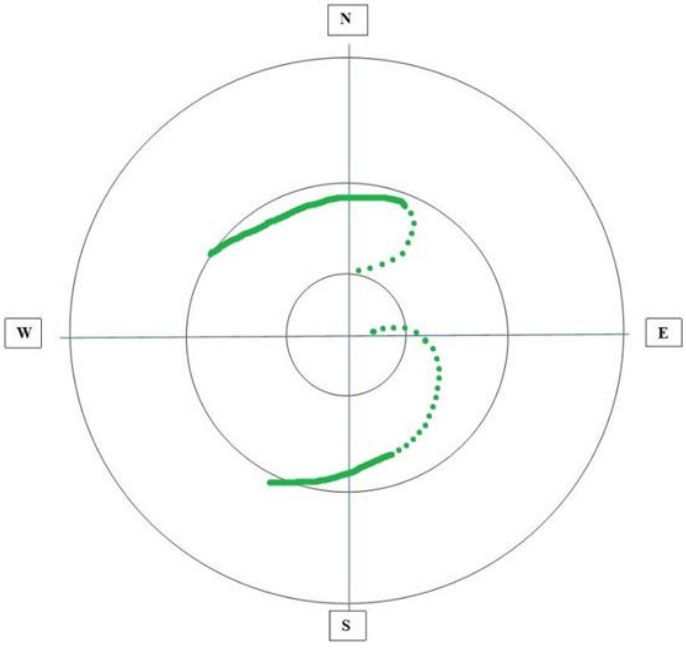
Survey efforts around the lake recorded two individuals in the spring and one in the summer. Their flight paths are illustrated below. During the spring survey, one observation was made at both VP 6 and at VP 8.

Two individuals were recorded during the Winter 2022 VP survey in March at VP 2

Figure 2-105 Location of Houbara Bustard recorded during the spring survey

Figure 2-106 Location of Houbara Bustard recorded outside the Bash Wind Farm site (Summer)

Figure 2-107 Flight Paths of Houbara Bustard recorded during the spring survey



Chlamydotis macqueenii

Running on the ground

Flight

Figure 2-108 Houbara Bustard observed outside the Bash project site during the summer survey

Figure 2-109 Flight path of the Asian Houbara recorded during the summer survey

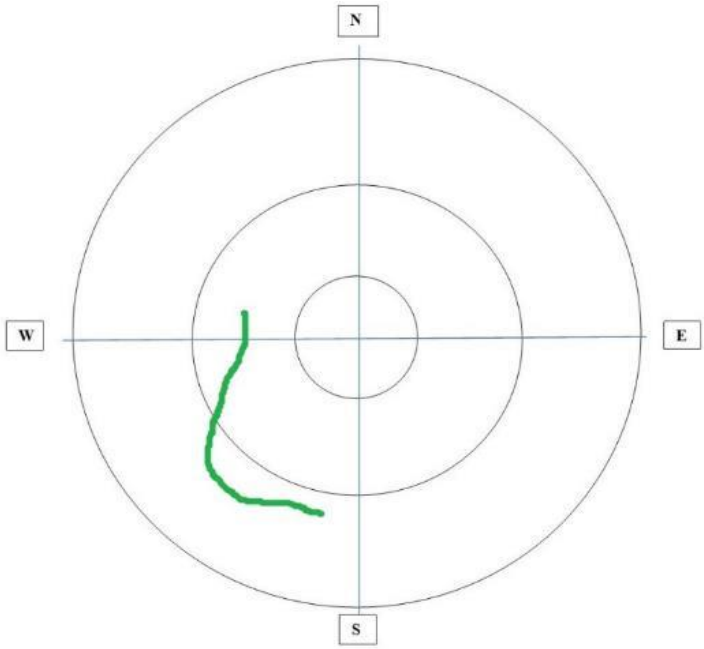
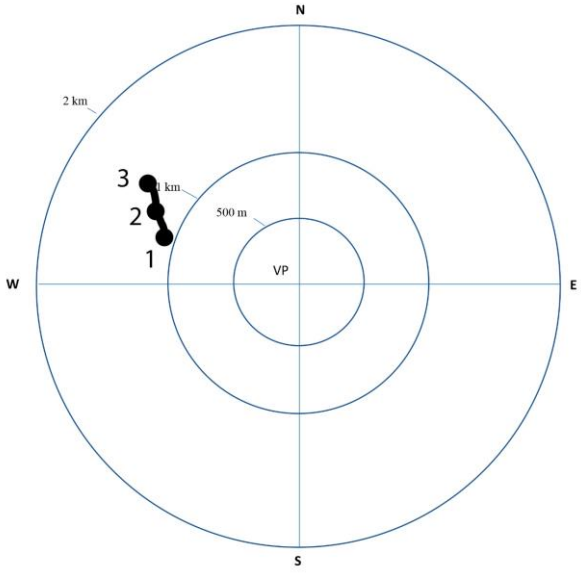


Figure 2-110 Flight path of the Asian Houbara recorded during the winter survey



Three males were observed during the houbara surveys in April 2021 at sites HN 1, 9 and 12. Seven individuals were observed including two females and their chicks.

Density of this species, according to data of M. Koshkin[3], on *Artemisia* habitat found through the Bash site is 0.090 (0.081-0.1) birds (males)/km^2 (95% CI).

Authors of the baseline reports have extrapolated this value to the study area, The total area of this type of desert on Bash site is 264 km^2, so extrapolated male population in the study site is estimated to be 21-26 individuals, which when extrapolated to include females if the sex ratio was 1:1 would estimate a total population of 42-52 breeding individuals [4].

The density of detected males according to the April survey is 0.022 males/km^2 (2 adult males on 15 points) at least in 4 times less than expected. And density of all birds in May 2021 is 0.027 birds/km^2 (4 adult bird on 24 points) which is 5 times less than expected. However, it should be noted that population densities calculated from the data of large-scale work carried out by

[3] Koshkin, M.A., Burnside, R.J., Collar, N.J., Guilherme, J.L., Showler, D.A., Dolman, P.M. (2016a) Effects of habitat and land use on breeding season density of male Asian Houbara Chlamydotis macqueenii. Journal of Ornithology 157, 811–823. doi: 10.1007/s10336-015-1320-4

[4] Combreau, O., Qiao, J., Lawrence, M., Gao, X. J. Yao, J., Yang, W. and Launay, F. (2002) Breeding success in a Houbara Bustard Chlamydotis [undulata] macqueenii population on the eastern fringe of the Jungar Basin, People's Republic of China. Ibis 144: E45–E56.

University of East Anglia specialists for 10 years is more robust than calculations of population density based on surveys of the one season.

During the data analysis it was found that records of Asian Houbara in Bash were located in sandy desert plain, except for the area with thick saxaul forest (yellow habitat, Figure 2-111. Also, during the survey in May, the sandy loamy desert plain (especially in north western part of Bash site) covered with more thick low bushes of sagebrush (beige color habitat, Figure 2-112 was identified to have food resources preferred by the Houbaras. Based on this assumption, this site is likely to be attractive for Asian Houbara's broods during the summertime.

Figure 2-113 Bash WF habitats and distribution of Houbara counts in April-May 2021

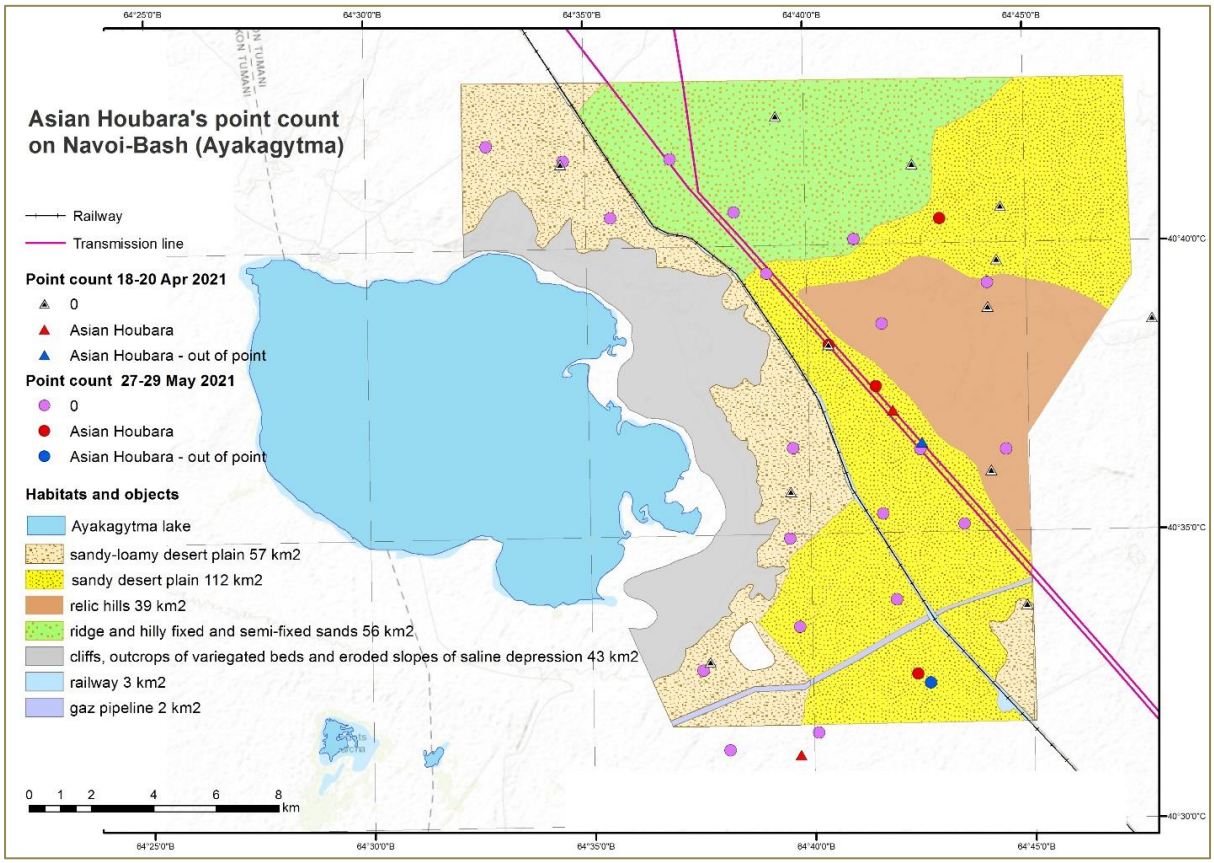
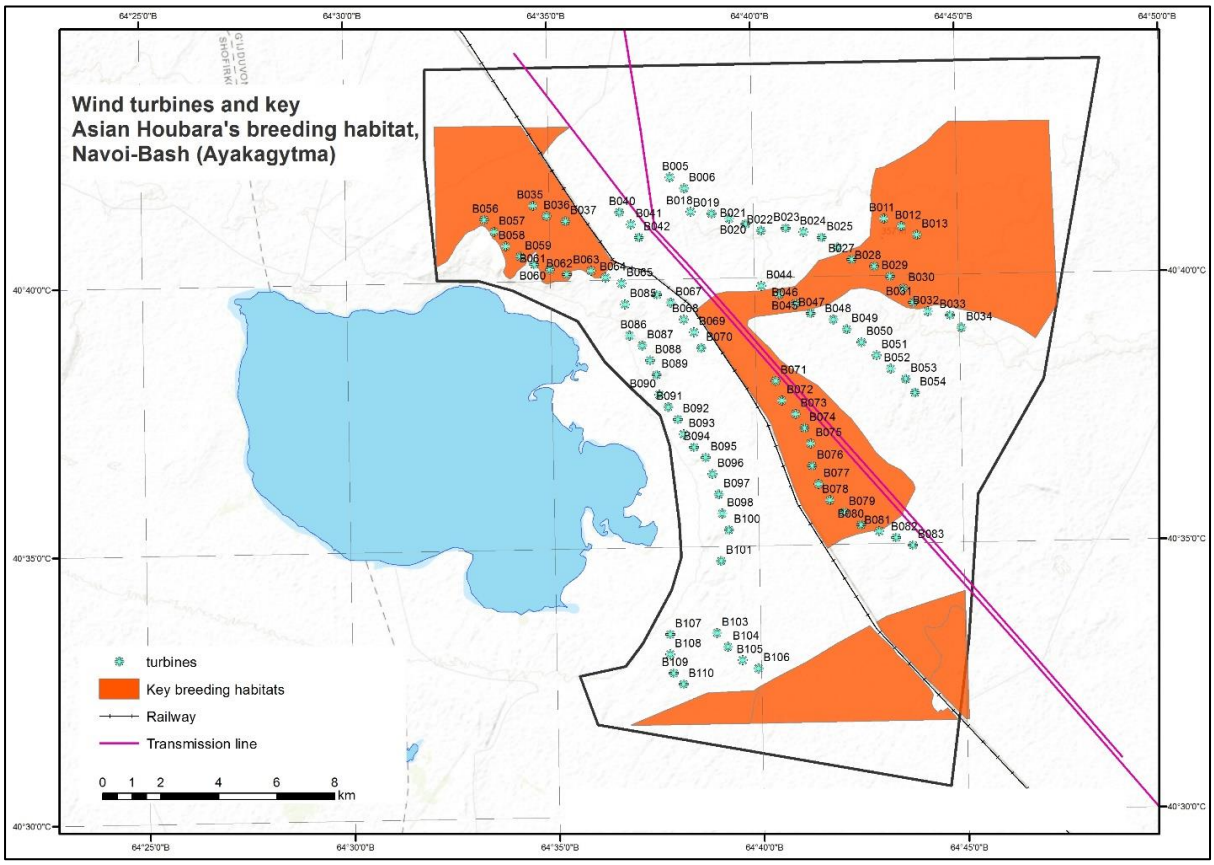


Figure 2-114 Planned locations of wind turbines that overlap with key habitat for the Asian Houbara in the Bash Wind Farm Area



2.17.1.2.2 Bash-Karakul OHTL

There was one sighting of the Asian Houbara along the planned OHTL, outside the VP near the Ayakagytma Lake.

2.17.2 Stakeholder Engagement

As part of the CHA Stage 2 process, requests for information related to identified biodiversity aspects of concern were distributed to known experts in the field.

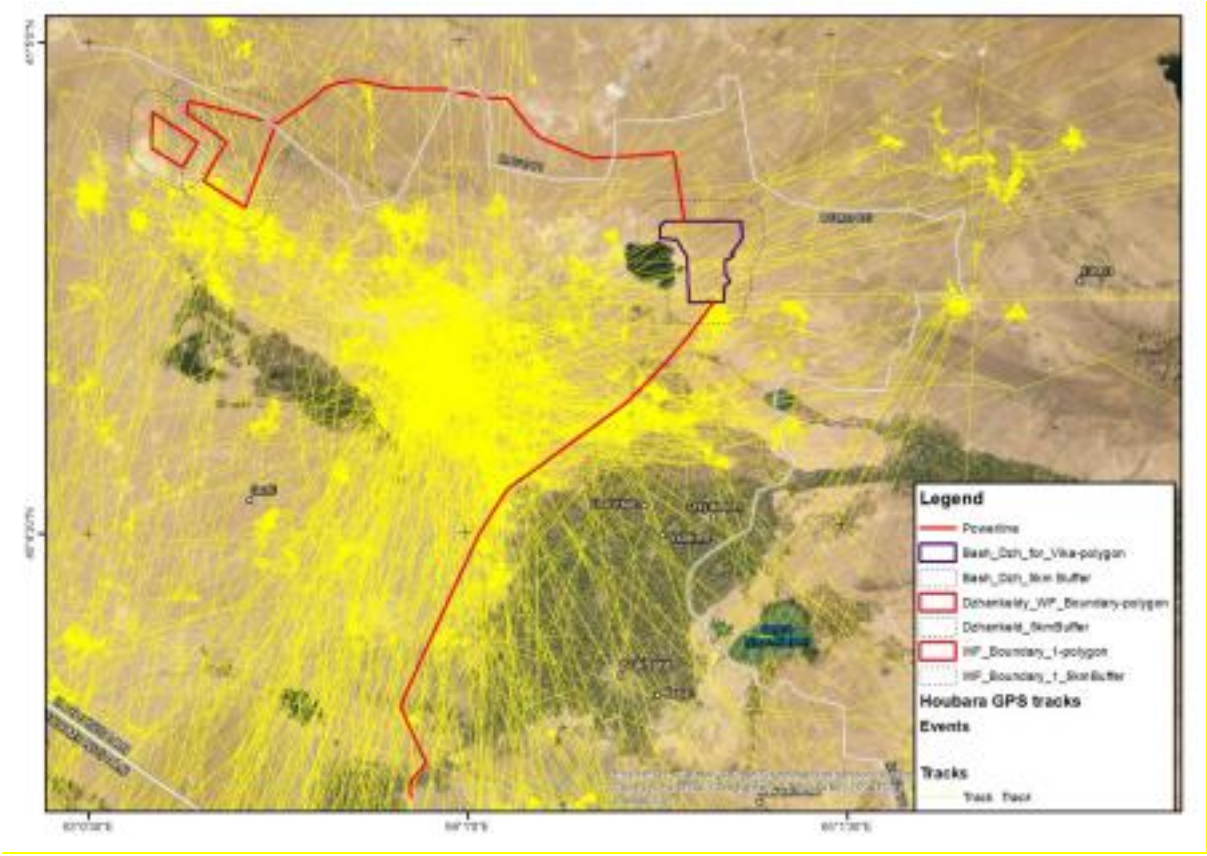
Maxim Koskin, an expert ornithologist and former survey member with the Houbara Bustard Breeding Program was consulted during the stakeholder engagement exercises for more information on the conservation concerns for this species. In his response to the RFI he has confirmed the presence of breeding birds within the Bash Wind Farm site.

Stakeholder consultation exchanges with Houbara Research Specialists, Dr. Robert J. Burnside and Maxim Koshkin confirmed the use of the project site and OHTL by both breeding and non-breeding Asian Houbara using GPS tracking data. The project site comprises of *Artemisa*

habitat. Recent estimates of Houbara densities in this habitat type is 0.36 birds per km^2. (Robert J. Burnside., per comms)

The following figure provides the tracking data obtained from 48 wild Asian Houbara tracked between 2011-2021 indicating that the that the birds breeding in Bukhara move extensively throughout the region and many of the tracks cross over the project footprint. Several of the tracked birds were observed to spend the post-breeding period in and around the Bash site. Houbara tend to be very faithful to their breeding sites each year, but often move to different areas in the summer. While this data is biased to birds breeding near Gazli, Dzhangeldy and Shuruk, it shows that houbara move around the Bukhara region and those breeding in areas other than BASH also use it in the non-breeding period.

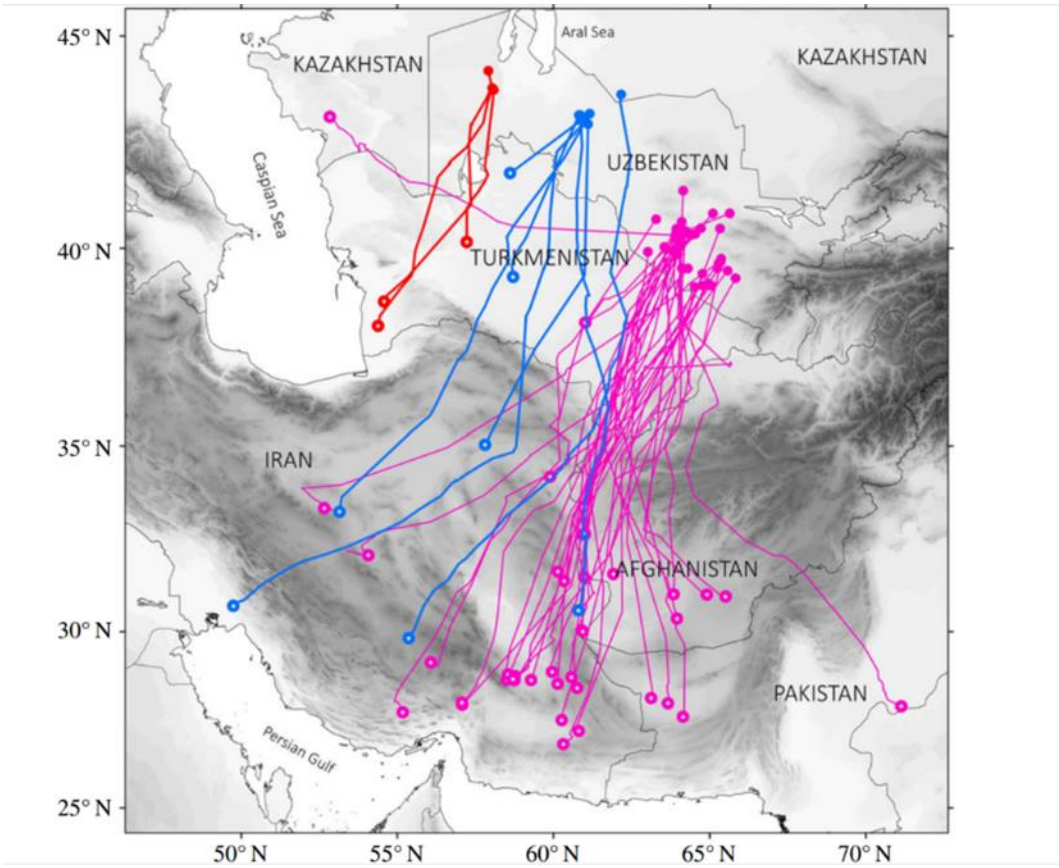
Figure 2-115 Satellite tracking data of tagged Asian Houbara



Authors of the baseline study have also pr ovided migration routes of satellite tracked individuals released and studied by the Emirates Centre for the Conservation of Houbara

Figure 2-116and Figure 2-117) and literature which indicate passage through Central Uzbekistan and the Bash WF project site [5] [6].

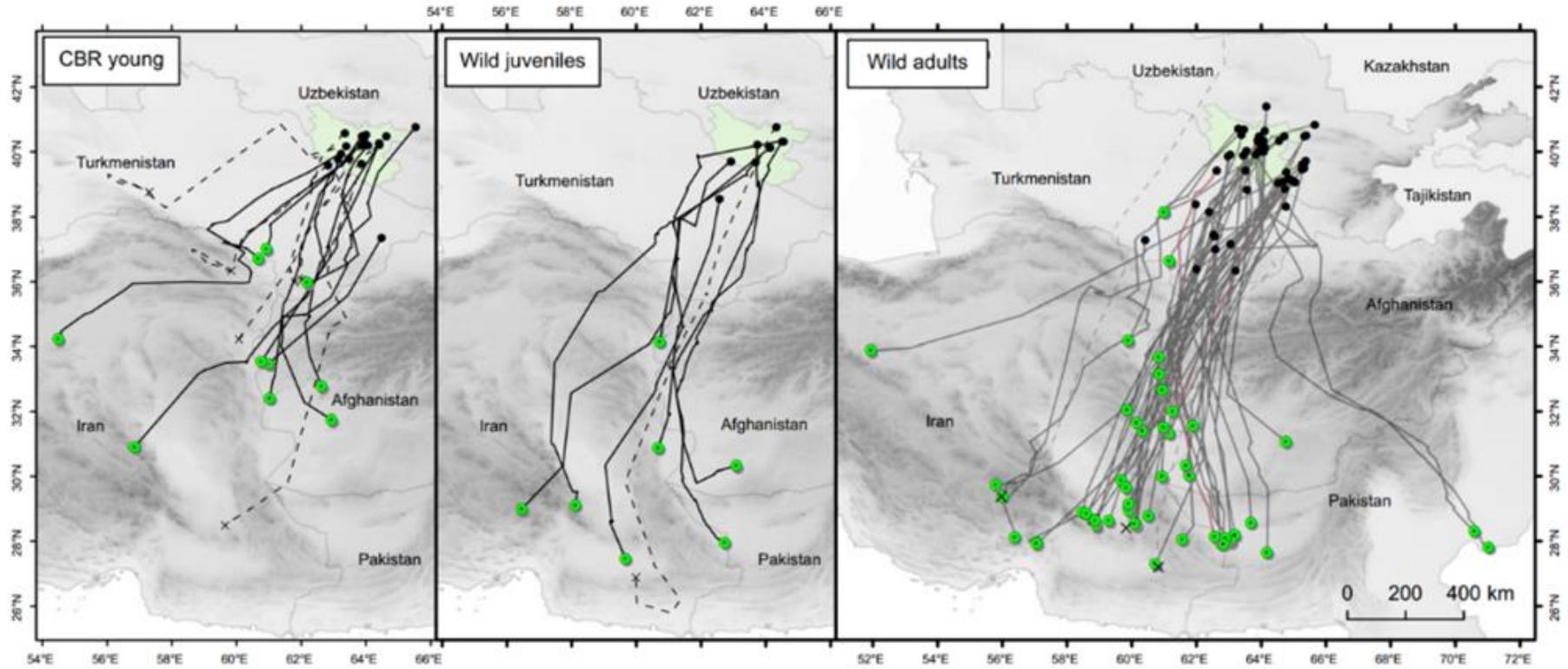
Figure 2-116 Migration routes used by wild Asian houbara adults from three different breeding populations in Uzbekistan



[5] Comparative migration strategies of wild and captive-bred Asian Houbara Chlamydotis macqueenii, ROBERT J. BURNSIDE, NIGEL J. COLLAR & PAUL M. DOLMAN, © The Authors.Ibis published by John Wiley & Sons Ltd on behalf of British Ornithologists' Union, 2017

[6] Releases of Asian houbara must respect genetic and geographic origin to preserve inherited migration behaviour: evidence from a translocation experiment, Robert J. Burnside, Claire Buchan, Daniel Salliss, Nigel J. Collar and Paul M. Dolman, © 2020 The Authors. Published by the Royal Society under the terms of the Creative Commons Attribution License, 2020

Figure 2-117 Autumn migration movements of Asian Houbara



The OHTL baseline survey provides an account of the historical data of a Houbara Bustard death caused by power lines. The passage below is an excerpt from the survey.

"In the central part of the Kyzylkum desert in September 2007, a Golden eagle, Steppe eagle, Griffon vulture and Houbara bustard were found dead under the OHTL connected to the Navoi Mining and Metallurgical Plant (Kashkarov, 2007; IBA project newsletter in Uzbekistan, 2007). "

2.18 European Turtle Dove

The European Turtle Dove (*Streptopelia turtur*) is a breeding resident in Uzbekistan. It is a Vulnerable (VU) species on the IUCN red list.

The species uses a variety of woodland types, as well as steppe and semi-desert and frequents agricultural land for feeding. It may use hedges, borders of forest, groves, spinneys, coppices, young tree plantations, scrubby wasteland, woody marshes, scrub and garigue.

Breeding commences in April and can last until September. The nest is a small platform of twigs lined with plant material and placed in the lowest parts of trees (Tucker and Heath 1994) and in shrubs and hedges.

Main threats include habitat loss, loss of resources due to agricultural practices (chemical herbicides), illegal hunting, parasite infections, and competition with generalist species with expanding populations such as Eurasian Collared Dove and Common Myna.

2.18.1 Baseline Survey

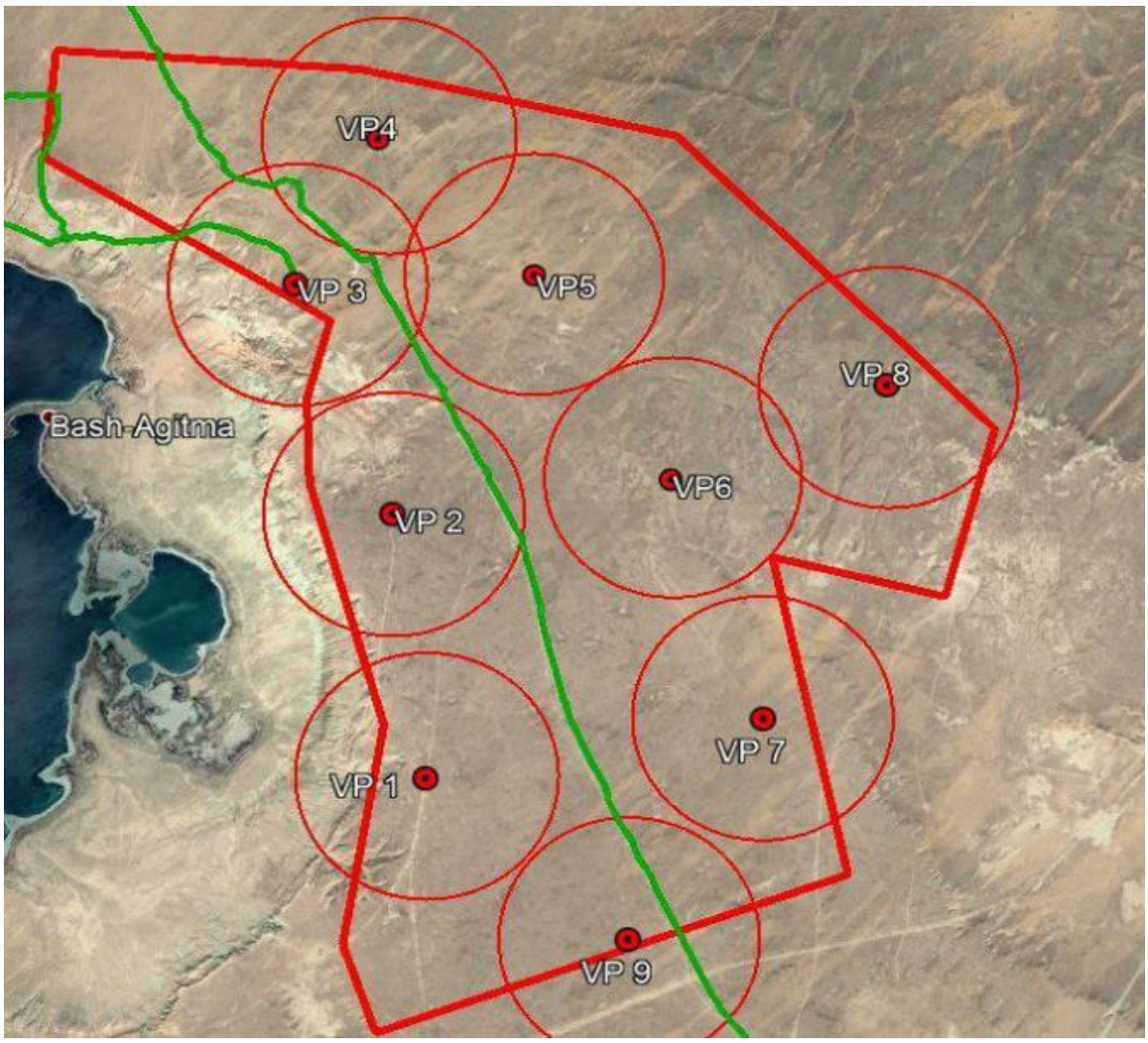
2.18.1.1 Methods

2.18.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-118 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

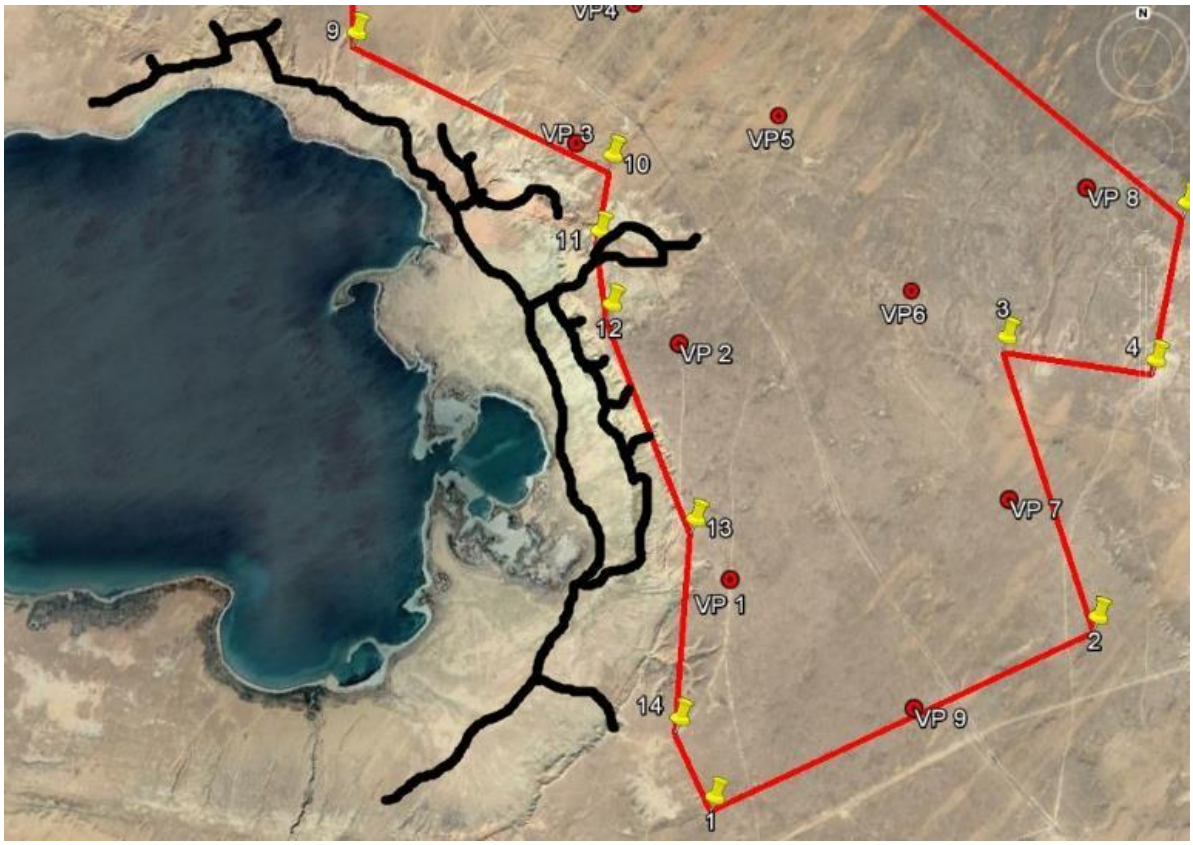
Nest-searching surveys were undertaken in loess cliffs near the project site during the known breeding seasons, with the aim to identify any breeding behaviour taking place within the Wind Farm and Area of Influence.

The cliffs that border the Lake Ayakagytma basin, lie west of the WF area, extending from its northern to the southern limits. The cliff are about 25-40 meters high and have many indentions that provide a lot of cavities, cracks, and gouges, that make ideal nesting habitats.

Figure 2-119Cliffs bordering the Lake Ayakagytma

Figure 2-120 Nest survey route of spring 2020

Figure 2-121 Nest survey route of spring 2020

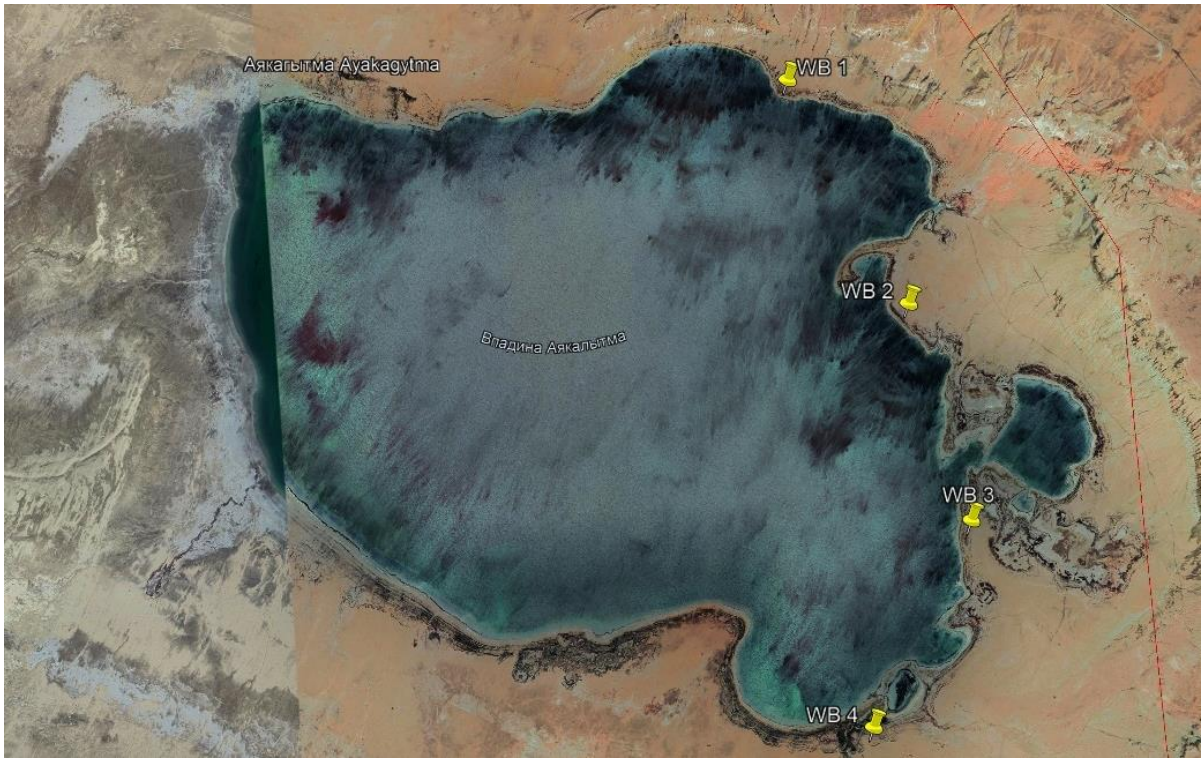


On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-122 Survey Locations of Winter 2022 at Lake Ayakagytma



2.18.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-123 Vantage points of the projected OHTL route

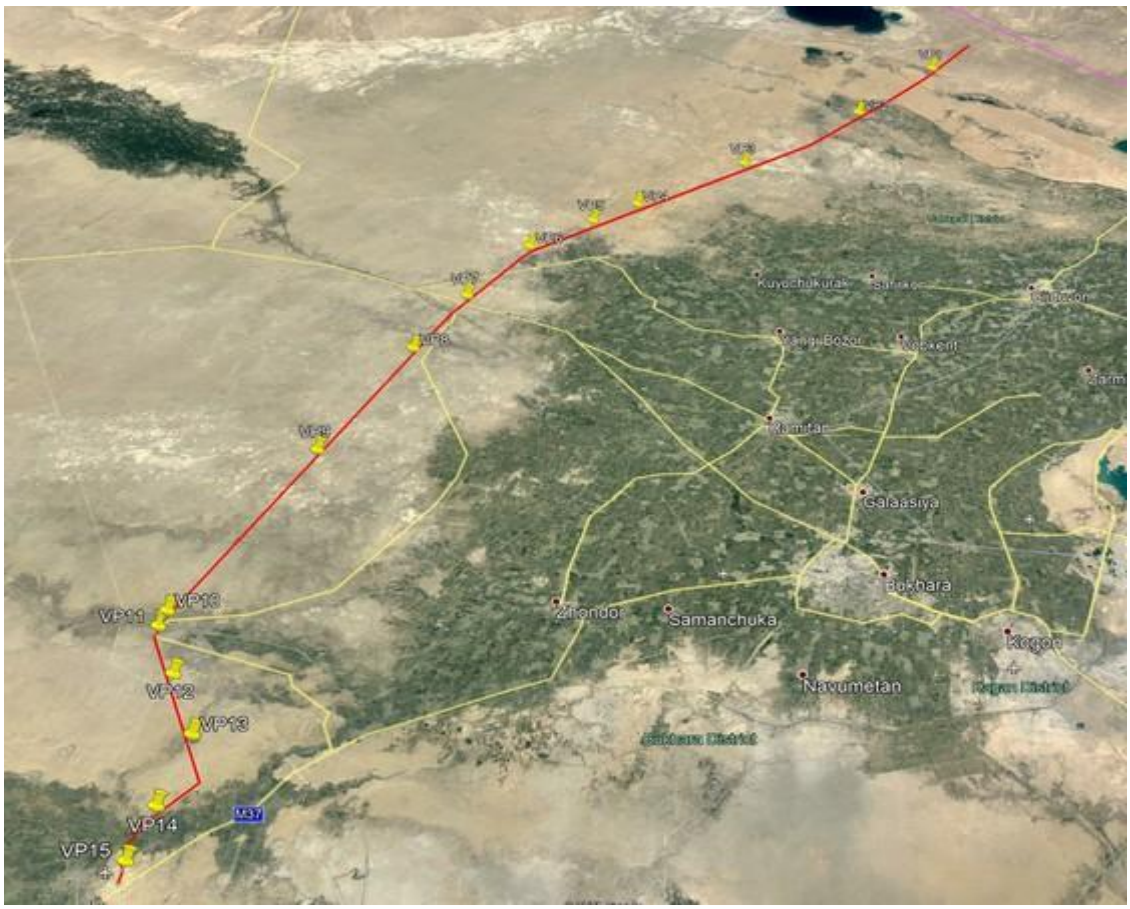


Figure 2-124 Vantage points of the projected OHTL route in June

2.18.1.2 Results

2.18.1.2.1 Bash Wind Farm

Although the European Turtle Dove are known to occur in the region, there were no recorded sightings of the species during the VP and winter surveys.

2.18.1.2.2 Bash-Karakul OHTL

There were no sightings of the European Turtle Dove during the OHTL survey.

2.18.2 Stakeholder Engagement

No known occurrence of the European Turtle Dove has been recorded by stakeholders within the project area of influence.

2.19 Yellow-eyed Pigeon

The Yellow-eyed Pigeon (*Columba eversmanni*) is a breeding resident in Uzbekistan. t is a Vulnerable (VU) species on the IUCN red list.

It breeds in holes in trees, buildings, cliffs, earth banks, and potentially on power lines in semi-arid and desert areas, including around human settlement and in woodland. In winter, it occurs in open areas with scattered trees, often with agricultural crops, and in areas with suitable fruiting trees, where it roosts and feeds gregariously.

Hunting in both its breeding and wintering grounds has been the primary cause of its decline and continues to be a major threat; loss of suitable woodland habitat is also a contributing factor.

2.19.1 Baseline Survey

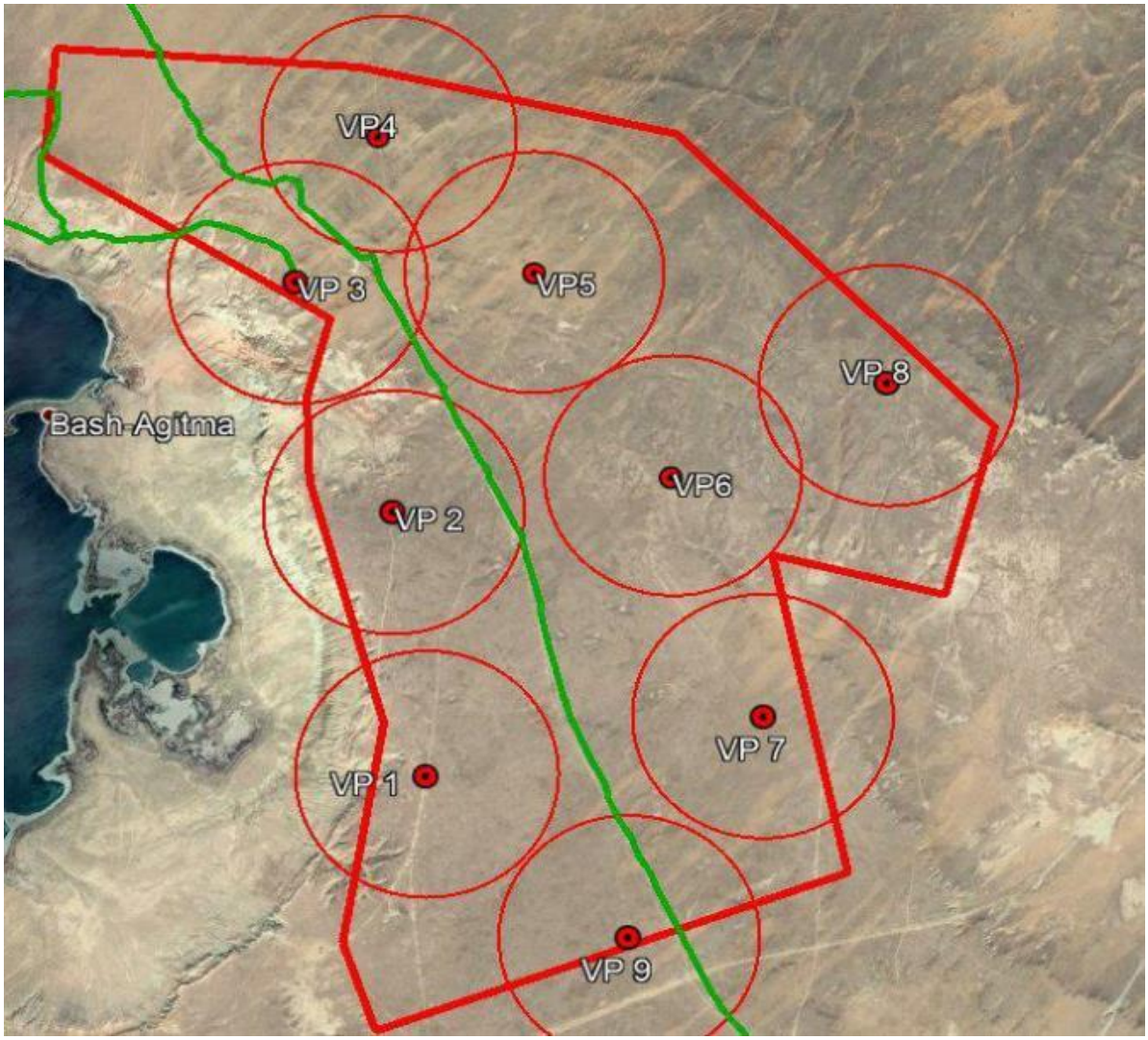
2.19.1.1 Methods

2.19.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

Figure 2-125 Vantage Points locations (green line – railway road)



The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

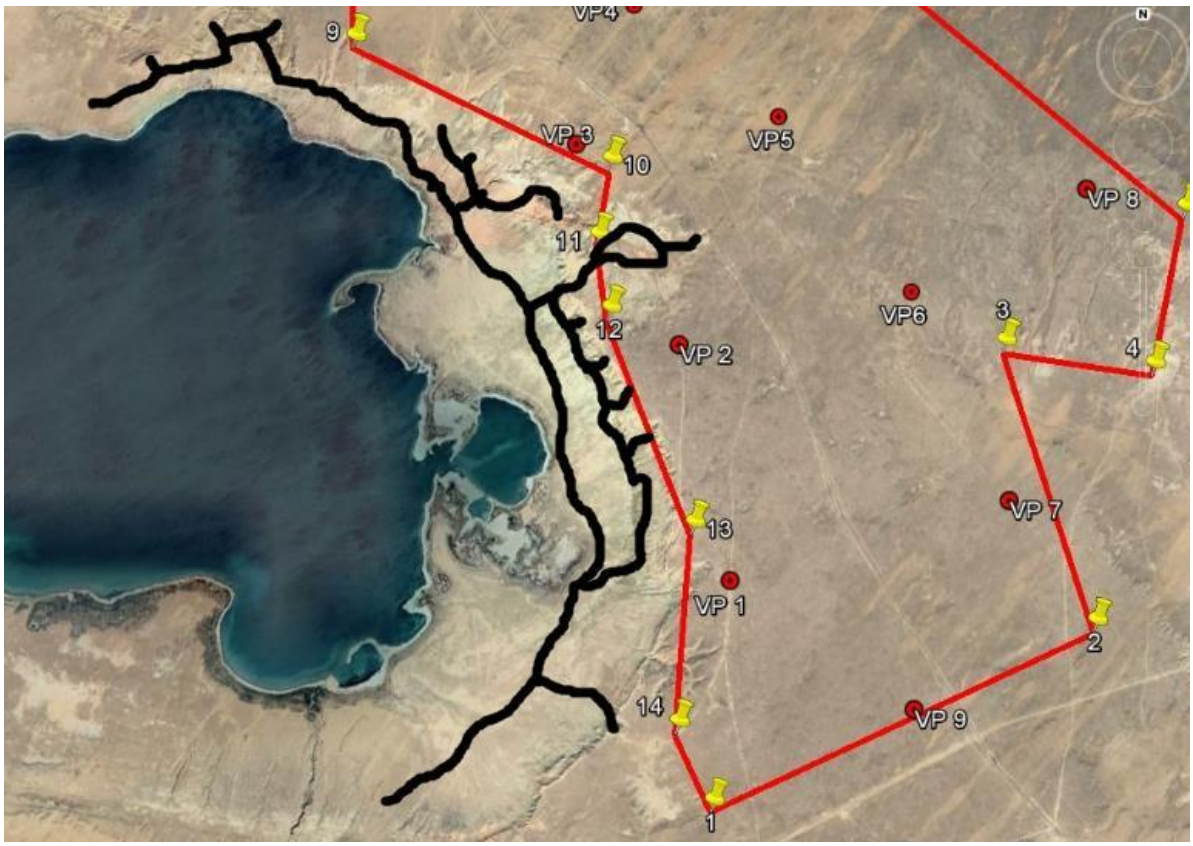
The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

Figure 2-126 Cliffs bordering the Lake Ayakagytma

Figure 2-127 Nest survey route of spring 2020

Figure 2-128 Nest survey route of summer 2020



2.19.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-129 Vantage points of the projected OHTL route

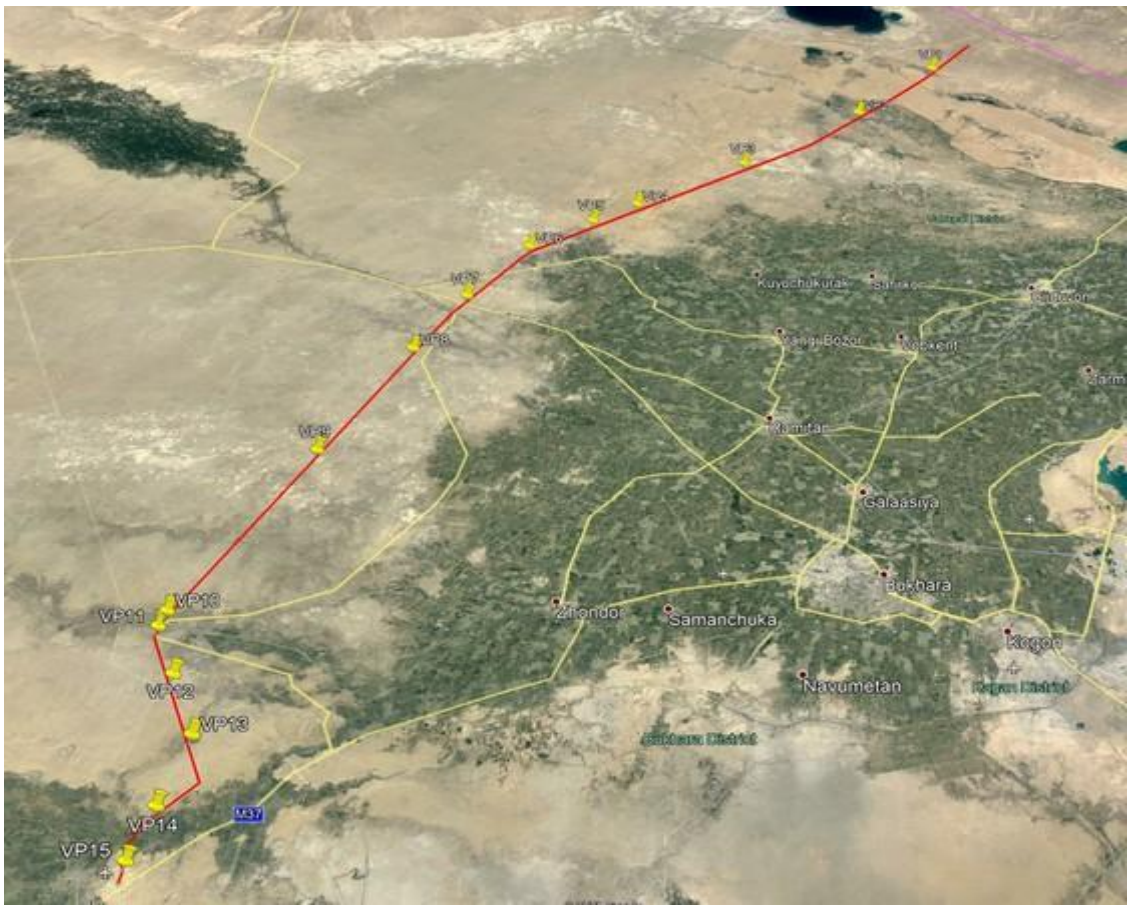


Figure 2-130 Vantage points of the projected OHTL route in June

2.19.1.2 Results

2.19.1.2.1 Bash Wind Farm

Although the Yellow-eyed Pigeon are known to occur in the region, there were no recorded sightings of the species during the VP and winter surveys.

2.19.1.2.2 Bash-Karakul OHTL

There were no sightings of the Yellow-eyed pigeon during the OHTL survey.

2.19.2 Stakeholder Engagement

No known occurrence of the Yellow-eyed Pigeon has been recorded by stakeholders within the project area of influence.

2.20 Bokhara Whiskered Bat

The Bokhara Whiskered Bat *Myotis bucharensis* is listed as Critically Endangered (CR) in the Uzbekistan Red Data Book and thought to be potentially extinct. It is listed as Data Deficient (DD) on the IUCN Red List.

2.20.1 Baseline Survey

2.20.1.1 Methods

2.20.1.1.1 Bash Wind Farm

Bat surveys were undertaken via the deployment of static acoustic detectors (Wildlife Acoustics Song Meter SM4) as well as manual roost searches. The schedule of surveys conducted are as follows:

- 2020 Summer/Autumn: Static Acoustic Detector Survey
- 2021 Spring/Summer: Static Acoustic Detector Survey
- 2021 Spring/Summer (breeding season): Manual Roost Search

Given the lack of bat activity expected within the region during the winter months, bat acoustic surveys are restricted to the 7-month warm period of the year, extending from the beginning of April through the end of October.

During the 2020 acoustic survey data was collected from three locations in the summer and at five locations in the Autumn.

In 2021, the detectors were deployed at seven locations. At two locations the detectors were installed on meteorological masts at a height of 45m.

Data collected at a height was better suited to assess the bat activity during feeding and migrations. At other locations the detectors were deployed at ground level or on buildings/sheds

.

Figure 2-131 Locations of static bat detectors deployed in 2020

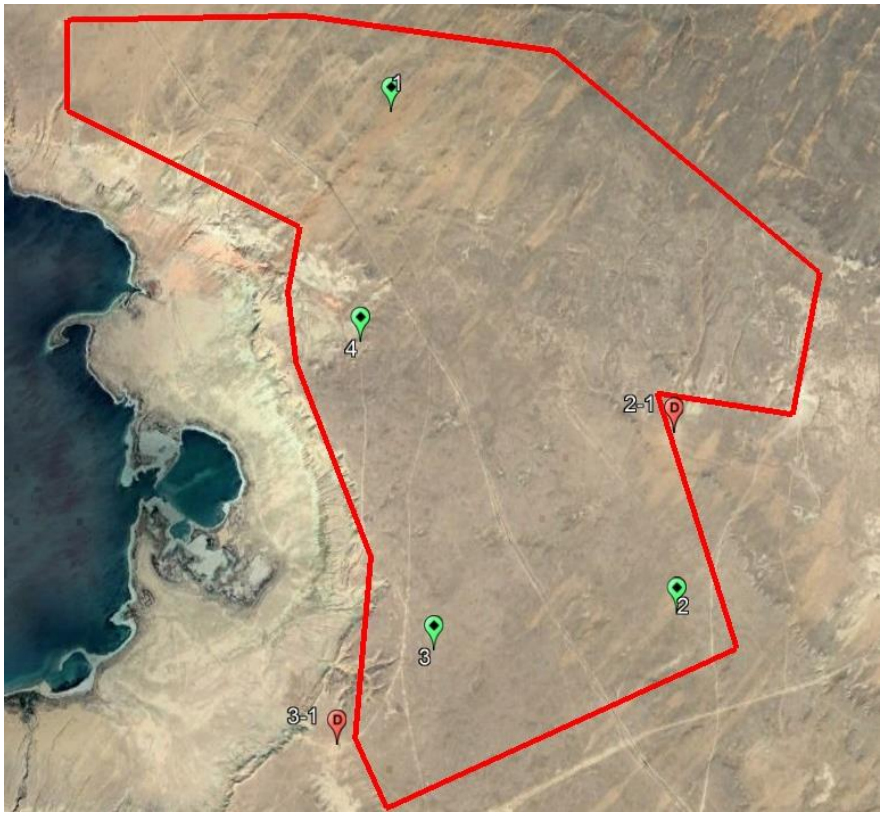
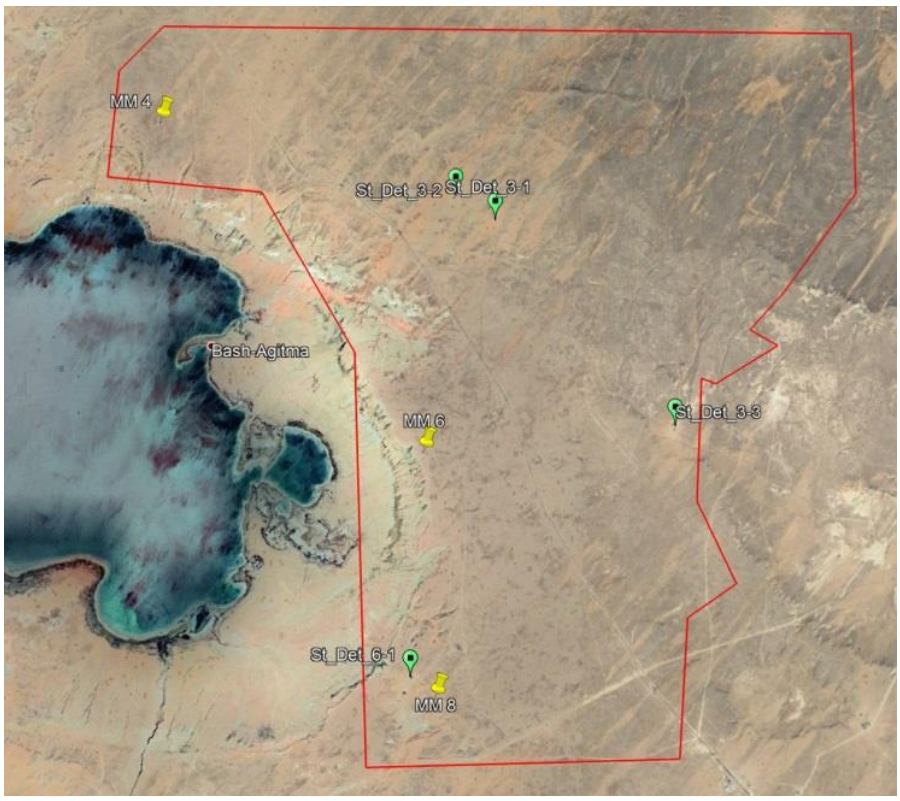


Figure 2-132 Locations of static bat detectors deployed in 2021



The Kaleidoscope Pro Auto Analysis program with predetermined parameters of ultrasonic calls belonging European bats found in Uzbekistan were used for the primary processing of audio recordings. The BatSound 4 program was then employed to measure the call parameters and cross check the identification of bat calls made by the Kaleidoscope Pro Auto Analysis program.

Bat call parameters known for European bat populations [7] and bat species from neighboring countries for Uzbekistan [8] were used for identification and analysis. Bat calls were identified to species level where possible.

[7] Barataud, M., Acoustic Ecology of European Bats. Species Identification, Study of Their Habitats and Foraging Behavior, Paris: Biotope, Meze; Museum National d'Histoire Naturelle, 2015.

[8] Benda P., Faizolâhi K, Andreas M., Obuch J., Reiter A., Ševčík M., Uhrin M., Vallo P., Ashrafi S. Bats (Mammalia: Chiroptera) of the Eastern Mediterranean and Middle East. Part 10. Bat fauna of Iran. Acta Soc. Zool. Bohem. 2012. 76: 163–582.

Relative abundance, Frequency of occurrence and acoustic activity index were calculated for a quantitative assessment of bat populations in the area. Relative abundance is the relative number of locations where calls of some species were registered. The frequency of occurrence is the frequency at which calls of some species are recorded among all types of calls (excluding noise, social calls and unidentified calls). Acoustic activity index (AI) is the average number of calls registered on one location for one day of monitoring.

The possible location of bat roosts, which would be used for residential bats, maternity colonies, hibernating, and mating, is of importance to understand. Specialized bat roost searches were undertaken within the project boundaries and area of influence during Spring 2021 and Summer 2021.

The manual roost survey included a desktop analysis of potential bat roost locations in the project area. Each location was then thoroughly examined, both for the presence of bats themselves, and for signs of their presence – excrement, food remains, *etc*. Concrete drainage tunnels under roads were also identified as common bat roosting locations. Drainage tunnels examined in spring were re-examined in summer.

Each surveyed location was mapped and documented. The suitability of the objects for bats as either a temporary roost or a permanent one and the potential degree of disturbance/threat was recorded.

Where necessary the height, width and length of the roost were measured. When bats were detected, the surface temperature was measured, their species, gender, age and number were determined. Species identification was carried out according to generally accepted methods (Kuzyakin, 1950; Bogdanov, 1953; Dietz, von Helversen 2004). The captured bats were examined, photographed and immediately released in the places of capture.

Figure 2-133 Steep slopes of the Ayakagytma depression ideal for bat roosts

2.20.1.1.2 Bash-Karakul OHTL

Due to the absence of ideal bat roost habitat, surveys were not conducted along the OHTL route.

2.20.1.2 Results

2.20.1.2.1 Bash Wind Farm

A total of 514 km was covered during the roost survey. 11 potential roost places were examined as well as slopes on the north-eastern side of the Ayakagytma depression.

This species was not detected by the static acoustic monitoring effort. There were no sightings recorded during the manual roost search.

2.20.1.2.2 Bash-Karakul OHTL

Due to the absence of ideal bat roost habitat, surveys were not conducted along the OHTL route.

2.20.2 Stakeholder Engagement

No known occurrence of the Bhokara Whiskered Bat has been recorded by stakeholders within the project area of influence

2.21 Striped Hyaena

The Striped Hyaena, *Hyaena hyaena* is listed as CR in the Uzbekistan Red Data Book due to the presence of a locally distributed subspecies. It is listed at Near Threatened (NT) on the IUCN red list.

Recent records show the presence is in the far south of Uzbekistan near the country's borders; however, this is a far-ranging species so the possibility that it will occur has not been discounted.

2.21.1 Baseline Survey

2.21.1.1 Methods

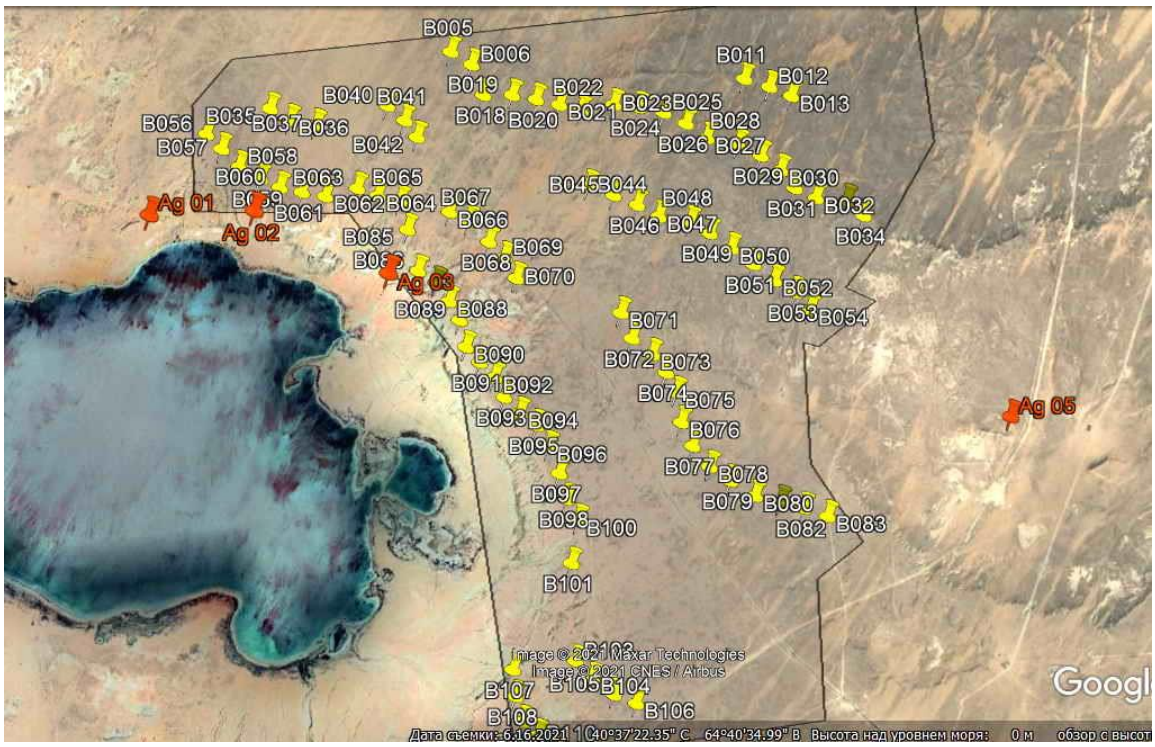
2.21.1.1.1 Bash Wind Farm

Surveying for the Bash WF site was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in area of Ayakagytma lake and adjacent territories

Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. Species number and composition were accounted for over the walking transect survey. Any signs of tracks and spoor were also recorded. Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and that of the nocturnal spotlighting transect was 22 km.

Figure 2-134 Camera trap locations (Red pins) within the Bash WF Site (yellow pin - wind turbines locations)



2.21.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.21.1.2 Results

2.21.1.2.1 Bash Wind Farm

There were no recorded sightings of the Striped Hyena during the baseline surveys.

2.21.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Striped Hyena during the OHTL surveys.

2.21.2 Stakeholder Engagement

No known occurrence of the Striped Hyaena has been recorded by stakeholders within the project area of influence

2.22Turkmen Caracal

The Turkmen Caracal (Desert Lynx), *Caracal caracal* is listed as Critically Endangered (CR) on the Uzbekistan Red List due to the presence of a locally distributed subspecies. This species in listed as Least Concern (LC) on the IUCN Red List included in Appendix I of CITES.

It has been recorded throughout a majority of Uzbekistan[9] and its presence in the project area is considered to be likely. Its diet consists primarily of Tolai Hare *Lepus tolai*, Gerbils Gerbellidae, Jerboas, Dipodidae, birds, reptiles, and insects. It is known to hunt the Goitered *Gazelle Gazella subgutturosa*, Red Fox *Vulpes vulpes*, and lambs of Domestic Sheep *Ovis aries.*

The species is threatened by habitat loss and fragmentation, poaching, retaliatory and incidental killings.

2.22.1 Baseline Survey

2.22.1.1 Methods

2.22.1.1.1 Bash Wind Farm

Surveying was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in the area of Ayakagytma lake and adjacent territories.

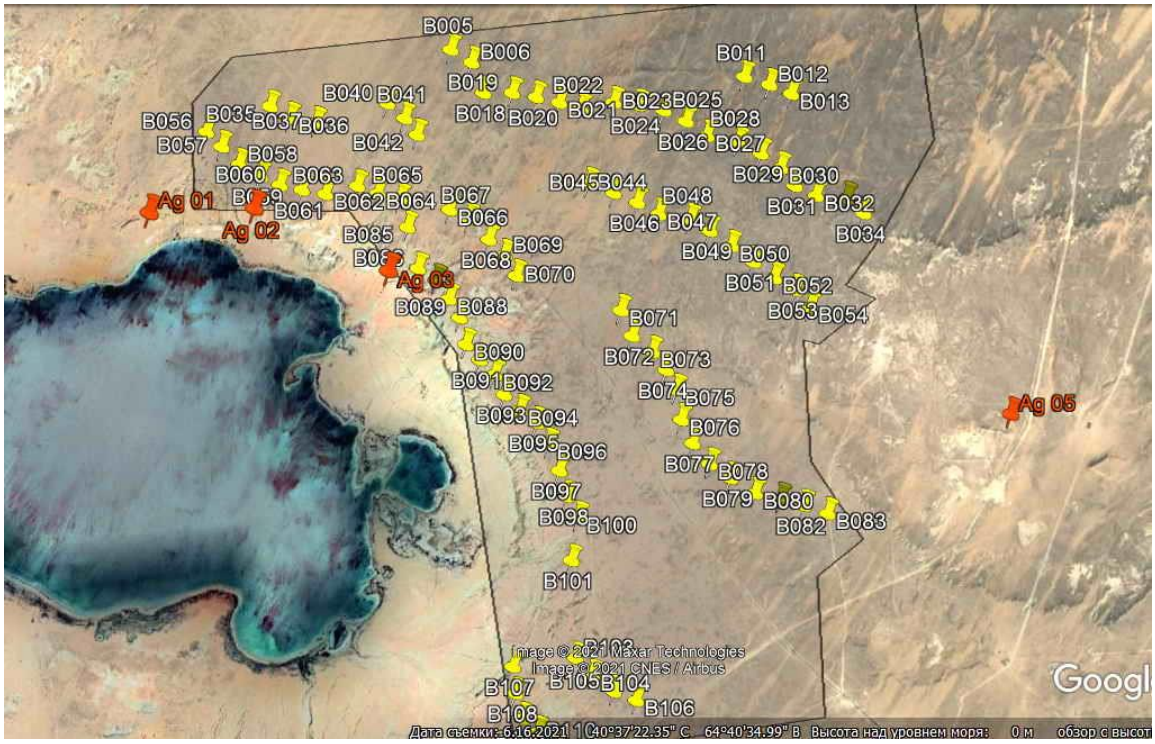
Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. The walking transect survey

[9] Gritsina, Mariya Alexeevna. "The Caracal Caracal caracal Schreber, 1776 (Mammalia: Carnivora: Felidae) in Uzbekistan." *Journal of Threatened Taxa* 11.4 (2019): 13470-13477

aimed to account for species number and composition. Data was recorded through visual observations, using 10x binoculars to identify far sightings. Any signs of tracks and spoor were also recorded. Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and the nocturnal spotlighting transect was 22 km.

Figure 2-135 Camera trap locations (Red pins) within the Bash WF Site (yellow pin - wind turbines locations)



2.22.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.22.1.2 Results

2.22.1.2.1 Bash Wind Farm

No observations of the caracal were made during the baseline surveys. However, the presence of its prey species (Tolai hare, gerbils and jerboas) indicate that it may be present in the Bash Wind Farm development site.

2.22.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Turkmen Caracal during the OHTL surveys.

2.22.2 Stakeholder Engagement

Sightings of caracals have been documented through interviews with villagers and shepherds encountered on an expedition extending from Central Ustyurt Plateau past the Kyzllqum to the Bhukara region carried out by Maria Gritsina from the Academy of Sciences, Uzbekistan. The closest sightings have been recorded in the villages of Gazli and Dzhankeldy approximately 114 km to the south and 115 km west respectively.

Another stakeholder, F. Salimov, who is an official of the Bukhara Regional Department of the State Committee for Nature Protection, observed caracals several times near the above-mentioned village of Dzankeldy and on the shore of Lake Zamonbobo in the past 10–15 years.

2.23 Eurasian Otter

The Eurasian Otter *Lutra Lutra* is listed as EN in the Uzbekistan Red Data Book due to the presence of a locally distributed subspecies. It is not expected to be present in the project area as recent data indicates it is only found in the upper flood-lands of the Amudarya River and Western Parmie-Alay.

2.23.1 Baseline Survey

2.23.1.1 Methods

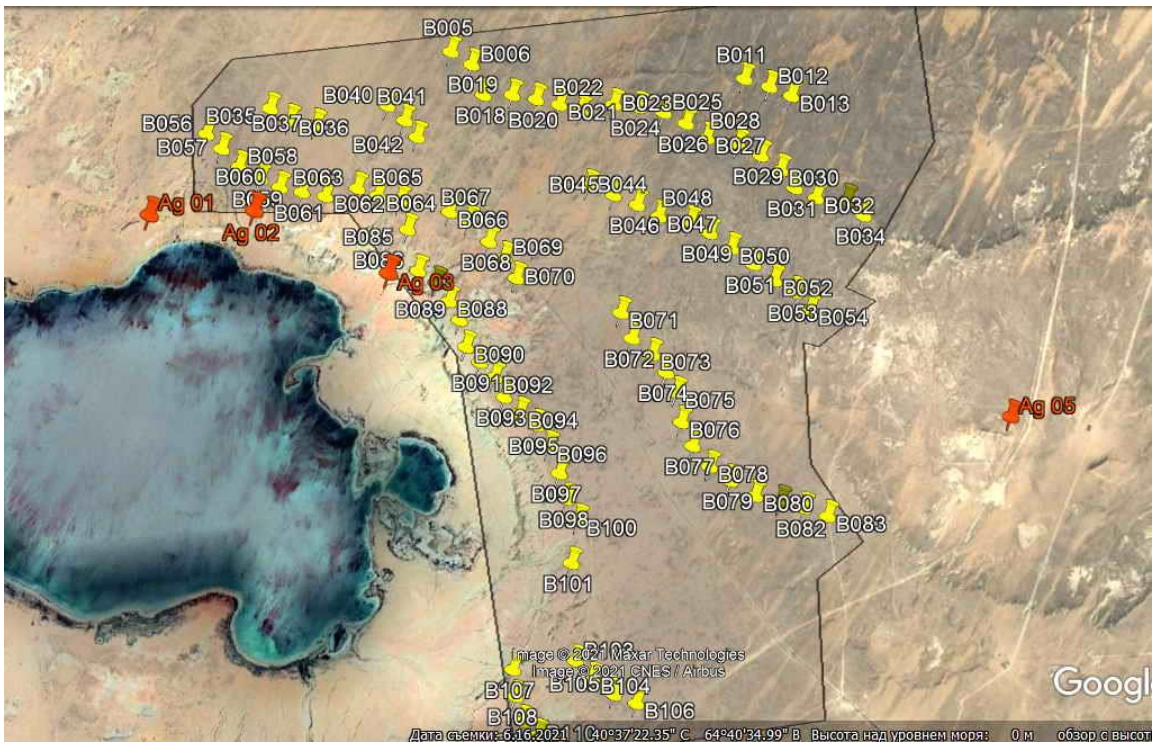
2.23.1.1.1 Bash Wind Farm

Surveying was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in the area of Ayakagytma lake and adjacent territories.

Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. The walking transect survey aimed to account for species number and composition. Data was recorded through visual observations, using 10x binoculars to identify far sightings. Any signs of tracks and spoor were also recorded. Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and the nocturnal spotlighting transect was 22 km.

Figure 2-136 Camera trap locations (Red pins) within the Bash WF Site (yellow pin - wind turbines locations)



2.23.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.23.1.2 Results

2.23.1.2.1 Bash Wind Farm

There were no recorded sightings of the Eurasian Otter during the baseline surveys.

2.23.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Eurasian Otter during the OHTL surveys.

2.23.2 Stakeholder Engagement

No known occurrence of the Eurasian Otter has been recorded by stakeholders within the project area of influence.

2.24Tarim Red Deer

The Tarim Red Deer, *Cervus hangul* is listed as Endangered (EN) in the Uzbekistan Red Data Book due to the presence of a locally distributed subspecies. It is classified as a species of Least Concern (LC) on the IUCN Red List.

It occupies the flood-land of Amudarya River and is known to make migratory movements.

2.24.1 Baseline Survey

2.24.1.1 Methods

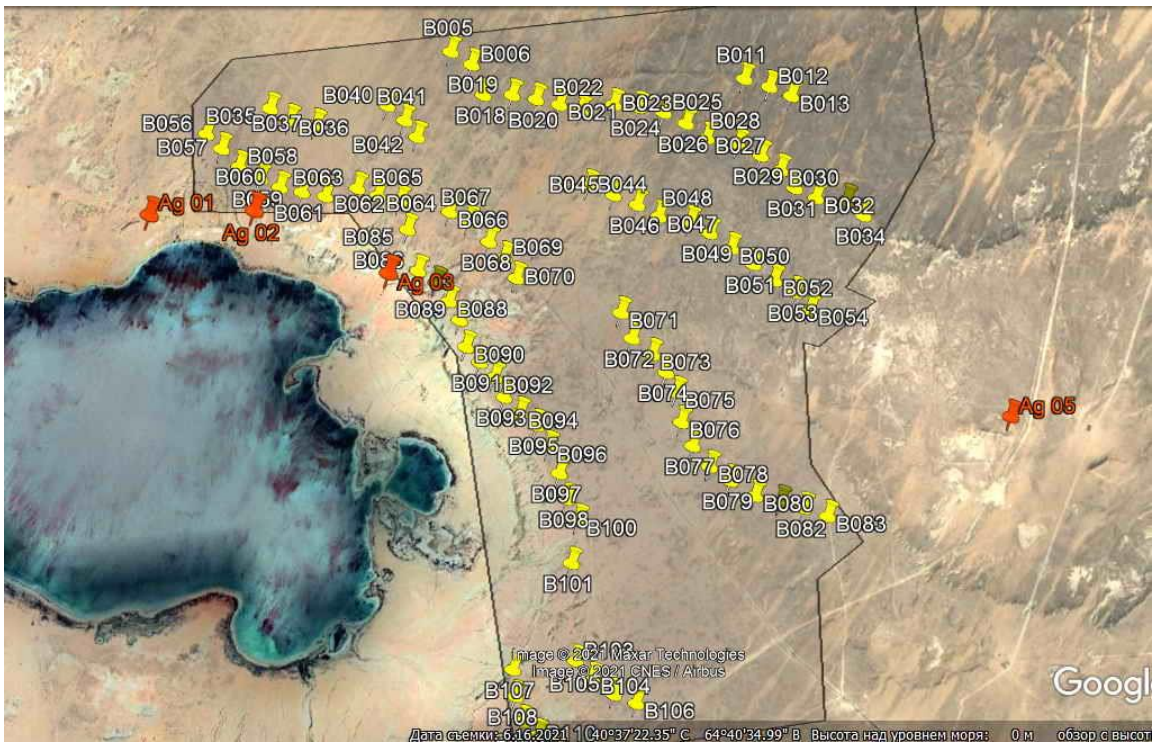
2.24.1.1.1 Bash Wind Farm

Surveying was undertaken in Spring 2021 and Summer 2021, which represents the most active periods for mammals in the region. The survey was carried out in the Southeast Kyzylqum dessert, in the area of Ayakagytma lake and adjacent territories.

Camera traps were set for a period of 2 months. Five standard Bushnell 119936C camera traps were installed from April 18 to June 26, 2021, at 5 locations in various types of biotopes.

The manual transect survey was undertaken by foot and with a vehicle in the daytime while only the vehicle was used at night time for nocturnal spotlighting. The walking transect survey aimed to account for species number and composition. Data was recorded through visual observations, using 10x binoculars to identify far sightings. Any signs of tracks and spoor were also recorded. Total length of the walking transect was 25 km, that of the daytime vehicle transect was 75 km and the nocturnal spotlighting transect was 22 km.

Figure 2-137 Camera trap locations (Red pins) within the Bash WF Site (yellow pin - wind turbines locations)



2.24.1.1.2 Bash-Karakul OHTL

On June 29-31, 2021 transect surveys were carried out to collect data on the presence of non-volant mammal species along the Bash-Karakul OHTL in Navoi and Bukhara districts.

A method of ground transect survey was employed with a combination of walking transects every 15 km. Walking transects were 1 km from the planned OHTL line. Presence of mammals were recorded through visual observation, animal tracks and spoor.

2.24.1.2 Results

2.24.1.2.1 Bash Wind Farm

There were no recorded sightings of the Tarim Red Deer during the baseline surveys.

2.24.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Tarim Red Deer during the OHTL surveys.

2.24.2 Stakeholder Engagement

No known occurrence of the Tarim Red Deer has been recorded by stakeholders within the project area of influence.

2.25 Dalmatian Pelican

Dalmatian Pelican, *Pelecanus crispus* is listed as EN in the Uzbekistan Red Data Book as it is a nesting and migratory species which has declined regionally due to water regime changes in the Aral region.

2.25.1 Baseline Survey

2.25.1.1 Methods

2.25.1.1.1 Bash Wind Farm

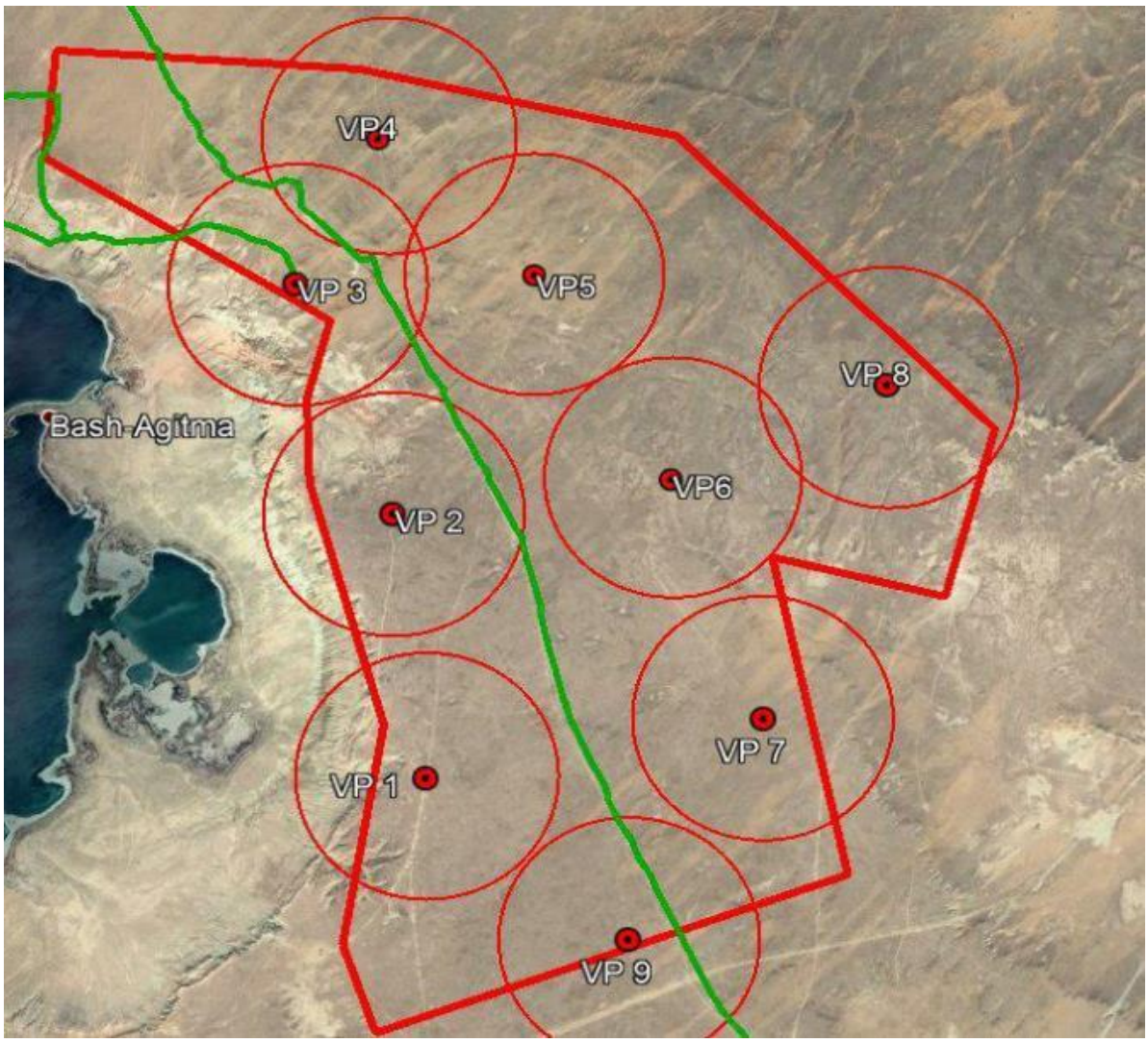
The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

A total of 9 Vantage Points (VPs) were surveyed to collect data on species, numbers, physical characteristics, and flight behaviour. The vantage points were selected to ensure a fair representation of the project site.

The duration of survey at each vantage point was approximately 3 hours. During observations weather conditions such as wind speed and direction, and air temperature were recorded. Wind speed and air temperature were measured using an anemometer. Whenever possible, approximate flight altitude, speed, and flight direction of the birds were recorded every 15 seconds.

The birds were documented with photographs and videos which were used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-138 Vantage Points locations (green line – railway road)

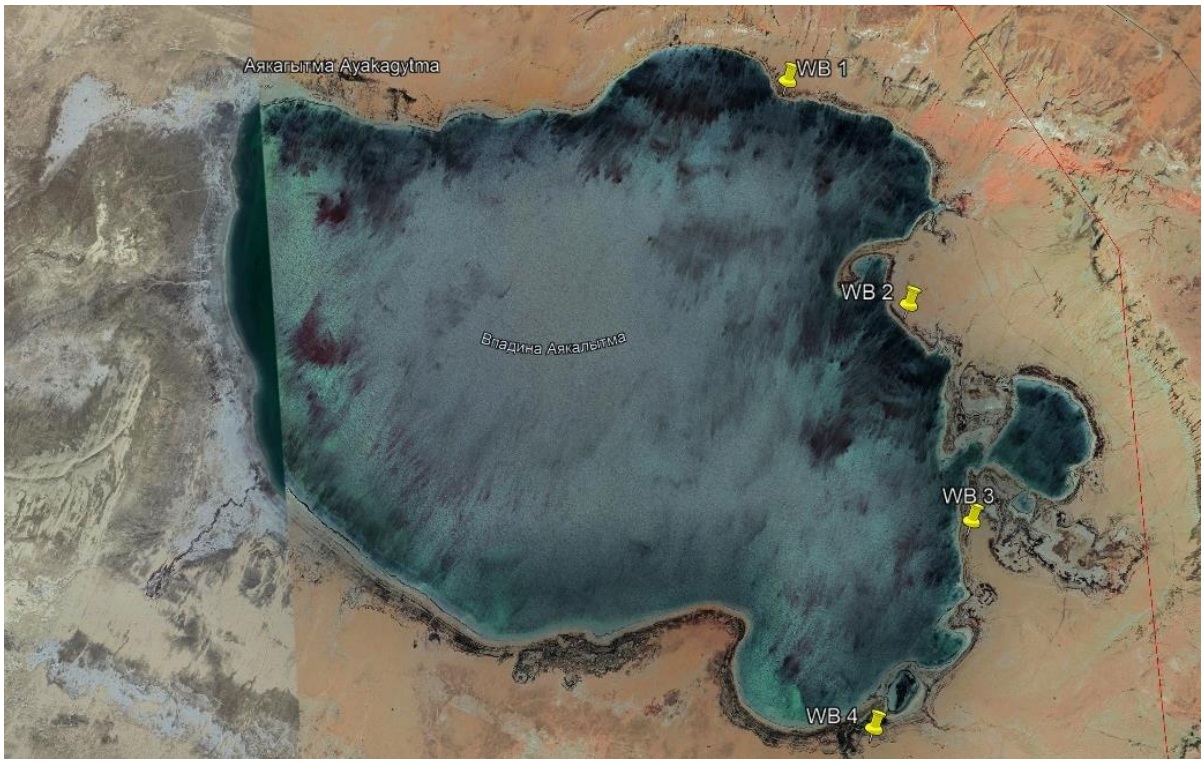


The Lake Ayakagitma located adjacent to the project area attracts many water birds. It is classified as a key ornithological area (IBA) in Uzbekistan and Central Asia and is included in the international bird database. A water birds survey around the lake was also conducted during each survey.

On January 5, 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made. Bird survey at the lake were also carried out in Winter 2022 for four months from Dec 2022- March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 2-139 Survey Locations of Winter 2022 at Lake Ayakagytma



2.25.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 2-140 Vantage points of the projected OHTL route

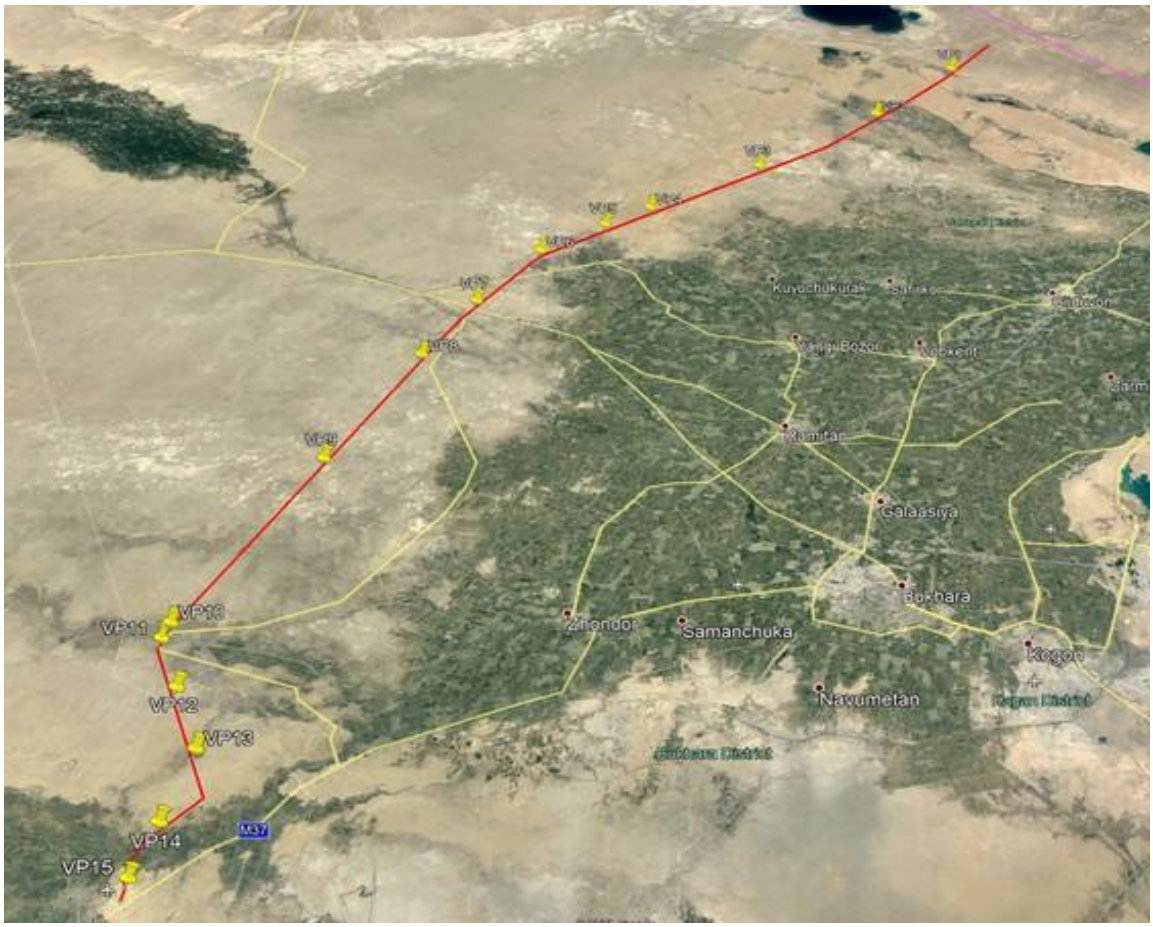


Figure 2-141 Vantage points of the projected OHTL route in June

2.25.1.2 Results

2.25.1.2.1 Bash Wind Farm

There were no recorded sightings of the species during the VP surveys, however two individuals were recorded at WB 2 in January during the Winter 2022 survey of Lake Ayakagytma.

2.25.1.2.2 Bash-Karakul OHTL

There were no recorded sightings of the Dalmatian Pelican during the OHTL surveys.

2.25.2 Stakeholder Engagement.

The OHTL baseline survey provides an account of the historical data of Dalmatian pelican deaths caused by power lines. The passage below is an excerpt from the survey.

"OHTLs located near water bodies, which are places of waterfowl concentration, pose a particular danger. According to the Institute of Zoology of the Academy of Sciences of Uzbekistan, Dalmatian Pelicans *Pelicanus crispus* regularly die on the 220 kV OHTL that runs from Kyzyltepa substation along the western shore of Tudakul Lake (Navoi region). During the 2002-2005 winter surveys, up to three dead birds were regularly found here. During the visit to the lake in January 2004, 7 dead burnt birds were found under wires at once (Lanovenko, 2007)."

3 ENDEMIC SPECIES

3.1 Flora

3.1.1 Baseline Survey

3.1.1.1 Methods

3.1.1.1.1 Bash Wind Farm

The field studies were conducted 9-11 April, 12-20 May and 18-30 June 2021 by traditional methods of botanical survey commonly used for sampling and mapping of native non-forest vegetation, recognition of floristic composition and spatial patterns of plant communities [10] [11] [12]

All vantage points from the bird survey and the project area inspected. A check-list of plant species recorded for the project site was compiled.

The structure of vegetation communities was described on 50x50 m quadrat plots chosen in an area with homogeneous vegetation and representative for each habitat type. For each quadrat, the landscape and vegetation were photographed and documented.

Species cover and abundance was determined using the Braun-Blanquet cover-abundance scale (1965) widely used in geobotanical and ecological studies as rapid visual assessment technique, but robust and highly repeatable, minimizing among-observer differences:

+ – occasional and less than 1% cover of the sample plot area;

[10] Field geobotany. In 4 vol. (1959–1976) Academy of Sciences of the USSR, Moscow & Leningrad. (In Russian).

[11] Granitov A.I. (ed.) (1980) Methodological guidelines for geobotanical survey of natural rangelands in Uzbekistan. Uzgiprozem, Tashkent. 170 pp. (In Russian)

[12] Kent M. (2011) Vegetation Description and Data Analysis: A Practical Approach, 2nd Edition. Wiley-Blackwell. 428 pp.

1 – abundant with low cover, or less abundant but with higher cover, 1–5% of the sample plot area;

2 – abundant with >5–25% of the sample plot area, irrespective of the number of individuals;

3 – >25–50% cover of the sample plot area, irrespective of the number of individuals;

4 – >50–75% cover of the sample plot area, irrespective of the number of individuals;

5 – >75% cover of the sample plot area, irrespective of the number of individuals.

The relative abundance of each species also was assessed using the DAFOR scale: D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare.

3.1.1.1.2 Bash-Karakul OHTL

The route of the OHTL about 100m in width was also surveyed. The survey methodology followed that which was undertaken at the Bash Wind Farm site. A checklist of plant species recorded along the OHTL was complied.

3.1.1.2 Results

3.1.1.2.1 Bash Wind Farm

The checklist of vascular plants recorded within the project site during the field survey in April and June includes 49 species.

The majority of species recorded are considered to be common and are not threatened. Only one species is listed as category 3 on the Uzbekistan Red Data Book which corresponds to the NT on the IUCN Red List. It is a perennial species of tulip *Tulipa lehmanniana* from the family Liliaceae.

Its relative abundance according the DAFOR scale is R (rare) to O (occasional) and its population density varies from solitary specimens to 900–1000 per 1 hectare. Due to the dry weather conditions of winter 2020 and spring 2021, mainly pre-generative and non-flowering generative specimens of this tulip were observed; the number of flowering specimens was very low.

The main threats are overgrazing, habitat loss, collection of flowers and bulbs.

3.1.1.2.2 Bash-Karakul OHTL

A total of 76 plant species were identified along the Bash-Karakul OHTL route. Only one species from the checklist in on Uzbekistan Red Data Book. *Calligonum zakirovii* is listed as a category 1 species endangered species which corresponds to the CR/EN categories on the IUCN Red List. It is a shrub of the family Polygonaceae. As per the EBRD PR6 GN6 criteria the species is a priority biodiversity feature (PBF).

Figure 3-1 Non-flowering and Flowering of *T. lehmanniana* found at the Bash WF site

Figure 3-2 *Calligonum zakirovii* recorded along the Bash-Karakul OHTL route

3.1.2 Stakeholder Engagement

The Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan, the botany experts consulted as part of the stakeholder engagement exercises provided a monograph that details the rare and endemic species of flora of Uzbekistan. Flowering *Tulipa lehmanniana and Calligonum zakirovii* and their distribution in the Bhukara region from the monograph are shown below.

Figure 3-3 Distribution of *Tulipa lehmanniana* in the Bhukara region

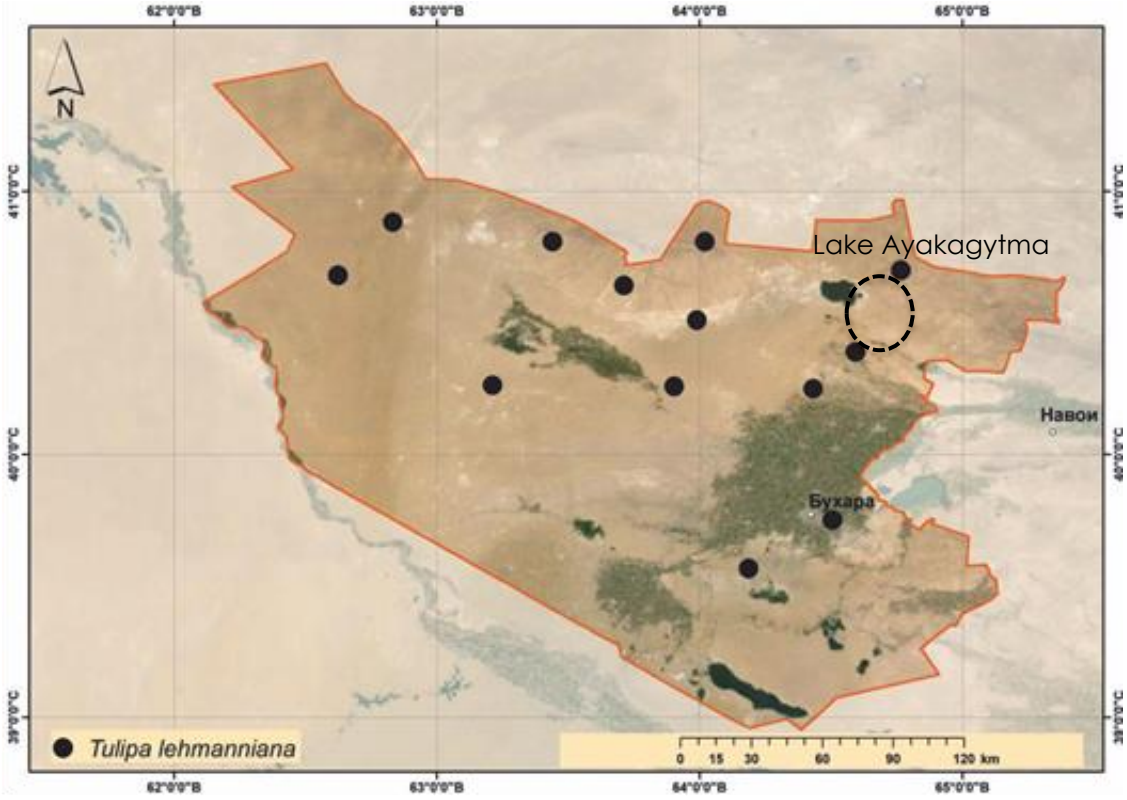
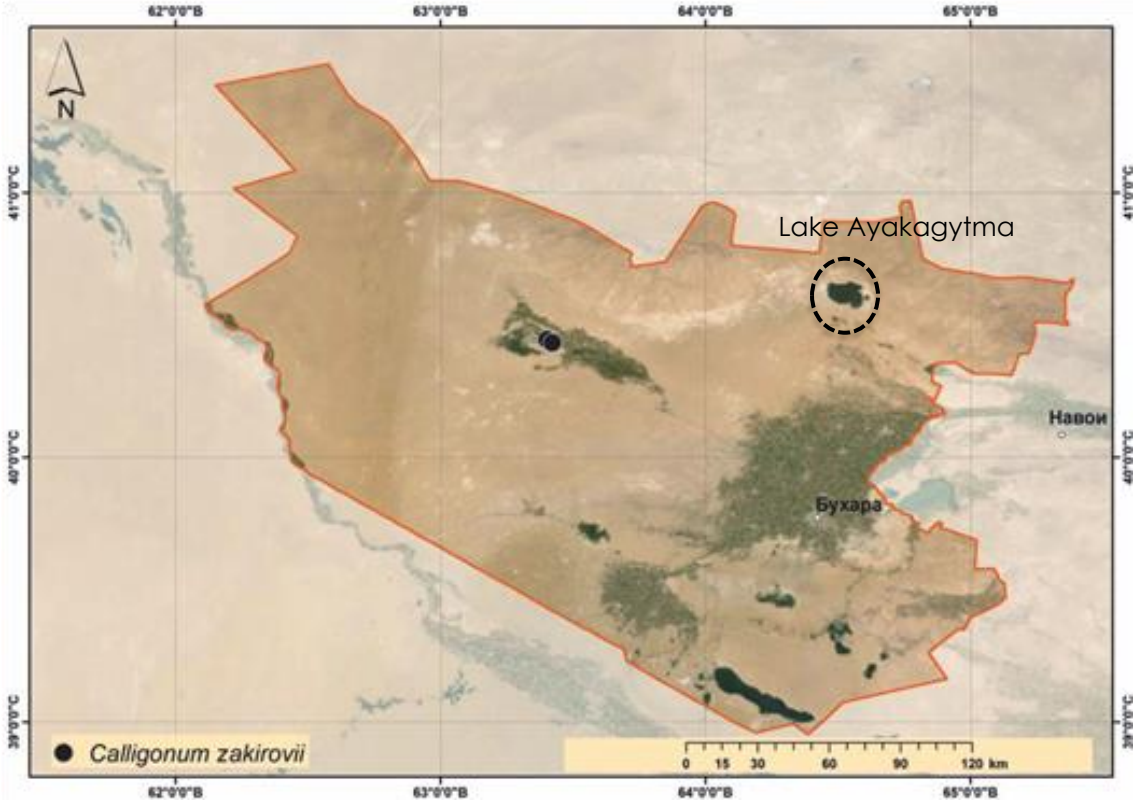


Figure 3-4 Flowering specimen of *Calligonum zakirovii*

Figure 3-5 Distribution of *Calligonum zakirovii* in the Bhukara region



3.2 Invertebrates

Several species of endemic moths have been recorded within Uzbekistan. Further, ongoing research continues to identify new species of invertebrates. It is considered highly likely that range-restricted invertebrates may be present within the project site.

3.2.1 Baseline Survey

3.2.1.1 Methods

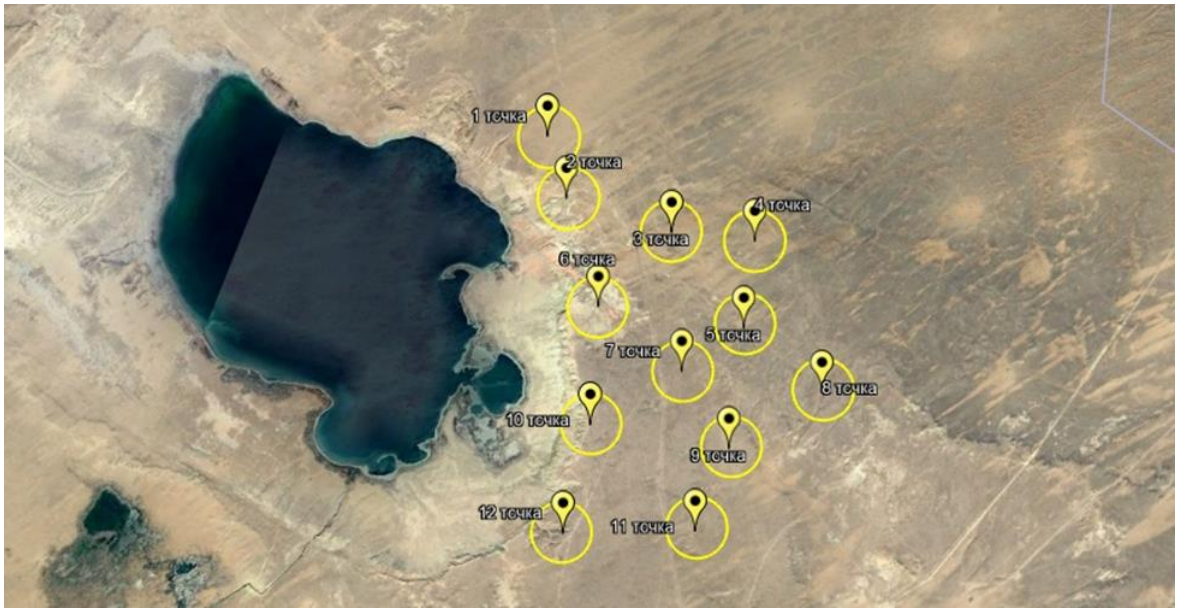
3.2.1.1.1 Bash Wind Farm

Invertebrate surveying was undertaken in the Spring, from 19-21 April 2021, which is the optimal time as invertebrate populations are at a peak due to the increase in available vegetation.

Transect and area surveys were used in this study. Transects were employed for noticeable and easily identifiable large-size species. Transects were 1 km long and 2 m wide

On complex topographies, the 1 km transect was divided into two 500-metre or five 200-metre sections, depending on the terrain. Insects along the transects were caught using a net. All transects were recorded with the help of GPSs. Specimens that could not be identified in the field was identified at the entomology laboratory at the Institute of Zoology, Academy of Sciences of Uzbekistan, under a digital microscope.

Figure 3-6 Invertebrate survey locations on the project territory of Bash WF



3.2.1.1.2 Bash-Karakul OHTL

Invertebrate surveying for Bash-Karakul OHTL route was undertaken in the Spring, from 3-6 May 2021. 15 locations were surveyed along planned OHTL from Bash WF to Karakul substation (Figure 3-6). Due to the sparse vegetation in the area and the prevalence of windy weather throughout the survey, the recorded entomofauna was very poor.

Figure 3-7 Invertebrate survey locations along the Bash-Karakul OHTL route

3.2.1.2 Results

3.2.1.2.1 Bash Wind Farm

The recorded entomofauna was typical for this area. However, no endemic or red list species were observed at the Bash Wind Farm Site.

3.2.1.2.2 Bash-Karakul OHTL

One endemic species, *Lioponera desertorum* was recorded at night time at location VP 8.

3.2.2 Stakeholder Engagement

No known occurrence of endangered invertebrate species has been recorded by stakeholders within the project area of influence.

4 MIGRATORY AND CONGREGATING

4.1 Bats

Many bat species and population are known to migrate, although research and knowledge around bat migration lags far behind that of bird migration.

Bats also commonly display congregatory behaviour. Colonies can form in suitable caves and other shelters; roosting is common during hibernation and breeding; and some species display flocking tendencies during foraging.

Of the 22 bat species likely to inhabit Bash Wind Farm project area, 4 are known to be migratory, whilst others are suspected to be sedentary: the migratory species being *Myotis capaccinii, Nyctalus noctule, Tadarida teniotis,* and *Vespertilio murinus*; which belong to the families Molossidae and Vespertilionidae.

4.1.1 Baseline Survey

4.1.1.1 Methods

4.1.1.1.1 Bash Wind Farm

Bat surveys were undertaken via the deployment of static acoustic detectors as well as manual roost searches. The schedule of surveys conducted are as follows:

- 2020 Summer/Autumn: Static Acoustic Detector Survey
- 2021 Spring/Summer: Static Acoustic Detector Survey
- 2021 April/June: Manual Roost Search

Given the lack of bat activity expected within the region during the winter months, the bat acoustic surveys are restricted to 7-month warm season, extending from the beginning of April through the end of October. It was proposed to deploy the bat acoustic detector (Wildlife Acoustics Song Meter SM4) for a minimum of 3 nights at preselected locations within the project area.

The acoustic detectors were deployed on meteorological masts (abbreviated as MM), ground surface and building/sheds (Figures 4-2 to 4-3). Data collected at height of 45 m from the masts is better suited to assess the bat activity during feeding and migrations.

During the 2020 acoustic survey the detectors were deployed at six locations. Two detectors recorded data in the Summer: July 2-7, July 14-21 and August 5-8 in five locations (1, 2, 2-1, 3-1, 4) from 18:30 PM to 6:00 AM. In autumn one detector recorded data on October 5-15 at four locations (1, 2, 3, 4) 16:45 PM to 7:15 AM.

In 2021, the detectors were deployed at seven locations. Three detectors were installed at meteorological masts from May 2 to June 2, June 2 – July 3 and June 2-24. Two detector recorded data from April 4 to May 1 and from April 16 to May 1 from buildings from 18:00 PM to 7:00 AM.

Table 4-1 Locations of the static acoustic bat detectors during the bat surveys

SUMMER/AUTUMN SURVEY 2020			
№ location	**Location Name**	**Coordinates**	
		N°	**E°**
1	1	40.672391	64.654225
2	2	40.582667	64.723083
3	2-1	40.615072	64.722061
4	3	40.575457	64.665490
5	3-1	40.558316	64.642735
6	4	40.630903	64.647429
SPRING/SUMMER SURVEY 2021			
№ location	**Location name**	**Coordinates**	
		°N	**°E**
1	St_Det_3-1_2021	40.662025	64.668253
2	St_Det_3-2_2021	40.667501	64.656424
3	St_Det_3-3_2021	40.615276	64.722095
4	St_Det_6-1_2021	40.558285	64.642905
5	Det_3-MM_8	40. 553143	64.650195
6	Det_6-MM_6	40.609126	64.646690
7	Det_3-MM_6	40.609126	64.646690
8	Det_6-MM_4	40.683955	64.567898

Figure 4-1 Locations of static bat detectors deployed in 2020 (Left) and in 2021 (Right)

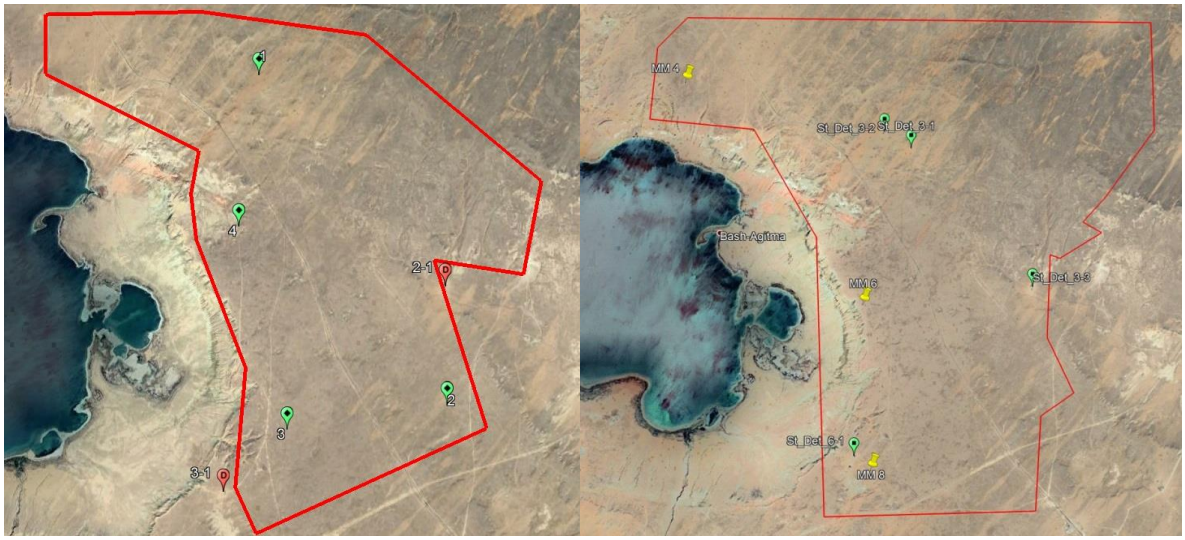


Figure 4-2 Bat detector installation on weather mast in Bash project area

Figure 4-3 Bat detector installation on buildings and in bushes

The Kaleidoscope Pro Auto Analysis program with predetermined parameters of ultrasonic calls belonging European bats found in Uzbekistan were used for the primary processing of audio recordings. The BatSound 4 program was then employed to measure the call parameters and cross check the identification of bat calls made by the Kaleidoscope Pro Auto Analysis program. Bat call parameters known for European bat populations (Barataud, 2015) and bat species from neighboring countries for Uzbekistan (Benda et al., 2012) were used. Bat calls were identified to species level where possible.

Relative abundance, Frequency of occurrence and acoustic activity index were also calculated. Relative abundance is the relative number of locations where calls of some species were registered. The frequency of occurrence is the frequency at which calls of some species are recorded among all types of calls (excluding noise, social calls and unidentified calls). Acoustic activity index (AI) is the average number of calls registered on one location for one day of monitoring.

The manual roost survey was conducted in April (migration season) and June (breeding season). The survey included a desktop analysis of potential bat roost locations in the project area. Each location was then thoroughly examined, both for the presence of bats themselves, and for signs of their presence – excrement, food remains, *etc*. Concrete drainage tunnels under roads were also identified as common bat roosting locations. Drainage tunnels examined in spring were re-examined in summer.

Each surveyed location was mapped and documented. The suitability of the objects for bats as either a temporary roost or a permanent one and the potential degree of disturbance/threat was recorded.

Where necessary the height, width and length of the roost were measured. When bats were detected, the surface temperature was measured, their species, gender, age and number were determined. Species identification was carried out according to generally accepted methods (Kuzyakin, 1950; Bogdanov, 1953; Dietz, von Helversen 2004). The captured bats were examined, photographed and immediately released in the places of capture.

A total of 514 km was covered during the roost survey. 11 potential roost places were examined as well as slopes on the north-eastern side of the Ayakagytma depression.

Figure 4-4 Steep slopes of the Ayakagytma depression ideal for bat roosts

4.1.1.1.2 Bash-Karakul OHTL

The initial OHTL reconnaissance survey indicated that there did not appear to be substantial structures that would be conducive to roosting bat colonies. Therefore, detailed bat roost searches were not carried out for the OHTL alignment.

4.1.1.2 Results

4.1.1.2.1 Bash Wind Farm

Summer/Autumn 2020 survey

During the 2020 survey, 789 bat calls were recorded in the summer and 619 were recorded over Autumn.

Calls of 7 bats species were identified on the project site. Species identified and their frequencies of occurrence are outlined in Table 4-2. *Pipistrellus pipistrellus* is the dominant species recorded in the area. Calls of this species dominate in both summer and autumn.

A high density of the bat calls was recorded in project site with a high level of variability. The total acoustic activity index (AI) was = 42.5 calls per day. Lowest level of AI was 7.2 bat calls/day at location № 2-1 in early July. The highest level of AI is 114 bat calls per day at location № 3 in the middle of October.

In general, the highest AI values commonly seen in the southern part of the site at locations 2 and 3. At location 4 the AI value decreased during the detector's operation period from 85 bat calls/day in mid-July to 25 bat calls/day in early August. It increased back again to 36.5 bat calls/day in mid-October.

As the most abundant species, *P. pipistrellus* contributes the most to this high AI frequency. Moreover, the relative abundance of this species increases from summer (59.7%) to autumn (73.8%). It is possible that this species migrates through the project area in October.

Table 4-2 Species identified during bat surveys of Summer/Autumn 2020

Species	Summer and Autumn**		
	All	Relative abundance, %	Frequency of occurrence, %
Eptesicus bottae	181	12.9	66.7
Eptesicus serotinus	82	5,8	100.0
Hypsugo savii	1	0.1	16.7
Pipistrellus pipistrellus	928	66.2	100.0
Plecotus sp.	3	0.2	33.3
Rhinolophus sp.	84	6.0	50.0
Vespertilio murinus	129	9.2	83.3
Total:	1402	100.0	
Days of work	33		
Acoustic activity index (AI)	42.5		
Note: ** - This data does not include data from location №2 on July 7.			

Table 4-3 Species identified during bat surveys in Summer 2020

Species	Summer locations							RA %	FC %
	2-1	2*	3-1	4	4	1	Total		
Eptesicus bottae	9	0	72	95	4	1	**181**	22,9	80
Eptesicus serotinus	13	0	13	13	7	4	**50**	6,3	80
Hypsugo savii	0	0	0	0	1	0	**1**	0,1	20
Pipistrellus pipistrellus	19	6	168	212	37	29	**471**	59,7	100
Plecotus sp.	0	0	0	0	0	0	**0**	0,0	0
Rhinolophus sp.	2	0	13	18	51	0	**84**	10,6	60
Vespertilio murinus	0	0	1	1	0	0	**2**	0,3	40
Total:	43	6*	267	339	100	34	**789 (783**)**	100,0	
Days of work	6	1*	4	4	4	4	**23 (22**)**		
Acoustic activity index (AI)	7,2	6*	66,8	84,8	25,0	8,5	**35,6***		

Key: FO: Frequency of Occurrence, RA: Relative Abundance, AI: Acoustic Activity Index

Notes: * - This data is not included in the calculation of the average values as the detector has only been on for a few hours

** - data from location № 2 is not included

Table 4-4 Species identified during bat surveys in Autumn 2020

Species	Autumn locations					RA %	FO %
	1	2	3	4	Total		
Eptesicus bottae	0	0	0	0	0	0,0	0
Eptesicus serotinus	8	9	9	6	32	5,2	100
Hypsugo savii	0	0	0	0	0	0,0	0
Pipistrellus pipistrellus	50	183	171	53	457	73,8	100
Plecotus sp.	1	0	2	0	3	0,5	50
Rhinolophus sp.	0	0	0	0	0	0,0	0
Vespertilio murinus	34	33	46	14	127	20,5	100
Total:	**93**	**225**	**228**	**73**	**619**	100,0	
Days of work	5	2	2	2	11		
AI	18,6	112,5	114	36,5	56,3		

Key: FO: Frequency of Occurrence, RA: Relative Abundance, AI: Acoustic Activity Index

Spring/Summer 2021 survey

During the Spring/Summer 2021 survey, bat activity varied at different locations. Activity was usually low near buildings and sheds but increased from April 4 to April 6 in the location St_Det_3-1. Bats calls were recorded here from 2 to 16 times per night (Figure 4-5). Bat calls were usually more frequent in other locations. The bats' roosts were probably located near these locations, and, possibly, in the same buildings as the detectors. The activity of bats was high and irregular (Figure 4-5) at locations St_Det_3-2 (8-18 April) and St_Det_3-3 (19 April – 1 May) in April.

The St_Det_3-2 detector recorded an increase in bat activity from April 8 to 18. It varied from 5 to 188 calls per night during this period. At location St_Det_3-3, no stable dynamics of bat activity was noted. However, a strong variability of bat activity was recorded. It varied from 2 to 212 calls per night.

Detector St_Det_6-1 (Figure 4-6) also registered a relatively high and irregular activity of bats at this time (from April 16 to May 1). Frequency of abundance varied from 2 to 232 calls per night. These detectors worked simultaneously in the last week of April at a distance of 9 km from each other.

Least number of calls recorded by all detectors were at similar times: April 21-22, 25-26 and 30 . This may be due to unfavorable weather conditions causing a decrease bat activity (wind, rain, or unfavorable temperatures).

Figure 4-5 Bat calls recorded in April 2021 on detector №3 at three locations: St_Det_3-1 (4-6 April), St_Det_3-2 (8-18 April), St_Det_3-3 (19 April – 1 May)

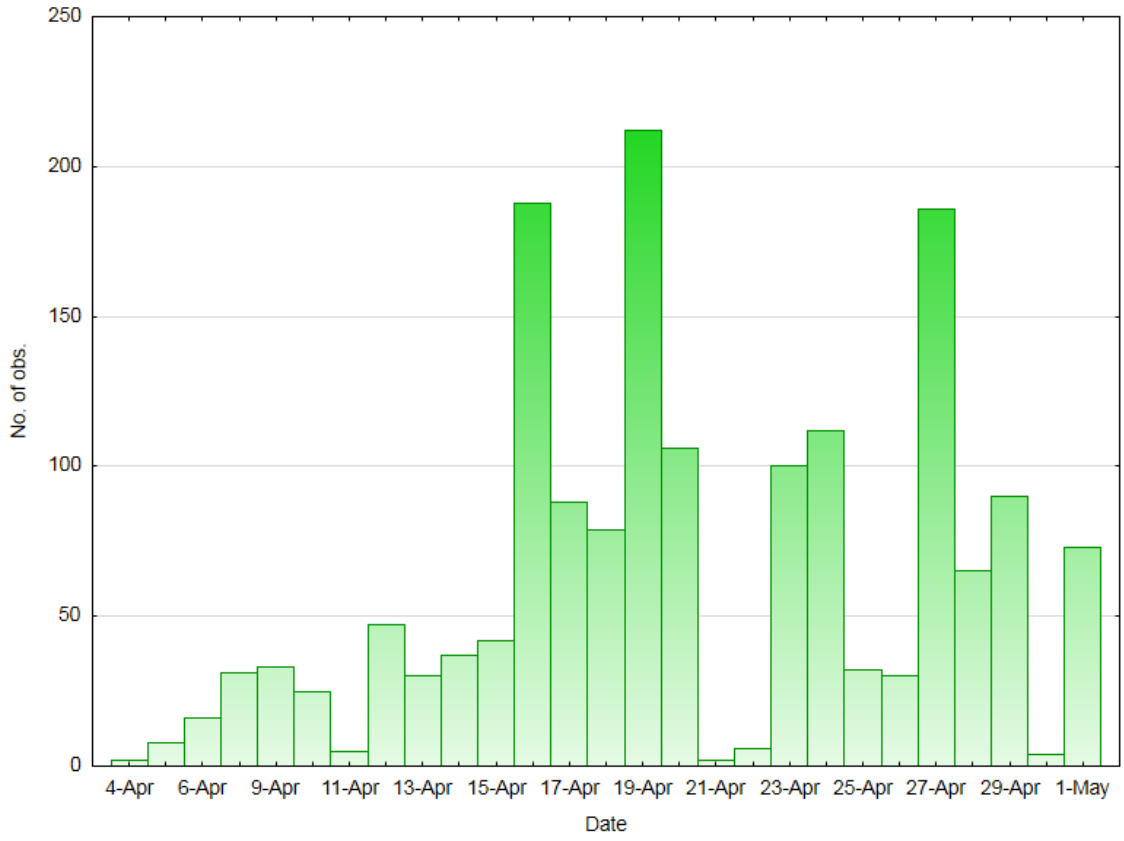
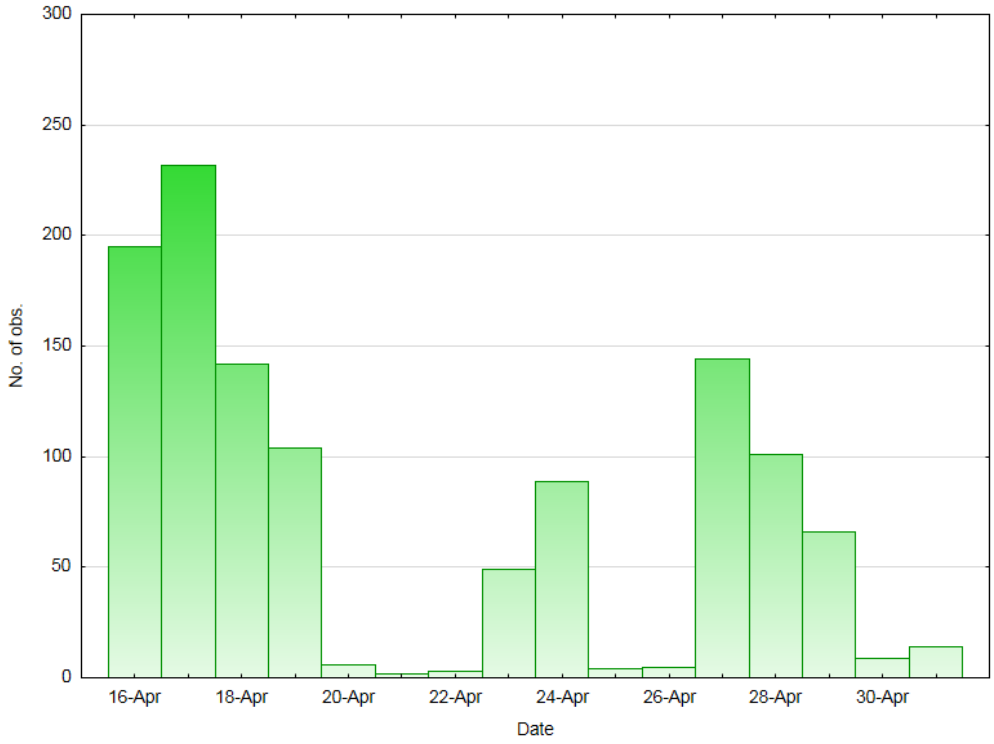


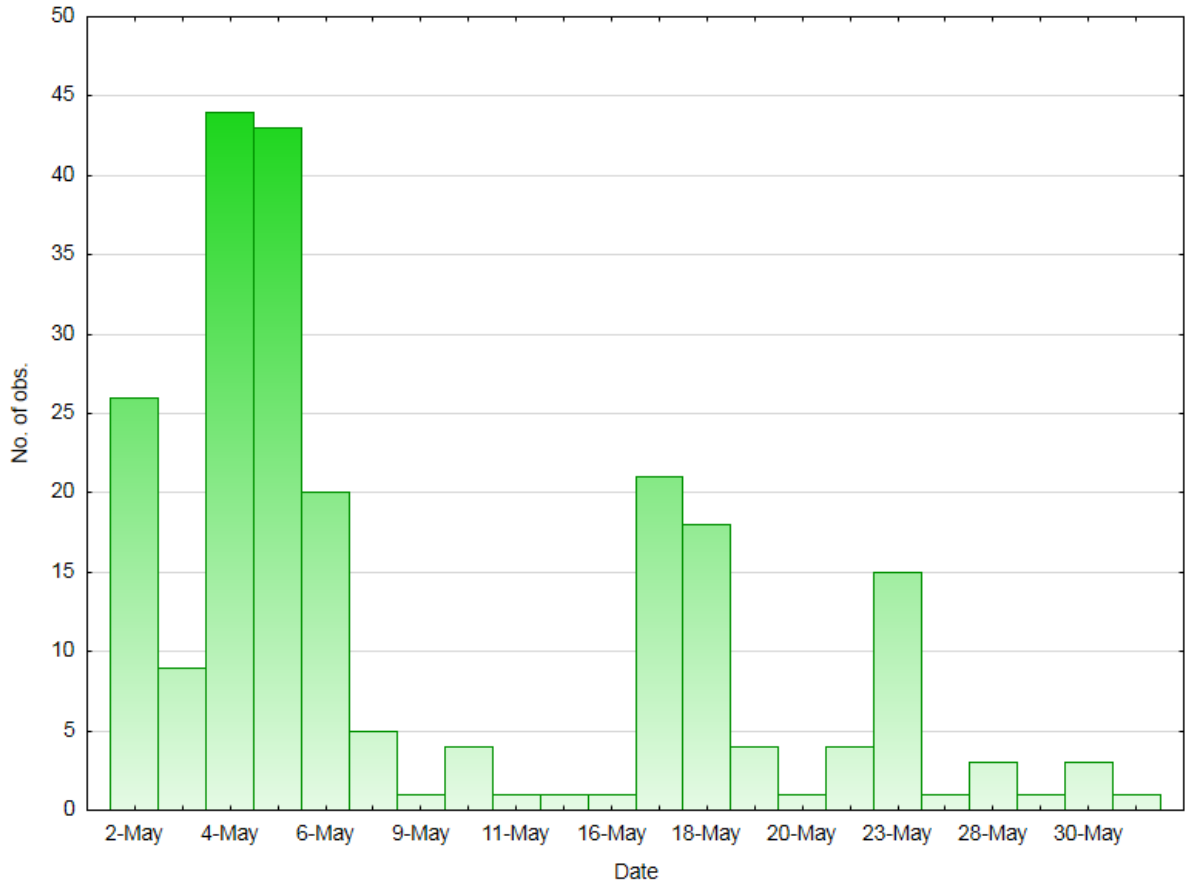
Figure 4-6 Bat calls recorded in April 2021 on detector № 6 at location St_Det_6-1



The detectors also installed on three meteorological masts in the project site at 45m height. However, only one detector (№3) deployed at meteorological mast 8 made recordings suitable for analysis.

The detector recorded calls for 31 nights from May 2 to June 1. Bat activity peak occurred on the night of May 4-5 (Figure. 4-7), when 44 bat calls were recorded. There were only five nights during the recording period when bat activity exceeded 20 calls per night. Typically, bat activity varied within 0-10 calls per night (acoustic activity index (AI) = 7,3 calls per night). These days fall on the period of reproductive activity of bats when pregnant females are in summer habitats and prepare for the birth of cubs.

Figure 4-7 Bat calls from May 2 – June 1, 2021at meteorological mast 8 (MM-8)



Calls of six bats species were identified in the Bash Wind Farm project area in 2021 (Table 4-5): *Eptesicus sp. (Eptesicus bottae* and *Eptesicus serotinus)*, *Pipistrellus kuhli, Pipistrellus pipistrellus, Rhinolophus bocharicus, Vespertilio murinus*. Ultrasound calls of *Rhinolophus bocharicus* were recorded from bats of this species found during the search for potential bat roosts.

Only data obtained from meteorological masts were used for calculating the acoustic activity index (AI) per night and relative abundance (RA). This avoided the possible overestimation of

bat numbers around buildings and sheds where colonies are more likely to be closely spaced to each other. Activity data calculated for 3 nights (May 17-19) is outlined in Table 4-5.

Only calls of the genus *Eptesicus, P. pipistrellus* and *V. murinus* were recorded on meteorological masts in the project site. Calls of the other two species (*P. kuhli* and *R. s bocharicus*) were found at "near ground" locations, on buildings and sheds.

Table 4-5 Bat species recorded during spring/summer survey 2021

Species	St_Det_3-1	St_Det_3-2	St_Det_3-3	St_Det_6-1	Det_6-MM_6	Det_3-MM_6	Det_3-MM_8 (17-19 April)		
							FO	RA %	AI %
Eptesicus sp. (E. bottae + E. serotinus)	+	+	+	+	+	+	25	58.1	8.3
Pipistrellus kuhli			+				0	0.0	0
Pipistrellus pipistrellus		+	+	+		+	9	20.9	3
Rhinolophus bocharicus	+	+	+	+			0	0.0	0
Vespertilio murinus		+	+	+			9	20.9	3
Total:	3	5	6	5	2	3	43	100.0	14.3
Key: FO: Frequency of Occurrence, RA: Relative Abundance, AI: Acoustic Activity Index									

Bat Roost Survey 2021

A total of 11 potential habitats were visited. The presence of bats was noted in 6 roosts; and according to the consultations with local residents one surveyed location bats use for wintering (Figure 4-8). One species of bats was identified – Common pipistrelle bat (*Pipistrellus pipistrellus*).

Common pipistrelle colonies were found in the village of Ayakagytma. The bats were settled in the cracks of the window frames; on approach, social squeaks were heard from afar and a significant accumulation of excrement was noted on the window sills. Two female individuals were trapped.

All bat species recorded in the project area in 2020 and 2021, are classified as Least concern (LC) by IUCN.

Figure 4-8 Bat roost location in the Bash Wind Farm Area

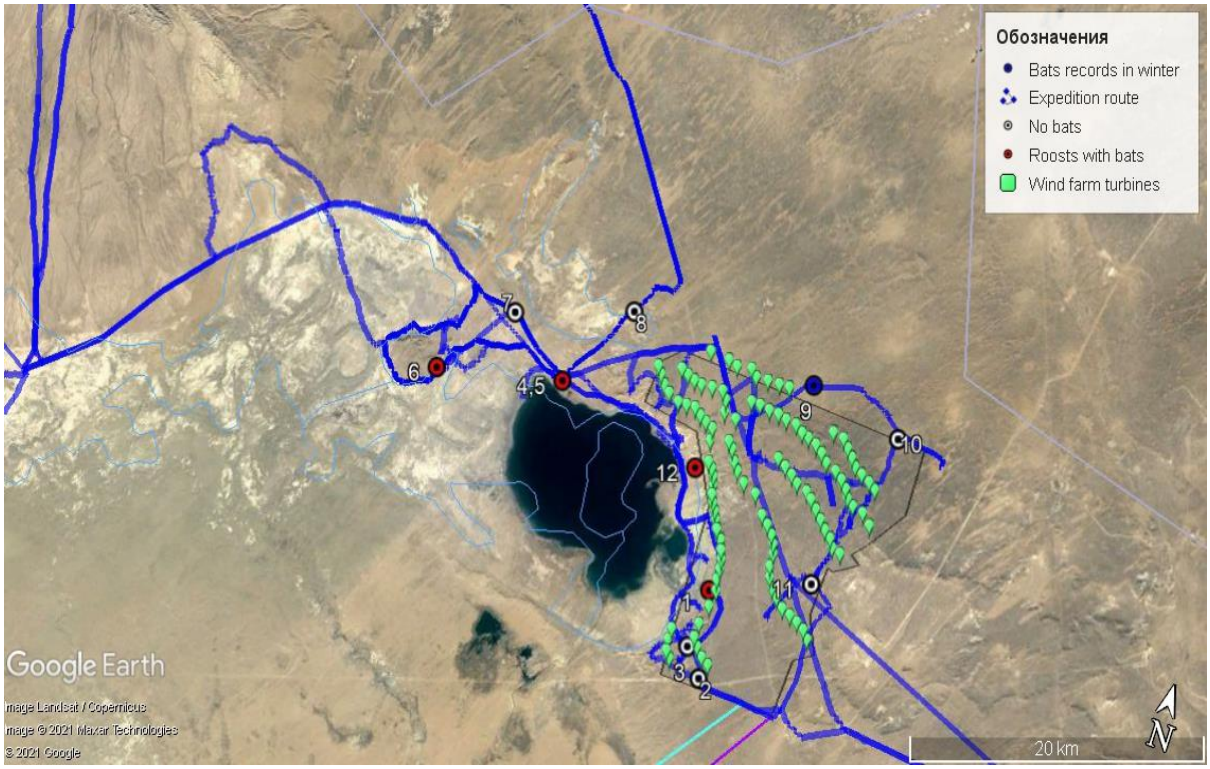
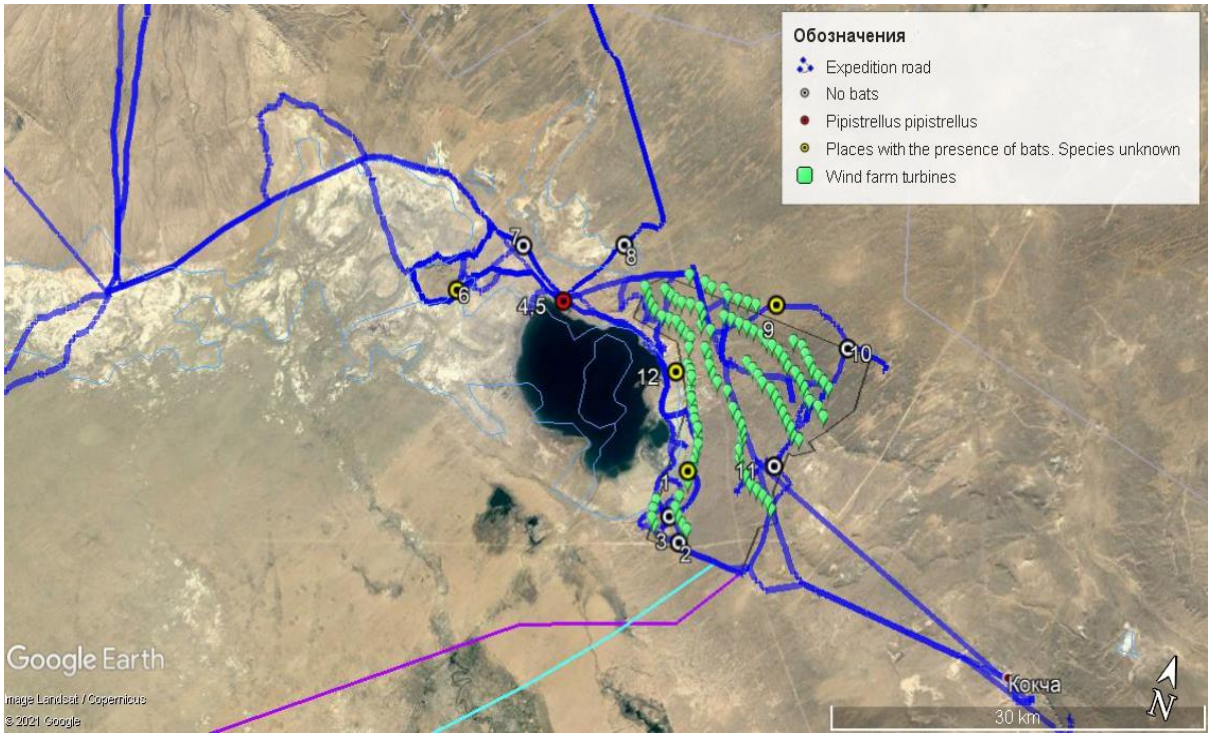


Figure 4-9 Common Pipistrelle roost location in the Bash Wind Farm Area



Bash-Karakul OHTL

The initial OHTL reconnaissance survey indicated that there did not appear to be substantial structures that would be conducive to roosting bat colonies. Therefore, detailed bat roost searches were not carried out for the OHTL alignment.

4.1.2 Stakeholder Engagement

The local residents of Ayakagytma were consulted during the baseline survey who identified one of the roost locations as a wintering habitat. An owner of house where a colony was found said that colony had been around for 25 years and that the bats were common inhabitants of their villages.

The presence of roost numbered 12 on the maps above were identified by mammal experts of the baseline survey for the Bash Wind Farm Project.

Another stakeholder, B.R.Kholmatov, Director of Institute of Zoology, Uzbekistan Academy of Sciences who was requested for information on biodiversity concerns has confirmed the presence of bat roosts in the cliffs of the Ayakagytma depression.

4.2 Waterbirds

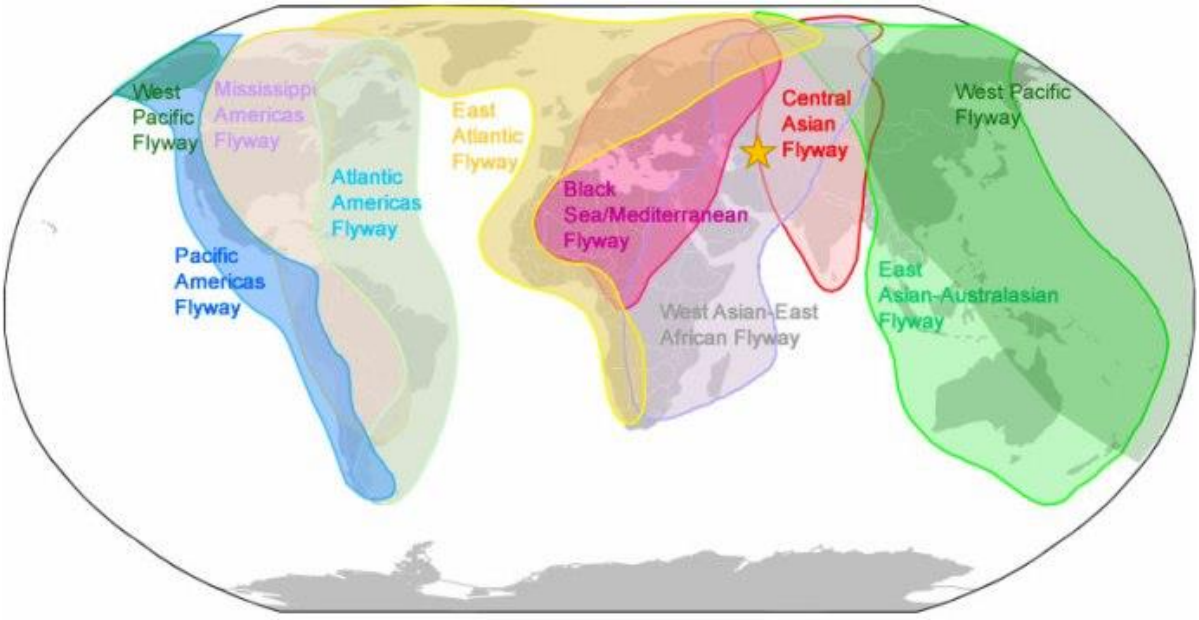
The project site is located immediately adjacent to Lake Ayakagytma, which is a designated IBA. In particular, the lake is of international significance for wintering waterfowl and shorebirds.

Additionally, the following IBAs are within a 100km buffer zone of the project site:

- Karakyr Lakes, located 90km to the west, a prominent wintering site for waterfowl and waterbirds;
- Sarmysh Nature Park, located 80km to the east, which hosts unique habitat and a number of breeding passerine bird species;
- Aydarkul Lake, located 100km to the northweast, which is a prominent site for waterfowl and waterbirds; and
- Tudakul and Kuymazar Reservoirs, located 80km to the south, which is a prominent site for shorebirds and waterbirds.

The project site is also located within the convergence of two major migratory flyways; the Central Asian Flyway and the West Asian/East African Flyway (Figure 4-10)

Figure 4-10 Project location in relation to global migratory bird flyways



An assessment of the landforms surrounding the project site enables us to predict a general flight path of migratory flocks*, which typically avoids expanses of flat desert and mountain features and follows along coastlines or river deltas to wetland staging areas and stopover sites. (*migratory flight path prediction is an imperfect science. Migration pathways vary by type of birds, species, age, and even individuals year by year. However, very broad, general patterns can be made based on these behavioural assumptions.)

The following figures showcase the likely pathways that migrating birds may follow when heading south towards wintering grounds during early autumn.

Figure 4-11 Predicted flight path analysis for migratory birds (1)

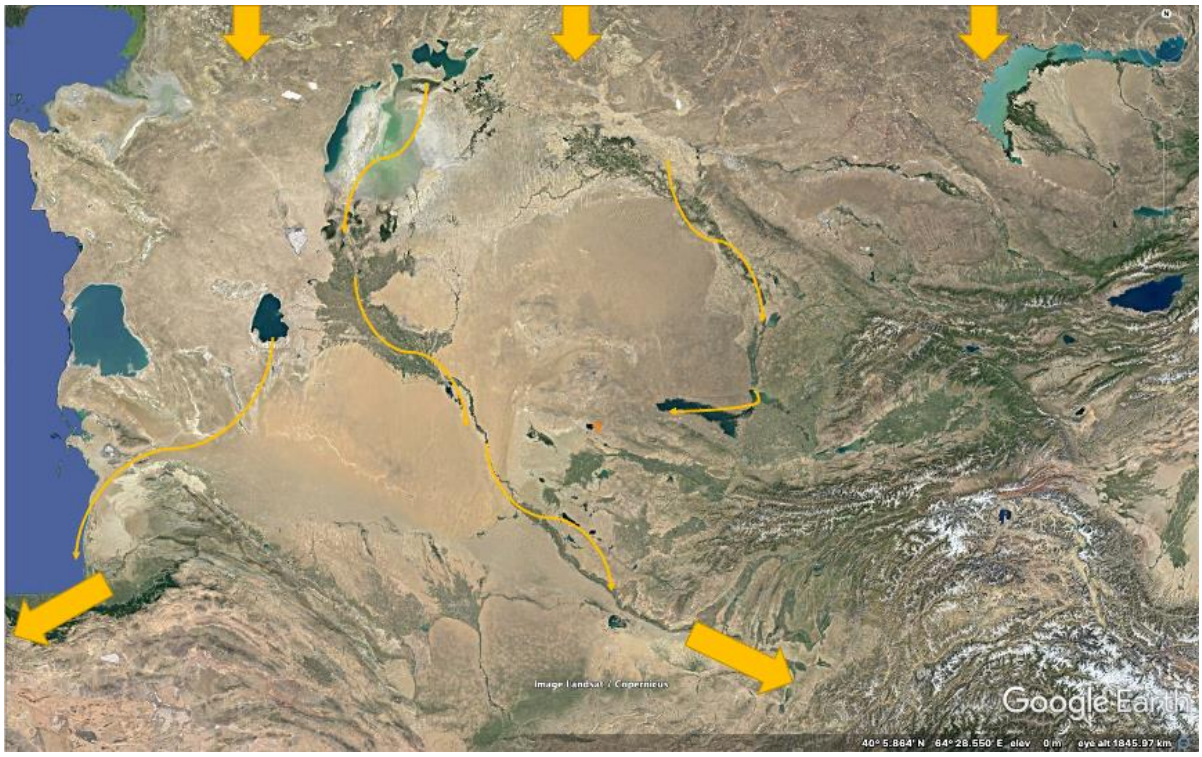
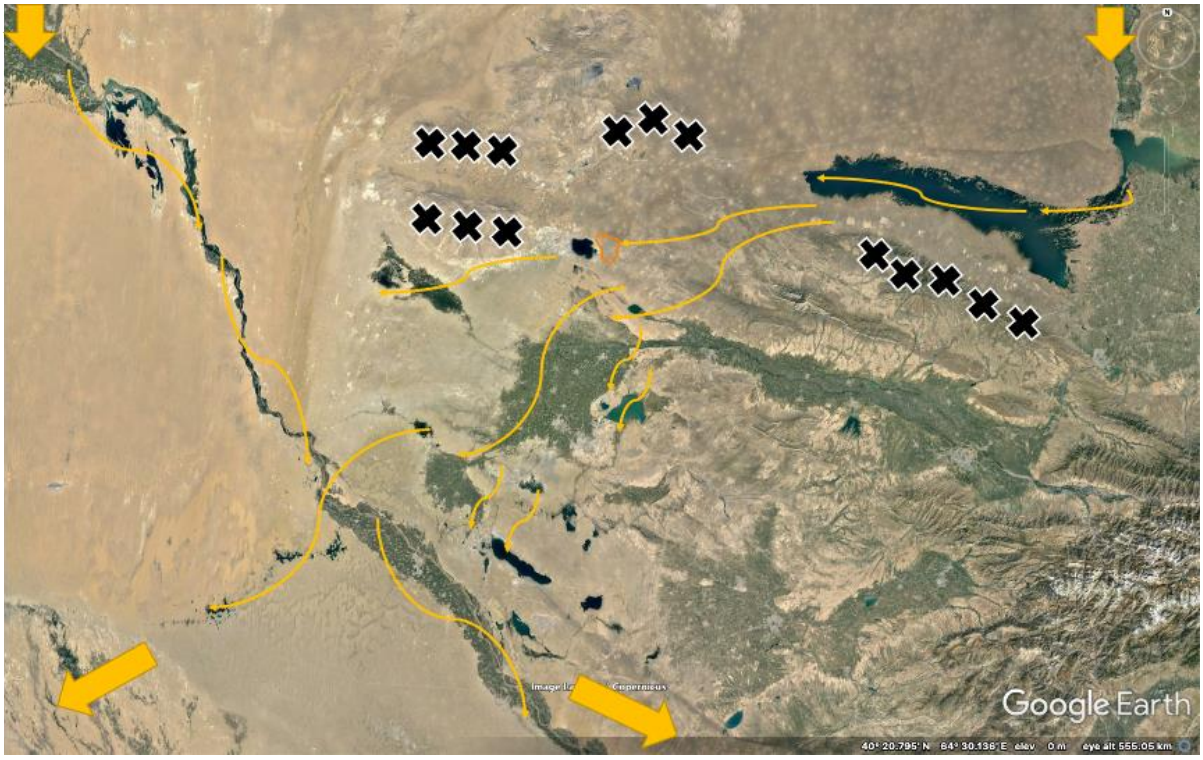
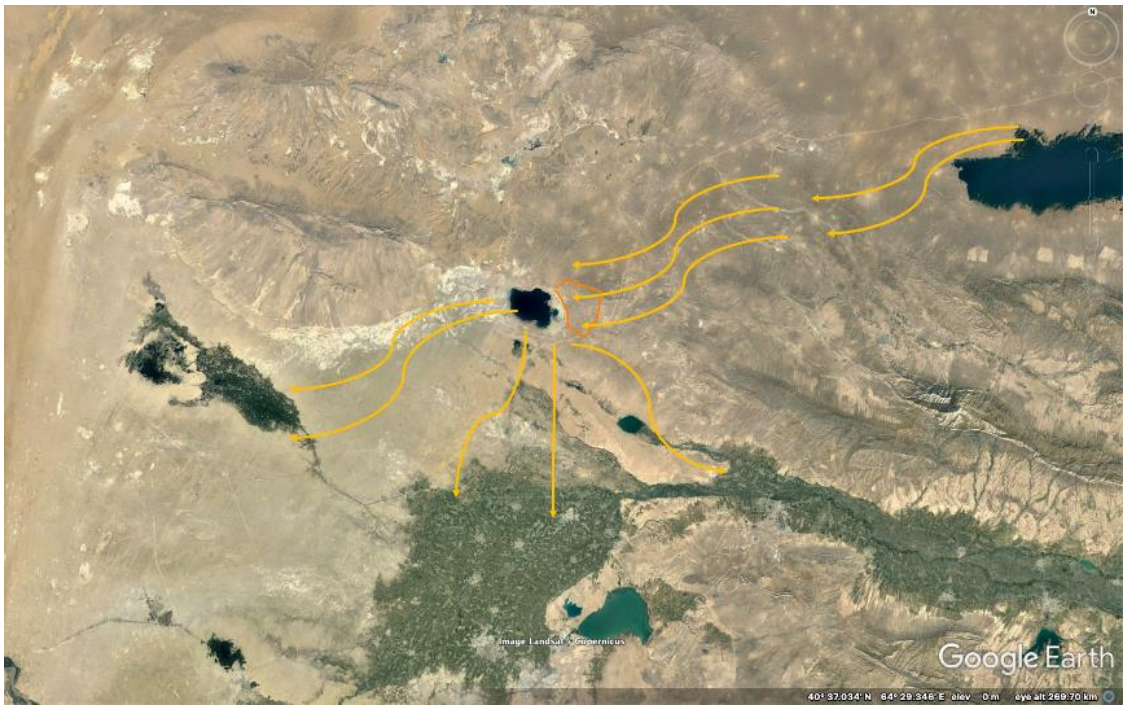


Figure 4-12 Predicted flight path analysis for migratory birds (2)



Based on the location of Aydarkul Lake, and the mountain landforms to the north and west of the project site, it is likely that migratory birds would cross the site from the northeast heading towards Ayakagytma Lake or further south.

Figure 4-13 Predicted flight path analysis for migratory birds (3)



The predicted migratory flight paths anticipate high levels of flight activity occurring in the project site airspace, especially during autumn migration.

4.2.1 Baseline Survey

4.2.1.1 Methods

4.2.1.1.1 Bash Wind Farm

The Bash WF site was comprehensively surveyed over four seasons in 2020 (Spring, Summer and Autumn, as well as Winter 2022) following the guidance of the Scottish Natural Heritage (SNH) guidelines, which are currently the internationally accepted best-practice for onshore wind farm surveying and assessment.

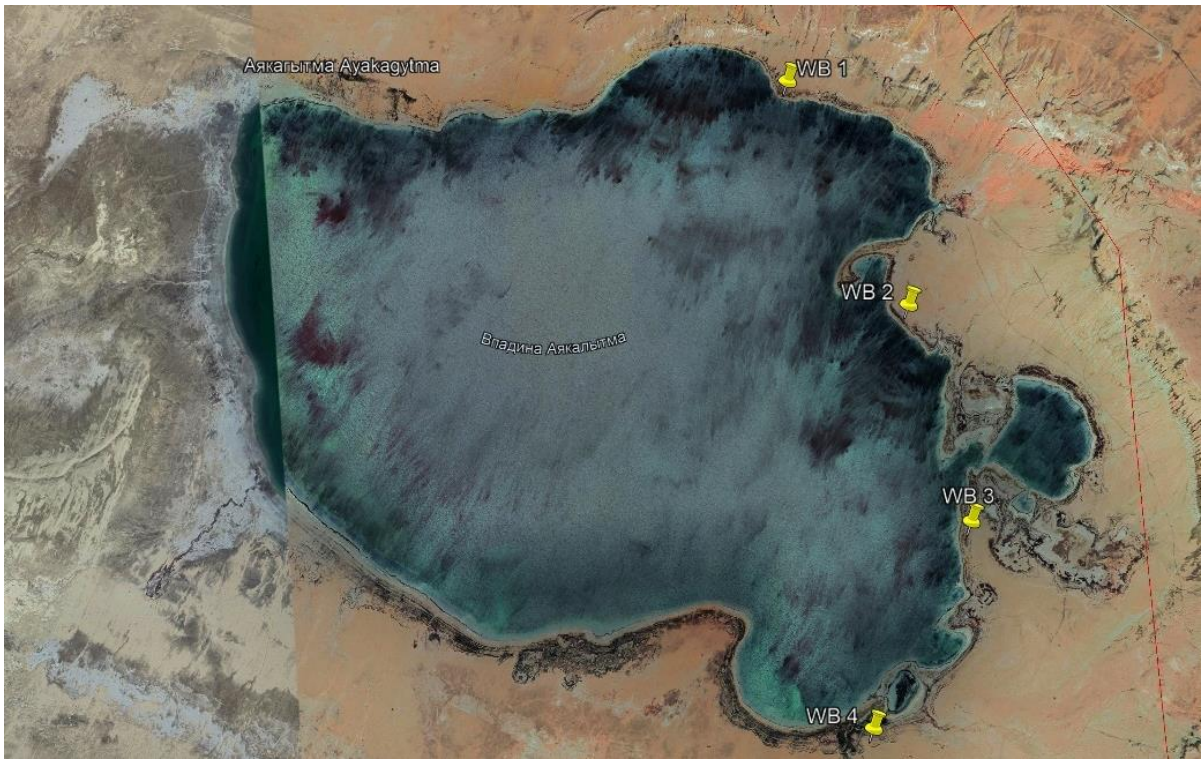
Surveys of waterbirds on Lake Ayakagytma were undertaken to establish the numbers of birds utilizing the adjacent Lake (also considered an IBA and KBA).

In January 2021, winter bird counts were conducted on the Ayakagytma lake. The survey of the lake began from the northeast side and continued along the shore through the village to the opposite side of the lake. Every 250-400 meters, a telescope was placed on a tripod and a record of birds flying or sitting on the water was made.

Bird surveys at the lake were also carried out in Winter 2022 for four months from Dec 2022-March 2022 at four locations; WB1, WB2, WB3 and WB4 shown in the following figure.

During the observations, photographing and short video shooting of the birds were carried out, which was used to confirm the correct species identification and obtain additional data on the number of individuals.

Figure 4-14 Survey Locations of Winter 2022 at Lake Ayakagytma



4.2.1.1.2 Bash-Karakul OHTL

The survey along the planned Bash-Karakul OHTL was carried out 3 - 4 May and 19-20 June 2021 at selected vantage points (VP). The points were places directly along the route of the transmission line or near it depending on the availability of access roads. The distance from the route in some places was generally not more than 1-2 km.

Visual observations of birds were made during the route survey. Bird sighting points were also marked using GPS. Bird species membership was determined visually using field binoculars with 8x magnification and Nikon and Fujifilm XT-20 digital cameras as well as audio recordings of bird voices (Xeno-canto Asia) and field bird identifiers (Mullarney, Svensson, Zetterstrom, Grant, 1999; Aye, Schweizer, Roth 2012).

Surveys were conducted at 11 selected points, in 1 km radius sections. Duration of observations was not less than 40 minutes at each vantage point.

An ornithological survey of existing power lines within Bash Wind Farm was also carried out. The total length of the survey routes covered under existing OHTLs was 64 km.

Figure 4-15 Vantage points of the projected OHTL route

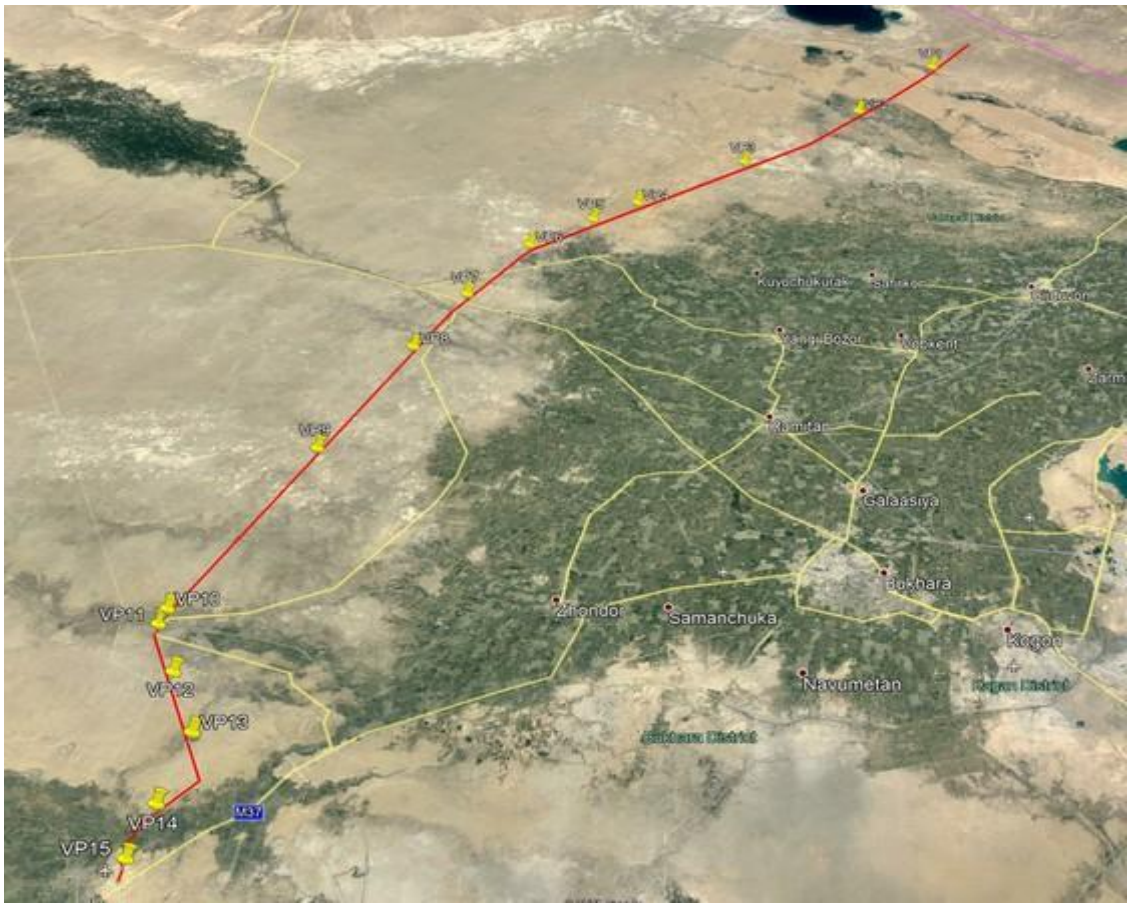


Figure 4-16 Vantage points of the projected OHTL route in June

4.2.1.2 Results

4.2.1.2.1 Bash Wind Farm

Waterbird surveying of Agyitma Lake found relatively low numbers in comparison to earlier reports from public databases (>20,000 birds in 2000).

Table 4-6 Bash Wind Farm – Lake Agyitma Surveys Results

Latin name	English name	Mar 2020	May 2020	Aug 2020	Jan 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	IUCN	Uzbekistan RDB
Acridotheres tristis	Common mayna						2				
Anas acuta	Northern pintail					2			2		
Anas clypeata	Northern Shoveler		52	360	144	15	85	15	76		-
Anas crecca	Green-winged Teal				960	170	20	80	525		
Anas penelope	Eurasian Wigeon								66		
Anas platyrhynchos	Mallard		26	80	380	411	380	205	160		-
Anas strepera	Gadwall					12	15	10	31		
Apus apus	Northern Swift		120	3							-
Ardea cinerea	Grey Heron		2	2		6	3	3	2	LC	-
Ardea purpurea	Purple Heron		3	5						LC	-
Athene noctua	Little Owl		2	2	2	1					-
Alcedo atthis	Common kingfisher					1					
Aythya ferina	Common pochard				708		40	78	195	VU	
Aythya fuligula	Tufted pochard						214	67	180		
Bucephala clangula	Common Goldeneye				38			15			
Buteo rufinus	Long-legged buzzard						1				
Calandrella rufescens	Lesser Short-toed Lark			120	320	140	710	290	190		

Latin name	English name	Mar 2020	May 2020	Aug 2020	Jan 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	IUCN	Uzbekistan RDB
Calidris minuta	Little Stint		18								-
Charadrius alexandrinus	Kentish Plover			80							
Charadrius asiaticus	Caspian Plover		15								-
Charadrius leschenaultii	Sand Plover			26							
Chlamydotis undulata	Houbara Bustard		2	1						VU	2 (VU:D)
Circus aeruginosus	Marsh Harrier		7	18	6	5	5	1			-
Circus cyaneus	Hen Harrier				1	2					
Coracias garrulus	Eurasian Roller		22	6							-
Corvus corone	Eurasian Carrion Crow				5	1	2				
Corvus frugilegus	Rook								14		
Cygnus cygnus	Whooper Swan				43	7	3				
Cygnus olor	Mute Swan		4	124	191	46	172	65		LC	3 (NT)
Egretta alba	Great white egret					9	4	2	2		
Emberiza schoeniclus	Reed bunting					11	10	4	5		
Falco naumanni	Lesser Kestrel			3							
Fringilla coelebs	Chaffinch				8	11					
Fulica atra	Common Coot		80	1270	4700	85		620	760		-
Galerida cristata	Crested Lark			46					42		
Glareola pratincola	European Collared Pratincole			32							

Latin name	English name	Mar 2020	May 2020	Aug 2020	Jan 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	IUCN	Uzbekistan RDB
Haliaeetus albicilla	White-tailed-Eagle			1	9	4	9	6	5	LC	VU
Himantopus himantopus	Black-Winged Stilt		8	160							-
Hirundo rustica	Barn Swallow			180							
Lanius isabellinus	Isabeline shrike								1		
Larus cachinnans	Caspian Gull	2	6	34		31	19	7	12		-
Larus genei	Slender-Billed Gull		4	5		6	1		20		-
Larus heuglini	Heuglin's Gull					1			2		
Larus ichthyaetus	Pallas's Gull								4		
Larus ridibundus	Black-Headed Gull		14	78			17	2	42		-
Melanocorypha leucoptera	White-winged Lark				1200						
Mergellus albellus	Smew				16						
Mergus merganser	Goosander				6	4					
Merops superciliosus	Blue-cheeked Bee-eater		60	240							-
Motacilla alba	White Wagtail		5	20			4		4		-
Motacilla alba personata	Pied Wagtail	3									
Motacilla flava	Yellow Wagtail		4	8							-
Netta rufina	Red-creasted pochard						10	155	130		

Latin name	English name	Mar 2020	May 2020	Aug 2020	Jan 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	IUCN	Uzbekistan RDB
Neophron percnopterus	Egyptian Vulture			1							
Oxyura leucocephala	White-headed duck								18	EN	
Passer hispaniolensis	Spanish sparrow								190		
Pelecanus crispus	Dalmatian pelican						2				
Pelecanus onocrotalus	Great White Pelican		2	48						LC	2 (VU:D)
Phalacrocorax carbo	Great Cormorant			4	62	44	320		24		
Phalacrocorax pygmaeus	Pygmy Cormorant		12	36						LC	3 (NT)
Phalaropus lobatus	Red-necked Phalarope		37	32							-
Phasianus colchicus	Common Pheasant		2 (voice)								-
Philomachus pugnax	Ruff		6								-
Phoenicopterus roseus	Greater Flamingo		23							LC	2 (VU:D)
Podiceps cristatus	Great crested grebe					3	6	4	3		
Pterocles orientalis	Black-bellied Sandgrouse								4		
Remiz coronatus	White-crowned penduline-tit					3					
Riparia riparia	Sand Martin		80	28							-
Sterna hirundo	Common Tern		15	38							-

Latin name	English name	Mar 2020	May 2020	Aug 2020	Jan 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	IUCN	Uzbekistan RDB
Sturnus vulgaris	Common starling						15	400	820		
Tadorna tadorna	Shellduck		6	14	236	4	18	6	31		
Tadorna ferruginea	Ruddy Shelduck	2	10	120					18		-
Tringa glareola	Wood Sandpiper		4	2							-
Tringa totanus	Common Redshank								65		
Vanellus vanellus	Northern Lapwing								40		
Vanellochettusia leucura	White-tailed Plover			24							

4.2.1.2.2 Bash-Karakul OHTL

According to survey results 718 birds comprising of 67 species were recorded in May, and 1628 birds including 56 species in June. The greatest species diversity was observed in areas with water bodies and agricultural lands (VP 1,2,5,14,15). The water birds recorded are listed as LC and no species were recorded in large enough numbers that could trigger criticality.

4.2.2 Stakeholder Engagement

The State Committee on Ecology and Environmental Protection Of The Republic Of Uzbekistan were consulted as part of the stakeholder engagement exercises of the CHA stage 2 process.

The following table outlines water bird counts collected by the Department of Biology of the Bukhara State University and the Bukhara State Medical Institute, employees of the Bukhara Regional Department of Ecology and Environmental Protection, the Bukhara regional branch of the Sports Association of Hunters and Fishermen of Uzbekistan. The surveys were conducted in March 2020 and March 2021.

Table 4-7 Bird Survey Results 2020 and 2021 - State Committee on Ecology

Species	Ayakagytma (14172 ha)	Karakir (18175ha)	Karakir (30000 ha)	Shurkul 2498г ha
	March 2020	March 2020	March 2021	March 2020
Mallard	5 000	7 500	22 000	3 500

Greylag goose	6 000	5 000	18 000	3 200
Eurasian teal	5 500	6 000	5 000	3 000
Red-crested pochard	7 000	7 000	7 000	3 000
Common pochard	4 500	5 000	14 000	2 000
Other ducks	8 000	7 000	18 000	3 500
Eurasian coot	9 000	15 000	25 000	4 000
Great cormorant	5 000	4 000	6 000	3 000
Black-bellied sandgrouse	4 000	4 000	4 000	3 000

The State Committee on Ecology and Environmental Protection also provided results of winter surveys of near-water and waterfowl at Ayakagytma in 2021.

Table 4-8 Winter Survey Results 2021 - State Committee on Ecology

SPECIES	COMMON NAME	MONTH	YEAR	NUMBER
Haliaeetus albicilla	White-tailed eagle	1	2021	35
Fulica atra Linnaeus	Eurasian coot	1	2021	174
Tadorna ferruginea	Ruddy shelduck	1	2021	11
Anas platyrhynchos	mallard	1	2021	160
Cygnus Cygnus	Whooper/common swan	1	2021	71
Cygnus olor	Mute swan	1	2021	536
Aythya fuligula	Tufted duck	1	2021	30
Mergellus albellus	Smew	1	2021	4
Mergus merganster	Common merganser	1	2021	14
Circus aeruginosus	Western marsh-harrier	1	2021	1
Circus cyaneus	Hen harrier	1	2021	2
Netta rufina	Red-crested pochard	1	2021	123
Calandrella rufescens	Med short-toed lark	1	2021	numerous

Species	Common Name	Month	Year	Number
Panurus biarmicus	Bearded reedling	1	2021	50-70
Scotocerca inquieta	Streaked scrub warbler	1	2021	2
Schoeniclus schoeniclus	Common reed bunting	1	2021	1
Prunella atrogularis	Black-throated accenter	1	2021	1
Bucephala clangula	Common golden eye	1	2021	2
Anas strepera	Gadwall	1	2021	1
Melanocorypha leucoptera	White-winged lark	1	2021	1
Falco linnunculus	Common kestrel	1	2021	1

The passages below are an excerpted from the response received from the State Committee on Ecology and Environmental Protection.

- Lake Ayakagytma and the surrounding desert is an Important Ornithological Area (IBA) and is of international importance for wintering waterfowls.
- The extensive salt marshes adjacent to the lake attract many waders. This makes the lake a very valuable resting place for the migratory birds of the wetlands. In total, about 200 bird species have been recorded on the lake, 22 of which are listed in the Red Book of Uzbekistan, and 11 in the IUCN Red List.
- Karakyr lakes are the most important ornithological territory, part of the territory is protected by the state sanctuary "Karakyr", part of the territory is a hunting and fishing farm.
- The avifauna includes about 200 species, of which 122 species are waterbirds

Maxim Mitropolskiy, Chairman of the Coordination Committee for the Ramsar Regional Initiative of Central Asia was also contacted as part of the stakeholder engagement exercises.

The passages below are an excerpted from the response received from him.

- ..it should be remembered that the lake Ayak-agitma plays an important role for birds during migration and wintering. Up to 35,000 birds gather here in winter, and during the migration period (especially in autumn) up to 115,000 birds fly by..

Anna Ten, expert ornithologist who has conducted bird surveys in the area in 2011, 2018 and most recently in the summer of 2021 shared the following information on nesting and migrating water fowl in the project area.

Table 4-9 IBA Criteria Lake Ayakagytma and the adjacent desert (Ten et al. 2012)

KEY TYPES	COMMENTS	
	NESTING	MIGRATION
A1 – globally threatened species		
Pelecanus crispus[1/2]		from 1 to 130 (2011); ordinary
Oxyura leucocephala[1/2]		4 (2009); rare
Neophron percnopterus[1]	from 3 to 4 pairs (2011); ordinary	
A3 – Biome species "Eurasian desert and semi-desert"		
Charadrius leschenaultia	35 (2006)	
Calandrella (rufescens) cheleensis	14 (2008)	
Iduna rama	from 2 to 14 (2011)	
Sylvia nana	14 (2008); ordinary	
Scotocerca inquieta	1 (2011); rare	
Rhodospiza obsolete	from 3 to 90 (2011); ordinary	
A4i - >1% biogeographic population of nearwater and waterfowls		
Netta rufina		4016 (2000)
Ardea alba		451 (2000)
Microcarbo pygmeus	31 (2006)	827 (2000)
Pelecanus onocrotalus[2]		from 28 to 482 (2011); ordinary
Pelecanus crispus[1/2]		from 1 to 130 (2011); ordinary
A4iii – >20 000 waterfowl and near-water birds		
waterfowl and near-water birds		23281 (2000)
Rare species		
Cygnus olor[2]	36 (2006)	от 8 до 16 (2008-2011)
Cygnus cygnus[2]		2 (20078 and 2011)

KEY TYPES	COMMENTS	
	NESTING	MIGRATION
Ferruginous Duck *Aythya nyroca*[1/2]	2 (2006)	3 (May 2007) and 1 (2011)
Phoenicopterus roseus[2]		from 20 to 115 (2011)
Ciconia nigra[2]		2 (2008)
Plegadis falcinellus[2]		from 30 to 106 (2007)
Platalea leucorodia[2]		from 2 to 4 (2008 and 2011)
Egretta garzetta[2]	3 (2006)	from 1 to 13 (2011)
Pandion haliaetus[2]		Single birds (2007-2011)
Gyps fulvus[2]		1 (2008)
Circaetus gallicus[2]		1 (2011)
Circus macrourus [½]		2 single birds (2008 and 2011)
Aquila nipalensis[2]		8 (2008) and 6 (2011)
Falco cherrug[1/2]	1 pair (2011); rare	
Falco peregrinus[12]		1 (2008)
Chlamydotis macqueenii[1/2]	1 (2008); rare	
Limosa limosa[1]		from 17 to 36 (2011); ordinary
Numenius arquata[1]		from 1 to 93 (2011); ordinary
Glareola nordmanni[1/2]		3 (2007)
Larus ichthyaetus[2]	8 (2006)	2 (2011)

Notes: [1]- Species included in the IUCN Red List of Species

[2]- Species included in the Red Book of Uzbekistan (2009)

- Both territories (Kuldzhuktau and Ayakagitma), as well as the territory where the power line is planned, are of great importance for migratory bird species.
- The geographical location of Dzhangeldy between the western edge of the Kuldzhuktau ridge (at its highest point) and the Beltau rock formations create a

kind of gateway for migrating species. Probably, all birds of predator, especially those that hunt during the flight, primarily harriers, buzzards, and falcons, will use the flight along the landscape depression.

- In turn, Ayakagitma is rich not only in birds of predator, but also in waterfowl and near-water birds. The air corridors along which waterfowl fly have not been studied. The IBA criteria are shown in Table 2 (Table 4-9 above).

5 CONCLUSION

This report has put forth the detailed baseline surveying efforts and results in relation to species with the potential to trigger criticality. Further, any relevant and applicable results obtained during stakeholder engagement has been provided as well. It has been assessed that there is robust and comprehensive data available to assess the criticality of all potential species of concern.

5.1 Stage 3 – Determining Critical Habitat

The CHA at its essence is an exercise undertaken to determine whether the habitat(s) present within the study area -inclusive of the project site, Area of Influence (AoI) and/or Ecologically Appropriate Area of Analysis (EAAA)- are to be considered as 'critical' or as a 'priority biodiversity feature', for which one of several criterion must be met.

There are several international lending organizations that have produced varying criterion for which critical habitat is defined by. The below provides an overview of all applicable criteria as per EBRD, IFC, and ADB:

- EBRD PR6 Criterion(i): Highly threatened or unique ecosystems /// IFC PS6 Criterion 4: Highly Threatened or Unique Ecosystems
- EBRD PR6 Criterion (ii): Habitats of significant importance to endangered or critically endangered species /// IFC PS6 Criterion 1: Critically Endangered and Endangered Species /// ADB criterion "habitat required for the survival of critically endangered or endangered species";
- EBRD PR6 Criterion (iii) Habitats of significant importance to endemic or geographically restricted species and sub-species /// IFC PS6 Criterion 2: Endemic and Restricted-range Species /// ADB criterion "areas with special significance for endemic or restricted-range species";
- EBRD PR6 Criterion (iv) Habitats supporting globally significant concentrations of migratory or congregatory species /// IFC PS6 Criterion 3: Migratory and Congregatory Species /// ADB criteria "sites that are critical for the survival of migratory species" and "areas supporting globally significant concentrations or numbers of individuals of congregatory species";
- EBRD PR6 Criterion (v) Areas associated with key evolutionary processes /// IFC PS6 Criterion 5: Key Evolutionary Processes /// ADB criterion "areas with unique assemblages of species that are associated with key evolutionary processes or provide key ecosystem services";
- EBRD PR6 Criterion (vi) Ecological functions that are vital to maintaining the viability of critical biodiversity features;

- ADB criterion "areas with biodiversity that has significant social, cultural or economic importance to local communities"; and

Some features of the study area that may be affected by the project may be considered "priority biodiversity features". Priority biodiversity features (PBF) are defined by the EBRD as a sub-set of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats. These features as identified as species or issue that do not merit critical status but remain a concern from a conservation perspective and require careful consideration during project assessment and impact mitigation.

EBRD have outlined several applicable criteria for the classification of a PBH:

- PBF Criterion (i): Threatened habitats
- PBF Criterion (ii): Vulnerable species
- PBF Criterion (iii): Significant biodiversity features identified by a broad set of stakeholders or governments (such as Key Biodiversity Areas or Important Bird Areas)
- PBF Criterion (iv): Ecological structure and functions needed to maintain the viability of priority biodiversity features

The findings of the desktop assessment and field survey data results shall be assessed against these criteria to assess whether the habitat(s) of the study area are to be considered as Critical Habitat.

The CHA will culminate in the preparation of a CHA Stage 3 Report, which shall:

- Provide a summary of the findings of the desktop assessment and field surveys results;
- Provide the narrative assessment of the study area against each criterion;
- Make a final statement for the project which identifies if any habitat within the study area is to be considered Critical Habitat; and
- If Critical Habitat has been designated, provide a "Next Steps" section which outlines the project requirements relating to biodiversity that would then be in place, based on the confirmed designation of Critical Habitat.