Dzhankeldy 500 MW Wind Farm
Republic of Uzbekistan

Critical Habitat Assessment–
Stage 3

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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 a 500MW Wind Farm in Dzhankeldy (the Project) on two adjacent plots of land in Peshku District.

ACWA Power have since established a Project Company, 'FE ACWA Power Dzhankeldy Wind LLC' registered in the Republic of Uzbekistan with registration number 839766. ACWA Power Dzhankeldy 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 will include the development financing, construction, operation and maintenance of the Wind Farm including wind turbine generators (WTGs) and wind farm electrical substations.

The Project scope also includes development, financing, construction and transfer of the Purchaser Electrical Facilities (OHTL and common electrical facilities shared with Bash 500MW Wind Farm, switchyard (with transformers) or 500/220 kV pooling station).

This Report constitutes the Critical Habitat Assessment CHA Stage 3 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 (KBAs), Important Bird Areas (IBAs), and Alliance for Zero Extinction (AZE) 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 EBRD PR6, IFC PS6, 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 Purpose/Scope of Report

The CHA culminates in the preparation of this CHA Stage 3 Report, which:

- Provides a summary of the findings of the desktop assessment and field surveys results;
- Provides the narrative assessment of the study area against each criterion;
- Makes a final statement for the project which identifies if any habitat within the study area is to be considered Critical Habitat or Priority Biodiversity Feature; and
- Provides 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.

2 METHODOLOGY

2.1 CHA Criteria

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 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 has outlined several applicable criteria for the classification of a PBF:

- 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

2.2 Critical Habitat Criteria Thresholds

Habitat will be determined to be critical if the minimum thresholds of any single criterion are met. The below are as per EBRD PR 6 and associated Guidance Note 6.

Thresholds for Criterion i (Highly threatened or unique ecosystems) are the following:

a) EAAA that is ≥5% of global extent of an ecosystem type with IUCN status of Endangered (EN) or Critically Endangered (CR)

b) EAAA that is an ecosystem determined to be of high priority for conservation by national or regional systematic conservation planning

Thresholds for Criterion ii (Habitats of significant importance to endangered or critically endangered species) are the following:

a) Areas that support globally important concentrations of an IUCN Red-listed EN or CR species (≥ 0.5% of the global population AND ≥ 5 reproductive units of a CR or EN species)

b) Areas that support globally significant population of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to EN or CR, meets the threshold (b) above

c) EAAA that contains important concentrations of a nationally or regionally listed EN or CR species

Thresholds for Criterion iii (Habitats of significant importance to endemic or geographically restricted species and sub-species) is the following:

a) EAAA that regularly holds ≥ 10% of global population AND ≥ 10 reproductive units of a species

Thresholds for Criterion iv (Habitats supporting globally significant concentrations of migratory or congregatory species) are the following:

a) EAAA that sustains, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population at any point of the species' lifecycle
b) EAAA that predictably supports ≥10 percent of global population during periods of environmental stress

Thresholds for Criterion v (Areas associated with key evolutionary processes) is the following:

a) Areas with landscape features that might be associated with particular evolutionary processes evolutionary processes or populations of species that are especially distinct and may be of special conservation concern given their distinct evolutionary history. For example:
    - Isolated lakes or mountaintops
    - Populations of species listed as priorities by the Edge of Existence Programme.

Thresholds for Criterion vi (Ecological functions that are vital to maintaining the viability of biodiversity features) is the following:

a) Ecological functions without which critical biodiversity features could not exist.

For example:

- Riparian zones and rivers
- Dispersal or migration corridors
- Hydrological regimes
- Seasonal refuges or food sources
- Keystone or habitat-forming species

EBRD Critical habitat criterion v and vi (evolutionary processes and ecological functions), IFC Criterion 5 (Evolutionary Processes) and additional criterion developed by ADB and do not have quantitative thresholds. As per EBRD PR6 GN6, the assessment for these criteria must rely upon expert judgement.

2.3 Priority Biodiversity Feature Criteria Thresholds

Habitat will be determined to be a PBF if the minimum thresholds of any single criterion are met. The below are as per EBRD PR 6 and associated Guidance Note 6.

Thresholds for PBF criterion i (Threatened habitats) are the following:

a) EAAA that is < 5% of the global extent of an ecosystem type with IUCN status of CR or EN

Thresholds for PBF criterion ii (Vulnerable species) are the following:

a) EAAA that supports < 0.5% of global population OR < 5 reproductive units of a CR or EN species.
b) EAAA supports a VU species
c) EAAA that supports regularly occurring nationally or regionally listed EN or CR species
d) EAAA that holds regularly occurring range-restricted species
e) EAAA identified as per recognized national or international process as important for migratory birds (esp. wetlands)

PBF Criterion iii and iv do not have quantitative thresholds. As per EBRD PR6 GN6, the assessment for these criteria must rely upon expert judgement

2.3.1 Determining Ecologically Appropriate Area of Analysis (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.

2.3.2 Population Extrapolations

In order to determine the potential criticality of the project area for birds, a population extrapolation was formulated utilizing the year-long seasonal surveying results as the base input.

$$\frac{no.\,birds\ recorded\ at\ vantage\ point\ during\ season}{no.\,hours\ surveyed\ at\ vantage\ point\ during\ season} = \frac{total\ no.\,birds\ crossing\ vantage\ point\ during\ season}{total\ no.\,hours\ during\ which\ migration\ takes\ place\ during\ season}$$

Seasons were calculated independently to prevent over-estimation during non-migratory periods. Vantage Point calculations were then added to provide a seasonal total.

For other species, regional expert surveyors were requested to provide population estimates based on survey findings and known historical and regional trends.

3 THREATENED SPECIES

3.1 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.

3.1.1 Presence in Project Area

Project Surveys

Geckos were recorded during spring and summer surveys within the wind farm project. A total of 7 males were recorded in the spring, and 47 individuals were recorded during the summer.

17 individuals were recorded at three locations along the Bash-Dzhankeldy OHTL route in June 2021.

Stakeholder Information

As per consultation with Roman Nazarov, a National Geographic funded study conducted in 2019 indicates that the population found in Central Uzbekistan is genetically unique and distinct from others, meaning that it is an endemic species to Uzbekistan. If this also applies to Southern Uzbekistan populations is currently under study.

3.1.2 Analysis

Population Extrapolation

The density of geckos on site varied depending on the site locations. The lowest density recorded was 2.7 geckos per ha, while the highest was 13.3 geckos per ha, both during the summer season.

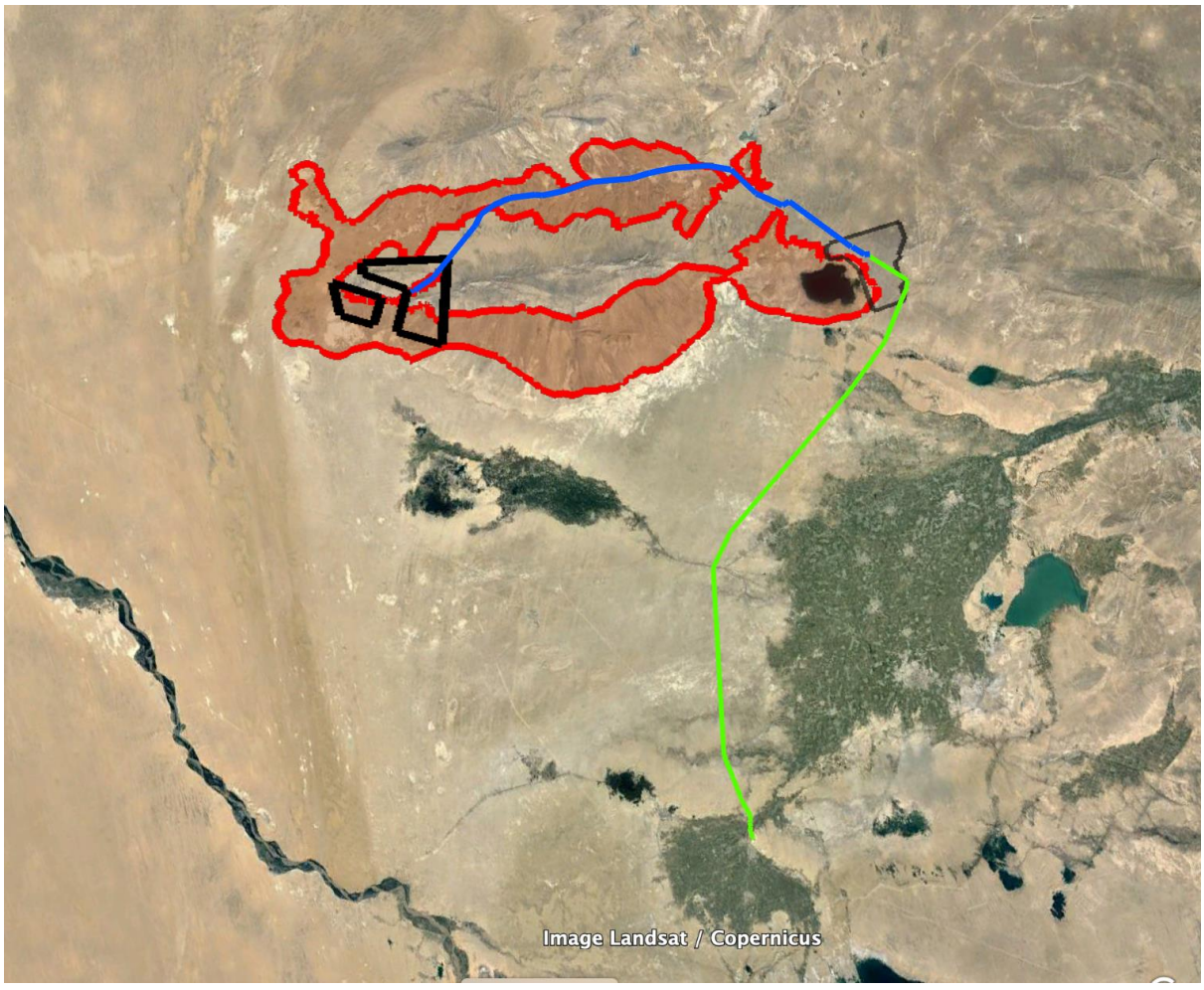
The highest density recorded along the OHTL route was 9.3 geckos per ha and the least was 5.2 geckos/ha.

Criticality

Local experts estimate the sex ratio of the Southern Even-fingered gecko to be 2 males :1female. Taking this assumption into consideration, it is possible there may be a maximum of 30 reproductive units. Although there are no global estimates for the species, the available literature and stakeholder engagement indicates that any viable population would be considered as more than 0.5% of the global population. Adding to the fact that the Uzbekistan population may be a genetically unique endemic species, it is considered that Criticality is triggered for the Southern Even-fingered Gecko in the wind farm project site as well as specific segments of the OHTL corridor.

For the purposes of EBRD PR6 and related lender requirements, the discrete management unit shall apply to the full amount of habitat utilized by the gecko.

Figure 3-1 Proposed Wind Farm and OHTL Locations (refer to Dzhankledy WF in the west and Dzhankeldy-Bash OHTL in blue) overlaid with gecko habitat polygon (in red)



The CHA analysis is complete for the species at this point. CHA requirements that will now apply to the project are listed in the Conclusion chapter.

The ESIA will include further assessment of the project's impacts on this gecko species and provide mitigation, management and monitoring measures aligned with international best practice and CHA requirements.

3.2 Egyptian Vulture

The Egyptian Vulture (*Neophron percnopterus*) is listed as Endangered on the IUCN Red List, due to rapid decline possiblycaused 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.

3.2.1 Presence in Project Area

Project Surveys

Project surveys of the wind farm area recorded a total of 39 individuals over the course of one year.

The survey of the OHTL route recorded two individuals of this species in May and another two in June.

3.2.2 Analysis

Population Extrapolation

The global population is 12,000-38,000 mature individuals, which means the CR/EN criticality threshold is 60 individuals. The extrapolated annual population is estimated at 136 individuals.

However, the above extrapolation provides the number of birds that could potentially be recorded and does not indicate the number of individuals present in the project area. Though individuals have been recorded in the Kulzhuktau mountains, the nesting surveys to date and stakeholder accounts have not confirmed the presence of breeding pairs in the project area.

Criticality

Though the Egyptian Vulture are present regularly in the project area, especially in summer, the survey results indicate that this species does not occur in abundances that trigger criticality in the wind farm area or the OHTL route

However, it remains a Priority Biodiversity Feature (PBF) as per the EBRD PR6 GN6 criteria for which mitigation will be addressed in the ESIA.

The CHA analysis is complete for the species at this point. CHA requirements that will now apply to the project are listed in the Conclusion chapter.

The ESIA will include further assessment of the project's impacts on Egyptian Vultures and provide mitigation, management and monitoring measures aligned with international best practice and CHA requirements.

3.3 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.

3.3.1 Presence in Project Area

Project Surveys

Project surveys of the wind farm area recorded a total of 52 individuals over the course of one year.

There were no recorded sightings of the Steppe Eagle during the OHTL surveys to date.

Stakeholder Information

Surveys conducted by ornithologist, Anna Ten have recorded Steppe Eagles on the southern slopes of the Kuldzhuktau mountain range. Raptor expert, Igor Koryakin has confirmed that this species is likely to pass through or near the project site evidenced by satellite data of tracked eagles.

3.3.2 Analysis

Population Extrapolation

The global population is assumed to be below 37,000 pairs. The criteria threshold for endangered species, 0.5% of the global population, would be estimated as 370 individuals. The extrapolated annual population is estimated at 147 individuals.

Criticality

Although Steppe Eagle regularly occur in the project area, especially during the autumn migration period, it is not at abundances high enough to trigger criticality. However, the species is still to be considered as a highly important sensitive receptor.

As per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF) and the ESIA will include assessment of potential impacts arising from the construction and operation of the project wind farm and associated facilities, along with recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice.

3.4 Eastern Imperial Eagle

The Eastern Imperial Eagle is listed as Vulnerable on the IUCN Red List, due to persistent declines driven by habitat loss and degradation, adult mortality through persecution and collision with powerlines, nest robbing and prey depletion.

The Eastern Imperial Eagle is a summer breeder and passage migrant through Uzbekistan.

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

3.4.1 Presence in Project Area

Project Surveys

Project surveys of the wind farm area recorded a total of 8 individuals over the course of one year, primarily during autumn.

3.4.2 Analysis

Population Extrapolation

The species has a global population of 3,500-15,000 individuals; thus, a conservative 1% estimate is 35 individuals. The extrapolated annual population is estimated at 20 individuals.

Criticality

Although Imperial Eagle regularly occur in the project area, especially during the autumn migration period, it is not at abundances high enough to trigger criticality. However, the species is still to be considered as a highly important sensitive receptor.

As per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF), and the ESIA will include assessment of potential impacts arising from the construction and operation of the project wind farm and associated facilities, along with recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice.

3.5 Asian Houbara

This species is a breeding resident in Uzbekistan.

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).

3.5.1 Presence in Project Area

Project Surveys

Houbara are known to be extremely shy and secretive species, and it is no surprise that only 1 individual was recorded during the full year of wind farm vantage point surveys.

However, OHTL corridor surveying in May recorded 1 individual. Further, a specialised houbara survey undertaken during the breeding season identified 5 individuals.

Stakeholder Information

Information provided by leading regional experts includes figures that depicts heavy use of the wind farm and OHTL corridor areas by satellite tagged birds. As mentioned, Houbara are highly secretive and thus physical surveying typical leads to under-representation.

3.5.2 Analysis

Population Extrapolation

The species has a global population of 33,000-67,000 mature individuals; thus, a conservative 1% estimate is 330 individuals.

Considering the density at which birds were recorded during surveying, a population of approximately 40-60 adult birds is predicted for the area of influence (wind farm) as well as an additional 40-60 birds for the OHTL.

The extrapolated annual population for the full project area of influence is therefore estimated at maximum 120 individuals.

Criticality

The quantitative population estimation is below the proposed threshold for criticality.

However, stakeholder engagement indicates that the wind farm area lies within both prime breeding ground as well as a migratory corridor. It is considered that given population extrapolation for such a secretive species has a high margin of possible error, that this species is also considered as triggering criticality for the project.

3.6 Saker Falcon

This species is a potential summer breeder and sometime passage migrant through Uzbekistan.

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

Major threats include electrocution on power lines, decreased prey availability due to habitat loss and offtake for falconry.

3.6.1 Presence in Project Area

Project Surveys

No sightings of the Saker Falcon were recorded during the baseline survey of the project site.

Stakeholder Information

Surveys conducted by ornithologist, Anna Ten, have recorded a single Saker Falcon breeding pair in the Kulzhuktau-Guzhumdy area.

3.6.2 Analysis

Criticality

Given the low number of individuals present in the EAAA, it is not considered that criticality is triggered. However, as per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF).

3.7 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.

3.7.1 Presence in Project Area

Project Surveys

Spring surveys registered a total of 14 individuals, while summer surveys registered none. This is consistent with the ecology of the species, as it is in hibernation from summer through winter, the majority of the year.

Although no sightings of the Russian Tortoise were registered during the OHTL route survey, 19 burrows of this species were found at three surveys points.

During the mammal survey of the OHTL route in April, 120 Russian tortoises were recorded.

3.7.2 Analysis

Population Extrapolation

Density ranges from 0.4 to 2.4 per ha as per site surveys.

Criticality

There are no global population estimates available for this species. However, sexual maturity is not reached until 10 years of age, with average lifespans of 20 to 30 years. It is considered therefore that losses to mature individuals in areas with viable populations could easily have significant impacts on the regional population.

As per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF).

3.8 Goitered Gazelle

The Goitered Gazelle inhabits a wide range of semi-desert and desert habitats. The spatial distribution covers a large portion of Uzbekistan.

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

3.8.1 Presence in Project Area

Project Surveys

The Goitored Gazelle was registered during the mammal surveys in the wind farm and OHTL areas.

One individual was recorded during the survey of the project site at the foot hills of Kuldzhuktau. Gazelle dung was also recorded within the project area on single occasion. No sightings of this species were made during the mammal survey along the OHTL route.

3.8.2 Analysis

Population Extrapolation

Current estimations of the global population are 42,000 to 49,000 individuals. The 1% threshold would therefore me 420 individuals. The regional population is estimated at approximately 50 individuals.

Criticality

Although Goitered Gazelle have been established to occur in the project area, it is not at abundances high enough to trigger criticality. However, the species is still to be considered as a highly important sensitive receptor.

As per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF), and the ESIA will include assessment of potential impacts arising from the construction and operation of the project wind farm and associated facilities, along with recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice.

3.9 Turken Caracal

Turken Caracal (Desert Lynx), *Caracal caracal* is listed as CR on the Uzbekistan Red List due to the presence of a locally distributed subspecies.

3.9.1 Presence in Project Area

Project Surveys

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

Stakeholder Information

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 paper reports sightings of caracals in 2012 and 2013 in the villages of Kalaata and Dzhankeldy close to the project site.

F. Salimov, a stakeholder from the Bukhara Regional Department of the State Committee for Nature Protection, reported several sightings of this species near the above-mentioned village of Dzankeldy and on the shore of Lake Zamonbobo in the past 10–15 years.

3.9.2 Analysis

Population Extrapolation

Although listed as CR nationally, the Turkmen Caracal is a subspecies of a relatively common and widespread mammal. Given the absence of records, it is not considered that criticality is triggered. However, as per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF).

3.10 Marbled Polecat

3.10.1 Presence in Project Area

Project Surveys

No sightings of the Marbled Polecats were recorded during the baseline survey of the project site.

Tracks of a Mustelid sp. were recorded during the OHTL survey.

The observation of prey species associated with the Marbled polecat at the windfarm site and along the OHTL route indicate that the project area is a suitable habitat for this species.

Stakeholder Information

The ecologists of the baseline survey indicate that this species was last recorded in the adjacent Karakata depression in the early 1900's.

3.10.2 Analysis

Criticality

Given the relative absence of records, it is not considered that criticality is triggered. However, as per the EBRD PR6 GN6 criteria the species is a Priority Biodiversity Feature (PBF).

3.11 None Registered

The following species had 0 records to date from one year of vantage point surveying, two months of surveying along the OHTL alignment, and from data provided by stakeholder:

- Sociable Lapwing
- Pallas Fish Eagle
- White-headed Duck
- Greater Spotted Eagle
- Marbled Teal
- Lesser White-fronted Goose
- Common Pochard
- Great Bustard
- European Turtle-dove
- Yellow-eyed Pigeon
- Dalmation Pelican
- Eurasian Otter
- Tarim Red Deer
- Striped Hyena
- Bokhara Whiskered Bat

Therefore, it is not considered likely for criticality to be triggered for any of these species.

3.11.1 Sociable Lapwing

The Sociable Lapwing is listed as Critically Endangered on the IUCN Red List, due to rapid population decline thought to be driven by hunting pressures. Given it's elevated status,

additional information is provided here to justify the lack of criticality designation for this species.

3.11.2 Presence in Project Area

Project Surveys

No Sociable Lapwing sightings have been recorded in any of the WF project surveying efforts.

No Sociable Lapwing sightings have been recorded in any of the OHTL project surveying efforts, although they began in May 2021 and are still ongoing.

Stakeholder Information

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.

3.11.3 Analysis

Population Extrapolation

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. Thus, CR/EN criticality threshold of 0.5% global population is 80 individuals.

Although it is still possible that birds may occur in the area of influence for the OHTL, it is not regarded as likely that it will be in the order of 80+ individuals annually.

Criticality

Public, stakeholder and survey data indicate that the Sociable Lapwing does not occur with regularity in the project area of influence. Thus, it has been determined that the project does not meet criticality and does not qualify as Critical Habitat for Sociable Lapwing.

However, the species is still to be considered as a highly important sensitive receptor, and the ESIA will include assessment of potential impacts arising from the construction and operation of the project wind farm and associated facilities, along with recommendations for management, mitigation and monitoring in line with EBRD and lender requirements and international best practice.

4 ENDEMIC AND RANGE-RESTRICTED

4.1 Invertebrates

Invertebrate surveys were carried out covering spring and summer seasons for the wind farm area and the OHTL corridor.

All species and communities recorded were considered typical, with no threatened or endemic species recorded.

Therefore, it is not considered likely for any invertebrate species to trigger criticality.

4.2 Flora

Botanical surveys were carried out covering spring and summer seasons for the wind farm area and the OHTL corridor.

Although a number of regionally endemic species were recorded, there were no areas with threatened or endemic species that were recorded with high abundance.

As the minimum criticality threshold is determined as 'areas that regularly hold > 10% of the global population size', it is not considered likely for any flora species to trigger criticality.

5 MIGRATORY SPECIES

Thresholds for EBRD Criterion iv (Migratory or Congregating Species) are the following:

a) Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.

5.1 Bats

The highest abundance of records of bats included 30 calls belonging to the Particoloured Bat (*Vespertilio murinus*) in the 2020 summer/autumn survey and 60 calls in the 2021 spring/summer survey. The second most abundant species in the area were Serotine Bats with 20 calls recorded in 2020 and 35 calls in 2021.

The least number of calls recorded (2) were that of the Common pipistrelle.

Roost searches registered two species within the project area, the Bhokara Horsehoe Bat and Serotine Bats. No species reached 1% of the current global population.

5.2 Birds

Extrapolations of all recorded birds from the year's vantage point surveys were completed. No species (excluding the threatened species already covered in previous chapters) reached 1% of the current global population.

The migratory flight path analysis indicates that the project site is not considered to be a major migratory flyway bottleneck due to the terrain and spatial environmental context.

The following migratory species with elevated conservation status at international/national levels have been designated as PBFs; Great White Pelican, Cinereous Vulture, Eurasian Griffon, Short-toed Snake Eagle and White-tailed Eagle.

6 ECOSYSTEM FUNCTIONING

6.1 Unique Ecosystems/Key Evolutionary Processes

No ecosystems were identified which are considered to be unique or threatened and listed by the IUCN Red List of Ecosystems as such. No attributes were identified that can influence the evolutionary processes that give rise to regional configurations of species and ecological properties.

6.2 Keystone Species

Greater Horseshoe Bat, Common Noctule, Common Pipistrelle, Particolored Bat, Serotine Bat and Botta's Serotine were recorded during the bat baseline surveys. All six bat species are insectivorous species. An insectivorous bat can eat anywhere between 300 and 3000 insects a night, depending on size of the bat and the size of the insects. As such, they are the primary biological control of night flying insect populations and are considered as keystone species that qualify as PBFs.

7 CONCLUSION

7.1 Summary of Findings

The following species have triggered the designation of Critical Habitat within the project's area of influence:

- Southern Even-fingered Gecko
- Asian Houbara

The following table lists the species that did not qualify as critical habitat species but have been designated as Priority Biodiversity Features for the Dzhankeldy WF project. The table includes PBF species that, though were not recorded during the baseline surveys, may possibly occur in the Dzhankeldy survey area.

Table 7-1Priority Biodiversity Features for Bash WF

ELEMENT	CRITERIA
Raptors	
Steppe Eagle	Threatened Species (EN) Migratory / Congregatory Species
Egyptian Vulture	Threatened Species (EN)
Eastern Imperial Eagle	Threatened Species (VU)
Cinereous Vulture	Threatened Species (Globally NT / Nationally NT) Migratory / Congregatory Species
Eurasian Griffon	Threatened Species (Globally LC / Nationally VU) Migratory / Congregatory Species
Short-toed Snake Eagle	Threatened Species (Globally LC / Nationally VU) Migratory / Congregatory Species
Golden Eagle	Threatened Species (Globally LC / Nationally VU)
White-tailed Eagle	Threatened Species (Globally LC / Nationally VU) Migratory / Congregatory Species
Saker Falcon	Threatened Species (EN)
Waterbirds	
Great White Pelican	Threatened Species (Globally LC / Nationally VU) Migratory / Congregatory Species
Lesser White-fronted Goose	Threatened Species (Globally VU / Nationally VU) Migratory / Congregatory Species
Marbled Teal	Threatened Species (Globally VU / Nationally EN) Migratory / Congregatory Species

ELEMENT	CRITERIA
White-headed Duck	Threatened Species (EN) Migratory / Congregatory Species
Common Pochard	Threatened Species (VU) Migratory / Congregatory Species
Dalmatian Pelican	Threatened Species (Globally NT / Nationally EN) Migratory / Congregatory Species
Other birds	
Great Bustard	Threatened Species (Globally VU / Nationally CR) Migratory / Congregatory Species
European Turtle-dove	Threatened Species (Globally VU / Nationally VU) Migratory / Congregatory Species
Sociable Lapwing	Threatened Species (Globally CR / Nationally CR) Migratory / Congregatory Species
Mammals	
Goitered Gazelle	Threatened Species (VU) Keystone Species
Turkmen Caracal	Threatened Species (Globally LC / Nationally CR)
Marbled Polecat	Threatened Species (Globally VU/ Nationally VU)
Bats	
Greater Horseshoe Bat	Migratory / Congregatory Species Keystone Species
Common Noctule	
Common Pipistrelle	
Particolored Bat	
Serotine Bat	
Botta's Serotine	
Reptiles	
Russian Tortoise	Threatened Species (VU) Keystone Species

7.2 Requirements for Development

The project has been determined to be Critical Habitat (CH) for Asian Houbara and a total of 28 species have been designated as PBFs.

The following requirements will be applicable in order to allow the go-ahead for the project's development, including:

- The project will demonstrate that no other viable alternative in the region within less sensitive habitat exists; A Project Alternative analysis has been undertaken in the Project Specific ESA section 2.8.

- The project must not lead to measurable adverse impacts on the biodiversity features for which the critical habitat was designated. In particular, the project will be required to demonstrate No Net Loss (NNL) in the population of CH and PBF species. This will entail the provision of robust project mitigation targeted at the predicted adverse impacts on the species designated as Critical /PBF.
    - The ESIA provides further assessment of the project's impacts on CH and PBF species and provide mitigation, management and monitoring measures aligned with international best practice and CHA requirements.
    - A Biodiversity Action Plan must be prepared which outlines the project's mitigation strategy for each CH and PBF species.
- The project must be designed to deliver net gains for critical habitat impacted by the project (to be like-for-like or better, and in-kind). This will target compensatory offset programs for the critical species, Asian Houbara.
    - A Compensation Offset Plan will be prepared which outlines how net gains will be achieved.
- A robust and appropriately designed, long- term Biodiversity Monitoring and Evaluation programme (BMEP)aimed at on-going assessment of the status of CH and PBFs will be integrated into the client's adaptive management programme.