

## APPENDIX 6-2 – Critical Habitat Assessment

### Scope of the Critical Habitat Assessment

This report details the Critical Habitat Assessment (CHA) for the Zarafshan Wind Farm Project (The Project), which has been completed in line with IFC Performance Standard 6 (PS 6) and EBRD Performance Requirement 6 (PR 6) and the corresponding Guidance Notes (GN) as well as the ADB Safeguarding Policy Statement to identify if sections of the Project area are considered as Critical Habitat. The site boundary is shown in Figure 1 below with a Project area of approximately 101 km<sup>2</sup>.



**Figure 1. Zarafshan Wind Farm Project Site Boundary**

This CHA aims to:

- identify Critical Habitat qualifying species or habitats, Priority Biodiversity Features and Natural Habitat associated with the Project.
- Highlight future actions for the Project where applicable, including identification and filling of data gaps and the need for additional field surveys as well as outline details to be included in a Biodiversity Management Plan (BMP).

### Background

This report has been carried out on a location where there are large gaps in available data due to the rarity of species and lack of historic local, regional, and national survey data. In certain specific cases the report ensures that a precautionary approach is taken when dealing with these species. In particular where wider population levels are unknown a precautionary assumption of low population levels is used and where species are not recorded within the survey area, but habitat is present that is suitable the species is considered to have potential to use the site over the lifetime of the project and is screened in.

Information relating to the projects size, location and proposed impacts are detailed in the chapters preceding this document, and as such are not repeated here. Background to the CHA process and the process followed is detailed below.

## International Finance Corporation (IFC) Performance Standard (PS) 6

In accordance with IFC PS 6, habitats are divided into modified habitats, natural habitats, and critical habitats. Critical Habitats (CH) are a subset of either modified or natural habitats supporting high biodiversity value, including:

- Habitat of significant importance to critically endangered and/or endangered species (International Union for Conservation of Nature and Natural Resources (IUCN) Red List)
- Habitat of significant importance to endemic and/or restricted-range species
- Habitat supporting globally significant concentrations of migratory species and/or congregatory species
- Highly threatened and/or unique ecosystems
- Areas associated with key evolutionary processes

Since habitat destruction is recognised as a major threat to the maintenance of biodiversity and to assess likely significance of impacts, IFC PS 6 requires the following depending on habitat status:

**Modified Habitat:** exercise care to minimise any conversion or degradation of such habitat, depending on scale of project, identify opportunities to enhance habitat and protect and conserve biodiversity as part of operations.

**Natural Habitat:** developer will not significantly convert or degrade such habitat unless no financial/technical feasible alternatives exist, or overall benefits outweigh cost (including those to biodiversity), and conversion or degradation is suitably mitigated. Mitigation must achieve no net loss of biodiversity where feasible; offset losses through creation of ecologically comparable area that is managed for biodiversity, compensation of direct users of biodiversity.

**Critical Habitat:** in areas of CH, the Developer will not implement project activities unless there are no measurable adverse impacts on the ability of the critical habitat to support established populations of species described or on the functions of the critical habitat; no reduction in population of a recognised critically endangered or endangered species and lesser impacts mitigated as per natural habitats.

## European Bank for Reconstruction and Development (EBRD) Performance Requirement (PR) 6

The EBRD PR 6 sets objectives to protect and conserve biodiversity using a precautionary approach, utilise the mitigation hierarchy to achieve no net loss/net gains where appropriate, maintain ecosystem services, and promote good practice in the management and use of natural resources.

In addition to the Critical Habitat noted above, the PR 6 also builds on the requirements to preserve important areas of natural habitats, defining these as “Priority Biodiversity Features” (PBF), with a criterion-based qualitative approach also used to determine their significance.

## Methods

### General

The CHA process comprises several steps in order to ensure the process is robust:

- Initial Screening – which involves making stakeholder consultation and/or an initial literature review *e.g.* Important Bird Areas in Uzbekistan; Red Data Book of Plants and Animals; IUCN Red List of Threatened Species and; World Database of Key Biodiversity Areas.
- Establishment of baseline which includes field data collection and verification of available information *e.g.* Habitat Survey; Bird Survey; Bat Survey; Invertebrate Survey; Reptile Survey.
- Critical habitat determination:
  - a) Determination of Ecologically Appropriate Area of Analysis.
  - b) Assessment against Critical Habitat criteria.

### Literature review and stakeholder consultation

A literature review was performed in order to understand the baseline conditions of the Project as well as informing the CHA. Primary sources of Project-related information included reports / articles / books related to the site and on-line resources including but not limited to:

- Field data collection and verification of available information *e.g.* Habitat Survey; Bird Survey; Bat Survey; Invertebrate Survey; Reptile Survey.
- Red Data Book of Uzbekistan.
- IUCN Red List of Threatened Species.
- The EDGE of Existence programme.
- EUNIS Habitat Directive.
- BirdLife International Important Bird and Biodiversity Areas (IBAs).
- World Database of Key Biodiversity Areas.

Consultation with stakeholders has taken place and is ongoing. Where relevant, the outcomes of these discussions will be updated accordingly. Stakeholders consulted has included:

- the Institute of Zoology in Uzbekistan

- the Uzbekistan Society for the Protection of Birds (UzSPB)
- Birdlife International (based in Cambridge, UK)

## Baseline Establishment including field data collection and verification of available information

Baseline field studies were undertaken in June 2018 and between March 2020 - June 2021. A broad outline of the surveys undertaken are presented below with further details provided within the ESIA and its appendices.

### *Flora and habitat*

A botanical specialist completed walkover surveys of the proposed Project area and OHL routes in October 2020 and May and June 2021. Vegetation structure and species composition was described from 50 x 50 m geobotanical sample plots (squares) chosen in an area with homogeneous vegetation, representative for each survey locations. There were 14 survey areas used for the surveys in 2020 and 101 plots in total surveyed in 2021, these are considered representative of the overall site and the habitats contained within.

### *Bird Survey*

For the purpose of survey design and reporting, the survey seasons (based on broad activity periods and concentrating on the more regular migration periods) encompassed the following periods:

- Spring Migration Vantage Point (VP) Surveys (including nesting birds) – 11 March to 26 May 2020. A total of 37 hours/VP completed over this period resulting in a total of 1,038-man hours observation spread over a total of 77 days.
- Raptor Nest Search Transects – transects were chosen across the Project area and into areas of adjacent habitat which included the Mount Aktau IBA. These were surveyed between 08 and 12 August 2020 and between 20 March and 09 June 2021 (2021 surveys comprised 23 days nest searching in total).
- Summer VP Surveys – 01 June to 17 August 2020. A total of 36 hours/VP resulting in a total of 1,008-man hours observation spread over a total of 78 days.
- Autumn Migration VP Surveys – 01 September to 14 November 2020. A total of 36 hours/VP resulting in a total of 1,008 hours observation spread over a total of 75 days.
- Winter VP surveys – 16 November 2020 to 10 March 2021. A total of 36 hours / VP resulting in a total of 1,008 hours observation spread over a total of 115 days.
- Spring Migration VP Surveys – 25 March 2021 to 10 June 2021. A total of 36 hours / VP resulting in a total of 1,008 hours observation spread over a total of 79 days.
- Overhead Line (OHL) Carcass Searching – transects were completed along the length of the existing OHL within the proposed site boundary along with an additional minimum of 1 km outside the Project area. These transects were completed between 12 February and 30 May 2021 on a total of seven separate occasions.

- Raptor Nest Searches and Monitoring – first breeding period December 2021 ongoing until June 2022 (and periodically throughout the operational period of the Project)

### *Bat Survey*

Bat surveys were completed with a seasonal schedule adopted and the static detectors moved between groups of WTGs. Surveys have been completed using Wildlife Acoustics SM4 FS static detectors with sound analysis being completed using the Kaleidoscope software package. Surveys comprised;

- Static Bat Detectors deployed in 13 locations between– July 2020 and November 2020.
- Static Bat Detectors deployed in 13 locations between April and July 2021.
- Bat Transect Surveys completed in May 2021
- Roost Searches – October 2019 and November 2020, March, April and June 2021.

### *Mammal Survey (non-bats)*

During the field survey, nine areas were studied. These sites covered representative habitats within the Project site along with surrounding areas and habitats (including Mount Aktau IBA) to allow comparison between them. Habitat types surveyed included mountains (Big and Little Aktau, and Tamdytau ridge), mountain foothills, vegetated semi-desert with Artemisia and Salsola plant associations, mountain steppe with rocks, elements of sandy desert and tugai (river) forest.

Camera traps were also used and moved between survey points periodically, with cameras deployed between November 2020 and April 2021 to give a total of 854 camera trapping days across the site. Camera trap data collected by the survey teams on expeditions completed in previous years within the region has also been used in this assessment.

During the current field research, non-invasive technologies used alongside camera trapping included:

- Visual observation of mammals both by eye and using 10x binoculars.
- Registration of field signs of wild mammals, including animal tracks, faeces, digging, burrows, dead animals, etc.
- Photographing the animals, their tracks and traces of their vital activity, typical habitats.

### *Reptile and Amphibian Survey*

Field surveys were completed in October 2020 and April 2021 with an additional tortoise specific survey completed in September 2021. Surveys attempted to assess the status of reptiles and amphibians in the study area (specification of the species and quantitative composition, territorial distribution, including places of concentration, the state of habitats). These periods cover active periods for reptiles and amphibians, with individuals emerging from hibernation in April and aestivation in September/October prior to entering the long winter hibernation.

The field survey entailed a mix of stationary point surveys and transect surveys which were focused on representative habitats across the proposed Project area.

### *Invertebrate Survey*

Field studies within the Project area were first completed in October 2020 with additional surveys undertaken between 09 and 22 April 2021.

Field studies collected entomologic material using a combination of Barber pitfall traps, light traps, Moericke traps, malaise traps and hand nets. Transects involved walking 1 km routes and recording/capturing larger species from a 2 m corridor.

### *Assessment Methodology*

#### *Determination of Ecologically Appropriate Area of Analysis*

IFC PS 6 requires identification of Ecologically Appropriate Area of Analysis (EAAA) to determine the presence of critical habitat for each species with regular occurrence in the Project's area of influence, or ecosystem, covered by Criteria 1-4. The boundaries of an EAAA are determined by taking into account the distribution of species or ecosystems (within and sometimes extending beyond the project's area of influence) and the ecological patterns, processes, features, and functions that are necessary for maintaining them. This approach ensures that all important biodiversity within the project footprint and linked surrounding habitats are taken into consideration.

Criteria used to define CH under EBRD PR 6 are closely aligned to the IFC guidance and these require that the study area be defined by comparable parameters to above. In essence any CH assessment must encompass all direct and indirect impacts within a broad landscape unit which is large enough to include features and functions relevant to the species being considered.

#### *Assessment against Critical Habitat criteria*

The CH determination refers to the evaluation of the area in question with respect to each of the five CH criteria defined in IFC PS 6 GN and the six defined in EBRD PR 6 GN. Each criterion is described in detail in paragraphs GN70–GN83 of IFC PS 6 GN and Section 3.7 of EBRD PR 6 GN and summarised in Tables 1 and 2 below. Definitions and quantitative thresholds for each criteria of the assessment in both guidance notes follow those set out in the IFC guidance as this is considered the most appropriate source by both IFC and EBRD at the time of writing.



**Table 1 – Critical Habitat Criteria as defined by IFC PS 6**

| Feature   | PS6 Criterion Number |
|---|----------------------|
| Critically Endangered (CR) and/or Endangered (EN) species | <u>1</u>             |
| Endemic or restricted-range species                       | <u>2</u>             |
| Migratory or congregatory species                         | <u>3</u>             |
| Highly threatened and/or unique ecosystems                | <u>4</u>             |
| Key evolutionary processes                                | <u>5</u>             |

**Table 2 – Critical Habitat Criteria as defined by EBRD PR 6**

| Feature  | PS6 Criterion Number |
|--|----------------------|
| Highly threatened and/or unique ecosystems   | <u>i</u>             |
| Habitats of significant importance to Endangered or Critically Endangered species  | <u>ii</u>            |
| Habitats of significant importance to endemic or range restricted species  | <u>iii</u>           |
| Habitats supporting globally significant concentrations of migratory or congregatory species                                       | <u>iv</u>            |
| Areas associated with key evolutionary processes   | <u>v</u>             |
| Ecological functions that are vital in maintaining the viability of biodiversity features described (as critical habitat features) | <u>vi</u>            |

*PS 6 Criterion 1 and PR 6 Criterion ii: Critically Endangered (CR) and/or Endangered (EN) Species*

Areas supporting species threatened with global extinction and listed as Critically Endangered (CR) and Endangered (EN) on the IUCN Red List or local equivalent trigger CH under these criteria. The principal thresholds for triggering CH are:

- a) the EAAA contains “globally important concentrations” of an IUCN CR or EN species, defined as at least 0.5% of the global population AND over 5 reproductive units.
- b) areas that support globally important concentrations 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 and meet the thresholds in (a).
- c) is as appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species.

*PS 6 Criterion 2 and PR 6 Criterion iii: Endemic and/or Restricted-Range Species and Supporting Habitats*

IFC GN6 - Paragraph 74 (2019) defines “endemic” as synonymous with “restricted range” species, and for terrestrial vertebrate and plant species, this criterion refers to species with a global range size of  $\leq 50,000$  km<sup>2</sup>. In order to trigger CH under these criteria, the EAAA must contain  $\geq 10\%$  of the global population of such a species AND at least 10% reproductive units.

*PS 6 Criterion 3 and PR 6 Criterion iv: Migratory or Congregatory Species and Supporting Habitats*

Migratory species are defined as any species of which a significant proportion of its members cyclically and predictably move from one geographical area to another (including within the same ecosystem). Congregatory species are defined as species whose individuals gather in large groups on a cyclical or otherwise regular and/or predictable basis. Examples of Congregatory species are:

- Species that form colonies.
- Species that form colonies for breeding purposes and/or where large numbers of individuals of a species gather at the same time for non-breeding purposes (for example, foraging and roosting).
- Species that utilize a bottleneck site where significant numbers of individuals of a species occur in a concentrated period of time (for example, for migration).
- Species with large but clumped distributions where a large number of individuals may be concentrated in a single or a few sites while the rest of the species is largely dispersed (for example, wildebeest or Argali distributions).
- Source populations where certain sites hold populations of species that make an inordinate contribution to recruitment of the species elsewhere (especially important for marine species) (IFC PS 6 GN76-77).

Thresholds for these criteria as per IFC PS 6 GN78 are the following:

- a) areas known to sustain, on a cyclical or otherwise regular basis,  $\geq 1$  percent of the global population of a migratory or congregatory species at any point of the species’ lifecycle.
- b) areas that predictably support  $\geq 10$  percent of the global population of a species during periods of environmental stress.



### *PS 6 Criterion 4 and PR 6 Criterion i: Highly Threatened or Unique Ecosystems*

As per IFC PS 6 GN79, it is necessary to use the Red List of Ecosystems where formal IUCN assessments have been performed. Where formal IUCN assessments have not been performed, assessments may be made using systematic methods at the national/regional level, carried out by governmental bodies, recognized academic institutions and/or other relevant qualified organizations (including internationally recognized NGOs).

Thresholds for these criteria as per IFC PS 6 GN80 are the following:

- a) areas representing  $\geq 5$  percent of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.
- b) other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning.

### *PS 6 Criterion 5 and PR 6 Criterion v: Key Evolutionary Processes*

According to the GN81 of IFC PS 6, the structural attributes of a region, such as its topography, geology, soil, temperature, and vegetation, and combinations of these variables, can influence the evolutionary processes that give rise to regional configurations of species and ecological properties. In some cases, spatial features that are unique or idiosyncratic of the landscape have been associated with genetically unique populations or subpopulations of plant and animal species. Physical or spatial features have been described as surrogates or spatial catalysts for evolutionary and ecological processes, and such features are often associated with species diversification. By conserving species diversity within a landscape, the processes that drive speciation, as well as the genetic diversity within species, ensures the evolutionary flexibility in a system, which is especially important in a rapidly changing climate.

It should be noted that the IFC PS 6 GN provides qualitative guidance for assessing the projects against these criteria rather than quantitative thresholds, unlike PS 6 Criteria 1-4.

It should be noted that ADB Safeguard Policy Statement requires consideration of Key Evolutionary Processes and the provision of key ecosystem services; and areas having biodiversity of significant social, economic, or cultural importance to local communities

### *EBRD PR 6 Criterion vi: Ecological Functions that are Vital to Maintaining the Viability of the Biodiversity Features Described*

EBRD PR 6 describes this as "ecological functions without which critical biodiversity features could not persist." Examples of these are given as riparian zones and rivers, dispersal or migration corridors, hydrological regimes, seasonal refuges or food sources, keystone or habitat-forming species.

As with PR 6 Criterion v this item holds a qualitative threshold rather than a quantitative one, and as such the likelihood of triggering CH should be informed by survey data and the use of relevant expert opinions.

### *Assessment against Priority Biodiversity Feature criteria*

Four criteria relating to the determination of PBF are present within EBRDs PR 6. It is important to note that the requirement for confirmed Priority Biodiversity Features is to achieve No Net Loss (*i.e.* has different requirements of those features triggering Critical Habitat). As noted above there are no quantitative thresholds stated within the guidance for the determination of PBF and as such background data, field data and expert opinion is used to complete a qualitative assessment. Table 3 shows the criteria for defining PBFs with examples of each feature taken from the EBRD PR 6 guidance note.

**Table 3 – Priority Biodiversity Feature (PBF) Criteria as Defined by EBRD PR 6**

| Feature  | PR6 PBF Criterion Number |
|--|--------------------------|
| Threatened Habitats  | <u>1</u>                 |
| Vulnerable Species   | <u>2</u>                 |
| Significant biodiversity features identified by stakeholders or governments (eg IBA's or KBA's)                  | <u>3</u>                 |
| Ecological structure and functions that are vital to maintaining the viability of priority biodiversity features | <u>4</u>                 |

Examples of threatened habitats are given as: Habitats considered under pressure by national, regional or international assessments. The include natural and priority habitats identified under Annex I of the EU Habitats Directive

Examples of Vulnerable species are given as: Species listed by the IUCN or any other national/regional lists (e.g., national Red Lists or Red Data Books) as Vulnerable or equivalent (N.B. in Uzbekistan the Vulnerable tier is split into Vulnerable: Rare and Vulnerable: Declining). These include animal and plant species of community interest identified under the EU Habitats Directive (Annex II).

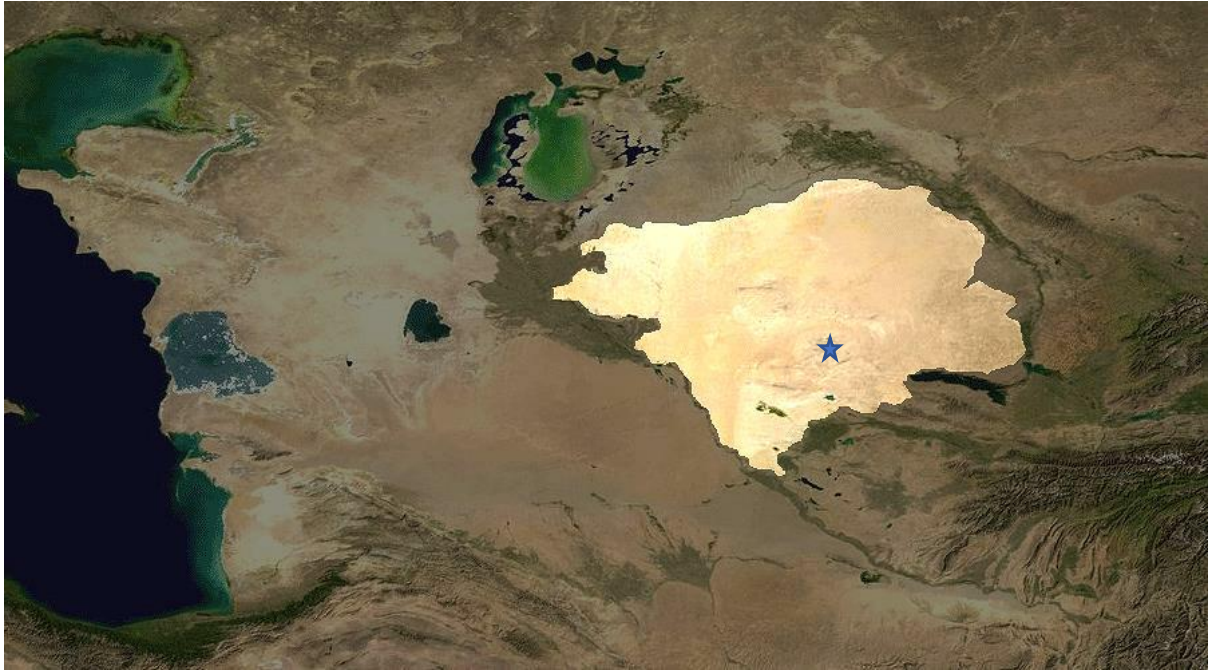
Examples of Significant biodiversity features are given as: Key Biodiversity Areas and Important Bird and Biodiversity Areas

Examples of Ecological structure and functions needed to maintain the viability of priority biodiversity features are given as: Locations essential for priority biodiversity features, riparian zones and rivers, dispersal or migration corridors, hydrological regimes, seasonal refuges or food sources, keystone or habitat-forming species.

## CRITICAL HABITAT ASSESSMENT

### Determination of Ecologically Appropriate Area of Analysis

The Project is located within the central part of the Kyzylkum Desert. The Kyzylkum Desert is approximately 298,000 km<sup>2</sup> and consists of dune dominated plains at an altitude of up to 300 m (980 ft) above sea level. Whilst the majority of the Kyzylkum region is flatter dunes, the Project site and its immediate surroundings are raised high above this land at an altitude of approximately 750 m on average. The area of higher land comprises rockier ground along with the highest peak of Mount Aktau (950m asl). This high peak and its immediate surroundings form the IBA, with lower plateaus and foothills to the south forming the Project area.



**Figure 1 – Showing Kyzylkum Desert and Site Location**

Several species endemic to the Kyzylkum region have been identified during screening and during the on-site surveys, these have included species of plant, invertebrate and reptile. These have smaller individual EAAAs and each is discussed below.

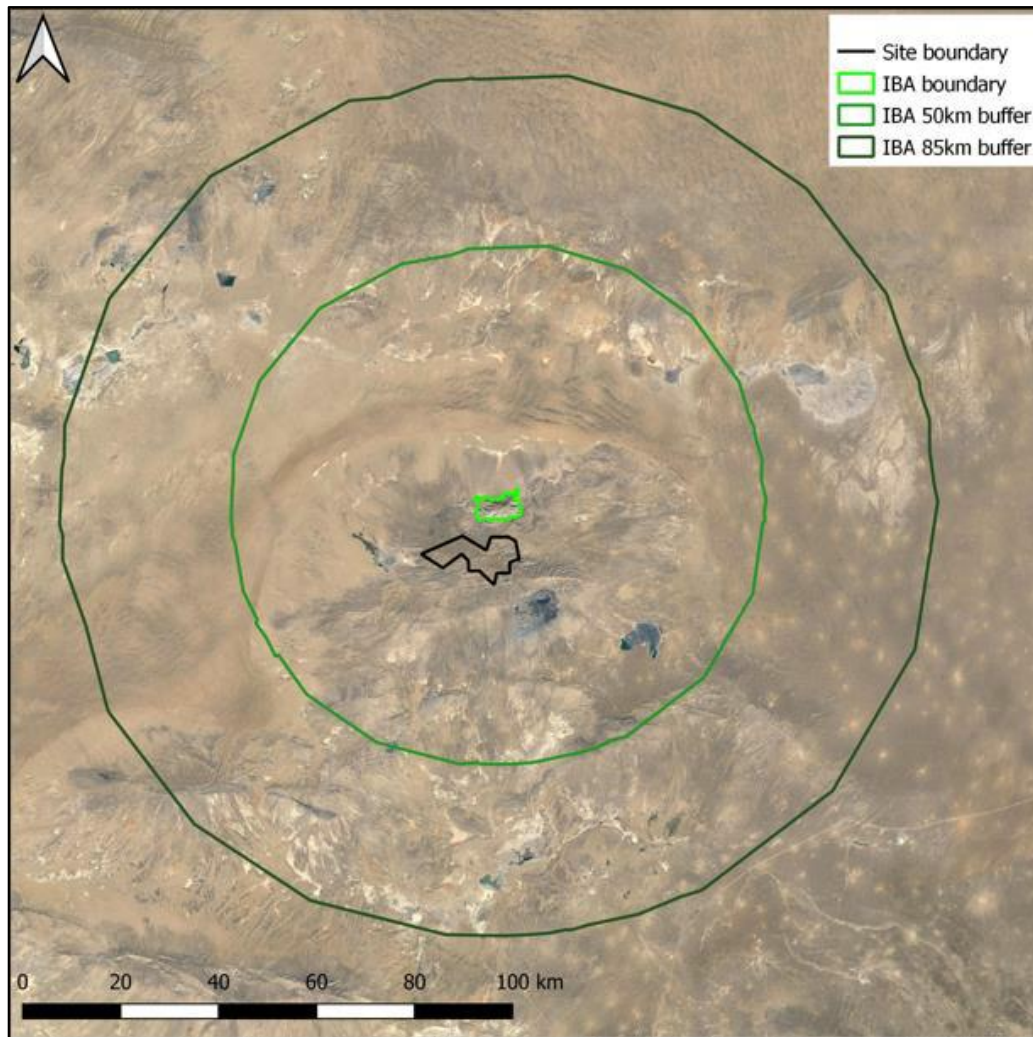
The Kyzylkum Desert region is used as the EAAA for the non-resident bird species considered within this assessment (except for specifically wide-ranging species of bird). Figure 1 shows the extent of the desert along with the Project site location.

Wide ranging bird species found during surveys for which the overall Kyzylkum Desert would not be an appropriate EAAA include Egyptian Vulture and Cinereous Vulture. Whilst Cinereous Vulture is not threatened at Critical or Endangered level the species is a reason for notification of the adjacent IBA and so is considered within this document. In a study on home ranges<sup>1</sup> the typical home ranges for Egyptian Vulture were between 4,238-7,323 km<sup>2</sup>, although these were not recorded as regular ranges (based more on locations of reliable food sources). If it were assumed a circular territory of the same area was in place around Mount Akatu at the centre, this would result in likely 'home ranges' to a radius of approximately 50 km from the IBA. Accordingly, the EAAA for this species would include the surrounding 50 km of Kyzylkum Desert plains. If the same principal is applied for Cinereous Vulture using data from the study "Movement and home range of Cinereous Vulture (*Aegypius monachus*) during the wintering and summering periods in East Asia"<sup>2</sup>, the summer range (greater than winter range) provides an EAAA with radius of approximately 85 km around the IBA.

Egyptian and Cinereous Vultures are also both migratory species through the area and for these and other migratory bird species, the EAAA are considered the same as above (50 km and 85 km respectively) however consideration of migratory flyways is included where appropriate. The EAAA's for Egyptian and Cinereous Vulture are shown in Figure 2 below.

<sup>1</sup> Home ranges and movements of Egyptian Vultures (*Neophron percnopterus*) in relation to rubbish dumps in Oman and the Horn of Africa. McGrady et al. 2019. *Bird Study* 65(4) 1-13

<sup>2</sup> Movement and home range of Cinereous Vulture (*Aegypius monachus*) during the wintering and summering periods in East Asia. Kang et al. 2019. *Turkish Journal of Zoology*. 43: 305-313



**Figure 2: EAAA for Egyptian (50 km) and Cinerous Vultures (85 km)**

In addition to the vulture species noted above, Saker Falcon were found during surveys and as an IBA citation species are known to breed on Mt Aktau and adjacent to the Project site. The home ranges of this species have been estimated at between approximately 166 km<sup>2</sup> in Winter and 190 km<sup>2</sup> in Summer. It is considered that the larger of these two distances is appropriate in setting the EAAA for Saker Falcon which is broadly equivalent to the area of site and the IBA combined.

Lesser Kestrel have a relatively small home range, with a size of approximately 22 km<sup>2</sup> found in studies<sup>3</sup>. The relatively small size of this means that the Project site which measures approximately 101 km<sup>2</sup> will be considered as the EAAA for Lesser Kestrel.

The Southern Even Fingred Gecko (*Alsophylax laevis*) has been found during previous studies in the Kyzylkum region and is known to exist in high population densities within Uzbekistan. The two recognised populations of this species are found split between Uzbekistan in the north and Turkmenistan in the south. For this assessment, the EAAA used for Southern Even Fingred Gecko will also be the Project site which measures 101 km<sup>2</sup>. The global population of this species is unknown however it is reported to be in decline, with a loss of over 90% since 1986.

Previous studies have found that this species favours flat clay substrates at altitudes of less than 250 m, none of this habitat is present on site and the altitude above sea level is all over 600 m therefore it is considered that the site is outside the EAAA for this species.

Five species of plant were found within the Project area which are considered endemic to the remnant hills and mountains of the Kyzylkum Desert, these are shown below in Table 4, along

<sup>3</sup> Vidal-Mateo, J., Romero, M. & Urios, V. How can the home range of the Lesser Kestrel be affected by a large civil infrastructure?. *Avian Res* **10**, 10 (2019)



with the global populations, onsite populations and estimated ranges. Two species of invertebrate were also highlighted in the background literature search which are endemic and restricted to the same desert region. Range maps for these species are shown in Figures 3 to 8, with the EAAA for each species considered to be site and its immediate vicinity (around 500m) due to the small scale of habitat required to support these communities. Both the global range (for context) and site boundary are present within Figure 3 to 8.

**Table 4. Species of conservation concern found within Project area**

| Feature                   | PR6 PBF Criterion Number | Global Popn (individuals) | On-site Popn (individuals) | % of Global Popn on site | Estimated range size km <sup>2</sup> |
|---------------------------|--------------------------|---------------------------|----------------------------|--------------------------|--------------------------------------|
| <b>Plants</b>             |                          |                           |                            |                          |                                      |
| Astragalus centralis      | 1 (EN)                   | 500-550                   | 3                          | 0.6                      | 20,000                               |
| Ferula kyzylkumica        | 2 (VU:R)                 | 4500-5000                 | 71                         | 1                        | 58,000                               |
| Lappula aktaviensis       | 2 (VU:R)                 | Unknown                   | 3                          | Unknown                  | 30,000                               |
| Silene tomentella         | 1 (EN)                   | 400-500                   | 7                          | 1.75                     | 18,000                               |
| Stipa aktauensis          | 2 (VU:R)                 | 700-800                   | 18                         | 2.6                      | 55,000                               |
| <b>Invertebrates</b>      |                          |                           |                            |                          |                                      |
| Fedtschenkia Sapigid Wasp | 1 (EN)                   | Unknown                   | Unknown                    | Unknown                  | 15,500                               |
| Ferula Flowerfly          | 1 (EN)                   | Unknown                   | Unknown                    | Unknown                  | 15,500                               |

\*Populations of plant species (along with range maps shown in Figures 3 – 8) are taken from:

- Red Data Book of the Republic of Uzbekistan (2009) Vol. 1. Plants and Fungi. Chinor ENK, Tashkent. 360 p.
- Red Data Book of the Republic of Uzbekistan (2019) Vol. 1. Plants. Tasvir, Tashkent. 356 p.
- Tojibaev K.Sh., Beshko N.Yu., Azimova D.E. & Turginov O.T. (2015) Distribution patterns of species of the Astragalus L. (sect. Macrocystis, Laguropsis and Chaetodon) in the territory of Mountain Middle Asian province. Turczaninowia 18 (2): 17–38)
- Tojibaev K.Sh., Beshko N.Yu., Shomurodov Kh.F. & al. (2019) Inventory of the flora of Uzbekistan: Navoi Province. Fan Publishers, Tashkent; and
- Tojibaev K.Sh., Beshko N.Yu., Shomurodov Kh.F. & al. (2020) Inventory of the flora of Uzbekistan: Bukhara Province. O'kituvchi Publishers, Tashkent.



**Figure 3. EAA for *Astragalus centralis***



**Figure 4. EAA for *Ferula kyzylkumica***





**Figure 5. EAAA for *Lappula aktaviensis***



**Figure 6. EAAA for *Silene tomentella***





**Figure 7. EAAA for *Stipa aktauensis***



**Figure 8. EAAA for *Fedtschenkia Sapigid Wasp* and *Ferula Flowerfly***

## Assessment against Critical Habitat criteria

### Species

All species within the background data search and recorded on site have been assessed against the CH Criteria as set out in PS 6 and PR 6 guidelines. All criteria were considered for each species. All species fall in to one of three categories;

- Species that were identified during the background screening phase of the ESIA process, but due to range sizes, conservation status and habitats are not close to meeting CH Criteria are discussed within the Priority Biodiversity Feature section of this report.
- Species that were considered to require detailed consideration under the CH assessment Criteria but did not meet the criteria. The assessment results of such species are presented in Table 5.
- Species meeting the criteria for CH. Such species are present in Tables 6 and 7 and discussed in further detail below.

Whilst Table 5 covers all other groups, given the lack of information on invertebrates (in particular Feruler Flowerfly and Fedtschenkia Sapigid Wasp), there is insufficient evidence any meet Critical Habitat thresholds. However, should future data demonstrate that they do meet such thresholds, currently planned habitat-focused mitigation and offset actions are anticipated to be a sufficient proxy for No Net Loss for invertebrate species".

### Habitats

The habitats found on site are classed as within the Eurasian Desert and Semi-desert Biome which has not yet been assessed by the IUCN Red List of Ecosystems. Despite the recognised threats of Climate Change and encroachment of agriculture it is unlikely that the biome would be considered as a CR or EN threatened habitat type, given the scale of habitats present globally and scale of known threats, therefore IFC PS 6 Criterion 5 and EBRD PR 6 Criterion 1 would to be triggered.

Examples of habitats or structures associated with key evolutionary processes, as detailed in Criterion 5 of PS 6 and PR 6 as well as noted in the ABD Safeguard Policy Statement include landscapes with high spatial heterogeneity, environmental gradients, edaphic interfaces (e.g., mineral deposits or outcrops), sites with demonstrated importance for climate change adaption, biological corridors which allow species migration or gene flow or isolated lakes or mountaintops. The Project area does not contain any features associated with key evolutionary processes and as such the Project would not trigger CH under IFC PS 6 or EBRD PR 6 Criterion 5.

EBRD Criterion vi relates to specific landscape features which may be critical for ecological functions. Examples of these are given as riparian zones and rivers, dispersal/migration corridors, hydrological regimes, seasonal resources (e.g., shelter or food), and keystone or habitat-forming species. No such features are present within the Project area and as such CH would not be triggered under PR 6 Criterion vi.

Criterion 5 of PS 6 and PR 6 include landscapes with high spatial heterogeneity, environmental gradients.

Areas that provide key ecosystem services and areas having biodiversity of significant social, economic, or cultural importance to local communities, are not present on site (reference ABD Safeguard Policy Statement). The provisioning from the site is limited to small scale herding, much of which has been confirmed by local herders as not important economically; trees are not present and harvesting of crops or wood is not extensive. Given the broad regional scale of habitats present on site regulatory services such as air and water quality, pest, disease and erosion regulation are not of specific interest at site level (compared with the wider area). Cultural services are limited to low levels of aesthetic value to those working on site with no clear interest to cultural heritage, tourism religious value or folklore.

The site does not include either legally protected or areas officially proposed for protection, such as areas that meet the criteria of the World Conservation Union classification, the Ramsar List of Wetlands of International Importance, and the United Nations Educational, Scientific, and Cultural Organization's world natural heritage sites.

**Table 5. Species requiring detailed consideration but scoped out during CHA process**

| Common Name       | Latin Name                   | IUCN Status | National Status | Status   | PS / PR 6 Criterion   |        |  |       |       |
|-------------------|------------------------------|-------------|-----------------|--|---|--------|--|-------|-------|
|                   |                              |             |                 |  | 1 / ii  | 2 / ii | 3 / iv   | 4 / i | 5 / v |
| <b>Avifauna</b>   |                              |             |                 |  |   |        |  |       |       |
| Sociable Plover   | <i>Vanellus gregarius</i>    | CR          | VU              | Migrant through country – no suitable habitat on site. | Individual records are present in the wider vicinity of the Kyzylkum however no suitable habitat for this species is present in the Project area and does not meet this trigger                                       | -      | -  | -     | -     |
| White-headed duck | <i>Oxyura leucocephala</i>   | EN          | EN              | Non-breeder in country – no suitable habitat on site   | Records are present from Aydar Lake, Tadukul Lake and Asshiko'l (all on the outer edge of the Kyzylkum however no suitable habitat for this species is present in the Project area and does not meet this trigger.    | -      | -  | -     | -     |
| Egyptian Vulture  | <i>Neophron percnopterus</i> | EN          | VU              | Resident in IBA (listed on citation)                   | Global population of 12- 38,000 meaning 60 individuals required to meet criteria. Currently 135 pair in country. Peak of 12 individuals recorded on surveys and Red List states 12 main populations (breeding groups) | -      | Global population of 12- 38,000 meaning 60 pairs required to meet congregatory criteria (with respect to colonial breeding).<br><br>Peak of 12 on surveys and Red List states 12 main populations within the country and of those 2 are considered within the EAAA (Central Kyzylkum | -     | -     |

| Common Name  | Latin Name               | IUCN Status | National Status | Status  | PS / PR 6 Criterion  |        |   |       |       |
|--------------|--------------------------|-------------|-----------------|---|--|--------|---|-------|-------|
|              |                          |             |                 |   | 1 / ii   | 2 / ii | 3 / iv  | 4 / i | 5 / v |
|              |                          |             |                 |   | <p>within the country and of those, 2 are considered within the EAAA (Central Kyzylkum and Foothills of Zarafshan) combining to make 13 pairs.</p> <p>EAAA population will therefore not meet trigger in any season.</p>   |        | <p>and Foothills of Zarafshan) combining to make 13 pairs.</p> <p>EAAA population will therefore not meet trigger in breeding season. The species is also not recorded in significant migratory numbers, to trigger the CH level of 120 individuals. In each season the number of individual flights recorded were highest in Summer with 70. Migration peak was 55 individual flights. This is lower than the threshold and assumes that all flights are different birds and can be considered a precautionary assessment.</p> |       |       |
| Saker Falcon | <i>Falco cherrug</i>     | EN          | NT              | <p>Resident in IBA (listed on citation) and present on site in winter. Breeds within EAAA to the south of site.</p> | <p>Global Population of 12,200-29,800 individuals meaning 61 individuals or 30 pairs required to meet criteria. Peak of individuals only on surveys and known EAAA population of up to 10 within IBA and 2 within wider vicinity. EAAA population will therefore not meet trigger in any season.</p> | -      | -   | -     | -     |
| Steppe Eagle | <i>Aquila nipalensis</i> | EN          | VU:D            | <p>Recorded on site in low</p>  | <p>Global population of 50-75,000 meaning 250</p>  | -      | <p>Global population of 50-75,000 meaning 500</p>   | -     | -     |



| Common Name            | Latin Name                    | IUCN Status | National Status | Status  | PS / PR 6 Criterion   |        |   |       |       |
|------------------------|-------------------------------|-------------|-----------------|---|---|--------|---|-------|-------|
|                        |                               |             |                 |   | 1 / ii  | 2 / ii | 3 / iv  | 4 / i | 5 / v |
|                        |                               |             |                 | numbers throughout the year                                   | individuals required to meet criteria. 133 registrations were recorded across all seasons during surveys and even with assumption that these are all individual birds. EAAA population will therefore not meet trigger in any season. |        | individuals required to meet migratory criteria.<br><br>A total of 133 registrations were recorded across all seasons (not just migration) in total and even with assumption that these are all individual birds the EAAA population will not meet trigger in any season.   |       |       |
| Macqueens Bustard      | <i>Chlamydotis macqueenii</i> | VU          | VU:D            | Non-breeder through region – confirmed on site in winter      | Recorded in low numbers only and the EAAA population will not meet trigger in any season.   | -      | Recorded in low numbers only and the EAAA population will not meet trigger in any season.   | -     | -     |
| Eastern Imperial Eagle | <i>Aquila heliaca</i>         | VU          | VU              | Migrant through region – confirmed during autumn scoping only | Recorded in low numbers only and the EAAA population will not meet trigger in any season.   | -      | Recorded in low numbers only and the EAAA population will not meet trigger in any season.   | -     | -     |
| Cinereous Vulture      | <i>Aegypius monachus</i>      | NT          | NT              | Resident in IBA (listed on citation) and recorded over site   | -   | -      | Global population of 15,600-21,000 meaning 156 individuals required to meet congregatory criteria.<br><br>A total of between 8-24 individuals are recorded from the IBA and the nearest population noted in the Red Book is of 6 pairs around 100km north. If the EAAA was increased to include these populations the total reaches 30 pairs and EAAA population will | -     | -     |

| Common Name                  | Latin Name                | IUCN Status | National Status | Status  | PS / PR 6 Criterion  |   |  |       |       |
|------------------------------|---------------------------|-------------|-----------------|---|--|---|--|-------|-------|
|                              |                           |             |                 |   | 1 / ii   | 2 / ii  | 3 / iv   | 4 / i | 5 / v |
|                              |                           |             |                 |   |  |   | therefore not meet the trigger in any season.  |       |       |
| Lesser Kestrel               | <i>Falco naumanni</i>     | LC          | Not Listed      | Resident in IBA (listed on citation) and recorded over site                             | -  | -   | The European population is estimated at 30,500-38,000 pairs with several thousand breeding in Central Asia meaning a minimum of 305 individuals required to meet congregatory criteria.<br><br>A total of between 17-33 individuals are recorded from the IBA and EAAA population will therefore not meet the trigger in any season. | -     | -     |
| <b>Reptiles</b>              |                           |             |                 |   |  |   |  |       |       |
| Southern Even Fingered Gecko | <i>Alsophylax laevis</i>  | CR          | VU:D            | Site is outside species EAAA based on altitude and habitat types                        | EAAA is likely to contain >0.5% of global population however no suitable habitat is present on site and the elevation range of site is beyond that which this species has been found elsewhere. Criterion 1 would therefore not be triggered | Species range of over 50,000km so does not qualify as range restricted under criterion 2  | -  | -     | -     |
| <b>Plants</b>                |                           |             |                 |   |  |   |  |       |       |
| N/A                          | <i>Ferula kyzylkumica</i> | -           | 2 (VU:R)        | Up to 71 specimens (in 11 groups of between 1 and 28 individuals) found across the site | Found on site in numbers exceeding >0.5% threshold AND >5 reproductive units however species is not listed as EN or CR – CH not triggered  | Range estimated at c.58,000 km <sup>2</sup> which exceeds the criteria for consideration as “restricted range” – CH not triggered Given | -  | -     | -     |

| Common Name | Latin Name                 | IUCN Status | National Status | Status  | PS / PR 6 Criterion  |  |        |       |       |
|-------------|----------------------------|-------------|-----------------|---|--|--|--------|-------|-------|
|             |                            |             |                 |   | 1 / ii   | 2 / ii   | 3 / iv | 4 / i | 5 / v |
|             |                            |             |                 |   |  | the range is close to that meeting the trigger for a range restricted species it is important to note that had the range met this criteria the population within the EAAA would still not exceed the required 10% of the global concentration to trigger this Criterion  |        |       |       |
| N/A         | <i>Lappula aktaviensis</i> | -           | 2 (VU:R)        | 3 specimens found at 41°34'46.09" N, 64°30'9.93" E (>550m from WTG 106) | Population unknown therefore possible that any number of specimens would breach the >0.5% threshold AND likely >5 reproductive units are present within EAAA however not EN or CR-CH not triggered | Range (30,000 km <sup>2</sup> ) is within the threshold for "restricted range". Although the global population is unconfirmed, with only 3 individuals present within the EAAA it is considered this would not reach the requirement of 10% of the global concentration and also does not meet the required 10 units | -      | -     | -     |

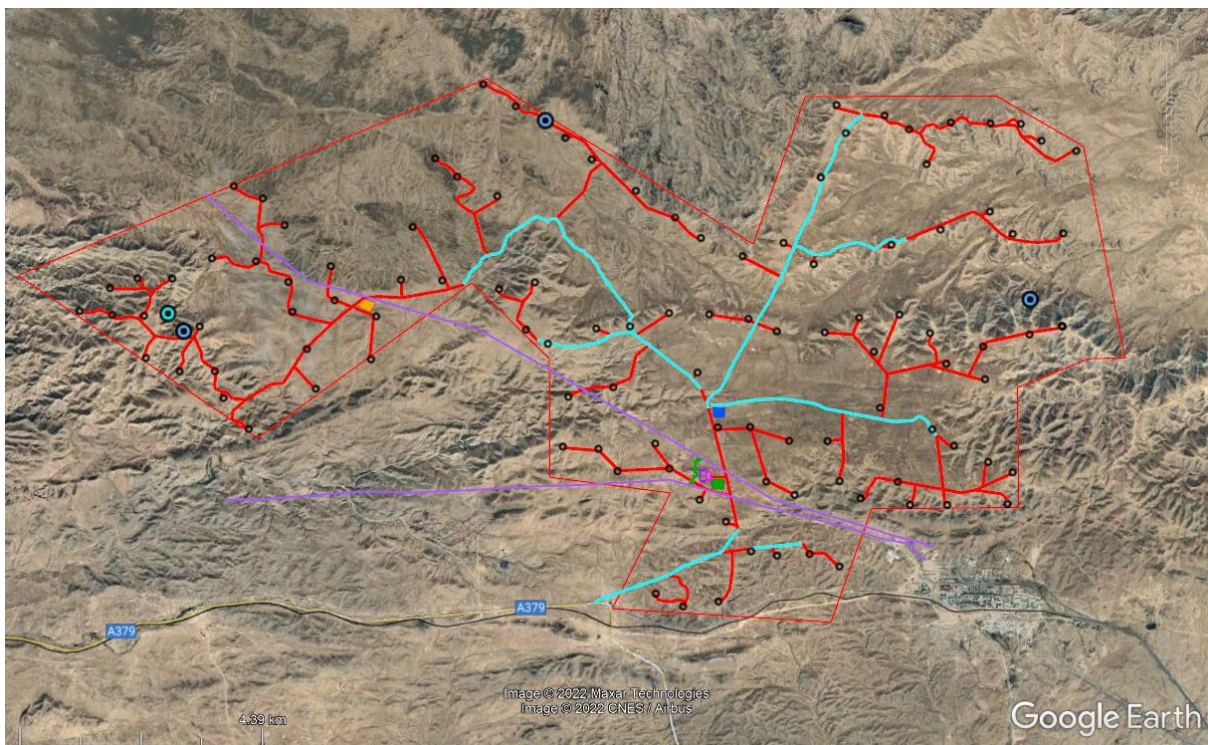
| Common Name | Latin Name               | IUCN Status | National Status | Status  | PS / PR 6 Criterion   |   |        |       |       |
|-------------|--------------------------|-------------|-----------------|---|---|---|--------|-------|-------|
|             |                          |             |                 |   | 1 / ii  | 2 / ii  | 3 / iv | 4 / i | 5 / v |
|             |                          |             |                 |   |   | to trigger this Criterion - CH not triggered  |        |       |       |
| N/A         | <i>Stipa aktaviensis</i> | -           | 2 (VU:R)        | Up to 18 specimens at 41°34'28.62" N, 64°19'13.85" E 110m from works. Up to 11 specimens at 41°34'39" N, 64°19'00.92" E 380m from works | Present on site in numbers exceeding >0.5% threshold AND >5 reproductive units however species is not listed as EN or CR – CH not triggered | Range estimated at c.55,000 km <sup>2</sup> which exceeds the criteria for consideration as "restricted range" – CH not triggered. Given the range is close to that meeting the trigger for a range restricted species it is important to note that had the range met this criterion the population within the EAAA would still not exceed the required 10% of the global concentration to trigger this Criterion | -      | -     | -     |

## Species Triggering Critical Habitat

Based on the assessment against CH Criteria, GN72 (c) 'As appropriate, areas containing important concentrations of nationally or regionally listed EN or CR species' the following plant species are considered to trigger CH and discussed in more detail under the relevant Criterion section below:

- *Astragalus centralis*
- *Silene tomentella*

Locations of the plant species are shown in Figure 9 with the other species not shown due to not having been recorded in the area.



**Figure 9. Location of *Astragalus centralis* (1 light blue circle) and *Silene tomentella* (3 dark blue circles) within Project area**

### *PS 6 Criterion 1/ PR 6 Criterion ii: Critically Endangered (CR) and/or Endangered (EN) Species*

Three specimens of *Astragalus centralis* and seven specimens of *Silene tomentella* were found during surveys. The global population of *Astragalus centralis* is estimated at 500-550 individuals<sup>45</sup> whilst the *Silene tomentella* population is estimated at between 400-450 individuals, The populations on the Project area equate to approximately 0.6% and 1.75% of the known global populations for these species (above the 0.5% threshold). It is considered likely that the above 5 reproductive unit threshold is also breached within the EAAA for both species and as such Critical Habitat would be triggered under PS 6 Criterion 1 and PR 6 Criterion ii.

<sup>4</sup> Tojibaev K.Sh., Beshko N.Yu., Azimova D.E. & Turginov O.T. (2015) Distribution patterns of species of the Astragalus L. (sect. Macrocytis, Laguropsis and Chaetodon) in the territory of Mountain Middle Asian province. Turczaninowia 18 (2): 17–38

<sup>5</sup> Tojibaev K.Sh., Beshko N.Yu., Shomurodov Kh.F. & al. (2019) Inventory of the flora of Uzbekistan: Navoi Province. Fan Publishers, Tashkent. 216 p.

*PS 6 Criterion 2/ PR 6 Criterion iii: Endemic and/or Restricted-Range Species*

IFC GN6 - Paragraph 74 (2019) defines "endemic" as synonymous with "restricted range" species, and for terrestrial vertebrate and plant species, this criterion refers to species with a global range size of  $\leq 50,000 \text{ km}^2$ . In order to trigger CH Criterion 2, the EAAA must contain  $\geq 10\%$  of the global population of such a species, and  $\geq 10$  reproductive units.

The data in available scientific literature is also not sufficient to understand the exact global population of these species however approximate ranges for each species have been determined from mapping background records and comparable remnant mountain habitats within the southern Kyzylkum desert. The approximate range maps are shown above in Figures 3-8. The estimated range of *A. centralis* is approximately  $20,000 \text{ km}^2$ , the range of *S. tomentella* is approximately  $18,000 \text{ km}^2$ .

The ranges all qualify the species as being range restricted ( $< 50,000 \text{ km}^2$ ) as per the IFC guidance however the population within the EAAA does not exceed the required 10% of the global concentration to trigger this Criterion.

**Table 6. Species triggering Critical Habitat**

| Common Name   | Latin Name                  | IUCN Status | National Status | Status   | PS 6 / PR6 Criterion  |   |        |       |       |
|---------------|-----------------------------|-------------|-----------------|--|---|---|--------|-------|-------|
|               |                             |             |                 |  | 1 / ii  | 2 / ii  | 3 / iv | 4 / i | 5 / v |
| <b>Plants</b> |                             |             |                 |  |   |   |        |       |       |
| N/A           | <i>Astragalus centralis</i> | -           | 1 (EN)          | 3 specimens at 41°34'39" N, 64°19'00.92" E >350m from works.   | Found on site in numbers that exceed the >0.5% threshold and likely that >5 reproductive units are present within the EAAA – CH Triggered | Range estimated to be c. 20,000 km <sup>2</sup> however, <10% of global population within EAAA – CH Not Triggered                                 | -      | -     | -     |
| N/A           | <i>Silene tomentella</i>    | -           | 1 (EN)          | Up to 7 specimens (in 3 groups of between 1 and 4) found across the site 550m, 110m and 50m from proposed works. | Found on numbers on site that exceed >0.5% threshold (1.75% of known global population) AND > 5 reproductive units – CH Triggered         | Range estimated at c.18,000 km <sup>2</sup> however, <10% of global population within EAAA with 100% of population within this – CH Not Triggered | -      | -     | -     |



## Priority Biodiversity Features

All species/habitats within the background data search and recorded on site have been assessed against the PBF guidelines, which provide a qualitative approach to the assessment. All criteria were considered for each species/habitat.

Species meeting the criteria for inclusion as Priority Biodiversity Features are presented in Table 8 and discussed below.

### **Criterion 1 Threatened habitat**

No habitat types or ecosystems were present or identified as being potentially present, that would be considered as priority habitats as such Criterion 1: Threatened Habitat has not been triggered.

### **Criterion 2 Vulnerable species**

#### *Plant Species*

Botanical surveys on the Project site have identified two Uzbek Red Data Book Endangered and endemic plant species within the Project Area which trigger Critical Habitat and are detailed above. In addition to these, a further five species (*Ferula kyzylkumica*, *Lappula aktaviensis*, *Lagochilus inebrians* *Stipa aktauensis* and *Tulipa lehmanniana*) have been confirmed on site. Based on the conservation status of each on the Uzbekistan Red Rook (all Vulnerable: Declining), with low overall global populations and restricted ranges would qualify as Priority Biodiversity Features under PBF Criterion 2.

#### *Reptile Species*

Two species of reptile confirmed within the Project Area are listed as Vulnerable by the IUCN or on the Uzbek Red Data Book, these are Russian Tortoise (IUCN Vulnerable) and Caspian Monitor (Uzbek RDB VU:D). One further species was highlighted in the literature search (Derafshi Snake (*Lytorhynchus ridgewayi*) Uzbek RDB VU:R) however this was not found during surveys. Russian Tortoise were found in densities of between 0.46 and 14.95 animals per hectare across the site and Caspian Monitor were found during previous studies on the site and found as roadkill adjacent to site. Based on the conservation status and presence of populations of the species on site it is considered that Russian Tortoise qualifies as a Priority Biodiversity Feature under PBF Criterion 2. Habitat exists on site that is suitable for use by Caspian Monitor and the confirmation of the species on previous surveys means that this too qualifies as a Priority Biodiversity Feature under PBF Criterion 2.

Derafshi Snake was not found during surveys despite suitable habitat being present (dry, desert slopes) and the Project being within the known range for this species. It is considered though that at present, Derafshi Snake should qualify as a Priority Biodiversity Feature under PBF Criterion 2, however if monitoring during construction and operation can confirm absence this assessment may be subject to revision.

### *Invertebrate Species*

Six species of invertebrate are listed as "Vulnerable: Rare" or "Vulnerable: Declining". These are; Five-striped Flowerfly (*Lathyrrophthalmus quinquelineatus*) (VU:R), Pavlovski's Digger Wasp (*Kohlia pavlovskii*) (VU:R), Transcaspian Digger Wasp (*Larra transcaspica*) (VU:R), Black-combed digger wasp (*Prionyx nigropectinatus*) (VU:R), Mournful digger wasp (*Prionyx macula*) (VU:R) and Tugay Underwing wasp (*Catocala remissa*) (VU:D). Surveys did not find any of the above listed species although habitat is present on site which may be used during the lifecycles of these species. Based on the information available to date, it is considered that they qualify as Priority Biodiversity Features under PBF Criterion 2,

### *Mammal Species*

Four species of mammal listed as "Vulnerable: Declining" on the Uzbek Red Data Book have been identified as present in the Project Area or the immediate surrounds. These are Corsac Fox (*Vulpes corsac*), Marbled Polecat (*Vormela peregusna*), Steppe Polecat (*Mulstela eversmanii*) and Goitered Gazelle (*Gazella subgutturosa*) (also IUCN Vulnerable). Given their presence it is considered that each species qualifies as a Priority Biodiversity Feature under PBF Criterion 2. One additional species, Severtzov's sheep (*Ovis ammon ssp. Severtzovi*), is known to favour steep rocky/mountainous terrain and is listed as being present in the nearby Mount Aktau IBA. Given the habitats present on site it is considered unlikely to be present in the Project Area and as such would not qualify as a PBF under Criterion 2.

### *Bat species*

Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is listed as "Vulnerable: Declining" on the Uzbek Red Data Book and was found using the Project Area a small number of times during the activity surveys. No roosts of this species were identified however the surveys confirmed presence and suitable foraging and roosting habitats being found within the Project Area Lesser Horseshoe are considered as qualifying as a PBF under Criterion 2.

### *Bird Species*

Nine bird species listed on the Uzbek Red Data Book as "Vulnerable: Rare" or "Vulnerable: Declining" or as "Vulnerable" or higher on the IUCN Red List were confirmed in the Project Area during surveys. Of these Egyptian Vulture, Steppe Eagle and Saker Falcon were also included in the CH scoping on account of their higher conservation statuses but not deemed to trigger the relevant criteria, they are however included here as they are considered to qualify as Priority Biodiversity Features under Criterion 2. In addition to those three species, Eurasian Griffon Vulture (*Gyps fulvus*) (Uzbek RDB VU:D), Bearded Vulture (*Gypaetus barbatus*), Golden Eagle (*Aquila chrysaetos*), Booted Eagle (*Hieraetus pennatus*), White-tailed Eagle (*Haliaeetus albicilla*) and MacQueen's Bustard (*Chlamydotis macqueenii*) are also considered to qualify as PBF under Criterion 2 on account of their conservation statuses.

### Criterion 3 Significant feature as identified by stakeholders or governments

The Project Area does not fall within any significant biodiversity features however it is within 5 km of the nearby Mount Aktau IBA and the four bird species listed on the citation for this IBA have been identified using the Project Area during the survey period. It is therefore considered that Egyptian Vulture, Cinerous Vulture, Lesser Kestrel and Saker Falcon all qualify as Priority Biodiversity Features under Criterion 3.

### Criterion 4 Ecological structure and functions that are vital to maintaining the viability of priority biodiversity features

The Project Area does not contain areas of structure or function (e.g., major dispersal or migration corridors) vital for the maintenance of viable populations of Priority Biodiversity Features and as such Criterion 4 has not been triggered.

**Table 8. Species considered to be Priority Biodiversity Features**

| Species                     | Status                 | Criterion Reached |
|-----------------------------|------------------------|-------------------|
| <i>Ferula kyzylkumica</i> , | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| <i>Lappula aktaviensis</i>  | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| <i>Lagochilus inebrians</i> | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| <i>Tulipa lehmanniana</i>   | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| <i>Stipa aktauensis</i>     | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Five-striped Flowerfly      | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Pavlovski's Digger Wasp     | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Transcaspian Digger Wasp    | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Black-combed digger wasp    | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Mournful digger wasp        | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Tugay Underwing wasp        | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| Russian Tortoise            | <u>IUCN Vulnerable</u> | Criterion 2       |
| Caspian Monitor             | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| Derafshi Snake              | <u>Uzbek RDB VU:R</u>  | Criterion 2       |
| Corsac Fox                  | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| Marbled Polecat             | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| Steppe Polecat              | <u>Uzbek RDB VU:D</u>  | Criterion 2       |
| Goitered Gazelle            | <u>Uzbek RDB VU:D</u>  | Criterion 2       |

| Species                  | Status                | Criterion Reached |
|--------------------------|-----------------------|-------------------|
| Lesser Horseshoe Bat     | <u>Uzbek RDB VU:D</u> | Criterion 2       |
| Egyptian Vulture         | <u>IUCN EN</u>        | Criteria 2 & 3    |
| Cineros Vulture          | <u>IUCN NT</u>        | Criterion 3       |
| Eurasian Griffon Vulture | <u>Uzbek RDB VU:D</u> | Criterion 2       |
| Bearded Vulture          | <u>Uzbek RDB VU:R</u> | Criterion 2       |
| Golden Eagle             | <u>Uzbek RDB VU:R</u> | Criterion 2       |
| Steppe Eagle             | <u>IUCN EN</u>        | Criterion 2       |
| Booted Eagle             | <u>Uzbek RDB VU:D</u> | Criterion 2       |
| White-tailed Eagle       | <u>Uzbek RDB VU:R</u> | Criterion 2       |
| Lesser Kestrel           | <u>IUCN NT</u>        | Criterion 3       |
| Saker Falcon             | <u>IUCN EN</u>        | Criteria 2 & 3    |
| MacQueen's Bustard       | <u>IUCN VU</u>        | Criterion 3       |

## Mitigation and future management

### General

In accordance with the IFC Performance Standard 6 and EBRD Performance Requirement 6, in areas of CH, there will be no project activities unless all of the following are demonstrated:

- No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical.
- The project does not lead to measurable adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values.
- The project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time (not just those which qualify the area as CH)
- A robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the client's management program.

In addition to the above, the presence of species/habitats qualifying as Priority Biodiversity Features requires that there must be a commitment from the Project to ensure that there is no net loss to these.

### Viable alternatives

Suitable development habitats throughout the region are typically within the broad range of the species under CH consideration. Although alternative locations could be considered, this is not appropriate given the lack of interaction between the chosen habitat of the two plant species known to occur in the area and the locations of the proposed infrastructure. For species which have the potential to occur in the area, even though not recorded during survey, this assumption

would remain for all sites within the area and given alternative sites provide no change in assessment it is concluded that no viable alternative is present.

### Measurable adverse impacts and net reduction

The Project area is considered to include CH for four species (two plant and two invertebrate) and is used by five plant, six invertebrate, three reptile, four mammal, one bat and 11 bird species which qualify as PBF's. For these species the Project will commit to achieving net gain for CH qualifying species and at least no net loss for PBF's over the lifespan of the scheme. Direct impacts from the operation of the Project are likely to be limited to the soaring species of birds (Vultures and Eagles) and as such detailed protocols to prevent collisions have been designed and will be adhered to in order to achieve no net loss for these species over the lifespan of the Project, measures for this are detailed in the Shutdown on Demand Protocol document which has been produced.

The plant species present are typically confined to rocky hillsides and are separated by at least 20 m from all proposed infrastructure (with the exception of one individual plant specimen all are over 100 m from proposed working areas). The proposed project should not impact rocky hillsides and accordingly no adverse impact or net reduction of these species will occur. A single specimen of *Silene tomentella* is within approximately 20 m from a proposed road however the route of this will be diverted to provide a minimum of 75 m from the plant to avoid any impacts. All turbine locations and access road locations will be resurveyed prior to construction and where required seed collection will be undertaken and individual plants translocated to nearby locations away from the proposed works. The translocation sites will be recorded and monitored.

The species not confirmed as being present within Project area but highlighted as being potentially present (e.g., Fedtschenkia Sapigid Wasp and Feruler Flowerfly), cannot be assessed against measurable impacts without known populations on site. Increasing the amount of suitable habitat for these species through the restoration of land and replanting of vegetation will offset the losses of any individuals during construction and allow for net gains of these species to be achieved.

### Monitoring and evaluation program

Monitoring of populations of CH and PBF species known to be present on site (i.e., plant species) will be undertaken to ensure that there are no long-term negative impacts as a result of the Project. On-going monitoring and reporting will be completed throughout the operation of the Project in accordance with the relevant monitoring plans along with the Biodiversity Management Plan (BMP) which are being produced in connection with the Project.

For the potential Critical Habitat qualifying species, Fedtschenkia Sapigid Wasp and Feruler Flowerfly - i.e., those that are potentially present in the Project area, further survey and monitoring will be mindful of these species possible presence and if recorded during surveys through construction and operation of the project a detailed strategy in accordance with CH will be engaged. Regardless of monitoring the workers will be presented with information in order to help identify species on site if recorded during works and all sightings of possible presence will be investigated prior to continuing works in the area.

Details of survey and monitoring will be provided within the BMP but will occur in detail prior to and during construction as well as at lower levels during the operation to understand if regeneration of habitats has had a positive impact.

## Summary

Two species of plants have been recorded on site that trigger CH. These species are mostly present in areas away from works and can be monitored and maintained through the lifetime of the project with no predicted impacts to these populations. Populations of the foodplants known to be favoured by the invertebrate species will be included within on-site management and seed harvesting of these species will help establish suitable invertebrate habitat over a wider area than is available at present. Restoration and offsetting will be carried within agriculturally degraded areas which will also ensure Net Gains/ No Net Losses of the species populations over the lifetime of the Project. The Project has communicated with the Uzbek Institute of Botany in Tashkent to discuss working together within the region, and the Institute is currently setting up a plant nursery to allow propagation and recolonisation of some of the rarer desert species (including those found on site) therefore there is the expectation that the Project area will be included in this work.

It is considered that the Project has met the requirements as set out in IFC PS6 Paragraph 17 and the measures detailed above will be included in the management plan and BMP documents. These documents will also set out measures designed to achieve No Net Loss for those species defined as PBFs and net gains for those biodiversity values for which the CH habitat was designated.

It is important to reiterate that given the lack of information on invertebrates, there is insufficient evidence any meet CH thresholds. However, should future data demonstrate that they do meet such thresholds, currently planned habitat-focused mitigation and offset actions are anticipated to be a sufficient proxy for No Net Loss for invertebrate species.