Appendix D July 2020 Biodiversity and Cultural Heritage Survey Report

Report
on field study for biodiversity and cultural heritage at the prospective construction site of 200 MW Photoelectric (solar) power plant in Baku City

1.0. INTRODUCTION

This summary report contains information on field studies carried out in the area of the planned construction of 200 MW Photoelectric (solar) power plant in Baku City for the determination of the presence of flora species and types of habitats, as well as cultural heritage sites in order to ensure subsequent analysis and assessment of environmental and social Impacts (ESIA).

2.0. OBJECTIVES

The study aimed to collection of data and information to describe the current state of flora and vegetation, as well as cultural heritage sites in the survey area and provide a forecast of possible impacts.

Fieldwork was prioritized for the following activities:

In the field of biodiversity:

- identification of the species of fauna and flora present in the project site, with particular regard to species being of interest from the point of view of conservation, including:
  - species protected by local and international laws and conventions (e.g. protected by the Habitats Directive, Appendix II, Berne Convention and CITES Convention);
  - species under the threat of destruction according to the local and world Red Books (critically endangered, endangered and vulnerable);
  - endemic and / or species in a narrow range;
- assessment of the presence of sensitive habitats in the Project area of influence and in the wider vicinity;
- description and photographing of the identified representatives of fauna and flora and determination of the coordinates of the area of their presence using a portable GPS device.

In the field of cultural heritage:

- identification of the presence and signs of archaeological sites and objects of formal and informal cultural heritage;
- assessment of the presence of sensitive areas of archaeological and cultural heritage in the project site and in the wider surroundings;
- description and photographing of the identified objects and determination of their coordinates using GPS device;
- preparation of proposals for detailed study when identifying architectural or other objects of international or national value.

The data collected during fieldwork should answer the following key basic questions:

1. What is the distribution, phenology and conservation status of the flora present in the survey area?
2. What types of vegetation / habitats are present in the survey area and what is their distribution and conservation status?
3. What archaeological, historical, cultural objects and objects of formal and informal cultural heritage are present in the survey area and what is their state of conservation?

3.0. THE LEGISLATIVE BASIS

Field studies have been carried out in accordance with the requirements of national laws and regulations, International Conventions, which Azerbaijan has joined, as well as in accordance with the IFC Performance Standards. The main legislative documents, establishing the requirements for environmental assessment, are presented below:

Laws of Azerbaijan Republic:

- “On Environmental Protection” dated 08.07.1999, No. 678-IQ;
- “On the animal world” dated 07.07.1999, No. 675-IQ;
- “On the protection of green plantations” dated 02.05.2014, No. 975-IVQ;
- "On the Protection of Historical and Cultural Monuments" dated 10.04.1998, No. 470-IQ.

National programs:

- “National Strategy of the Azerbaijan Republic in the field of protection and sustainable development of biodiversity in Azerbaijan”.

International conventions:

- "On International Trade in Endangered Species of Wild Fauna and Flora," CITES (Rio de Janeiro, 1992);
- "On Wetlands of International Importance, Mainly for Waterfowl Habitats" (Berne, 1979);
- "On the protection of wild fauna and flora and natural habitats in Europe";
- "On biological diversity", (Rio de Janeiro, 1992);
- "On the protection of the world cultural and natural heritage", (Paris, 1972);
- IFC Performance Standard "Biodiversity Conservation and Sustainable Management of Living Natural Resources".

4.0. FIELD WORK METHODOLOGY

Sampling points

The sampling points were located within the construction site of the photoelectric (solar) power plant (Fig. 1) and were selected as representative ones for the survey area from the point of view of:

- potential presence of species being of interest from the point of view of conservation: the sampling point included a natural habitat identified as having a high suitability for the presence of species being of interest from the point of view of conservation;
- the selection of the sampling point was especially focused on important bird habitats in their immediate vicinity.

The location of the sampling point, selected during the office studies phase, has been changed at the site due to inaccessibility, safety reasons, or other unforeseen problems.

The location of each sampling point was recorded using GPS (UTM 39 coordinate system) using a unique sampling point code for its identification.

A survey was carried out at each sampling point in order to identify the presence or absence of species being of interest for conservation.

Data acquisition

For each sampling point, at least the following data were collected:

- unique sampling point code;
- names of researchers;
- research date;
- GPS coordinates (UTM 39 system of coordinates);
- photograph's reference number;
- type of habitat / vegetation and brief description;
- the main species of flora and fauna presented and their range of coverage;
- the presence of major threat / concern (e.g. grazing, soil erosion, dust deposition) and level of concern (high, medium, low);
- any other information considered to be useful (e.g. any specific fauna activity, signs of recent flooding, possible future disturbances).

5.0. FIELD STUDIES

Field studies have been carried out during two days 28 - 29 July 2020 by project team of "Sulaco Ltd" company consisting of the Project Team Leader, specialist on biodiversity, archaeologist and surveyor.

On the first day of the site visit, the weather was mostly clear and sunny, the air temperature was 39 ° C, the wind speed was about 10-12 m / s, the visibility was good.

On the second day of the site visit, the weather was cloudy at times, the air temperature was 34 ° C, the wind speed was 12-15 m / s, the visibility was about 7 km, that made it possible to inspect the surrounding area of the site.

After arriving at the project area, first of all, the boundaries of the project area and the objects in it were determined, in accordance with the scheme indicated in the aerospace image of the area.

Figure 1. Project site and objects in its vicinity

The coordinates of the corner points of the project site in the UTM-39 system and the identified objects around it are given in the table below.

Table 1. Coordinates of the corner points of the project site and identified objects in its vicinity

Point No.	Point designation	Coordinates in UTM-39 system	
		X	Y
1.	North corner point of the project site	4434549,73	358239,87
2.	East corner point of the project site	4433392,55	360172,56
3.	Southeast corner point of the project site	4431520,50	359381,52
4.	Southeast corner point of the project site	4431707,54	359051,76
5.	South corner point of the project site	4430779,82	358687,79
6.	West corner point of the project site	4431495,58	357323,77
7.	Southwest corner point of the project site	4432339,36	357618,64
8.	Southwest corner point of the project site	4432131,58	358069,36
9.	Northwest corner point of the project site	4432717,27	358287,01
10.	Northwest corner point of the project site	4433481,57	357861,22
11.	Farm	4432717,07	360208,78
12.	Farm	4433133,35	361084,82
13.	Farm	4430727,92	359978,77
14.	New cemetery	4434837,66	357095,76
15.	Old cemetery	4430577,69	358283,08

Photo 1. Panorama of the area and definition of the boundaries of the project area

Due to the complicated relief, especially at points 1-6, the mobile network was often lost on the site, which impeded the GPS receiver and, therefore, the determination of the coordinates of some of the identified objects.

Before the commencement of the field studies, all available information about the project area, the presence of elements of biodiversity, potential archaeological, cultural and historical objects of local, national and international importance was collected and analyzed. In addition, the existing geographic and cartographic data related to the project site were reviewed.

It should be noted that, in general, there are very few references and available information that comprehensively describe the environment in the survey region, and especially within the local area indicated in the aerospace image of the area.

Field studies have been carried out by the method of visual observation of the objects under study by means of route walk on the territory of the site and in its vicinity.

6.0. DESCRIPTION OF THE PROJECT SITE AND ITS ENVIRONMENT

The survey area is located in the south-west of the Absheron Peninsula, 73 km west of Baku City, on the territory of the Karadag administrative district, on the eastern coast of the Caspian Sea. In terms of quality, the highway from Baku to the project site can be divided into three categories: from Baku to the entrance to the Gobustan settlement - the "Baku-Alat-Astara" main road - 1st category, from the Gobustan settlement to the Gobustan National Historical and Art reserve - asphalt road, in some places with a destroyed pavement - the 2nd category, from the reserve to the project site - dirt road of poor quality.

The project area refers to the coastal zone of the southeastern part of the Gobustan plain. The total area of the survey area is about 520 ha. The geographic landscape of the site is predominantly desert and semi-desert

The survey area is a continuation of Alyat anticlinorium and other geological structures of the Gobustan fold. The Alyat anticlinorium was formed by the Dashgal and Alyat anticlines. The Alyat marine anticline is located on the extension of this ridge, extending into the sea, and consists of productive stratum of rocks and recent Pliocene deposits.

The relief of the survey area is subject to significant impact of anthropogenic and natural factors. The degree of land erosion varies within 15-20%, which corresponds to the average risk of erosion. Plains and plateaus prevail within the boundaries of the project area, which belong to the accumulative-denudation type of the relief form. The relief in the southeastern part of the site is relatively smooth and has the shape of a plateau and stretches in the form of a strip approximately 1.5-2 km wide. The surface of the low-lying parts of the site is flat and has no cracks. The relief between corner points 1 and 10 of the site, especially outside them, is represented by deep dry ravines, gullies and badlands. This form of relief is also observed outside the project area. There is the world's largest concentration of mud volcanoes outside the project site, in the west and northwest.

According to the "Ecological Atlas" of the Azerbaijan Republic, the semi-arid, dry, moderately hot climate prevails in the region. The nature of the winds in the region is determined both by the large-scale influence of global atmospheric fronts and by the local atmospheric circulation and temperature conditions. The Caucasus mountains the in the west and the Caspian Sea in the east accelerate the passage through the territory of frequently recurring winds of north-east (25.6%) and north (23.8%) directions. Wind gusts up to 15 m / s occur at any time of the year, but more often in the summer. According to the data from Alyat weather station, the average annual wind speed is 4.6 m / s, the maximum speed can reach 28-32 m / s. In addition, according to statistics, the annual probability of calm weather is 22-25%.

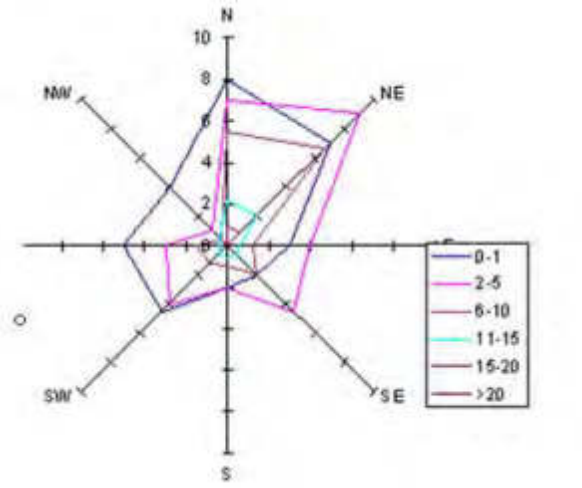

Figure 1. Prevailing wind directions for Alyat
(according to data from Alyat weather station)

The solar radiation level varies within 128-132 kcal / cm^2, the number of hours of sunshine is 2200-2400. The seismic zone of the survey area is more than 7 (>7). The diversity and phytomass of plant species are very scarce, the nature of the vegetation changes depending on the availability of water and its salinity., Ephemerals grow well at young age.

The soil in the survey area has a complex structure. This is caused by the value of the absolute height of the site, the variety of parent rocks, biological and hydrological conditions, etc. Moreover, the moisture parameters influence on soil forming. The arid climate creates favorable conditions for the formation of semi-desert landscape, as well as the corresponding type of soil and vegetation. In addition, the arid, moderately hot climate contributes to the formation of desert and semi-desert salt marshes, on which halophytes grow. Primeval gray salt marshes, consisting of gray soils, are widespread. According to the “Ecological Atlas” data, this type of soil was formed on recent alluvial-proluvial and deluvial sediments and has a rare vegetation cover. The humus content in these soils is 1.5-2% at high carbonate content and low nitrogen content. The mechanical composition is characterized by high degree of schistosity. These soils, formed under high aridity conditions, in summer cover with cracks here and there and look like takyr.

Photo 2. Mud volcano and topography forms near the northwestern boundaries of the project area


Photo 3. Relief forms in the center and in the southwestern part of the project area

During a visual inspection of the site, several metal poles (pipes) were found within it, apparently marking the conditional border of pastures of nearby farms.

In addition, the wellhead of old exploration well was discovered within the site, the purpose of which could not be determined.

Within the site, not far from the 5th point of the site boundary, 6 recently drilled exploration wells were discovered. Judging by the structures, these wells are observation wells and are intended for geotechnical investigations and observation of the groundwater level. In some places of the site artificially banked land plots of small size were discovered, apparently, they were created by local farmers some time and are intended for the rainfall collection.




Photo 4. Objects identified at the site during visual inspection

Several small farms identified during the site visit are the only residential settlements in the relatively close vicinity of the project site. Farms, in which farmers mainly keep cattle (cows, bulls), do not have fencing, consist of several primitive one-story buildings for living and keeping animals, reservoirs for drinking water and areas for haystacks. All farms have several vehicles for transporting animals, delivering food and hay. All farmers actively use the project site for grazing and driving livestock. Dirt roads crossing the site in all directions, as well as a temporary road along the gas pipeline route under construction, are the only roads connecting farms with the outside world.

Photo 5. Farms in the vicinity of the project site

Currently, in the northeast direction from the project site, at a distance of about 1.2 km or more from it, SOCAR contractors are building the “Babek-Umid” trunk gas pipeline with a diameter of 1000 mm, following from the Dashgil gas field to the Sangachal terminal. In order to manage construction in the field, a temporary construction camp is built near the gas processing plant of the Gobustan Operating Company.

Photo 6. Route of underground gas pipeline under construction

The air quality in the survey area is assessed as good, since there are no industrial facilities that pollute the atmosphere within a radius of about 3 km. However, in some places within the site, especially during northwest wind, the smell of manure from nearby farms is felt.

In addition, air quality is affected by trucks transporting construction materials from quarries located a few kilometers to the north from the site boundaries and by construction equipment of contractor organization, which constructs the underground gas pipeline.

During the pedestrian visual inspection of the site, contamination of the site with any industrial and household waste, including the concrete foundations of the drilling rigs, open ground oil sedimentation tanks, oil pollution in dry and liquid state, waterlogging, soil embankments, borrow pits and garbage dumps were not detected. Based on these signs, one can judge that the project site was not previously used for production purposes. In addition, there are no signs of cultivation on the site.

7.0. BIODIVERSITY

7.1. FLORA

In the period from 28 to 29 July 2020, the works were carried out to collect basic information and assess the state of flora and fauna at the prospective construction site of the photoelectric station. For the data collection, several areas and directions were selected, with the landscapes most typical for the area.

The project site is one of the poorly studied areas where herpetofloristic studies have not been carried out earlier. In the references on this area, there are only a few works on the study of fauna and flora, which are mainly descriptive and do not give a complete picture of the current state of the species.

The general more elevated and hilly character of the area, the presence of valleys with clayey slopes leave a peculiar mark on the semi-desert formations here. The zonal type of flora is the wormwood semi-desert, constantly disturbed by mesozonal groupings. The thickets of saltwort forming mixed formations with sagebrush, especially distributed in the central and southeastern parts of the project area, are very characteristic in weakly saline habitats.

In the survey area, the diversity and phytomass of plant species are very scarce, the nature of the vegetation changes depending on the availability of water and its salinity. Ephemerals grow well at young age.

Semi-desert vegetation covers a large area of the project site.

A relatively large number of ephemerals (plants adapted to living on saline soils (dry steppes, deserts, sea coasts, etc.)) are widespread in their natural form at the project site. This is due to the fact that the species composition of plant communities in the project area was formed under conditions of deficiency of moisture and mineral nutrition elements, high temperatures and excessive insolation. Saline soils are commonly encountered. The dominant type of vegetation on the site is steppe plants. In the composition of the vegetation cover, the genus of plants of the Amaranth family play the dominant role, prominent representative of which is *Salsola nodulosa* (*saltwort*).

This species, within its geographic range, is a part of various natural complexes and phytosenoses of the Absheron Peninsula.

The abundance of ephemers in the project site is associated with the climatic regime. Thus, the presence of a certain relationship between temperature and relative humidity forms the normal conditions for the development of ephemeral plants. Being semidesert plants, ephemerals and

epheroids in autumn (after precipitation) enter the phase of their phenological development and remain green all winter and early spring. By the end of May, they complete their phase of development. The ephemeral grasses of the site dry up in summer. Nevertheless, small shrubs: wormwood (*Artemisia fragrans*), Salsola nodulosa (*saltwort*) and other perennial grasses continue their dynamic development even in summer heat, in autumn they begin to bloom and seeds are formed. Vegetation is rarely found in rocky areas of the site.

Lands in the project area and in its vicinity are not cultivated, only some flooded areas are used for grazing livestock in spring and summer. In autumn and winter, on the contrary, arid areas rich of halophytes are used as grazing land.

Vegetation in the project area and outside it can be divided into two groups:

- Shrubs and halophytes growing in semi-desert areas of a significant part of the project area;
- Vegetation cover growing in flooded areas, ephemers, coastal plants growing on sand or in shallow lagoons.

Landscape changes to the northwest, southeast and south of the project site, as well as to the west, are characterized by a relatively large variety of vegetation cover. Growing on the salt marshes of the survey area are as follows: treelike saltwort (*Salsola dendroides*), fleshy saltwort (*Salsola crassa*), camel's thorn (*Alhagi pseudalhagilhagi*), and branchy tamarisk (*Tamarix ramosissima*). The Caspian saltwort (*Kalidium capsicum*), tumble-weed (camel's thorn) and ephemers are dominated on the clayey hills.

Common wormwood (*Artemisia absinthium*), kargan formation saltwort (*Salsoletum*), seepweed (*Suaeda*) and fleshy saltwort are found on the uplands.

Outside the project site, especially in the vicinity of farms and in the area of the new cemetery, the dominant vegetation is tamarisk - a shrub with no agricultural value.

Photo 7. Vegetation cover in the project area

The project site is characterized by 2 floristic groups - desert flora (desert ephemers) and steppe flora. Below is a list of the main plant species belonging to each floristic group.

Desert flora:

- *Salsola dendroides;*
- *Salsola crassa;*
- *Suaeda dendroides – Seepweed – Çəyən;*
- *Salsola ericoides – Saltwort – Şorangə;*
- *Artemisia fragrans – Wormwood– Yovşan;*
- *Salicornia europeae - Saltwort – Şorangə.*

Steppe flora:

- *Alhagi pseudalhagilhagi;*
- Tamarix ramosissima*;*
- *Zerna rubens – Kocmep – Tonqalotu;*
- *Kalidium capsicum;*
- *Artemisia scoparia – Wormwood -Süpürgəvari yovşan;*
- *Artemisia absinthium;*
- *Artemisia lerchiana – Wormwood – Yovşan;*
- *Salsola nodulosa – Saltwort – Şorangə;*
- *Poa bulbosa –– Bulbous bluegrass - Soğanaqlı qırtıc;*
- *Suaeda.*

7.2. FAUNA

The life activity of the local population and long-term industrial activities outside the project area, as well as the desert and semi-desert landscape of the area significantly influenced the species diversity of the fauna in the project area.

At the same time, due to the lack of appropriate infrastructure and signs of development of the project site, it can be assumed that this area may still be a habitat for some rodents and a number of reptiles. This is evidenced by the numerous burrows of rodents found during the visual inspection of the site.

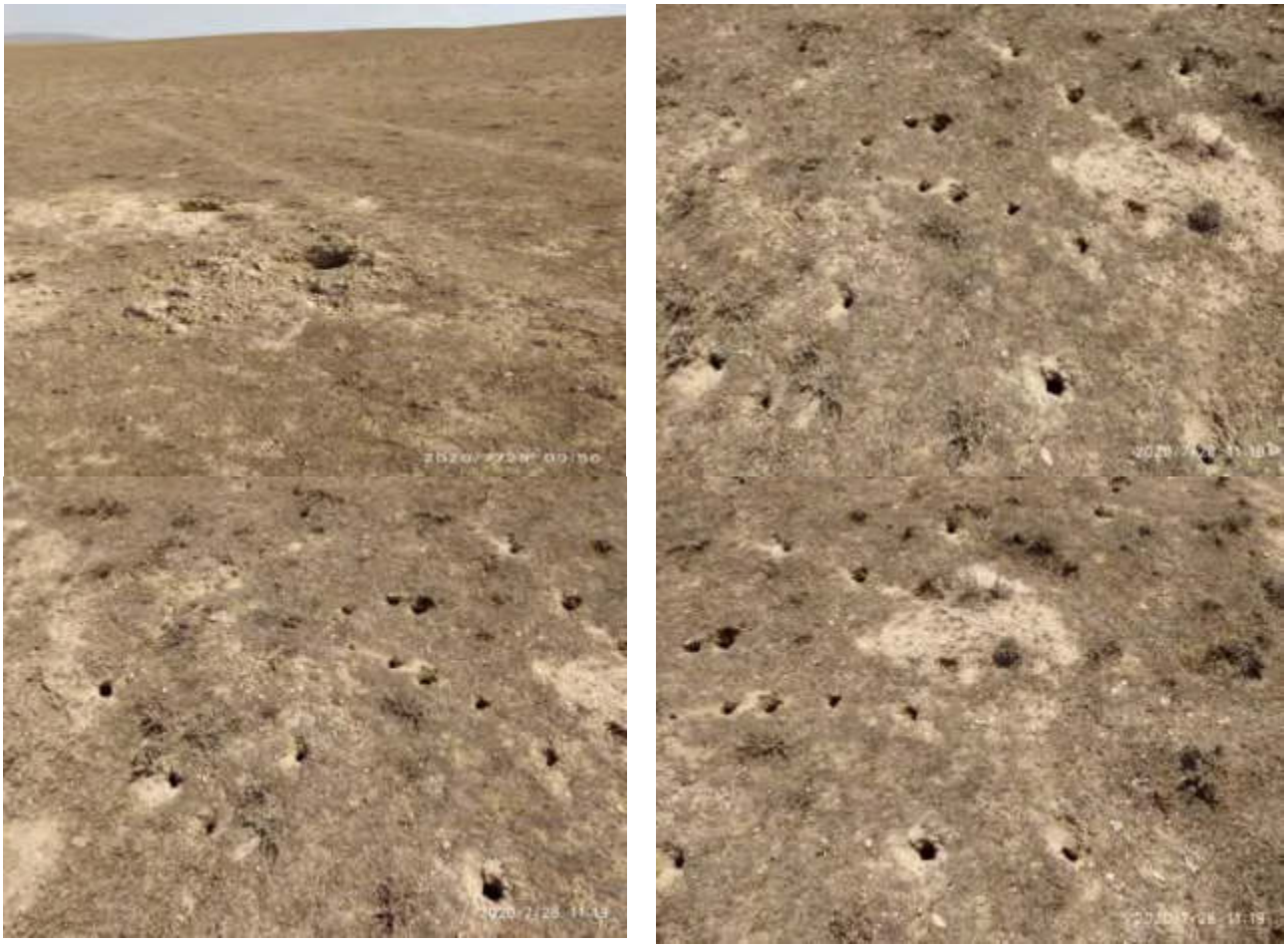

Photo 8. Burrows of field rodents found in the project site

Fauna diversity is relatively poorly developed in semi-desert environment. Visually encountered species include hares (*Lepus*), foxes (*Vulpes vulpes*), some rodents, a number of reptiles represented by snakes (*Vipera Libertina*) and lizards, and several bird species.

Common mammals in the project area include jackals (*Canis aureus*) and wolves (*Canis lipus*), which follow flocks of sheep to their wintering areas, and the red fox (*Vulpes vulpes*), which is one of the permanent inhabitants of the area. Other typical mammals include the hedgehog (*Hemiehinus auritus*), the hare (*Lepus europaeus*), and several house mouse species (*Mus muscus, Meriones erythrourus, and Microfus socialis*).

Birds are the largest number of vertebrates. Of these, during summer nesting, *Galerida cristata* and *Oenanthe isabellina* are the most numerous, *Alauda arvensis*, *Sturnus vulgaris* and *Corvus frugilegus* in winter. Common sparrow - *Passer domesticus* and blackbird - *Turdus merula* live here all year round.

The bird fauna includes the common kestrel (*Falco tinnunculus*), pigeons (*Columba livia*), pigeons (*Streptopelia turtur*), horned owls (*Athene noctua*), partridges (*Galerida cristata*), and isabelline wheatear (*Oennanthe isabellina*). *Oennanthe isabellina*, *Falconaumanni* and *Merops superciliosus*, *Remiz pendulinus*, *Lanius collurio* and *Lanius minor* and many other birds live in the area and breed in summer.

During the visual inspection of the site, the presence of the following species of fauna was identified:

Mammals:

- European brown hare - *Lepus europaeus;*
- Libyan jird - *Meriones erythrourus;*
- Gray rat - *Rattus norvegicus;*
- Jackal - *S.aureus;*
- Fox - *Vulpes vulpes;*

Reptiles:

- Caucasian agama - *Agama caucasica*;
- Racerunner - *Eremias velox*;
- Caucasian lizard - *Agama caucasica*;
- Blindworm - *Thyphlops vermicularis*;
- Lebetina viper - *Vipera lebetina*;
- Glass-lizard - *Ophisaurus apodus*.

Invertebrates:

- *Smaragdina limbata*;
- *Chrysolina chaleites*;
- *Polyphylla oliveri*;
- *Anthrenus scrophularia*;
- *Epicauta erythrocephala*;
- *Mylabris cincta*;
- *Dorcadion beckleri*;
- *Cleonus piger.*

Birds:

- House sparrow - *Passer domesticus Linnaeus;*
- Tree sparrow - *Passer montanus Linnaeus;*
- Common chat - *Oenanthe oenanthe Linnaeus;*
- Sky lark - *Alauda arvensis Linnaeus;*

- Horned lark - *Eremophila alpestris Linnaeus;*
- Crested lark - *Galerida cristata Linnaeus;*
- Common swallow - *Hirundo rustica Linnaeus;*
- Long-eared owl - *Asio otus Linnaeus;*
- Dove - *Streptopelia turtur;*
- Isabelline chat - *Oennanthe isabellina.*

During the site visit and during its visual inspection, the species of flora and fauna listed in the Red Book of Azerbaijan and the International Red Book, as well as critically endangered, endangered and vulnerable were not found.

7.3. CULTURAL HERITAGE

The desert and semi-desert landscape of the project site, the severe climate, scarce vegetation and the absence of natural water sources make the site unsuitable for its long-term settlement and habitability. Since ancient times this territory has been used by nomadic tribes as a pasture and for driving cattle to wintering areas.

During the visual inspection of the site, no direct or indirect evidence was found (cultural layer, remains of ancient settlements, household utensils, etc.) indicating the presence of any signs of an ancient settlement on this site. It is assumed that if there were, then evidence and elements of the ancient settlement could be buried under the soil heaps flowing with water from the steep slopes.

In this territory, the only resource of cultural heritage protected by the state is the Gobustan State Historical and Artistic Reserve, located approximately 7 km north-east of the project site. Brief information about the Gobustan reserve is given in section 7.4. of this Report.

At the northern border of the site, about 1.2 km north of it, there is a new Muslim cemetery, where the funeral continues to this day. This cemetery is the first sensitive site in the vicinity of the site.

The second, more ancient cemetery was found at the southern borders of the site, approximately 0.5 km from it. Judging by the inscriptions on the tombstones, there are graves here that have a date of the middle of the 19th century. At the same time, funerals are still going on in this cemetery, as evidenced by the relatively new graves and inscriptions on tombstones.

Since the field studies were carried out during the days of strict quarantine due to coronavirus infection, at the time of the survey, there were no people either on the site or outside of it. The absence of people made it difficult to obtain any additional information about the origin of the cemeteries from the local population.

It should be noted that all protected by the state historical, architectural and cultural objects located in Azerbaijan, including the Karadag District, are included in the List of immovable historical and cultural monuments of national importance, which was approved by the Resolution of the Cabinet of Ministers of the Azerbaijan Republic dated 02.08.2011 No. 132 The following table contains an extract from the above List, from which it is obvious that the cemeteries identified are not objects of cultural heritage protected by the state.

Table 2. The list of immovable historical and cultural monuments of national importance (approved by the Decree of the Cabinet of Ministers of the Azerbaijan Republic dated August 02, 2011 No. 132 (Annex 2))

Inventory number of the monument	Name of monument	Historical date	Address
Karadag District of Baku City			
(architectural monuments)			
105.	Caravanserai	XIV century	Karadag railway station
106.	Caravanserai (Karachi)	XV century	Sangachal settlement, Miejik territory
107.	Tomb of Sofi Hamid	XVII century	Sangachal settlement, Miejik territory
108.	Caravanserai	XV century	Поселок Сангачал
Archaeological sites			
492.	Ovdan (underground reservoir)	XVII century	Sangachal settlement,

			Miejik territory
493.	Ovdan (underground reservoir)	XV century	Sangachal settlement
494.	Ovdan (underground reservoir)	XV century	Sangachal settlement
495.	Ovdan (underground reservoir)	XVIII century	Bibi-Heybat station

As is obvious from the table, the identified cemeteries are not included in the List of immovable historical and cultural monuments of national importance, protected by the state. We think that it would be advisable to include these objects in the subject of social studies that will be carried out within the framework of this project. This will allow obtaining more detailed information from local communities about the significance of these cemeteries in the life of the local population.


Photo 9. New and old cemeteries outside the project site

7.4. SPECIALLY PROTECTED TERRITORIES IN THE VICINITY OF THE PROJECT SITE

The closest to the project site protected natural areas are the “Gobustan” National Reserve and the “Shirvan” National Park, located 20 km south of Alyat.

Gobustan is one of the world's most famous historical and archaeological reserves, an open-air museum with a huge collection of priceless historical artifacts. The reserve was formed on September 9, 1966. The purpose of its activity is the protection of rock carvings, mounds, housing objects and their careful study.

The Gobustan Reserve is especially famous for its rock carvings made during the Mesolithic period. The most significant of this list are petroglyphs carved by primitive people on the walls of caves, rocks and boulders. They are able to tell the traveler about the culture, economy, worldview, customs and traditions of the ancient people who already at that distant time inhabited this abundant region of Azerbaijan.

As a result of archaeological research in the Gobustan Reserve, more than 6 thousand carvings on 1000 rocks, ancient dwellings - caves, about 40 mounds, more than 100 thousand objects of material culture were discovered. The most ancient carvings date back to the Mesolithic era, but it is assumed that life existed here before, which allows considering Gobustan one of the cradles of civilization. Research continues here so far.

In 2007, the Gobustan reserve was included in the UNESCO World Cultural Heritage List. Hundreds of tourists from dozens of countries around the world visit it every year.

Appendix E April 2021 Biodiversity Survey Report

April 2021

Sulaco Consulting & Engineering Co. Ltd

200 MWac Azerbaijan Solar PV Project

Report
on additional study of the general ecology and biological resources at the construction site of photovoltaic (solar) power plant with a capacity of 200 MW in Baku City and its surroundings

CONTENTS

INTRODUCTION

The results of environmental studies carried out in July 2020 showed that the available information on the biological resources of the area, where the "Photovoltaic (solar) power plant" is located, is limited, complete published data, specifically devoted to the flora and fauna just of the location site of the power plant and available information, comprehensively describing the environment in the region, especially on the territory of the project site, are not sufficient. In addition to the works already completed during the ESIA phase, the ESIA team, in order to understand the ecological function and value of the project area, identified the need for additional survey on the wider project area, including all aspects of development components.

This Report has been developed based on the results of additional field studies conducted from April 8 to 9 this year in the project site and the surrounding area, as well as studying the literature data in order to determine the general environmental characteristics and identify the presence of natural habitats of fauna and flora and supplement the basic information on the biological resources of the project site included in the ESIA, as well informing stakeholders about potential environmental receptors present on the site. The report contains more detailed information on the biological resources of the project site and its wider surroundings.

In order to supplement the ESIA with information on the characteristic of the baseline environment and biodiversity of the area, a collection, review and analysis of the available literature data and publications was carried out, which mainly include previous ECIAs carried out for other proposed (and in some cases never implemented) projects in the immediate vicinity of the project site.

1. Location of the project site

The project site is located in the east of the Azerbaijan Republic, in the desert and steppe coastal zone of the southeastern part of the Gobustan plain, in the south-west of the Absheron Peninsula, in the Garadag administrative district of Baku. The project site covers an area of approximately 550 ha, the distance from the site to Baku City is 60 km, and to the Caspian Sea is approximately 8 km. The closest settlements to the project site are the administrative units of the Garadag district - Gobustan and Alyat settlements- located approximately 5 km east and northeast of the site, , at a distance of 8 km southeast of the project site.

On the project site and beyond, especially in the coastal block, plateau and flat landforms prevail with a slope in the southwest direction. Taking into account the difficult topography, the elevation above sea level of the project site varies within + 100 to 80 m.

The project site is located in oil and gas field, the coastal block of contract area of southwest Gobustan. This territory is currently operated by the Gobustan Operating Company, which is part of the SOCAR structure. At some distance from the project site, there is a production base, gas processing units and 6 active, suspended and abandoned GOC gas wells.

The closest state-protected natural areas to the project site is the "Gobustan" National Reserve.

At some distance from the project site, the "Babek-Umid" underground gas pipeline passes,

which runs from the Dashgil gas field to the Sangachal terminal and the GOC gas pipeline, connecting the gas fields with a gas processing plant.
The "Baku-Alat-Astara" trunk road is located approximately 12 km southeast of the project site. The closest railway station is Sangachal station, located about 15 km east of the site.
In the immediate vicinity of the project area, 4 volcanoes were discovered, including 3 volcanoes located in the east (Goyarchin, Dilangaz and Dashgil), and 1 volcano located in the south (Goturdag).
There is no irrigation and collector-drainage network in the immediate vicinity of the project site and within 10 km radius from it.
The project site and its surroundings are actively used by nomadic tribes and local residents as winter pastures and for informal grazing of cattle and small cattle.
At present the government of Azerbaijan in order to facilitate the access of tourists to the group of volcanoes and improve the road infrastructure of local residents, has initiated the construction of a new two-lane local highway with a width of 8 m and a length of 21 km. The new road starts from the entrance to the Gobustan nature reserve and runs in the northeastern direction.
It is expected that the new road can significantly reduce the distance and facilitate access to the project site, provided that, starting from the entrance to the GOC's production base to the project site, the new road with a length of approximately 6.5 km will be built to replace the existing dirt road.

Figure 1: "Babek-Umid" gas pipeline and GOC's infrastructure (gas pipelines)

1.2. Project area, surrounding landscape and land features

The dominant geological structures of the Caspian region were formed during the period of tectonic movements that resulted in the formation of the Caucasus Mountains and the associated basin and plateau structures that form the Caspian and adjacent onshore regions.

Numerous erosional alterations to the landscape have occurred since the original structures were formed. Ensuing periods of tectonic compression (mainly during the Late Pliocene period) resulted in the production of a number of folded structures within the region, forming a number of anticlines (upward thrusting folds).
The Project Area is located on the Southeast end of the Greater Caucasus Mountains on the south-eastern part of Absheron peninsula, within the Samaxi-Gobustan structural zone. In this region topography is relatively flat near the shoreline. The Project area is located within a valley (Shachikaya wadi) characterized by relatively flat areas on which the Shachikaya Wadi and its tributaries are located and relatively high hills at the sides mainly characterized by mud volcanoes. (Figure 2).

Figure 2: General View from the Project Area showing Flat Areas, with typical surface conditions

The study area around the project site is characterized by tectonic and lithological features of the Cainozoic complex. The complicated structure of the topography is connected with this factor. Denudation and accumulation processes have played an important role in the formation of the geomorphological structure of this territory. During the Neotectonic period, these processes became more intenslve, and the topography of the area was subjected to strong weathering, owing to which the eminences were formed (including the 300-400 m high "mountains" of mud volcanoes), hills, valleys and ravines. In many cases, the tectonic

structure of the terrain corresponds to its geomorphological elements.

Beyond the project site, especially in the coastal block, plateau and flat landforms related to the accumulative-denudation type prevail. 7-10 km wide abrasive-accumulative plain extends along the Caspian Sea. In terms of geological age, this plain was formed in the Quaternary period.

In the north and south of this plain, in a relatively small area, the relief has the shape of a plateau. There are low hills and foothill types of relief In the central part. Mud uplands and coverings of the Pliocene-Quaternary period are widespread here. This type of relief in the form of a narrow strip extends to the west. Some parts of the coastal block, especially the eastern slopes of hills and highlands, have an escarp shape, i.e. the relief has a more or less steep stepped shape.

Figure 3. Landforms of the project site in different directions

1.3. Objects identified within a 10 km radius of the project site

The results of the repeat visit to the project site and adjacent territories, as well as field visual observations carried out by the "Sulaco" project team from April 9 to 10, 2021, confirmed that the project site and its surroundings are actively used for informal grazing of cattle and small cattle. The main land users located within a radius of 10 km from the project site are livestock farms in local and neighboring districts, which use a vast area for keeping cattle and small cattle and as a winter pasture.

Livestock breeding for nomadic tribes of this territory and residents of neighboring districts is a traditional perennial type of agricultural activity. The availability of large areas of natural pastures at low labor costs and means (availability of labor force, low cost of livestock keeping, biological value of grass cover, high productivity of livestock, etc.) allow for meat and milk production all year round.

Livestock farms located within a radius of 10 km from the project site are not located in a single massif, but in remote areas of different sizes. With the exception of one or two farms located outside the 10 km radius of the project site, the farms according to their organization and menage do not meet the requirements of modern livestock farms. Farms are mainly located in low-lying, non-flooded parts of the territory with a relatively calm relief, and pastures are located in hilly plains at a distance of about 3-5 km from farms and from each other, neighboring pastures do not have a dividing line and an artificial fence.

From small cattle, farms mainly keep rams, lambs and goats, and from cattle, cows, bulls, calves, as well as horses. The quantity of small cattle or cattle in different farms is different. The

number of heads in a flock of sheep on average ranges from 100 to 300, and in herds from 50 to 150 and more heads.
On farms, the animals are looked after and taken care of by shepherds or hired farmers from nearby villages, and guard dogs are used to guard the animals at night.
Farm buildings consist of one or more one-story primitive dwellings, buildings for storing tools and hay, summer pens and winter cattle barns, built in rows from local building material (brick) or other materials at hand. There are small backyards fenced with metal mesh near the dwellings in some farms, where fruit trees are planted. In addition, most farms keep small amount of poultry (chickens, geese, ducks). All farms have metal or concrete reservoirs of water for animal watering, and ponds near the farm are made from earthen dike, where rainwater is collected, and in the absence of rain, the ponds are filled with imported water. Depending on the location of the farm, drinking water and water for animals are brought either from the Gobustan settlement or from neighboring villages in the Hajigabul region.
All farms have one or more vehicles that are used to bring in and out animals, food, fodder and transport to the city and neighboring areas. The Power supply in farms are performed by diesel generators.
Manure is not removed from farms, but accumulates chaotically around farms, which leads to environmental pollution, the smell of manure spreads to several hundred meters from farms.
Some farms operate year-round, and some from September to mid-May next year, with the onset of warm months, flocks and herds are driven to mountain areas (Shamakhy, Gobustan, Guba, etc.).
Recently arranged area fenced with barbed wire with an approximate size of 8 x 12 m was discovered in the project site, 2 solar panels, antenna and boxes with equipment were installed inside the site. The site is covered with crushed stone. There is a guard cabin behind the site. Due to the lack of people and mobile communications, the purpose of the installation and its coordinates could not be determined. By visual inspection, it was determined that the installation is closer to the southern boundary of the site, where geological surveys were carried out last year.
In the north-west direction outside the site, a cemetery was discovered where the visitors were. Visitors were not allowed to photograph the object, because the object was photographed at some distance from it. According to one of the visitors, this cemetery belongs to the Shamly tribe living in the Gobustan settlement of the Garadag district and in some villages of the Hajigabul region.
This cemetery is not included in the list of objects in the Garadag district protected by the state.
Other objects located within a radius of 10 km of the project area are as follows: the Gobustan Nature Reserve (territory of 4,000 ha), the oil and gas infrastructure of the GOC, the suspended or abandoned wells of this company, the remains of an abandoned military training ground, artificial ponds, volcanoes, etc.
The coordinates of the objects identified during the visit to the site within an approximate radius of 10 km of the project area are presented in the table below.

Table 1. Information about the objects identified within a radius of 10 km of the project site

Point ID	Coordinates		Description	Photo
	Y	X		
ID-1	4432655,03	360309,33	Sheep and cattle farm	
ID-2	4433166,64	361255,89	Sheep and cattle farm	
ID-3	4433467,46	361532,11	Remains of oil well	
ID-4	4433872,75	362399,14	Remains of an abandoned military training ground	
ID-5	4434157,96	362407,39	Remains of an abandoned military training ground	

ID-6	4434708,18	362143,37	Remains of an abandoned farm	
ID-7	4436333,23	361013,30	Remains of oil well. The area around the well is contaminated with oil sludge.	
ID-8	4435100,74	360039,08	Artificial earthen ponds for animals' watering	
ID-9	4434745,84	359256,25	Sheep and cattle farm	
ID-10	4435432,51	357495,68	Sheep and cattle farm	
ID-11	4432332,64	354768,16	Sheep and cattle farm	

ID-12	4432094,56	354536,39	Sheep and cattle farm. An olive grove is planted near the farm on a 1 ha plot.	
ID-13	4432012,52	354312,11	Sheep and cattle farm	
ID-14	4431279,15	353936,98	Remains of a dried up artificial pond for animals' watering	
ID-15	4431918,54	355216,67	Sheep and cattle farm	
ID-16	4431388,80	356011,01	Remains of oil well. The area around the well is contaminated with oil sludge.	
ID-17	4430962,84	355405,10	Traces of an artificial earthern dike	

ID-18	4429730,38	358148,31	Artificial earthen pond for animals' watering	
ID-19	4429594,59	358419,90	Sheep and cattle farm	
ID-20	4427970,09	358486,41	Sheep and cattle farm	
ID-21	4430510,90	362692,91	Sheep and cattle farm	
ID-22	4438706.75	361290,42	GOC's Duvanny prduction base	
ID-23	4436571,00	362174,23	Operating GOC's gas well	

ID-24	4439195,66	360264,66	GOC's gas processing area	
ID-25	4438748,89	360283,70	Temporary construction camp of the "Babek-Umid" gas pipeline	
ID-26	4429518,05	360678,48	Extinct mud molcano	
ID-27	4428301,27	355698,36	Remains of GOC's oil well	
ID-28	443 8682,20	362519,18	Gobustan reserve	

ID-29	In the project area, close to the drilled geological wells.		Fenced plot with solar panels	
ID-30	4435327,02	357754,51	Fenced-in cemetery, where the funeral continues to this day.	

2. Biodiversity studies

2.1. Regional Study Area

The biological Regional Study Area (RSA) is an area containing a geographically distinct assemblage of species, natural communities, and environmental conditions. The RSA is defined in order to assess, based on literature review, the species and habitats potentially occurring within and in the vicinity of the Project.

The terrestrial RSA corresponds to the "PA1305 - Azerbaijan Shrub Desert and Steppe" which is considered part of the broader category "Deserts and Xeric Scrublands Biome". The extension of the ecoregion is showed in Figure 4.

Figure 4: PA1305 "Azerbaijan Shrub Desert and Steppe" ecoregion (Word Wildlife). The project site is indicated by the yellow square

2.2. Local Study Area

Within the 10 km radius of the project area, the Local Study Area (LSA) of the biodiversity includes all facilities related to the project area (oil and gas fields, roads, surface and underground pipelines, farms, etc.) and their expected Impact area.

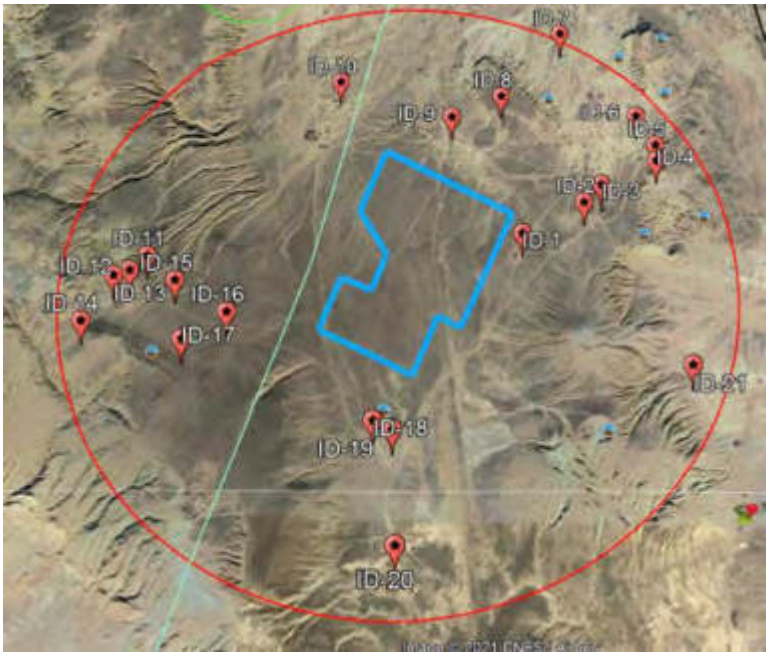

Figure 5. Aerospace photo of LSA around the project area

2.3. Methodology

The methodology for the preparation of the baseline assessment includes the following steps:

- literature review, including the review of existing reports and studies prepared for the Project;
- site visit;
- desktop analysis.

Key steps are outlined below.

Literature Review

The scientific literature review focused on the more extensive area in order to document species and habitat types potentially present in the study area with particular regard for potential priority biodiversity features and critical habitats criteria. In order to provide an overview of the biodiversity present in the area, scientific and official literature has been taken into account in addition to the current ESIA studies:

The literature review included the following sources:

- Scientific publications and other official publications:
- Azerbaijan Fifth National Report (CBD, 2014)
- Potential Analysis for Further Nature Conservation in Azerbaijan (2009)
- Red Book of Azerbaijan (2013)
- Biodiversity analysis update for Azerbaijan (USAID, 2010)

- Michael Heiss & Kai Gauger. 2011. Coastal Bird Migration at the Caspian Shore of the Azerbaijan Republic in October 2007. Podoces 2011. Vol. 6, No. 1

Review of ESIA studies and baseline reports prepared for other projects in the vicinity of the Site:

- ECOMERKEZ, 2011. Part I. The project "Environmental Baseline and Social Impact Assessment" in the site where Oil & Gas Processing and Petrochemical Complex to be constructed. Final Report
- ECOMERKEZ, 2011. Part II: Sosial Impact Assessment on project of construction of "Oil & Gas and Petrochemical Complex"
- ECOMERKEZ, 2011. Part III: Environmental positive impact assessment in connection with dismantling proper processing enterprises under Socar
- AA.VV., 2002. Azeri, Chirag And Gunashli Full Field Development Phase 1. Environmental and Socio-Economic Impact Assessment.
- AECOM, 2015a, for BP. Shallow Water Absheron Peninsula 3D Seismic Survey. Environmental and Socio-Economi Impact Assessment.
- AECOM, 2015b, for BP. Shallow Water Absheron Peninsula 2D Seismic Survey. Environmental and Socio-Economic Impact Assessment: 254 pp.
- GOC, 2014, Environmental Impact Assessment during planned well drilling in the Southwest Contract area. 218 pages.
- GOC, Environmental Impact Assessment during Drilling of New Exploration and Evaluation Wells in the Coastal Block of the Southwest Gobustan Agreement Area. 192 pages.
- MENR, State Strategy for the "Use of Alternative and Renewable Energy Sources 2015-2020", Strategic Environmental Assessment Report Project, 121 pages.
- Golder 2015. SOCAR Polymer. Environmental and Social Impact Assessment (ESIA) for PP & HDPE Plant
- Golder 2017. SOCAR GPC LLC. ESIA Scoping. Gas Processing Plant & Polyethylene Plant Project
- BP, 2002. Shah Deniz gas Export Project Stage 1 Development. Executive summary

Web sources:

- MENR, http://eco.gov.az
- The IUCN Red List of Threatened Species. Version 2016-3. <www.iucnredlist.org>
- WWF database (http://www.worldwildlife.org/ecoregions)
- Birdlife International (http://www.birdlife.org/)
- Ramsar Convention website (http://www.ramsar.org/)
- IUCN World Database on Protected Areas (https://www.iucn.org/theme/protected-

areas/our- work/parks-achieving-quality-and-effectiveness/world-database-protected-areas-wdpa)

- World Database on Protected Areas (http://www.protectedplanet.net/)

Based on the results of the literature review a list of potential flora and fauna species present in the RSA and LSA was created. The global and national conservation status and the endemism of each relevant species was also noted. A legend of the categories used is presented in the lists below:
IUCN Global Red List Categories

- CR: Critically Endangered.
- EN: Endangered.
- VU: Vulnerable.
- LR: Lower Risk.
- NT: Near Threatened.
- LC: Least Concern.
- DD: Data Deficient.

Bern Convention on the Conservation of European Wildlife and Natural Habitats (Bern):

- Appendix-I: Strictly protected flora species.
- Appendix-II: Strictly protected fauna species.
- Appendix-III: Protected fauna species.
- Appendix-IV: Prohibited means and methods of killing, capture and other exploitation.

Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)
The presence of the species in the *Red Book of the Republic of Azerbaijan* was also considered.

The presence and main characteristics of protected areas and internationally recognized areas within 10 km and more from the LSA was also assessed through literature review.

Site Visit

A site visit was performed within the LSA the 9th, 10th and 19th of april 2021 by "Sulaco" Ltd experts. A walk over survey was performed with the aim of understanding the ecological characteristics of the project site and of the LSA and to identify the presence of natural habitats and habitats suitable for flora and fauna species. Photographic documentation and GPS points were collected during the site visit.

Desktop analysis

The data collected during the literature review and the observation performed during the site visit were combined and analysed.

Data collected during the literature review and field studies on terrestrial flora, fauna, and habitats allowed evaluating the presence of significant biodiversity features and critical habitats within the terrestrial LSA. The critical habitat assessment focused in particular on the identification of the presence of the elements listed below (IFC PS6):

- presence of natural habitats;
- presence of potential critical habitats, triggered by the following five criteria:
- habitat of significant importance to Critically Endangered and/or Endangered species;
- 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; and/or
- areas associated with key evolutionary process.

Terrestrial habitats present in the terrestrial LSA were mapped based on the satellite imagery, literature review and site visit observations in the map.

3. General context

The Project is located in the terrestrial RSA corresponding to the "PA1305 - Azerbaijan Shrub Desert and Steppe" ecoregion which is considered part of the "Deserts and Xeric Scrublands Biome".

The climate of this ecoregion is characterized by long hot summer and mild short winters with average annual precipitation of 300-400 mm. Three main primary zonal landscape types/ecosystems within this region are: desert and semi-desert; arid open woodland; and steppe. In addition, there are two intra-zonal/azonal types: flood plain (riparian) forest along the rivers; and wetlands.

Qobustan area, were the project is located, is classified as moderate, warm semi-arid deserts. This area is considered one of the driest in Azerbaijan. Most precipitation falls between October and February, while drier months from July to August. There is a high precipitation variability from year to year.

The "PA1305 - Azerbaijan Shrub Desert and Steppe" ecoregion contains one of the highest numbers of endemic and endangered species in the Caucasus. Fauna diversity is especially remarkable in the ecoregion with many species characteristic of arid ecosystems, including many reptile species. The region coastal areas and wetlands are particularly important for birds during migrating and wintering periods.

The freshwater RSA, corresponds to the lower reach of the freshwater ecoregions known as ID 434 "Kura - South Caspian Drainages" (FEOW). This ecoregion is characterized by a marked variation of water levels. Spring flood during the first half of the summer are

caused mainly by melting snow and glaciers in the mountains and by rains. In the remaining part of the year the level is low and some smaller tributaries are dry for the majority of the year. In general the rivers in this ecoregion carry a large amount of suspended solid (alluvium) into the Caspian.

3.1. Flora of the territory

The LSA is situated in the semi-desert landscape type/ecosystems of the ecoregion known as "PA1305 - Azerbaijan Shrub Desert and Steppe".

The vegetation present in the LSA can be divided into the following types:

- semi-desert vegetation;
- riverine vegetation;
- wetland vegetation.

The vegetation present in the LSA area is heavily disturbed by past and present human activities, including heavy grazing and industrial development connected with oil and gas processing and infrastructures. In particular within the semi-desert vegetation many areas are characterized by exposed bare soil. The flora species indicate clay/saline soil terrain with very low organic content. This kind of soil in the arid climate present in the region is highly subject to surface erosion from wind and heavy rains.

Semi-desert vegetation is characterized by *Salsoletum* vegetation community. The main components of the semi-desert flora are the low perennial bushes wormwood and saltwort species and ephemeral species (*Salsola dendroides, Salsola ericoides, Salsola nodulosa, Suaeda microphylla, Artemisia lerchiana*) often accompanied by low-growing herbaceous forb species and grasses, including *Medicago minima*, *Medicago coerulea Poa bulbosa*, *Bromus japonicus*, *Lolium rigidum*, *Eremopyrum orientale*, *Erodium cicutarium*.

In areas were the soils salinity increases, more halophytic species like bluish saltwort (*Suaeda glauca*) and small leaved seablite (*Suaeda microphylla*) together with other salt tolerant shrub species (e.g. *Kalidium caspicum*, *Halocnemum strobilaceum*) are more frequent.

Large areas are lacking natural vegetation and present bare exposed soil. This situation is at least partially due to excessive livestock grazing and trampling that exacerbate soil erosion from rain and wind.

Riverine vegetation can be found in the vicinity of the two temporary stream branches that crosse the LSA. In the depression created by the river the quantity of flora increases and includes tamarisk or salt cedar thickets (*Tamarix meyeri), Alhagi pseudoalhagi, Juncus acutus* and *Salicornia europaea*. Where the stream forms temporary ponds of almost stagnant water some small stands of *Phragmites australis* can also be observed. The effects of trampling from livestock can be observed in this areas.

Intra-zonal wetland vegetation is found in the last 1 km from the cost, where the freshwater from the river forms a series of connected marshes before entering the Caspian Sea. These wetlands developed following construction of the Baku-Salyan Highway, adjacent railway line and the pipeline corridor between the railway line and the Sangachal Terminal. These marshes are dominated by common reeds (*Phragmites australis)* and broadleaf cattail (*Typha latifolia*). Seasonally inundated areas characterized by barred mudflats colonised by glasswort (*Salicornia europaea*) are also present.

These areas are impacted by industrial developments and infrastructures such as pipelines, roads, powerlines and water discharges that modify the hydrology of the area and pose a risk of pollution.

None of the species observed in the LSA are classified as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), according to the International Union for Conservation of Nature (IUCN) criteria.

The presence of two endemic species, Baku Calligonum (Calligonum bakuense) and Baku Astragalus (Astragalus bacuensis), was observed in the past in the Sangachal area (BP, 2002). However these species were not observed during the site visit.

No invasive alien species was noticed. Azerbaijan invasive plant species include the widely distributed common ragweed (*Ambrosia artemisiifolia*) and the buffalo bur nightshade (*Solanum rostratum*), both native to North America. In particular the former is a very competitive weed which can produce yield losses in soybeans as high as 30%, whereas the latter usually grows in waste and disturbed areas and is especially common in overgrazed pastures.

Saltwort species (Salsola sp.) in the LSA

Cammel thorn (Alhagi pseudoalhagi) in theLSA

Salt cedar (Tamarix meyeri) in the LSA

Common reeds (Phragmites australis) in theLSA

Erodium cicutarium in the LSA

Brassica napus l. in the LSA

Figure 6. Pictures of flora species found in LTA

3.2. Fauna of the territory

The semi-desert landscape type/ecosystems of this ecoregion (PA1305 - Azerbaijan Shrub Desert and Steppe) hosts species typical to arid ecosystems and it is notable for its reptile diversity. However, most of the LSA is situated in relatively homogenous clay/saline soil terrain, with very low vegetation cover that has been disturbed by anthropogenic activities.

Pockets of higher biodiversity value are expected within the riverine vegetation and wetlands with particular regards for amphibians, reptiles such as the pond turtle (Emys orbicularis) and migrating bird species. Mammal speces are also attracted by these "oasis" of vegetation.

The presence of freshwater fish species in the temporary wadi and in the wetland is considered to be unlikely. The baseline assessment focused on the following taxa:

- amphibian species;
- reptiles species;
- bird species;
- mammal species.

The presence of freshwater fish species in the temporary *wadi* and in the wetland areas of the LSA is considered to be unlikely.

Lists of terrestrial fauna species potentially present or observed within the LSA were created as a result of literature review and the site visit. The results of these studies are summarised as follows for each taxonomic group:

4 amphibian species, none of them is considered threatened at global level by IUCN;

18 reptile species, of which one is considered vulnerable (VU) at global level by IUCN: Testudo graeca

(Common tortoise);

255 bird species; 17 of the species are considered threatened at global level by IUCN, and in particular : 2 species are considered critically endangered (CR):

- Vanellus gregarius (Sociable Lapwing)
- Numenius tenuirostris (Slender-Billed

Curlew)3 species are considered endangered (EN):

- Oxyura leucocephala (White-headed Duck)
- Neophron percnopterus (Egyptian vulture)
- Falco cherrug (Saker Falcon)

12 species are also considered vulnerable (VU):

numerous migratory and congregatory species are also potentially present in the LSA;

38 mammal species, of which one is considered vulnerable (VU): Vormela peregusna (Marble Pole Cat). No endemic species were found or are expected to be present within the LSA

During the site visit, a dead individual of European pond turtle (Emys orbicularis) was identified the mudflats

near the wetland. A snake possibly Schmidt's Whip Snake (Dolichophis schmidti, LC) was also observed in an abandoned construction within the LSA. Several tracks and excrements probably belonging to red fox (Vulpes vulpes) and the European hare (Lepus europaeus) were observed. Dens of mouse are present in all entire area, especially close to the rivers banks.

The most sensitive periods for fauna species in this area are expected to be from April to August for amphibians and reptiles when breeding and incubation occurs. For birds the breeding period goes from March to August, with the spring and fall migrations occurring March to April, and August to October, respectively. Over-wintering birds inhabit the coastline in great numbers from October to March.

Dead European Pond Turtle (Emys orbicularis,NT) found on the mudflats near the wetland

A snake, possibly Schmidt's Whip Snake(Dolichophis schmidti) found in an abbondoned construction within the LSA

Tracks of red fox (Vulpes vulpes)

Mouse burrows in the area

Jackal burrows found in the project area

Jackal nests found in the project area

Figure 7. Fauna species found in LSA, their traces and photos of their burrows

3.2.1. Amphibians

Four different amphibian species are potentially present within the LSA according to literature review (Table 2). The presence of this species is strictly connected to the presence of wetland and wetland vegetation, since they depend on water at least for their reproduction.

The species potentially present are not considered threatened at according to IUCN standards. Hyla arborea is included in the Red Data Book of Azerbaijan. All four species are also included in Appendix II and Appendix III of the Bern Convention.

No endemic species were found or are expected to be present within the LSA.

3.2.2. Reptiles

Based on the literature review performed, a total of 18 reptile species are potentially present within the LSA (Table 3). Of these species Testudo graeca (Common tortoise) is the only one considered vulnerable (VU) at a global level according to the IUCN Red List. The species is also listed in the Red Data Book of Azerbaijan.

Two species of snakes (Telescopus fallax and Natrix tessellate) and the two tortoise (Emys orbicularis and Testudo graeca) potentially present are included in Appendix II of the Bern Convention, while the others are included in Appendix III.

During the site visit, a snake possibly Schmidt's Whip Snake (Dolichophis schmidti, LC) was observed in an abandoned construction withi the LSA. Colse to the wetland area a dead individual of European pond turtle (Emys orbicularis) was also identified.

No endemic species were found or are expected to be present within the LSA.

3.3.3. Birds

More than three-hundred and sixty species of bird are recorded in Azerbaijan. During migration and wintering periods, the importance of the region shoreline and wetlands is heightened due to the high number of migratory birds hosted in addition to the year-round species.

Based on the literature review performed, a total of 261 bird species are potentially present or passing within the LSA. This high number is mainly due to the importance that area has as migratory route and to the presence of many IBAs (Important bird Areas) in the zone, two of which situated in the vicinity of the Project: the "Sangachal Bay" IBA (at about 16 km from the Project) and the "Gobustan area" IBA (at about 4 km from the Project).

Seventeen of the bird species potentially present or passing in the LSA are considered threatened at global level by IUCN and in particular:

2 species are considered critically endangered (CR):

- Vanellus gregarius (Sociable Lapwing);
- Numenius tenuirostris (Slender-Billed Curlew);3 species are considered endangered (EN):
- Oxyura leucocephala (White-headed Duck)
- Neophron percnopterus (Egyptian vulture)
- Falco cherrug (Saker Falcon)

12 species are considered vulnerable (VU):

- Anser erythropus (Lesser White-fronted Goose)
- Aythya ferina (Common Pochard)
- Branta ruficollis (Red-breasted Goose)
- Marmaronetta angustirostris (Marbled Teal)
- Melanitta fusca (Velvet Scoter)
- Otis tarda (Great Bustard)
- Streptopelia turtur (European Turtle-dove)

- Pelecanus crispus (Dalmatian Pelican)
- Podiceps auritus (Slavonian Grebe)
- Clangula hyemalis (Long-tailed Duck)
- Aquila heliaca (Eastern Imperial Eagle)
- Clanga clanga (Greater Spotted Eagle)

No endemic bird species were found or are expected to be present within the LSA.

Воробей домовый – ev sərçəsi - *Passer domesticus Linnaeus*

Каменка обыкновенная - *Oenanthe oenanthe Linnaeus*

Zağça - ворона - *Corvus frugilegus*,

Adi sığırçın – скворец обыкновенный - *Sturnus vulgaris*

Adi qaranquş - Ласточка деревенская - *Hirundo rustica Linnaeus*

Göy göyərçin – сизый голуб - *Columba livia*

Kəkilli torağay – хохлатый жаворонок - *Galerida cristata*

Qulaqlı bayquş - Сова ушастая - *Asio*

Şanapipik - Удод – *upupa epops*

Çöl müşgülü – степная пустелька - *Falco naumanni*

Figure 8. Birds photographed directly on the project site

The considerable fraction of the species identified is known to have a migratory behaviour in the area, in particular a total of 202 migrant species were identified, of which 98 are potentially breeding, 70 are potentiallypresent only during migrations (passage) and 34 are

potentially wintering in the area. The congregatory species potentially present are 110, represented for the great majority by migrant water birds. Twelve of the species potentially present/passing within the LSA are also listed in the Red Data Book of Azerbaijan.

Considering especially the existence of wetland and shoreline habitats close and within the LSA, however degraded, the occurrence of migratory birds in the LSA cannot be excluded. Although the importance of this area for migratory, congregtory and threatened species is currently unknown.

The LSA is located within the main migration route through the lowland (Figure 7- broad red line). The autumn migration in Sangachal area and Absheron Peninsula starts in the second half of August and continues until mid-December, if winter conditions are sever, it might continue until mid-January. The peak migration period is November. The spring migration starts in the second half of February and finishes in April. March is the peak migration period. Spring migration fly direction is to the north, northwest or northeast.

Among the most abundant migratory species Podiceps cristatus, Cygnus olor, Netta rufina and Aythya farina can be listed. The most common birds associated with the semi-desert vegetation (which is the dominant habitat in the LSA) are Galerida cristata (crested lark), Melanocorypha calandra (calandra lark), and a number of Oenanthe spp. (wheatear species).

A number of species are considered associated with human settlements, including Passer domesticus (house sparrow), Columba livia (rock dove), Turdus merula (black bird), summer visitors Hirundo rustica (barn swallow), and Delichon urbicum (house martin). Opportunistic scavenger species are also relatively common and includes hooded crow Corvus coronae, rook Corvus fruigilegus, and choughs Pyrrhocorax pyrrhocorax.

The Carrion Crow (Corvus corone) and the wheatear (Oenanthe oenanthe) were observed in the LSA during the site visit.

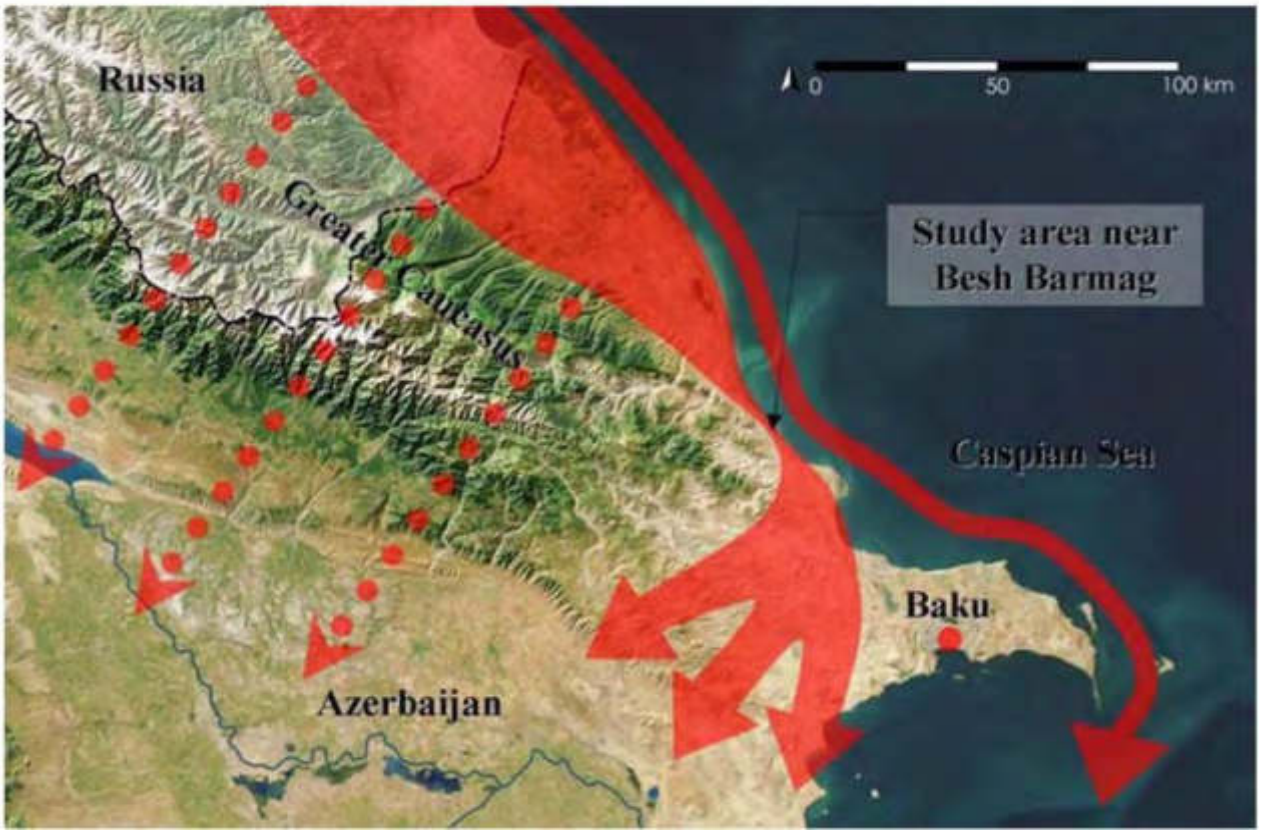

Figure 9: Important bird migration routes Autumn. Dotted red line = weak migration route through the Greater Caucasus, broad red line = main migration route through the lowland, narrow red line = coastal waterbird migration route(Source: Michael Heiss & Kai Gauger. 2011. Coastal Bird Migration at the Caspian Shore of the Azerbaijan Republic in October 2007. Podoces 2011. Vol. 6, No. 1)

3.3.4. Mammals

Based on the literature review performed and on the site visit observations, a total of 38 mammal species are potentially present within the LSA. Of these 15 species are bats (Chiroptera). The habitats present in the LSA could host only a limited number of small to medium size mammals, while for medium to large size species the use of the area is probably limited to rare occasional visits (e.g. Canis aureus, Canis lupus, Felis chaus, Meles meles, Sus scrofa).

During the site visit several tracks and excrements probably belonging to red fox (Vulpes vulpes) and the European hare (Lepus europaeus) were observed. Dens of mouse are present in all entire area, especially close to the rivers banks.

The Vormela peregusna (Marbled Polecat) is the only species potentially present considered vulnerable (VU) at a global level according to the IUCN Red List. Vormela peregusna and Miniopterus schreibersii are also listed in the Red Data Book of Azerbaijan.

No endemic species were found or are expected to be present within the LSA.

Table 2. Amphibian species potentially present within the LSA

Order	Family	Species	End.	Conservation Status		Protection Status		Obs./ Liter. data
				IUCN	Az. RDB	BERN	CITES	
Anura	Bufonidae	*Bufotes variabilis*	-	DD		-	Anura	Bufonidae
	Ranidae	*Hyla arborea*	-	LC	yes	App. II		Ranidae
		Rana macrocnemis	-	LC		App. III		
		Pelophylax ridibundus	-	LC		App. III		

Legend of the table acronyms - End. = endemic: an endemic species is defined as one that has ≥ 95 percent of its global range inside the country or region of analysis (IFC 2012. Guidance Note 6, GN79); IUCN - **CR**=Critically Endangered; **EN**=Endangered; **VU**=Vulnerable; **LR**=Lower Risk; **NT**=Near Threatened; **LC**=Least Concern; **DD**=Data Deficient; NE=not evaluated; **Az. RDB** = Red Book of Azerbaijan (2013). Bern Convention **- App.I** = Appendix-I (Strictly protected flora species); **App.II** = Appendix-II (Strictly protected fauna species); **App.III** = Appendix-III (Protected fauna species); **App.IV** = Appendix-IV (Prohibited means and methods of killing, capture and other exploitation). CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna) - **App.I** = Appendix-I (Species under the threat of extinction. Trade in the specimens of these species is not allowed except extraordinary circumstances); **App.II** = Appendix-II: (Species not threatened with extinction, but trade in specimens is restricted in order to prevent utilization incompatible with their survival); **App.III** = Appendix-III (species for which other parties of CITES applied for assistance in controlling trade and which are conserved at least in one country). **Obs./ Liter**. Data (Observed/ Litterature Data) - **L**= species identified as potentially present in the LSA through literature review; **O** = species observed in the LSA during the site visit.

Table 3: Reptiles species potentially present within the LSA

Order	Family	Species	End.	Conservation Status		Protection Status		Obs./ Liter. data
				IUCN	Az. RDB	BERN	CITES	
Squamata	Gekkonidae	*Tenuidactylus caspius*	-	LC		App. III		L
	Lacertidae	*Eremias arguta*	-	NT		App. III		L
		Eremias velox	-	NE		App. III		L
		Ophisops elegans	-	NE		App. II		L
		Phrynocephalus helioscopus	-	LC		App. III		L
	Boidae	*Eryx jaculus*	-	NE		App. III	App. II	L
	Colubridae	*Dolichophis schmidti*	-	LC		App. III		O / L
		Eirenis collaris	-	LC		App. III		L
		Eirenis modestus	-	LC		App. III		L
		Platyceps najadum	-	LC		App. III		L
		Telescopus fallax	-	LC		App. II		L
	Natricidae	*Natrix tessellata*	-	LC		App. II		L
	Psammophiidae	*Malpolon monspessulanus*	-	LC		App. III		L

Order	Family	Species	End.	Conservation Status		Protection Status		Obs./ Liter. data
				IUCN	Az. RDB	BERN	CITES	
	Scincidae	*Eumeces schneideri*	-	NE		App. III		L

	Viperidae	*Macrovipera lebetina*	-	NE		App. III		L
Testudines	Emydidae	*Emys orbicularis*	-	Lr/NT		App. II		O
	Emydidae	*Mauremys caspica*	-	NE		-	-	L
	Testudinidae	*Testudo graeca*	-	VU	yes	App. II	App II	L

A list of potential bird species present within the LSA is provided in Appendix 1 to this document.

Table 4: Mammal species potentially present within the LSA

Order		**Family**	**Species**	**End.**	**Conservation Status**		**Protection Status**		**Obs. / Liter. data**
					IUCN	**Az. RDB**	**BERN**	**CITES**	
Carnivora		Canidae	*Canis aureus*	-	LC				L
			Canis lupus	-	LC		App. II	App. II	L
			Vulpes vulpes	-	LC				L
		Felidae	*Felis chaus*	-	LC			App. II	L
		Mustelidae	*Meles meles*	-	LC		App. III		L
			Vormela peregusna	-	VU	yes	App. II		L
			Mustela nivalis	-	LC		App. III		L
Cetartiodactyla		Suidae	*Sus scrofa*	-	LC				L
Chiroptera		Miniopteridae	*Miniopterus schreibersii*	-	NT	yes	App. II		L
		Vespertilionidae	*Barbastella leucomelas*	-	LC		App. II		L

4. Habitats and ecosystems of the area

The LSA belongs to the semi-desert landscape type/ecosystems of the ecoregion known as "PA1305 - Azerbaijan Shrub Desert and Steppe". The main types of vegetation communities characteristic and naturally occurring in this landscape type/ecosystems are listed below (Map of Natural Vegetation of Europe, 2000):

- wormwood deserts (Artemisia lerchiana) with ephemeroids (Poa bulbosa, Catabrosella humilis, etc.);
- Salsola nodulosa- and S. ericoides-deserts;
- halophytic Salsola denroides-deserts (both with ephemeroids and Artemisia lerchiana); and
- halophytic wormwood deserts (Artemisia szowitziana) with therophytes, such as Petrosimonia, *Climacopters, Salicornia*, *Gamanthus* species

The LSA is included in the lower reach of the freshwater ecoregions known as ID 434 "Kura - South Caspian Drainages" and it is part of the Absheron-Gobustan hydrogeologic district, characterized by a regional surface flow being less than 0.5 l/sec/km^2. This seasonal reaves are also known as wadi. The nearest main river is the Djeyrankechmez River, which enters the

Caspian in the south eastern part of the LSA. The water flow in this river is seasonal, occurring only after heavy rain.

The semi-natural habitat present in the LSA are for the most part degraded by human activities such as overgrazing, off road driving, infrastructure development (pipelines, roads, and powerlines). Part of the area has also been used for military training.

Most of the semi-natural vegetation is characterized by semi desert vegetation. This habitat occupies 85% of the LSA and it is heavily degraded in most of the area. The semi-desert climatic condition make the habitat is extremely prone to erosion and recover with extreme difficulties and only after long periods of time from the disturbance of vegetation cover.

Scattered vegetation and atmospheric precipitation provide for intensive weathering that can lead to the formation of badlands clay karsts that can be observed within and around the LSA. The area is characterized by heavily dissected landscape with steep sided gullies.

The main vegetation community recognized is the Salsoletum dominated by saltwort species (Salsola dendroides, Salsola ericoides, Salsola nodulosa, Suaeda microphylla). These species are often accompanied by low-growing herbaceous forb species and grasses, including Medicago minima, Medicago coerulea, Poa bulbosa, Bromus japonicus, Lolium rigidum, Eremopyrum orientale, Erodium cicutarium.

Within the LSA only ephemeral surface streams, also called wadi are present. The riverine vegetation surrounding these seasonal streams (3% of the LSA) has usually higher vegetation cover and biomass, however, he effects of trampling from livestock can be observed in this areas. In the depression created by the river the quantity of flora increases and includes tamarisk or salt cedar thickets (Tamarix meyeri), Alhagi pseudoalhagi, Juncus acutus and Salicornia europaea.

This streams and channels fed the coastal wetland areas during winter months forming an internal delta and may carry substantial volumes of water following intense rainfall events. Wetlands cover about 3 % of the LSA. This wetland areas are quite modified by anthropogenic activities performed in the area and in particular by the presence of linear infrastructures that changes the local water flow and pose pollution risks. However, some reed beds still exist in the coastal areas. In these areas the species characteristic of this vegetation community are Phragmites australis or Typha latifolia.

The presence of wetland, however heavily modified, represent the only a potential attraction for fauna and in particular for migrating and wintering bird species.

Figure 10: Semi-desert (Salsoletum) vegetation dominated by woody saline species within the LSA

Figure 11: Seasonal pond among semi-desert plants

4.1. Protected and internationally recognised areas

Protected areas and internationally recognized areas within 20 km from the LSA are presented below with their main characteristics.

The nearest protected areas and their relative distance from the project site is Gobustan National Park: located at more than 6 km west linear distance from the site;

In addition, two Important Bird Areas (IBAs) are located quite close to the project area. These IBAs are:

- Gobustan area: Located 3 km northeast;
- Sangachal Bay: Located approximately 17 km east of the project area;
- Sahil settlement - Shelf factory: 39 km to the east;
- The main characteristics of the protected and internationally recognized areas identified within 50 km from theLSA are described below.

Gobustan National Park

The National Park was established in 1966 mainly as an archaeological site due to its incredible number of rock engravings. The site is also characterized by caves, settlements and burials use by the inhabitants of thearea from the Upper Paleolithic to the Middle Ages. From 2007 Gobustan is a UNESCO World Heritage Site.

Sangachal Bay IBA

This costal IBA is characterized by sandy beaches and some small wetlands stretch along the coast, many of which are overgrown with reeds vegetation. The site is important mostly for migrating and wintering water birds. At least 20.000 diving ducks and 30.000 coots (Fulica atra) stage here every autumn. The species of birds recorded in this area in different seasons are 177, including also some species of global conservation concern such as Phalacrocorax pygmeus, Pelecanus crispus (very rare migrant), Branta ruficollis (extremely rare), Circus macrourus, Aquila clanga, A. heliaca (all raptors are rare migration visitors), Falco naumanni

(1- 2 pairs breed), Tetrax tetrax.

The main threat for this site is industrial expansion connected with oil extraction. The area also suffers from pollution from industrial activities and poaching and fishing activities. Some small wetlands were drained resulting in reduction of nesting habitat and the construction of piers caused disturbance to wintering birds

Gobustan area IBA

This inland IBA includes low semi-arid mountains, a mud volcano and Djeirankechmez river. The site is one of the most important in the country for the bird species Sitta neumayer (LC) that counts 30-40 breeding pairs. Other breeding species include: Buteo rufinus, Alectoris chukar (rare), Cercotrichas galactotes, Oenanthe pleschanka, Pyrrhocorax pyrrhocorax, Petronia petronia and Emberiza melanocephala. Falco naumanni can also be observed in the area as rare summer visitor.

The main threats to this area are connected to overgrazing (sheep and cattle grazing), disturbance from tourists and low-flying military aircraft. A quarry of limestone was also present in the past.

Sahil settlement - Shelf factory IBA

The IBA is characterized by the presence of five big artificial dams builds by the local Factory of Deepwater Drilling Oil Platforms. Although artificial, this site is very important for birds wintering and migrating along the coast. The dams forms wetlands with reed vegetation that creates an optimal habitat for wintering water birds and ensures wind protection. Over 100,000 birds are present in this area in winter and migration seasons. In particular, the following species are present in large numbers: Anas platyrhynchos, Netta rufina, Aythya ferina, Aythya fuligula, Fulica atra, etc. Bird species include also Phalacrocorax pygmeus, Pelecanus crispus and Cygnus olor.

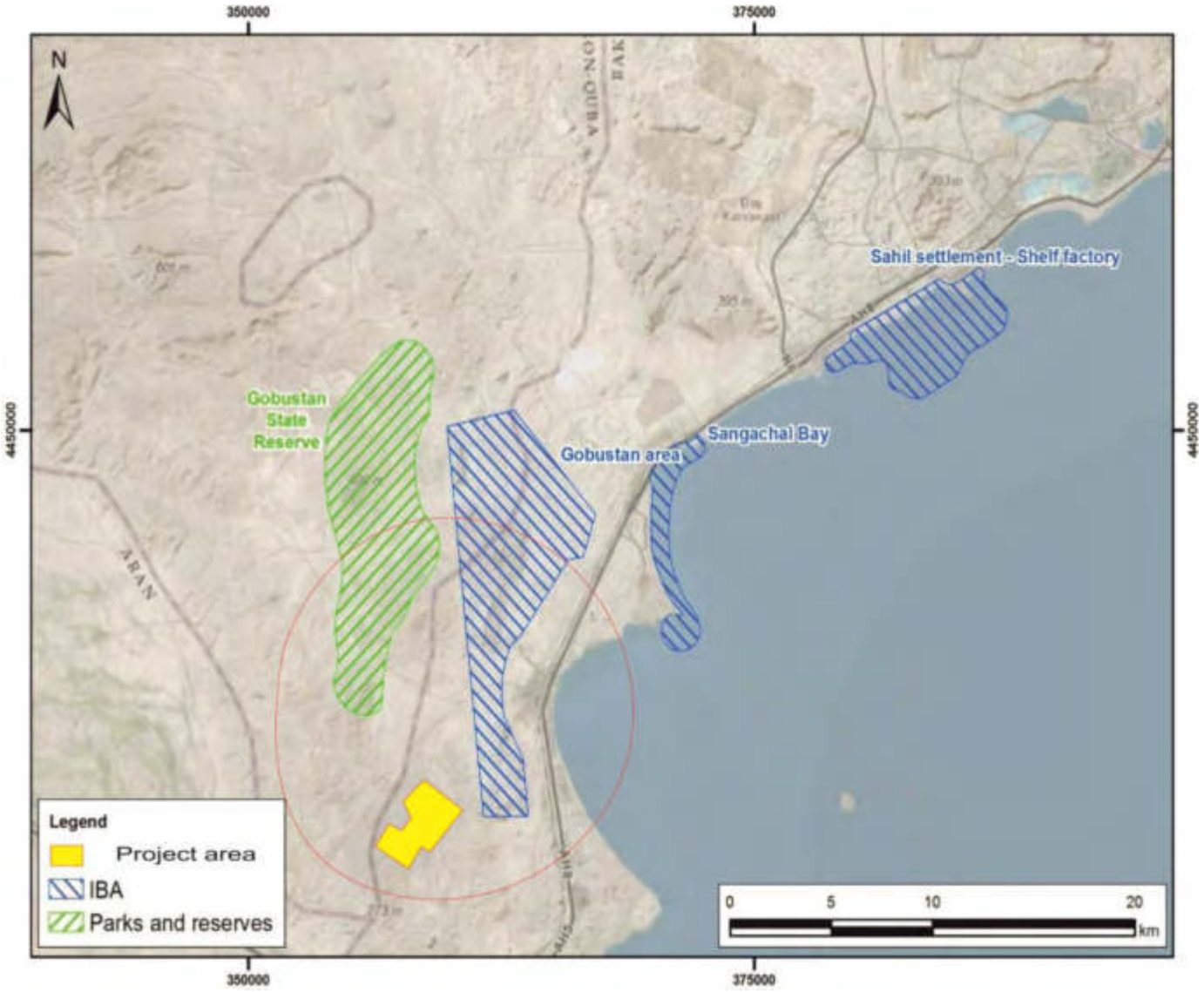

Figure 12: Protected and internationally recognized areas within 30 km from the Project

4.2. Critical Habitat Assessment

The presence of critical habitats is assessed based on the following five criteria according to PS6 (IFC 2012):

Criterion 1: Habitat of significant importance to Critically Endangered and/or Endangered species;

Five Critically Endangered and/or Endangered bird species are indicated as potentially present within theLSA, of these:

- 2 species are considered critically endangered (CR):
  - *Vanellus gregarius* (Sociable Lapwing)
  - *Numenius tenuirostris* (Slender-Billed Curlew)

- 3 species are considered endangered (EN):
  - *Oxyura leucocephala (White-headed Duck)*
  - *Neophron percnopterus (Egyptian vulture)*
  - *Falco cherrug (Saker Falcon)*

The occurrence of these Critically Endangered and/or Endangered species of birds in the onshore LSA cannotbe excluded, considering especially the presence of wetland and shoreline habitats. However it is extremely unlikely that these habitats are of importance for the conservation of the species for the following reasons:

- *the existing disturbance due to the proximity to villages, human settlements, industrial sites and transportation routes;*
- *the current level of degradation of the habitats already impacted by past anthropogenic activities (exploration and oil and gas extraction, diffuse waste dump);*
- *limited extension of wetland vegetation.*

Criterion 2: Habitat of significant importance to endemic and/or restricted-range species

No endemic and/or restricted-range species are expected to be present within the onshore LSA.

Criterion 3: Habitat supporting globally significant concentrations of migratory species and/or congregatoryspecies

The considerable fraction of the bird species potentially present is known to use the area druing migrations, in particular a total of 200 migrant species were identified. The congregatory species potentially present are 110, represented for the great majority by migrant water birds.

The occurrence of migratory and congregatory birds in the onshore LSA cannot be excluded, considering especially the presence of wetland and shoreline habitats and of the Sangachal Bay IBA. However it is unlikely that these habitats could supporting globally significant concentrations species for the following reasons:

- *the existing disturbance due to the proximity to villages, human settlements, industrial sites and transportation routes;*
- *the current level of degradation of the habitats already impacted by past anthropogenic activities (exploration and oil and gas extraction, diffuse waste dump);*
- *limited extension of wetland vegetation.*

Criterion 4: Highly threatened and/or unique ecosystems

No highly threatened or unique ecosystems have been identified within the onshore LSA.

Criterion 5: Areas associated with key evolutionary process.

No areas associated with key evolutionary process have been identified within the onshore LSA.

Based on the considerations above the presence of Critical Habitat within the project's area of influence can be reasonable excluded.

APPENDIX 1: A complete list of bird species potentially present within the LSA

Order	Family	Species	Common Name	Conservation Status		Protection Status		Obs./ Liter. data	Resident/Migrant (Breeding/ Wintering/ Passage)	Congr. species *
				IUCN	Az. RDB	BERN	CITES			
Anseriformes	Anatidae	*Anas crecca*	Common Teal	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Anas platyrhynchos*	Mallard	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Anser*	Greylag Goose	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Anser erythropus*	Lesser White-fronted Goose	VU		App. II		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Aythya ferina*	Common Pochard	VU		App. III		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Aythya fuligula*	Tufted Duck -	LC		App. III		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Aythya marila*	Greater Scaup	LC		App. III		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Aythya nyroca*	Ferruginous Duck	NT		App. III		L	Resident	A4i
Anseriformes	Anatidae	*Branta ruficollis*	Red-breasted Goose	VU	yes	App. II	App. III	L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Bucephala clangula*	Common Goldeneye	LC		App. III		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Clangula hyemalis*	Long-tailed Duck	VU		App. III		L	Vagrant	A4i
Anseriformes	Anatidae	*Cygnus columbianus*	Tundra Swan	LC		App. III		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Cygnus cygnus*	Whooper Swan	LC		App. II		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Cygnus olor*	Mute Swan	LC	yes	App. III		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Mareca strepera*	Gadwall	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Marmaronetta angustirostris*	Marbled Teal	VU	yes	App. II		L	Resident	A4i
Anseriformes	Anatidae	*Melanitta fusca*	Velvet Scoter	VU		App. III		L	Migrant (passage)	A4i

Order	Family	Species	Common Name	Conservation Status		Protection Status		Obs./ Liter. data	Resident/Migrant (Breeding/ Wintering/ Passage)	Congr. species *
				IUCN	Az. RDB	BERN	CITES			
Anseriformes	Anatidae	*Mergus albellus*	Smew	LC		App. II		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Mergus merganser*	Common Merganser	LC		App. III		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Mergus serrator*	Red-breasted Merganser	LC		App. III		L	Migrant (wintering)	A4i
Anseriformes	Anatidae	*Netta rufina*	Red-crested Pochard	LC		App. II		L	Migrant (passage)	A4i
Anseriformes	Anatidae	*Oxyura leucocephala*	White-headed Duck	EN		App. II	App. III	L	Resident	A4i
Anseriformes	Anatidae	*Spatula clypeata*	Northern Shoveler	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Spatula querquedula*	Garganey	LC		App. III		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Tadorna ferruginea*	Ruddy Shelduck	LC		App. II		L	Migrant (breeding)	A4i
Anseriformes	Anatidae	*Tadorna tadorna*	Shelduck	LC		App. II		L	Migrant (passage)	A4i

Apodiformes	Apodidae	*Apus apus*	Common Swift	LC		App. III		L	Migrant (passage)	
Apodiformes	Apodidae	*Apus melba*	Alpine Swift	LC		App. III		L	Migrant (breeding)	
Caprimulgiformes	Caprimulgidae	*Caprimulgus europaeus*	Eurasian Nightjar	LC		App. II		L	Migrant (breeding)	
Charadriiformes	Burhinidae	*Burhinus oedicnemus*	Eurasian Thick-knee	LC		App. II		L	Migrant (breeding)	
Charadriiformes	Charadriidae	*Charadrius alexandrinus*	Kentish Plover	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Charadriidae	*Charadrius dubius*	Little Ringed Plover	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Charadriidae	*Charadrius hiaticula*	Common Ringed Plover	LC		App. II		L	Migrant (wintering)	A4i
Charadriiformes	Charadriidae	*Eudromias morinellus*	Eurasian Dotterel	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Charadriidae	*Pluvialis squatarola*	Grey Plover	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Charadriidae	*Vanellus gregarius*	Sociable Lapwing	CR	yes	App. III		L	Migrant (passage)	A4i
Charadriiformes	Charadriidae	*Vanellus leucurus*	White-tailed Lapwing	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Charadriidae	*Vanellus vanellus*	Lapwing	NT		App. III		L	Migrant (breeding)	A4i
Charadriiformes	Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher	NT		App. III		L	Migrant (passage)	A4i
Charadriiformes	Laridae	*Chlidonias hybrida*	Whiskered Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Laridae	*Chlidonias leucopterus*	White-winged Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Laridae	*Chlidonias niger*	Black Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Laridae	*Gelochelidon nilotica*	Gull-billed Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Laridae	*Hydrocoloeus minutus*	Little Gull	LC		App. III		L	Migrant (wintering)	A4i
Charadriiformes	Laridae	*Hydroprogne caspia*	Caspian Tern	LC		App. II		L	Migrant (passage)	A4i

Order	***Family***	***Species***	***Common Name***	***Conservation Status***		***Protection Status***		***Obs./ Liter. data***	***Resident/Migrant (Breeding/ Wintering/ Passage)***	***Congr. species ****
				IUCN	***Az. RDB***	***BERN***	***CITES***			
Charadriiformes	Laridae	*Larus cachinnans*	Yellow-legged Gull	LC		App. III		L	Migrant (wintering)	A4i
Charadriiformes	Laridae	*Larus canus*	Mew Gull	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Laridae	*Larus genei*	Slender-billed Gull	LC		App. II		L	Resident	A4i
Charadriiformes	Laridae	*Larus ichthyaetus-*	Gull	LC		App. III		L	Migrant (wintering)	A4i
Charadriiformes	Laridae	*Larus ridibundus*	Black-headed Gull	LC		App. III		L	Resident	A4i
Charadriiformes	Laridae	*Sterna hirundo*	Common Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Laridae	*Sterna sandvicensis*	Sandwich Tern	LC		App. II		L	Migrant (wintering)	A4i
Charadriiformes	Laridae	*Sternula albifrons*	Little Tern	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	LC		App. II		L	Migrant (breeding)	A4i
Charadriiformes	Recurvirostridae	*Recurvirostra avosetta*	Pied Avocet	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	LC		App. III		L	Migrant (breeding)	A4i
Charadriiformes	Scolopacidae	*Arenaria interpres*	Ruddy Turnstone	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Calidris alba*	Sanderling	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Calidris alpina*	Dunlin	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Calidris falcinellus*	Broad-billed Sandpiper	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	NT		App. II		L	Migrant (passage)	A4i

Charadriiformes	Scolopacidae	*Calidris minuta*	Little Stint	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Calidris temminckii*	Temminck's Stint	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Gallinago gallinago*	Common Snipe	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Gallinago media*	Great Snipe	NT		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Limosa limosa*	Black-tailed Godwit	NT		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Lymnocryptes minimus*		LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Numenius arquata*	Eurasian Curlew	NT		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Numenius phaeopus*	Whimbrel	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Numenius tenuirostris*	Slender-Billed Curlew	CR		App. II	App. I	L	Vagrant	A4i
Charadriiformes	Scolopacidae	*Phalaropus fulicarius*	Red Phalarope	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Phalaropus lobatus*	Red-necked Phalarope	LC		App. III		L	Migrant (passage)	A4i

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Charadriiformes	Scolopacidae	*Philomachus pugnax*	Ruff-Reeve	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Scolopax rusticola*	Eurasian Woodcock	LC		App. III		L	Migrant (breeding)	A4i
Charadriiformes	Scolopacidae	*Tringa erythropus*	Spotted Redshank	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Tringa glareola*	Wood Sandpiper	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Tringa nebularia*	Common Greenshank	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Tringa ochropus*	Green Sandpiper	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	LC		App. II		L	Migrant (passage)	A4i
Charadriiformes	Scolopacidae	*Tringa totanus*	Common Redshank	LC		App. III		L	Migrant (breeding)	A4i
Charadriiformes	Scolopacidae	*Xenus cinereus*	Terek Sandpiper	LC		App. III		L	Migrant (passage)	A4i
Charadriiformes	Stercorariidae	*Stercorarius parasiticus*	Parasitic Jaeger	LC		App. III		L	Migrant (passage)	
Charadriiformes	Stercorariidae	*Stercorarius pomarinus*	Pomarine Jaeger	LC		App. III		L	Migrant (passage)	
Ciconiiformes	Ardeidae	*Ardea alba*	Great Egret	LC		App. III		L	Migrant (wintering)	A4i
Ciconiiformes	Ardeidae	*Ardea cinerea*	Grey Heron	LC		App. III		L	Resident	A4i
Ciconiiformes	Ardeidae	*Ardea purpurea*	Purple Heron	LC		App. II		L	Migrant (breeding)	A4i
Ciconiiformes	Ardeidae	*Ardeola ralloides*	Squacco Heron	LC		App. II		L	Migrant (breeding)	A4i
Ciconiiformes	Ardeidae	*Botaurus stellaris*	Great Bittern	LC		App. II		L	Migrant (breeding)	A4i
Ciconiiformes	Ardeidae	*Bubulcus ibis*	Cattle Egret	LC		App. II		L	Migrant (breeding)	A4i
Ciconiiformes	Ardeidae	*Egretta garzetta*	Little Egret	LC		App. II		L	Migrant (wintering)	A4i
Ciconiiformes	Ardeidae	*Ixobrychus minutus*	Little Bittern	LC		App. III		L	Migrant (breeding)	A4i
Ciconiiformes	Ardeidae	*Nycticorax*	Black-crowned Night Heron	LC		App. II		L	Migrant (breeding)	A4i
Ciconiiformes	Threskiornithidae	*Plegadis falcinellus*	Glossy Ibisa	LC		App. II		L	Migrant (breeding)	A4i
Columbiformes	Columbidae	*Columba livia*	Rock Pigeon	LC		App. III		L	Resident	

Columbiformes	Columbidae	*Columba oenas*	Stock Dove	LC		App. III		L	Migrant (breeding)	
Columbiformes	Columbidae	*Columba palumbus*	Common Wood Pigeon	LC				L	Migrant (breeding)	
Columbiformes	Columbidae	*Streptopelia decaocto*	Eurasian Collared Dove	LC		App. III		L	Resident	
Columbiformes	Columbidae	*Streptopelia turtur*	European Turtle-dove	VU		App. III		L	Migrant (breeding)	
Columbiformes	Pteroclididae	*Pterocles orientalis*	Black-bellied Sandgrouse	LC		App. II		L	Resident	

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Coraciiformes	Alcedinidae	*Alcedo atthis*	Common Kingfisher	LC		App. II		L	Migrant (breeding)	
Coraciiformes	Coracidae	*Coracias garrulus*	European Roller	NT		App. II		L	Migrant (breeding)	
Coraciiformes	Meropidae	*Merops apiaster*	European Bee-eater	LC		App. III		L	Migrant (breeding)	A4ii
Coraciiformes	Meropidae	*Merops persicus*	Blue-cheeked Bee-eater	LC		App. III		L	Migrant (breeding)	
Coraciiformes	Upupidae	*Upupa epops*	Eurasian Hoopoe	LC		App. II		L	Migrant (breeding)	
Cuculiformes	Cuculidae	*Cuculus canorus*	Common Cuckoo	LC		App. III		L	Migrant (breeding)	
Falconiformes	Accipitridae	*Accipiter gentilis*	Northern Goshawk	LC		App. II		L	Resident	
Falconiformes	Accipitridae	*Accipiter nisus*	Eurasian Sparrowhawk	LC		App. II		L	Migrant (breeding)	
Falconiformes	Accipitridae	*Aquila chrysaetos*	Golden Eagle	LC	yes	App. II		L	Resident	
Falconiformes	Accipitridae	*Aquila heliaca*	Eastern Imperial Eagle	VU		App. II	App. I	L	Migrant (wintering)	
Falconiformes	Accipitridae	*Buteo buteo*	Buzzard	LC		App. II		L	Migrant (breeding)	
Falconiformes	Accipitridae	*Buteo rufinus*	Long-legged Buzzard	LC		App. II		L	Migrant (breeding)	
Falconiformes	Accipitridae	*Circaetus gallicus*	Short-toed SnakeEagle	LC		App. II		L	Migrant (wintering)	
Falconiformes	Accipitridae	*Circus aeruginosus*	Western Marsh-harrier	LC		App. II		L	Migrant (breeding)	A4ii
Falconiformes	Accipitridae	*Circus cyaneus*	Northern Harrier	LC		App. II		L	Migrant (wintering)	
Falconiformes	Accipitridae	*Circus macrourus*	Pallid Harrier	NT	yes	App. II		L	Migrant (passage)	
Falconiformes	Accipitridae	*Circus pygargus*	Montagu's Harrier	LC		App. II		L	Migrant (passage)	
Falconiformes	Accipitridae	*Clanga clanga*	Greater Spotted Eagle	VU		App. II		L	Migrant (wintering)	
Falconiformes	Accipitridae	*Haliaeetus albicilla*	White-tailed Eagle	LC		App. II	App. I	L	Migrant (wintering)	
Falconiformes	Accipitridae	*Hieraaetus pennatus*	Booted Eagle	LC		App. II		L	Migrant (breeding)	A4ii
Falconiformes	Accipitridae	*Milvus migrans-*	Kite	LC		App. II		L	Migrant (breeding)	A4ii
Falconiformes	Accipitridae	*Neophron percnopterus*	Egyptian vulture	EN		App. II		L	Migrant (breeding)	
Falconiformes	Accipitridae	*Pandion haliaetus*	Osprey	LC		App. II		L	Migrant (passage)	
Falconiformes	Accipitridae	*Pernis apivorus*	European Honey-buzzard	LC		App. II		L	Migrant (breeding)	
Falconiformes	Falconidae	*Falco cherrug*	Saker Falcon	EN	yes	App. II		L	Migrant (wintering)	A4ii
Falconiformes	Falconidae	*Falco columbarius*		LC		App. II		L	Migrant (wintering)	
Falconiformes	Falconidae	*Falco naumanni*	Lesser Kestrel	LC		App. II		L	Migrant (breeding)	A4ii
Falconiformes	Falconidae	*Falco peregrinus*	Peregrine Falcon	LC	yes	App. II	App. I	L	Migrant (wintering)	

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Falconiformes	Falconidae	*Falco subbuteo*	Eurasian Hobby	LC		App. II		L	Migrant (breeding)	
Falconiformes	Falconidae	*Falco tinnunculus*	Common Kestrel	LC		App. II		L	Resident	
Galliformes	Phasianidae	*Alectoris chukar*	Chukar	LC		App. III		L	Resident	
Galliformes	Phasianidae	*Coturnix coturnix*	Common Quail	LC		App. III		L	Migrant (breeding)	
Galliformes	Phasianidae	*Perdix perdix*	Grey Partridge	LC		App. III		L	Resident	
Galliformes	Phasianidae	*Phasianus colchicus*	Common Pheasant	LC	yes	App. III		L	Resident	
Gaviiformes	Gaviidae	*Gavia arctica*	Black-throated Diver	LC		App. II		L	Migrant (wintering)	A4i
Gaviiformes	Gaviidae	*Gavia stellata*	Red-throated Diver	LC		App. II		L	Migrant (wintering)	A4i
Gruiformes	Otididae	*Otis tarda*	Great Bustard	VU	yes	App. II	App. II	L	Migrant (passage)	
Gruiformes	Otididae	*Tetrax tetrax*	Little Bustard	NT	yes	App. II	App. II	L	Migrant (wintering)	
Gruiformes	Rallidae	*Crex crex*	Corncrake	LC		App. II		L	Migrant (breeding)	
Gruiformes	Rallidae	*Fulica atra*	Common Coot	LC		App. II		L	Migrant (breeding)	A4i
Gruiformes	Rallidae	*Gallinula chloropus*	Common Moorhen	LC		App. III		L	Migrant (breeding)	A4i
Gruiformes	Rallidae	*Porphyrio porphyrio*	Purple Swamphen	LC	yes	App. III		L	Resident	
Gruiformes	Rallidae	*Porphyrio porphyrio*	Purple Swamphen	LC		App. II		L	Resident	
Gruiformes	Rallidae	*Porzana porzana*	Spotted Crake	LC		App. II		L	Migrant (breeding)	
Gruiformes	Rallidae	*Zaporina pusilla*	Baillon's Crake	LC		App. III		L	Migrant (passage)	
Passeriformes	Alaudidae	*Alauda arvensis*	Eurasian Skylark	LC		App. III		L	Migrant (breeding)	
Passeriformes	Alaudidae	*Alaudala rufescens*	Lesser Short-toed Lark	LC		App. III		L	Resident	
Passeriformes	Alaudidae	*Calandrella brachydactyla*	Greater Short-toed Lark	LC		App. II		L	Migrant (breeding)	
Passeriformes	Alaudidae	*Eremophila alpestris*	Horned Lark	LC		App. II		L	Resident	
Passeriformes	Alaudidae	*Galerida cristata*	Crested Lark	LC		App. III		L	Resident	
Passeriformes	Alaudidae	*Melanocorypha calandra*	Calandra Lark	LC		App. II		L	Resident	
Passeriformes	Bombycillidae	*Bombycilla garrulus*	Bohemian Waxwing	LC		App. II		L	Migrant (wintering)	
Passeriformes	Certhiidae	*Certhia familiaris*	Eurasian Treecreeper	LC		App. II		L	Resident	
Passeriformes	Corvidae	*Corvus corax*	Raven	LC		App. III		L	Resident	
Passeriformes	Corvidae	*Corvus corone*	Carrion Crow	LC				O	Vagrant	

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Passeriformes	Corvidae	*Corvus frugilegus*	Rook	LC		App. III		L	Resident	
Passeriformes	Corvidae	*Corvus monedula*	Eurasian Jackdaw	LC				L	Migrant (wintering)	
Passeriformes	Corvidae	*Corvus ruficollis*	Raven	LC		App. III		L	Resident	
Passeriformes	Corvidae	*Garrulus glandarius*	Eurasian Jay	LC				L	Resident	

Passeriformes	Corvidae	*Pica pica*	Black-billed Magpie	LC				L	Resident	
Passeriformes	Corvidae	*Pyrrhocorax pyrrhocorax*	Red-billed Chough	LC		App. III		L	Resident	
Passeriformes	Emberizidae	*Calcarius lapponicus*	Lapland Bunting	LC		App. II		L	Migrant (wintering)	
Passeriformes	Emberizidae	*Emberiza calandra*	Corn Bunting	LC		App. III		L	Resident	
Passeriformes	Emberizidae	*Emberiza citrinella*	Yellowhammer	LC		App. II		L	Resident	
Passeriformes	Emberizidae	*Emberiza hortulana*	Ortolan Bunting	LC		App. III		L	Migrant (breeding)	
Passeriformes	Emberizidae	*Emberiza melanocephala*	Black-headed Bunting	LC		App. III		L	Migrant (breeding)	
Passeriformes	Emberizidae	*Emberiza schoeniclus*	Reed Bunting	LC		App. II		L	Migrant (wintering)	
Passeriformes	Fringillidae	*Carduelis carduelis*	European Goldfinch	LC		App. II		L	Migrant (passage)	
Passeriformes	Fringillidae	*Carpodacus erythrinus*	Scarlet rosefinch	LC		App. II		L	Migrant (breeding)	
Passeriformes	Fringillidae	*Chloris chloris*	European Greenfinch	LC		App. II		L	Resident	
Passeriformes	Fringillidae	*Coccothraustes coccothraustes*	Hawfinch	LC		App. II		L	Migrant (wintering)	
Passeriformes	Fringillidae	*Fringilla coelebs*		LC		App. III		L	Migrant (wintering)	
Passeriformes	Fringillidae	*Fringilla montifringilla*	Brambling	LC		App. III		L	Migrant (passage)	
Passeriformes	Fringillidae	*Linaria cannabina*	Linnet (Eurasian Linnet)	LC		App. III		L	Resident	
Passeriformes	Fringillidae	*Linaria flavirostris*	Twite	LC		App. III		L	Migrant (breeding)	
Passeriformes	Fringillidae	*Loxia curvirostra*	Red Crossbill	LC		App. II		L	Resident	
Passeriformes	Fringillidae	*Pyrrhula pyrrhula*		LC		App. III		L	Migrant (passage)	
Passeriformes	Fringillidae	*Spinus spinus*	Eurasian Siskin	LC		App. III		L	Migrant (wintering)	
Passeriformes	Hirundinidae	*Delichon urbicum*	Northern House Martin	LC		App. II		L	Migrant (breeding)	
Passeriformes	Hirundinidae	*Hirundo rustica*	Barn Swallow	LC		App. II		L	Migrant (breeding)	A4ii
Passeriformes	Hirundinidae	*Riparia riparia*	Sand Martin	LC		App. II		L	Migrant (breeding)	A4ii
Passeriformes	Laniide	*Lanius collurio*	Red-backed Shrike	LC		App. II		L	Migrant (breeding)	

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Passeriformes	Laniide	*Lanius excubitor*	Great Grey Shrike	LC		App. II		L	Migrant (wintering)	
Passeriformes	Laniide	*Lanius minor*	Lesser Grey Shrike	LC		App. II		L	Migrant (breeding)	
Passeriformes	Motacillidae	*Anthus campestris*	Tawny Pipit	LC		App. II		L	Migrant (breeding)	
Passeriformes	Motacillidae	*Anthus cervinus*	Red-throated Pipit	LC		App. II		L	Migrant (passage)	
Passeriformes	Motacillidae	*Anthus trivialis*	Tree Pipit	LC		App. II		L	Migrant (passage)	
Passeriformes	Motacillidae	*Motacilla alba*	White Wagtail	LC		App. II		L	Migrant (breeding)	
Passeriformes	Motacillidae	*Motacilla flava*	Yellow Wagtail	LC		App. II		L	Migrant (breeding)	A4iv
Passeriformes	Muscicapidae	*Cercotrichas galactotes*	Rufous-tailed Scrub-robin	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Cyanecula svecica*	Bluethroat	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Erithacus rubecula*	European Robin	LC		App. II		L	Resident	

Passeriformes	Muscicapidae	*Ficedula hypoleuca*	European Pied Flycatcher	LC		App. II		L	Migrant (passage)	
Passeriformes	Muscicapidae	*Ficedula parva*	Red-breasted Flycatcher	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Luscinia luscinia*	Thrush Nightingale	LC		App. II		L	Migrant (passage)	
Passeriformes	Muscicapidae	*Muscicapa striata*	Spotted Flycatcher	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Oenanthe hispanica*	Eastern Black-eared Wheatear	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Oenanthe isabellina*	Isabelline Wheatear	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Oenanthe oenanthe*	Northern Wheatear	LC		App. II		O	Migrant (breeding)	
Passeriformes	Muscicapidae	*Oenanthe pleschanka*	Pied Wheatear	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Phoenicurus ochruros*	Black Redstart	LC		App. II		L	Vagrant	
Passeriformes	Muscicapidae	*Phoenicurus phoenicurus*	Common Redstart	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Saxicola rubetra*	Whinchat	LC		App. II		L	Migrant (breeding)	
Passeriformes	Muscicapidae	*Saxicola torquatus*	Common Stonechat	LC		App. II		L	Migrant (breeding)	
Passeriformes	Oriolidae	*Oriolus oriolus*	Eurasian Golden Oriole	LC		App. II		L	Migrant (breeding)	
Passeriformes	Paridae	*Parus ater*	Coal Tit	LC		App. II		L	Resident	
Passeriformes	Paridae	*Parus bokharensis*	Turkestan Tit	LC		App. II		L	Vagrant	
Passeriformes	Paridae	*Parus caeruleus*	Blue Tit	LC		App. II		L	Resident	
Passeriformes	Paridae	*Parus major*	Great Tit	LC		App. II		L	Resident	

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Passeriformes	Passeridae	*Passer domesticus*	House Sparrow	LC				O	Resident	
Passeriformes	Passeridae	*Passer hispaniolensis*	Spanish Sparrow	LC		App. III		L	Vagrant	
Passeriformes	Passeridae	*Passer montanus*	Tree Sparrow	LC		App. III		L	Resident	
Passeriformes	Passeridae	*Petronia petronia*	Rock Sparrow	LC		App. III		L	Resident	
Passeriformes	Remizidae	*Remiz pendulinus*	Eurasian Penduline Tit	LC		App. III		L	Migrant (passage)	
Passeriformes	Sittidae	*Sitta neumayer*	Western Rock Nuthatch	LC		App. II		L	Resident	
Passeriformes	Sittidae	*Sitta europaea*	Wood Nuthatch	LC		App. II		L	Resident	
Passeriformes	Sturnidae	*Pastor roseus*	Rosy Starling	LC		App. III		L	Migrant (breeding)	
Passeriformes	Sturnidae	*Sturnus vulgaris*	Common Starling	LC				L	Resident	
Passeriformes	Sylviidae	*Acrocephalus arundinaceus*	Great Reed Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Acrocephalus dumetorum*	Blyth's Reed Warbler	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Acrocephalus melanopogon*	Moustached Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Acrocephalus palustris*	Marsh Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Acrocephalus schoenobaenus*	Sedge Warblerĸ	LC		App. II		L	Migrant (breeding)	

Passeriformes	Sylviidae	*Acrocephalus scirpaceus*	Eurasian Reed Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Iduna pallidus*	Eastern Olivaceous Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Locustella fluviatilis*	Eurasian River Wabler	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Locustella naevia*	Common Grasshopper Warbler	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Phylloscopus collybita*	Common Chiffchaff	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Phylloscopus trochiloides*	Greenish Warbler	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Phylloscopus trochilus*	Willow Warbler	LC		App. II		L	Migrant (passage)	
Passeriformes	Sylviidae	*Sylvia atricapilla*	Blackcap	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Sylvia borin*	Garden Warbler	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Sylvia communis*	Common Whitethroat	LC		App. II		L	Migrant (breeding)	
Passeriformes	Sylviidae	*Sylvia curruca*	Lesser Whitethroat	LC		App. II		L	Migrant (breeding)	

Order	***Family***	***Species***	***Common Name***	***Conservation Status***		***Protection Status***		***Obs./ Liter. data***	***Resident/Migrant (Breeding/ Wintering/ Passage)***	***Congr. species ****
				IUCN	***Az. RDB***	***BERN***	***CITES***			
Strigiformes	Strigidae	*Otus scops*	Common Scops Owl	LC		App. II	App. II	L	Migrant (breeding)	
Strigiformes	Strigidae	*Strix aluco*	Tawny Owl	LC		App. II	App. II	L	Resident	

*Important Bird Area (IBA) code is given for those species that can potentially fulfil the following global site criteria for congregatory species (A4): A4i= aggregations of water birds (>1% of biogeographic population); A4ii= aggregations of sea/land birds (>1% of biogeographic population); A4iii= aggregations of more than 20,000 water birds; A4iv= species at migration 'bottleneck site' (Sklyarenko et al., 2008)

Appendix 1 - Complete list of bird species potentially present within the Study Area

Order	Family	Species	Common Name	Conservation Status		Protection Status		Obs./ Liter.	Resident/Migrant (Breeding/ Wintering/ Passage)	Congregatory Species*
				IUCN	Az. RDB	BERN	CITES			
Anseriformes	*Anatidae*	*Anas crecca*	Common Teal	LC		App. III		L	Migrant (breeding)	A4i
		Anas platyrhynchos	Mallard	LC		App. III		L	Migrant (breeding)	A4i
		Anser	Greylag Goose	LC		App. III		L	Migrant (breeding)	A4i
		Anser erythropus	Lesser White-fronted Goose	VU		App. II		L	Migrant (passage)	A4i
		Aythya ferina	Common Pochard	VU		App. III		L	Migrant (wintering)	A4i
		Aythya fuligula	Tufted Duck -	LC		App. III		L	Migrant (passage)	A4i
		Aythya marila	Greater Scaup	LC		App. III		L	Migrant (wintering)	A4i
		Aythya nyroca	Ferruginous Duck	NT		App. III		L	Resident	A4i
		Branta ruficollis	Red-breasted Goose	VU	yes	App. II	App. III	L	Migrant (passage)	A4i
		Bucephala clangula	Common Goldeneye	LC		App. III		L	Migrant (wintering)	A4i
		Clangula hyemalis	Long-tailed Duck	VU		App. III		L	Vagrant	A4i
		Cygnus columbianus	Tundra Swan	LC		App. III		L	Migrant (passage)	A4i
		Cygnus cygnus	Whooper Swan	LC		App. II		L	Migrant (wintering)	A4i
		Cygnus olor	Mute Swan	LC	yes	App. III		L	Migrant (passage)	A4i
		Mareca strepera	Gadwall	LC		App. III		L	Migrant (breeding)	A4i
		Marmaronetta angustirostris	Marbled Teal	VU	yes	App. II		L	Resident	A4i
		Melanitta fusca	Velvet Scoter	VU		App. III		L	Migrant (passage)	A4i
		Mergus albellus	Smew	LC		App. II		L	Migrant (passage)	A4i
		Mergus merganser	Common Merganser	LC		App. III		L	Migrant (wintering)	A4i
		Mergus serrator	Red-breasted Merganser	LC		App. III		L	Migrant (wintering)	A4i
		Netta rufina	Red-crested Pochard	LC		App. II		L	Migrant (passage)	A4i
		Oxyura leucocephala	White-headed Duck	EN		App. II	App. III	L	Resident	A4i
		Spatula clypeata	Northern Shoveler	LC		App. III		L	Migrant (breeding)	A4i
		Spatula querquedula	Garganey	LC		App. III		L	Migrant (breeding)	A4i
		Tadorna ferruginea	Ruddy Shelduck	LC		App. II		L	Migrant (breeding)	A4i
		Tadorna tadorna	Shelduck	LC		App. II		L	Migrant (passage)	A4i
	Apodidae	*Apus apus*	Common Swift	LC		App. III		L	Migrant (passage)	
		Apus melba	Alpine Swift	LC		App. III		L	Migrant (breeding)	
Caprimulgiformes	*Caprimulgidae*	*Caprimulgus europaeus*	Eurasian Nightjar	LC		App. II		L	Migrant (breeding)	
	Burhinidae	*Burhinus oedicnemus*	Eurasian Thick-knee	LC		App. II		L	Migrant (breeding)	
	Charadriidae	*Charadrius alexandrinus*	Kentish Plover	LC		App. II		L	Migrant (breeding)	A4i
		Charadrius dubius	Little Ringed Plover	LC		App. II		L	Migrant (breeding)	A4i
		Charadrius hiaticula	Common Ringed Plover	LC		App. II		L	Migrant (wintering)	A4i
		Eudromias morinellus	Eurasian Dotterel	LC		App. II		L	Migrant (passage)	A4i
		Pluvialis squatarola	Grey Plover	LC		App. III		L	Migrant (passage)	A4i

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				IUCN	Az. RDB	BERN	CITES			
		Vanellus gregarius	Sociable Lapwing	CR	yes	App. III		L	Migrant (passage)	A4i
		Vanellus leucurus	White-tailed Lapwing	LC		App. III		L	Migrant (passage)	A4i
		Vanellus vanellus	Lapwing	NT		App. III		L	Migrant (breeding)	A4i
	Haematopodidae	*Haematopus ostralegus*	Eurasian Oystercatcher	NT		App. III		L	Migrant (passage)	A4i
	Laridae	*Chlidonias hybrida*	Whiskered Tern	LC		App. II		L	Migrant (breeding)	A4i
		Chlidonias leucopterus	White-winged Tern	LC		App. II		L	Migrant (breeding)	A4i
		Chlidonias niger	Black Tern	LC		App. II		L	Migrant (breeding)	A4i
		Gelochelidon nilotica	Gull-billed Tern	LC		App. II		L	Migrant (breeding)	A4i
		Hydrocoloeus minutus	Little Gull	LC		App. III		L	Migrant (wintering)	A4i
		Hydroprogne caspia	Caspian Tern	LC		App. II		L	Migrant (passage)	A4i
		Larus cachinnans	Yellow-legged Gull	LC		App. III		L	Migrant (wintering)	A4i
		Larus canus	Mew Gull	LC		App. III		L	Migrant (passage)	A4i
		Larus genei	Slender-billed Gull	LC		App. II		L	Resident	A4i
		Larus ichthyaetus-	Gull	LC		App. III		L	Migrant (wintering)	A4i
		Larus ridibundus	Black-headed Gull	LC		App. III		L	Resident	A4i
		Sterna hirundo	Common Tern	LC		App. II		L	Migrant (breeding)	A4i
		Sterna sandvicensis	Sandwich Tern	LC		App. II		L	Migrant (wintering)	A4i
		Sternula albifrons	Little Tern	LC		App. II		L	Migrant (breeding)	A4i
	Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	LC		App. II		L	Migrant (breeding)	A4i
		Recurvirostra avosetta	Pied Avocet	LC		App. II		L	Migrant (passage)	A4i
	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	LC		App. III		L	Migrant (breeding)	A4i
		Arenaria interpres	Ruddy Turnstone	LC		App. III		L	Migrant (passage)	A4i
		Calidris alba	Sanderling	LC		App. II		L	Migrant (passage)	A4i
		Calidris alpina	Dunlin	LC		App. II		L	Migrant (passage)	A4i
		Calidris falcinellus	Broad-billed Sandpiper	LC		App. III		L	Migrant (passage)	A4i
		Calidris ferruginea	Curlew Sandpiper	NT		App. II		L	Migrant (passage)	A4i
		Calidris minuta	Little Stint	LC		App. II		L	Migrant (passage)	A4i
		Calidris temminckii	Temminck's Stint	LC		App. II		L	Migrant (passage)	A4i
		Gallinago gallinago	Common Snipe	LC		App. III		L	Migrant (passage)	A4i
		Gallinago media	Great Snipe	NT		App. II		L	Migrant (passage)	A4i
		Limosa lapponica	Bar-tailed Godwit	LC		App. III		L	Migrant (passage)	A4i
		Limosa limosa	Black-tailed Godwit	NT		App. III		L	Migrant (passage)	A4i
		Lymnocryptes minimus	Jake Snipe	LC		App. III		L	Migrant (passage)	A4i
		Numenius arquata	Eurasian Curlew	NT		App. III		L	Migrant (passage)	A4i
		Numenius phaeopus	Whimbrel	LC		App. III		L	Migrant (passage)	A4i

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				IUCN	Az. RDB	BERN	CITES			
		Numenius tenuirostris	Slender-Billed Curlew	CR		App. II	App. I	L	Vagrant	A4i
		Phalaropus fulicarius	Red Phalarope	LC		App. III		L	Migrant (passage)	A4i
		Phalaropus lobatus	Red-necked Phalarope	LC		App. III		L	Migrant (passage)	A4i
		Philomachus pugnax	Ruff-Reeve	LC		App. III		L	Migrant (passage)	A4i
		Scolopax rusticola	Eurasian Woodcock	LC		App. III		L	Migrant (breeding)	A4i
		Tringa erythropus	Spotted Redshank	LC		App. III		L	Migrant (passage)	A4i
		Tringa glareola	Wood Sandpiper	LC		App. II		L	Migrant (passage)	A4i
		Tringa nebularia	Common Greenshank	LC		App. III		L	Migrant (passage)	A4i
		Tringa ochropus	Green Sandpiper	LC		App. II		L	Migrant (passage)	A4i
		Tringa stagnatilis	Marsh Sandpiper	LC		App. II		L	Migrant (passage)	A4i
		Tringa totanus	Common Redshank	LC		App. III		L	Migrant (breeding)	A4i
		Xenus cinereus	Terek Sandpiper	LC		App. III		L	Migrant (passage)	A4i
	Stercorariidae	*Stercorarius parasiticus*	Parasitic Jaeger	LC		App. III		L	Migrant (passage)	
		Stercorarius pomarinus	Pomarine Jaeger	LC		App. III		L	Migrant (passage)	
Ciconiiformes	*Ardeidae*	*Ardea alba*	Great Egret	LC		App. III		L	Migrant (wintering)	A4i
		Ardea cinerea	Grey Heron	LC		App. III		L	Resident	A4i
		Ardea purpurea	Purple Heron	LC		App. II		L	Migrant (breeding)	A4i
		Ardeola ralloides	Squacco Heron	LC		App. II		L	Migrant (breeding)	A4i
		Botaurus stellaris	Great Bittern	LC		App. II		L	Migrant (breeding)	A4i
		Bubulcus ibis	Cattle Egret	LC		App. II		L	Migrant (breeding)	A4i
		Egretta garzetta	Little Egret	LC		App. II		L	Migrant (wintering)	A4i
		Ixobrychus minutus	Little Bittern	LC		App. III		L	Migrant (breeding)	A4i
		Nycticorax	Black-crowned Night Heron	LC		App. II		L	Migrant (breeding)	A4i
	Threskiornithidae	*Plegadis falcinellus*	Glossy Ibisa	LC		App. II		L	Migrant (breeding)	A4i
Columbiformes	*Columbidae*	*Columba livia*	Rock Pigeon	LC		App. III		L	Resident	
		Columba oenas	Stock Dove	LC		App. III		L	Migrant (breeding)	
		Columba palumbus	Common Wood Pigeon	LC				L	Migrant (breeding)	
		Streptopelia decaocto	Eurasian Collared Dove	LC		App. III		L	Resident	
		Streptopelia turtur	European Turtle-dove	VU		App. III		L	Migrant (breeding)	
	Pteroclididae	*Pterocles orientalis*	Black-bellied Sandgrouse	LC		App. II		L	Resident	
Coraciiformes	*Alcedinidae*	*Alcedo atthis*	Common Kingfisher	LC		App. II		L	Migrant (breeding)	
	Coracidae	*Coracias garrulus*	European Roller	NT		App. II		L	Migrant (breeding)	
	Meropidae	*Merops apiaster*	European Bee-eater	LC		App. III		L	Migrant (breeding)	A4ii
		Merops persicus	Blue-cheeked Bee-eater	LC		App. III		L	Migrant (breeding)	

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				IUCN	Az. RDB	BERN	CITES			
	Upupidae	*Upupa epops*	Eurasian Hoopoe	LC		App. II		L	Migrant (breeding)	
Cuculiformes	*Cuculidae*	*Cuculus canorus*	Common Cuckoo	LC		App. III		L	Migrant (breeding)	
Falconiformes	*Accipitridae*	*Accipiter gentilis*	Northern Goshawk	LC		App. II		L	Resident	
		Accipiter nisus	Eurasian Sparrowhawk	LC		App. II		L	Migrant (breeding)	
		Aquila chrysaetos	Golden Eagle	LC	yes	App. II		L	Resident	
		Aquila heliaca	Eastern Imperial Eagle	VU		App. II	App. I	L	Migrant (wintering)	
		Buteo buteo	Buzzard	LC		App. II		L	Migrant (breeding)	
		Buteo rufinus	Long-legged Buzzard	LC		App. II		L	Migrant (breeding)	
		Circaetus gallicus	Short-toed SnakeEagle	LC		App. II		L	Migrant (wintering)	
		Circus aeruginosus	Western Marsh-harrier	LC		App. II		L	Migrant (breeding)	A4ii
		Circus cyaneus	Northern Harrier	LC		App. II		L	Migrant (wintering)	
		Circus macrourus	Pallid Harrier	NT	yes	App. II		L	Migrant (passage)	
		Circus pygargus	Montagu's Harrier	LC		App. II		L	Migrant (passage)	
		Clanga clanga	Greater Spotted Eagle	VU		App. II		L	Migrant (wintering)	
		Haliaeetus albicilla	White-tailed Eagle	LC		App. II	App. I	L	Migrant (wintering)	
		Hieraaetus pennatus	Booted Eagle	LC		App. II		L	Migrant (breeding)	A4ii
		Milvus migrans-	Kite	LC		App. II		L	Migrant (breeding)	A4ii
		Neophron percnopterus	Egyptian vulture	EN		App. II		L	Migrant (breeding)	
		Pandion haliaetus	Osprey	LC		App. II		L	Migrant (passage)	
		Pernis apivorus	European Honey-buzzard	LC		App. II		L	Migrant (breeding)	
	Falconidae	*Falco cherrug*	Saker Falcon	EN	yes	App. II		L	Migrant (wintering)	A4ii
		Falco columbarius	Merlin	LC		App. II		L	Migrant (wintering)	
		Falco naumanni	Lesser Kestrel	LC		App. II		L	Migrant (breeding)	A4ii
		Falco peregrinus	Peregrine Falcon	LC	yes	App. II	App. I	L	Migrant (wintering)	
		Falco subbuteo	Eurasian Hobby	LC		App. II		L	Migrant (breeding)	
		Falco tinnunculus	Common Kestrel	LC		App. II		L	Resident	
Galliformes	*Phasianidae*	*Alectoris chukar*	Chukar	LC		App. III		L	Resident	
		Coturnix coturnix	Common Quail	LC		App. III		L	Migrant (breeding)	
		Perdix perdix	Grey Partridge	LC		App. III		L	Resident	
		Phasianus colchicus	Common Pheasant	LC	yes	App. III		L	Resident	
Gaviiformes	*Gaviidae*	*Gavia arctica*	Black-throated Diver	LC		App. II		L	Migrant (wintering)	A4i
		Gavia stellata	Red-throated Diver	LC		App. II		L	Migrant (wintering)	A4i
Gruiformes	*Otididae*	*Otis tarda*	Great Bustard	VU	yes	App. II	App. II	L	Migrant (passage)	
		Tetrax tetrax	Little Bustard	NT	yes	App. II	App. II	L	Migrant (wintering)	

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				IUCN	Az. RDB	BERN	CITES			
	Rallidae	*Crex crex*	Corncrake	LC		App. II		L	Migrant (breeding)	
		Fulica atra	Common Coot	LC		App. II		L	Migrant (breeding)	A4i
		Gallinula chloropus	Common Moorhen	LC		App. III		L	Migrant (breeding)	A4i
		Porphyrio porphyrio	Purple Swamphen	LC	yes	App. III		L	Resident	
		Porphyrio porphyrio	Purple Swamphen	LC		App. II		L	Resident	
		Porzana porzana	Spotted Crake	LC		App. II		L	Migrant (breeding)	
		Zaporina pusilla	Baillon's Crake	LC		App. III		L	Migrant (passage)	
Passeriformes	*Alaudidae*	*Alauda arvensis*	Eurasian Skylark	LC		App. III		L	Migrant (breeding)	
		Alaudala rufescens	Lesser Short-toed Lark	LC		App. III		L	Resident	
		Calandrella brachydactyla	Greater Short-toed Lark	LC		App. II		L	Migrant (breeding)	
		Eremophila alpestris	Horned Lark	LC		App. II		L	Resident	
		Galerida cristata	Crested Lark	LC		App. III		L	Resident	
		Melanocorypha calandra	Calandra Lark	LC		App. II		L	Resident	
	Bombycillidae	*Bombycilla garrulus*	Bohemian Waxwing	LC		App. II		L	Migrant (wintering)	
	Certhiidae	*Certhia familiaris*	Eurasian Treecreeper	LC		App. II		L	Resident	
	Corvidae	*Corvus corax*	Raven	LC		App. III		L	Resident	
		Corvus corone	Carrion Crow	LC				O	Vagrant	
		Corvus frugilegus	Rook	LC		App. III		L	Resident	
		Corvus monedula	Eurasian Jackdaw	LC				L	Migrant (wintering)	
		Corvus ruficollis	Raven	LC		App. III		L	Resident	
		Garrulus glandarius	Eurasian Jay	LC				L	Resident	
		Pica pica	Black-billed Magpie	LC				L	Resident	
		Pyrrhocorax pyrrhocorax	Red-billed Chough	LC		App. III		L	Resident	
	Emberizidae	*Calcarius lapponicus*	Lapland Bunting	LC		App. II		L	Migrant (wintering)	
		Emberiza calandra	Corn Bunting	LC		App. III		L	Resident	
		Emberiza citrinella	Yellowhammer	LC		App. II		L	Resident	
		Emberiza hortulana	Ortolan Bunting	LC		App. III		L	Migrant (breeding)	
		Emberiza melanocephala	Black-headed Bunting	LC		App. III		L	Migrant (breeding)	
		Emberiza schoeniclus	Reed Bunting	LC		App. II		L	Migrant (wintering)	
	Fringillidae	*Carduelis carduelis*	European Goldfinch	LC		App. II		L	Migrant (passage)	
		Carpodacus erythrinus	Scarlet rosefinch	LC		App. II		L	Migrant (breeding)	
		Chloris chloris	European Greenfinch	LC		App. II		L	Resident	
		Coccothraustes coccothraustes	Hawfinch	LC		App. II		L	Migrant (wintering)	
		Fringilla coelebs	Common Chaffinch	LC		App. III		L	Migrant (wintering)	
		Fringilla montifringilla	Brambling	LC		App. III		L	Migrant (passage)	

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				IUCN	Az. RDB	BERN	CITES			
		Linaria cannabina	Linnet (Eurasian Linnet)	LC		App. III		L	Resident	
		Linaria flavirostris	Twite	LC		App. III		L	Migrant (breeding)	
		Loxia curvirostra	Red Crossbill	LC		App. II		L	Resident	
		Pyrrhula pyrrhula	Eurasian Bullfinch	LC		App. III		L	Migrant (passage)	
		Spinus spinus	Eurasian Siskin	LC		App. III		L	Migrant (wintering)	
	Hirundinidae	*Delichon urbicum*	Northern House Martin	LC		App. II		L	Migrant (breeding)	
		Hirundo rustica	Barn Swallow	LC		App. II		L	Migrant (breeding)	A4ii
		Riparia riparia	Sand Martin	LC		App. II		L	Migrant (breeding)	A4ii
	Laniide	*Lanius collurio*	Red-backed Shrike	LC		App. II		L	Migrant (breeding)	
		Lanius excubitor	Great Grey Shrike	LC		App. II		L	Migrant (wintering)	
		Lanius minor	Lesser Grey Shrike	LC		App. II		L	Migrant (breeding)	
	Motacillidae	*Anthus campestris*	Tawny Pipit	LC		App. II		L	Migrant (breeding)	
		Anthus cervinus	Red-throated Pipit	LC		App. II		L	Migrant (passage)	
		Anthus trivialis	Tree Pipit	LC		App. II		L	Migrant (passage)	
		Motacilla alba	White Wagtail	LC		App. II		L	Migrant (breeding)	
		Motacilla flava	Yellow Wagtail	LC		App. II		L	Migrant (breeding)	A4iv
	Muscicapidae	*Cercotrichas galactotes*	Rufous-tailed Scrub-robin	LC		App. II		L	Migrant (breeding)	
		Cyanecula svecica	Bluethroat	LC		App. II		L	Migrant (breeding)	
		Erithacus rubecula	European Robin	LC		App. II		L	Resident	
		Ficedula hypoleuca	European Pied Flycatcher	LC		App. II		L	Migrant (passage)	
		Ficedula parva	Red-breasted Flycatcher	LC		App. II		L	Migrant (breeding)	
		Luscinia luscinia	Thrush Nightingale	LC		App. II		L	Migrant (passage)	
		Muscicapa striata	Spotted Flycatcher	LC		App. II		L	Migrant (breeding)	
		Oenanthe hispanica	Eastern Black-eared Wheatear	LC		App. II		L	Migrant (breeding)	
		Oenanthe isabellina	Isabelline Wheatear	LC		App. II		L	Migrant (breeding)	
		Oenanthe oenanthe	Northern Wheatear	LC		App. II		O	Migrant (breeding)	
		Oenanthe pleschanka	Pied Wheatear	LC		App. II		L	Migrant (breeding)	
		Phoenicurus ochruros	Black Redstart	LC		App. II		L	Vagrant	
		Phoenicurus phoenicurus	Common Redstart	LC		App. II		L	Migrant (breeding)	
		Saxicola rubetra	Whinchat	LC		App. II		L	Migrant (breeding)	
		Saxicola torquatus	Common Stonechat	LC		App. II		L	Migrant (breeding)	
	Oriolidae	*Oriolus oriolus*	Eurasian Golden Oriole	LC		App. II		L	Migrant (breeding)	
	Paridae	*Parus ater*	Coal Tit	LC		App. II		L	Resident	
		Parus bokharensis	Turkestan Tit	LC		App. II		L	Vagrant	
		Parus caeruleus	Blue Tit	LC		App. II		L	Resident	

Appendix 1 - Complete list of bird species potentially present within the Study Area

Order	Family	Species	Common Name	Conservation Status		Protection Status		Obs./ Liter.	Resident/Migrant (Breeding/ Wintering/ Passage)	Congregatory Species*
				IUCN	Az. RDB	BERN	CITES			
		Parus major	Great Tit	LC		App. II		L	Resident	
	Passeridae	*Passer domesticus*	House Sparrow	LC				O	Resident	
		Passer hispaniolensis	Spanish Sparrow	LC		App. III		L	Vagrant	
		Passer montanus	Tree Sparrow	LC		App. III		L	Resident	
		Petronia petronia	Rock Sparrow	LC		App. III		L	Resident	
	Remizidae	*Remiz pendulinus*	Eurasian Penduline Tit	LC		App. III		L	Migrant (passage)	
	Sittidae	*Sitta neumayer*	Western Rock Nuthatch	LC		App. II		L	Resident	
		Sitta europaea	Wood Nuthatch	LC		App. II		L	Resident	
	Sturnidae	*Pastor roseus*	Rosy Starling	LC		App. III		L	Migrant (breeding)	
		Sturnus vulgaris	Common Starling	LC				L	Resident	
	Sylviidae	*Acrocephalus arundinaceus*	Great Reed Warbler	LC		App. II		L	Migrant (breeding)	
		Acrocephalus dumetorum	Blyth's Reed Warbler	LC		App. II		L	Migrant (passage)	
		Acrocephalus melanopogon	Moustached Warbler	LC		App. II		L	Migrant (breeding)	
		Acrocephalus palustris	Marsh Warbler	LC		App. II		L	Migrant (breeding)	
		Acrocephalus schoenobaenus	Sedge Warblerĸ	LC		App. II		L	Migrant (breeding)	
		Acrocephalus scirpaceus	Eurasian Reed Warbler	LC		App. II		L	Migrant (breeding)	
		Iduna pallidus	Eastern Olivaceous Warbler	LC		App. II		L	Migrant (breeding)	
		Locustella fluviatilis	Eurasian River Wabler	LC		App. II		L	Migrant (passage)	
		Locustella naevia	Common Grasshopper Warbler	LC		App. II		L	Migrant (passage)	
		Phylloscopus collybita	Common Chiffchaff	LC		App. II		L	Migrant (passage)	
		Phylloscopus trochiloides	Greenish Warbler	LC		App. II		L	Migrant (passage)	
		Phylloscopus trochilus	Willow Warbler	LC		App. II		L	Migrant (passage)	
		Sylvia atricapilla	Blackcap	LC		App. II		L	Migrant (breeding)	
		Sylvia borin	Garden Warbler	LC		App. II		L	Migrant (breeding)	
		Sylvia communis	Common Whitethroat	LC		App. II		L	Migrant (breeding)	
		Sylvia curruca	Lesser Whitethroat	LC		App. II		L	Migrant (breeding)	
Strigiformes	*Strigidae*	*Otus scops*	Common Scops Owl	LC		App. II	App. II	L	Migrant (breeding)	
		Strix aluco	Tawny Owl	LC		App. II	App. II	L	Resident	

Notes

*Important Bird Area (IBA) code is given for those species that can potentially fulfil the following global site criteria for congregatory species (A4): A4i = aggregations of water birds (>1% of biogeographic population); A4ii= aggregations of sea/land birds (>1% of biogeographic population); A4iii= aggregations of more than 20,000 water birds; A4iv = species at migration 'bottleneck site' (Sklyarenko et al., 2008).