

## Red Sea Wind Energy (RSWE) 500MW Power Plant At the Gulf of Suez

### Critical Habitat Assessment



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## **Executive Summary**

This report is the Critical Habitat Assessment (CHA) for the Red Sew Wind Energy 500 MW Project (the Project). The Project is seeking to align with IFC Performance Standard 6 (PS6) and EBRD Performance Requirement 6 (PR6). This assessment of Critical Habitat, Priority Biodiversity Features and Natural Habitat considers a broader area than just the direct Project footprint, to ensure all Project risks are taken into consideration.

Globally-important concentrations of ten bird species migrate over the area. Further, the Gebel El Zeit Important Bird Area – designated for migratory soaring birds – is roughly 22 km south of from the Project concession at its nearest point. The area is clearly of critical importance to migratory birds, and the Project will need to carefully mitigate potential impacts – which may otherwise have disproportionate effects on the global population. There is, however, no evidence from surveys that these species regularly use the area as a stop-over site in normal circumstances, or that this area is a bottleneck within the already-restricted flyway. It is thus not appropriate to consider the Project area to be Critical Habitat for migratory species in the context of an extensive flyway that would (for a considerable distance) likewise meet Critical Habitat thresholds. The Project area does not qualify as Critical Habitat for any other criteria.

The area appears to broadly be Natural Habitat. One reptile and 11 migratory bird species are considered to be Priority Biodiversity Features, as they are of stakeholder concern and are representative of the global and region's natural environment.

Since the Project is located in an area which seasonally sees globally-important concentrations of migratory soaring birds, contains Priority Biodiversity Features and is broadly Natural Habitat, the Project should proceed with caution. This CHA and an analysis of potential cumulative effects to biodiversity will feed into a Biodiversity Action Plan, which will (i) summarise any significant impacts on Priority Biodiversity, Natural Habitat and Valued Environmental Components, and (ii) outline project mitigation to address significant impacts. The Project will need to achieve at least no net loss for the Egyptian Spiny-tailed Lizard, the eleven priority bird species, and Natural Habitat, and to demonstrate this achievement through a robust monitoring and adaptive management programme.

## **1 INTRODUCTION**

### **1.1 The Report**

This report is the Critical Habitat Assessment (CHA) for the RSWE 500 MW Wind Power Project, under development by Red Sea Wind Energy S.A.E. The Project is seeking funding from the European Bank for Reconstruction and Development (EBRD) for this development and will need to align with IFC Performance Standard 6 (PS6) and/or EBRD Performance Requirement 6 (PR6) for Biodiversity Conservation and Sustainable Management of Living Natural Resources.

The Critical Habitat Assessment aims to identify features that trigger the critical habitat status and priority biodiversity features. This will be applied through the following:

- Identification of Critical Habitat and Priority Biodiversity Features present in the area based on a comprehensive literature review, including the Integrated Biodiversity Assessment Tool (IBAT, 2020).
- Analyse of already available information collected as part of the avian in-flight monitoring assessments that were carried out at the project site during the migration seasons of autumn 2019 and spring 2020.
- Analyse the comprehensive ecological assessments that were carried out at the project site during the spring season of 2020, which was undertaken as part of the Environmental and Social Impact Assessment (ESIA) of the project site.

### **1.2 The Project Site and the Study Area**

The Project is located in the Red Sea Governorate of Egypt, around 200 km to the southeast of the capital city of Cairo, see Figure 1. More specifically, the Project is located near the Red Sea shoreline and within the Ras Ghareb Local Governmental Unit of the Red Sea Governorate, where the closest residential areas include Ras Ghareb city (located 40 km to the southeast) and Zaafarana village (45 km to the north), see Figure 2.

The Project is located within a 1,223 km<sup>2</sup> area that has been allocated by the Government of Egypt to New and Renewable Energy Agency (NREA) for development of wind farms. Within this area, 284 km<sup>2</sup> area have been studied as a part a Strategic Environmental and Social Assessment (SESA), (presented in green in Figure 3 below). Within this, a land area of approximately 70 km<sup>2</sup> (presented in red in Figure 3 below) has been allocated to the Developer by NREA for the development of this Project. Building on the CHA that was undertaken for the Lekela 250 MW Project, it was decided that the study area for this CHA would be focused on the area that has been defined by the presidential decree for NREA for wind farm development, instead of focusing on the entire flyway corridor within Egypt which would eventually lead to a repetition of effort that would produce the same result.

Being located by the western coastline of the Gulf of Suez, the project site and the general study area is located along the Red Sea/Rift Valley flyway, which is one of the most important migration flyways for migratory soaring birds in the world with over 1.5 million soaring birds migrating through it twice a year (Birdlife, 2020). The flyway links the European breeding grounds with the African wintering areas of for a total of 37 migratory soaring birds. Regular migration monitoring along the western coast of the Gulf of Suez where the project is located has shown that there is a significant difference in the level of use of the area during migration seasons. Research has shown that this part of the flyway is used by much larger numbers of birds during spring migration in comparison with autumn migration seasons.



Figure 1: Project Site in Relation to the Capital City of Egypt (Consultant, 2019)



Figure 2: Project Site and Closest Villages (Consultant, 2019)

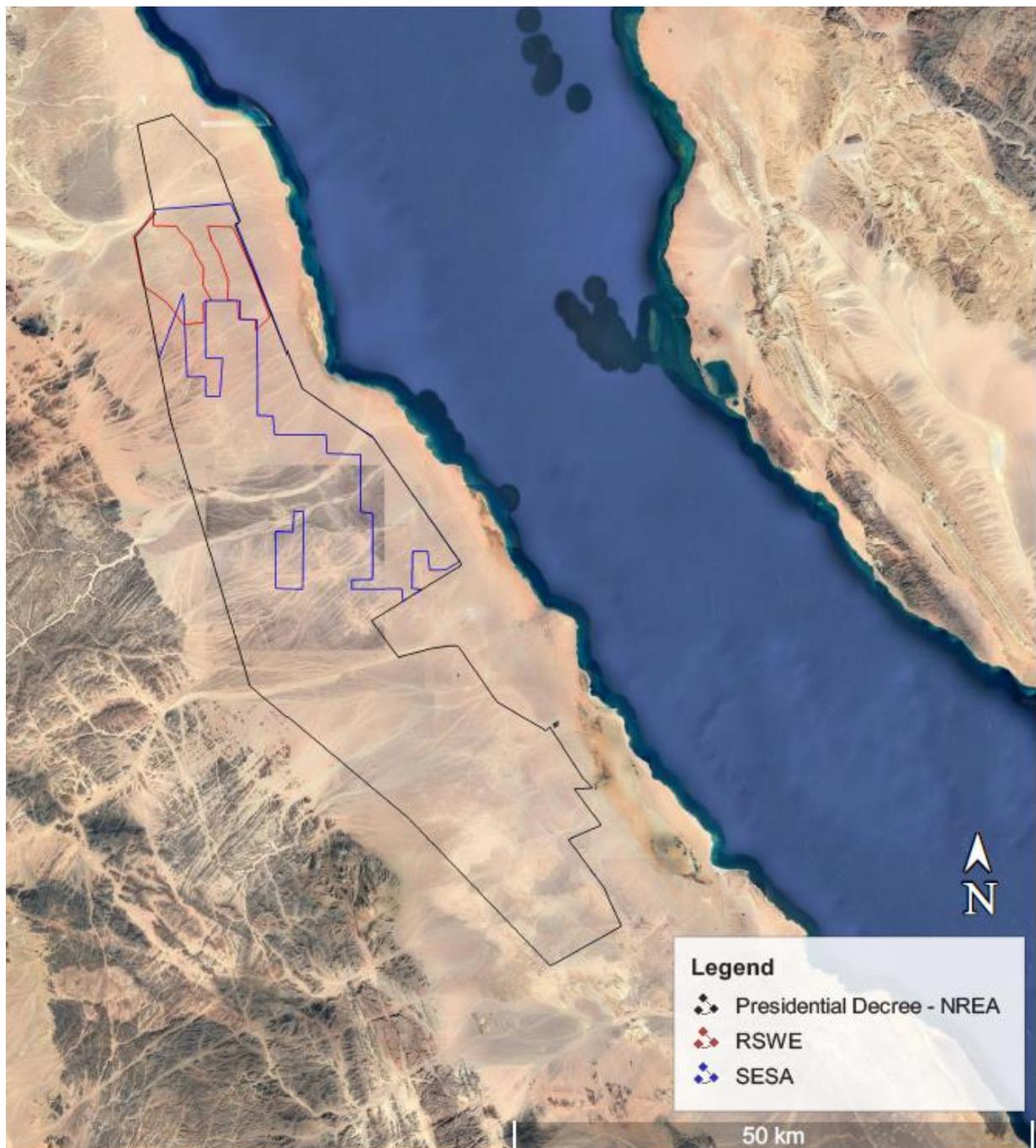


Figure 3: Project Site (Red) as Part of the SESA area (blue) and Presidential Decree Area for Wind Farm Development (black) (Consultant, 2019)

As part of the Environmental and Social Impact Assessment (ESIA) for the project, in-flight monitoring assessments were undertaken at the project site during the autumn season of 2019 and the spring season of 2020. Additionally, a biodiversity assessment including a field survey during the spring season of 2020 and a comprehensive literature review were undertaken. Based on the results, avifaunal in-flight monitoring will be carried out for two additional seasons in autumn 2020 and spring 2021 while operational monitoring will be carried out, including on-demand turbine shutdown and fatality monitoring as part of the Active Turbine Management Plant (ATMP) that is already being implemented in the region as a whole.



Figure 4. Main routes used by migratory soaring birds as part of the Red Sea/Rift Valley Flyway (BirdLife, 2020)

### 1.3 Lenders Standards

#### 1.3.1 IFC Performance Standard 6 – PS6

IFC’s Performance Standard 6 (PS6), recognises the conservation of biodiversity as fundamental to sustainable development, while linking it to the Convention of Biological Diversity (CBD). Simply put, the objectives of PS6 are to protection and conserve biodiversity and to promote the sustainable management and use of natural resources through the adoption of practices that integrate conservation needs and development priorities. PS6 requires to assess the significance of project impacts on all level of biodiversity as an integral part of the Social and Environmental Assessment process. It looks into habitats as the main feature that should be assessed for project impacts. PS6 outlines that Critical Habitat as a subset of both natural and modified habitat that deserves particular attention since it includes areas with high biodiversity value, including habitat required for the survival of species of high conservation value including critically endangered and endangered species, endemic and restricted-range species, migratory species, congregatory species and others.

#### 1.3.2 EBRD Performance Requirement 6 – PR6

EBRD Performance Requirement 6 (PR6) outlines the importance of the conservation of biodiversity and sustainable management of living natural resources to environmental and social sustainability, and the importance of maintaining core ecological functions of ecosystems and the biodiversity they support. PR6 requires of the client to adopt a precautionary approach and apply adaptive management practices in which the implementation of mitigation and management measures are responsive to changing conditions and the results of project monitoring throughout the project life cycle.

According to PR6, the most sensitive biodiversity features are defined as critical habitat, which comprise one of the following: (i) highly threatened or unique ecosystems; (ii) habitats of significant importance to endangered or critically endangered species; (iii) habitats of significant importance to endemic or geographically restricted species; (iv) habitats supporting globally significant migratory or congregatory

species; (iv) areas associated with key evolutionary processes; or (v) ecological functions that are vital to maintaining the viability of biodiversity features.

Additionally, PR6 states that some areas affected by the project may be considered “priority biodiversity features” (PDFs), which are a subset of biodiversity that is particularly irreplaceable or vulnerable, but at a lower priority level than critical habitats, which include: (i) threatened habitats; (ii) vulnerable species; (iii) significant biodiversity features identified by a broad set of stakeholders or governments (such as Key Biodiversity Areas or Important Bird Areas); and (iv) ecological structure and functions needed to maintain the viability of priority biodiversity features.

Based on the above, the Critical Habitat Assessment aims to identify features that trigger the critical habitat status and priority biodiversity features.

## 2 APPROACH

A Critical Habitat Assessment is usually carried out at a landscape scale, using ecologically and/or administratively coherent units for determining the presence or absence of Critical Habitat-qualifying features under PS6 criteria 1 – 3 and PR6 Criteria ii – iv. Based on this, the study area level is based on the whole area that has been declared by the Presidential Decree as an area for the development of wind energy along the western coast of the Gulf of Suez. This definition aligns well with what IFC refers to as Discrete Management Units (DMUs) which are ‘areas with a definable boundary within which the character of biological communities and/or management issues have more in common with each other than they do with those in adjacent areas.

As mentioned earlier, the project site is located along a major bird migration flyway. A flyway-level assessment has already been undertaken as part of the CHA for Lekela North Ras Gharib 250MW Project (TBC, 2018). Therefore, this CHA will focus on the project-site level and the general study area level identified in Section 1.2. Therefore the CHA is being applied on two levels, the project site level and the study area level.

This assessment is based on existing literature in addition to global and regional datasets, including Integrated Biodiversity Assessment Tool (IBAT, 2020). All species classified as Critically Endangered, Endangered, Vulnerable or Data Deficient in the IUCN Red List were screened, as well as all species mapped by IUCN which could be considered restricted-range. Additionally, up-to-date ecological assessments, including avifaunal –in-flight monitoring, flora survey and others, that are included in the ESIA of the project site were used in the analysis. Other sources of data included the following:

- RCREEE Strategic and Cumulative Environmental and Social Assessment Active Turbine Management Program (ATMP) for Wind Power Projects in the Gulf of Suez (RCREEE 2018);
- Environmental and Social Impact Assessments of all surrounding Wind Power Projects,
- BirdLife International’s Important Bird Area Data Zone website.
- Protected Planet’s World Database on Protected Areas (WDPA)

This assessment was conducted using the best recent and available information at the time of its production. In an area where regular avifaunal monitoring is being carried out, a better understanding of the level of use, species present, and seasonal fluctuations is becoming more and more understood every season. It is believed that as more research is planned for the future, at the project site and in the adjacent projects, a better understanding of the area as a whole will be obtained. These results could affect the results of this assessment, however the location of the along a major migration flyway and adjacent to a major bottleneck Important Bird Area, will not change the importance of the area for migratory soaring birds in specific and therefore the need for detailed mitigation measures and monitoring plans to ensure the conservation of the species that use the flyway, the Gulf of Suez and the project site.

### 3 CRITERIA

This section presents the methods that were followed for each PR6/PS6 criterion.

#### 3.1 Critical Habitat

Critical Habitat Assessment is generally based on the screening of a variety of datasets against pre-set criteria and checking if these datasets trigger pre-defined thresholds. Below is the method followed for each criterion.

**Criterion i (PR6) & 4 (PS6) - Highly threatened and/or unique ecosystems:** All ecosystems known from the study area were screened against the EBRD and IFC definition of highly threatened and unique ecosystems, and the Red List of Threatened Ecosystems criteria, considering the entire extent of an ecosystem, together with areas in the wider landscape that are needed to maintain that ecosystem in a viable condition.

**Criterion ii (PR6) & 1 (PS6) – Habitats of significant importance to Critically Endangered and Endangered species:** Building on the literature review and the field assessments, quantitative data for potential species was evaluated according to IFC’s PS6 thresholds (IFC, 2012). In the context of the project site and its location along a flyway, the definition of a Critical Habitat can be triggered by IUCN Red List Critically Endangered (CR) and Endangered (EN) migratory species that use the site as a stop-over or bottleneck.

**Criterion iii (PR6) & 2 (PS6) – Habitats of significant importance to Endemic and/or restricted-range species:** The study areas were screened for overlap with restricted-range species based on data from the IUCN red list. If any were recorded, the species were compared with the recommended thresholds for Criterion iii/2 (IFC 2012).

**Criterion iv (PR6) & 3 (PS6) – habitats supporting globally significant migratory or congregatory species:** Data from field assessments in the vicinity of the Project were assessed for evidence of significant concentrations of migratory species.

**Criterion v (PR6) & 5 (PS6) – areas associated with key evolutionary processes:** This is the only criterion that does not have quantitative thresholds and therefore the assessment was relied on qualitative judgement.

**Criterion vi (PR6) - ecological functions that are vital to maintaining the viability of biodiversity features:** no quantitative significance thresholds exist for this criterion, so there is a reliance on qualitative value judgement.

#### 3.2 Natural Habitat and Modified Habitat

IFC GN6 defines Natural Habitats as *‘areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area’s primary ecological functions and species composition’*.

IFC GN6 defines Modified Habitats as *‘areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area’s primary ecological functions and species composition’*.

#### 3.3 Priority Biodiversity Features

Both PS6 and PR6 consider other biodiversity as a priority for conservation, and thus a priority to consider in mitigation planning. Both PS6 and PR6 require No Net Loss, and preferably a Net Gain, for priority biodiversity. This biodiversity comprises those features that are of high irreplaceability and/or vulnerability, but not sufficient to qualify an area as Critical Habitat. PR6 has a more extensively-defined approach to identifying priority biodiversity – called ‘Priority Biodiversity Features’ (PBFs) with identified criteria that will be used to identify priority biodiversity present in and around the study area.

PR6 defines four criteria for the identification of PBFs, see Table 1. As PR6 does not define quantitative thresholds for identifying PBFs, this assessment has been qualitative using expert opinion and literature.

**Table 1. PR6 Criteria for Priority Biodiversity Features**

<b>Criterion</b>	<b>Feature</b>
i	Threatened habitat
ii	Vulnerable species
iii	Significant biodiversity features identified by a broad set of stakeholders or governments
iv	Ecological structure and functions that are vital to maintaining the viability of biodiversity features described in [PR6 paragraph 12]

## 4 RESULTS

### 4.1 Critical Habitat

The section presents the findings of the assessment against PR6 and PS6 guidelines.

#### 4.1.1 Criterion i (PR6) & 4 (PS6) - Highly threatened and/or unique ecosystems

According to Olson et al (2001), the project area is located in the Desert and Xeric Shrublands Biome and more specifically in the Ecoregion of Red Sea Coastal Desert, see Figure 5. Applying the classification elaborated by Harhash et al. (2015) to the habitats found in the project area during site visits and field surveys the whole project area must be attributed to the main habitat system “Desert”. The vast majority of the project area can be classified as “Hamada Desert” (Sub-System: “Plain Land”) that is crossed by “Valleys and Canyons” (i.e. wadis) which belong to the Sub-System “Low Land”, which is characterised by very scattered vegetation cover that is limited sparsely to wadis, see Figure 6.

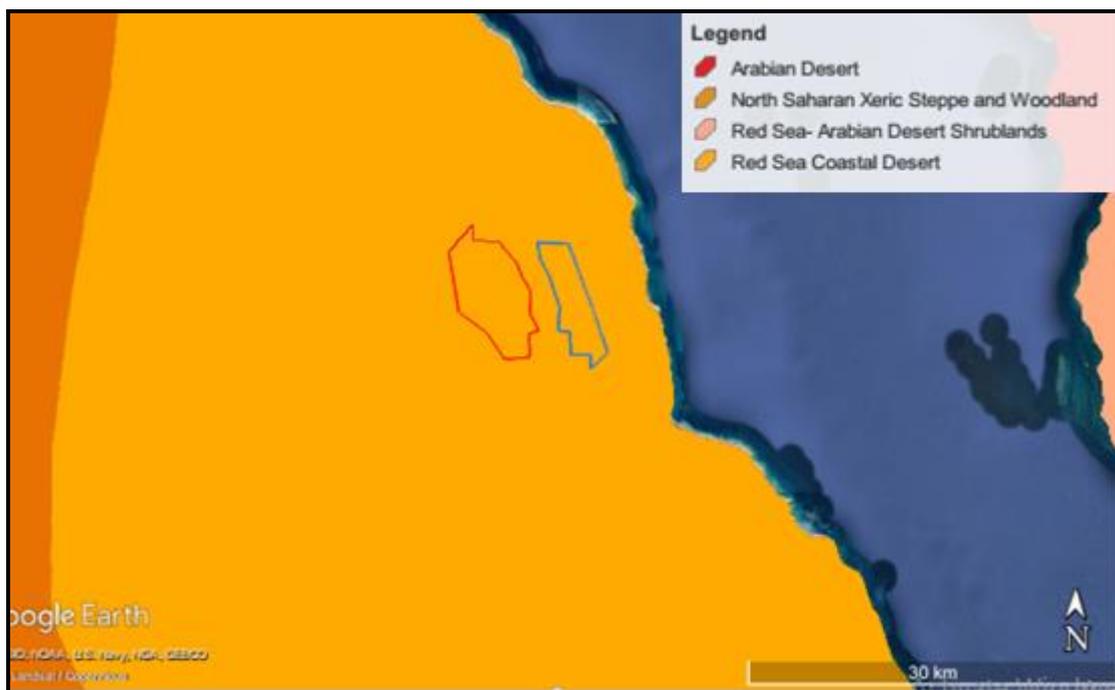


Figure 5: Location of Project in reference to Ecoregions of the world (TEOW) (Olson et al, 2001)

This evaluation of the primary habitats across Red Sea suggests that there are none that meet the Criterion, and has also been reviewed against definitions for Criterion i/4 and relevant Red List of Threatened Ecosystem categories (i.e. CR, EN) (Table 3). The Project area thus does not qualify for Criterion i/4.



Figure 6. General view of the project site during spring 2020 from the western side looking east (ECOConsult, 2020)

Table 2. Summary of assessment of habitats in the project site against Criterion i/4

Habitat – Hammada Desert	
Definition	Assessment
Risk of significantly decreasing in area or quality	the industrial development in the region might decrease the extent and the quality of some shrub patches, but, given the wide distribution of this vegetation type, it is not currently considered to be at significant risk
Small spatial extent	The habitat is widespread
Containing unique assemblages of species including assemblages or concentrations of biome-restricted species (fine scale)	The vegetation type does not support unique assemblages or concentration of biome-restricted species
Red List of Threatened Ecosystems	
Reduction in geographic distribution	The ecosystem is expansive and is not believed to be facing any reduction in distribution
Restricted geographic distribution	The habitat is widespread
Environmental degradation	Wind farm development might lead to habitat degradation but this will be limited to individual projects elements and is not believed to lead to large-scale degradation of the ecosystem
Disruption of biotic processes or interactions	No evidence
Quantitative analysis that estimates the probability of ecosystem collapse	No evidence

Based on the above, it can be concluded that criterion (i) (PR6) & 4 (PS6) is not triggered.

#### 4.1.2 Criterion ii (PR6) & 1 (PS6) – Habitats of significant importance to Critically Endangered and Endangered species

No species meets the threshold for Criterion ii (PR6) & / 1 (PS6). Data collected indicate that globally significant numbers of Egyptian Vulture *Neohpron percnopterus* and Steppe Eagle *Aquila nipalensis* fly over the study area each year, specifically during the spring migration season. However, no bottlenecks, or stop-over locations are known from the study area since all records obtained showed that the species is recorded on passage without any records of congregation or direct use of the project site and/or its surroundings. Based on this, the Project area thus does not qualify for Criterion ii/1.

#### 4.1.3 Criterion iii (PR6) & 2 (PS6) – Habitats of significant importance to Endemic and/or restricted-range species

None of the species recorded in the study area from field assessment or literature, meet the endemic/restricted-range species definition. The Project area does not qualify for Criterion iii/2.

#### 4.1.4 Criterion iv (PR6) & 3 (PS6) – habitats supporting globally significant migratory or congregatory species

Avifaunal assessments at the project site level and the West Coast of the Gulf of Suez have focused on assessment of in-flight monitoring for migratory soaring birds. This has been the case due to the fact that the area is located along the Red Sea/Rift Valley flyway and it has been well documented that it is a major passage for migratory soaring birds. Based on this, the project site and its immediate surroundings are not believed to trigger criterion iv (PR6) & 3 (PS6) for non-MSBs.

Based on the data available from the assessments that were undertaken at the project site and the literature available, ten MSB species exceeded the thresholds for Critical Habitat under Criteria iv (PR6) & 3-tier 2 (PS6), see Table 3.

**Table 3: List of species triggering the threshold of Criterion iv (PR6) & 3 – tier2 (PS6)**

Species	IUCN Red List Status
Black Stork <i>Ciconia nigra</i>	LC
White Stork <i>Ciconia ciconia</i>	LC
Great White Pelican <i>Pelecanus onocrotalus</i>	LC
European Honey-buzzard <i>Pernis apivorus</i>	LC
Egyptian Vulture <i>Neophron percnopterus</i>	EN
Lesser Spotted Eagle <i>Clanga pomarina</i>	LC
Greater Spotted Eagle <i>Clanga clanga</i>	VU
Steppe Eagle <i>Aquila nipalensis</i>	EN
Levant Sparrowhawk <i>Accipiter brevipes</i>	LC
Eurasian Buzzard <i>Buteo buteo</i>	LC

Although the number of species identified to exceed the threshold of the criterion is significant, it should be highlighted that none of the species recorded at the project site, including the ten species that triggered the thresholds have shown to use the area for roosting or as a bottleneck. On the other hand, the vast majority of the birds were recorded passing through. It is well documented that the major bottleneck is roughly 22 km south from the project site at Gebel El Zeit IBA, which is identified as a bottleneck for MSBs. Still, taking into consideration the large number of birds of these ten species, the project site is considered of global importance for these species and therefore it is critical to ensure suitable mitigation and monitoring measures are adopted during the project development operational phases.

Black Stork <i>Ciconia nigra</i> - Least Concern (LC)
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#### Justification for triggering threshold of criterion

Most populations of this species are fully migratory and travel on a narrow front along well-defined routes. On migration the species may travel singly or in small of up to 100 individuals, and on its wintering grounds it is normally observed singly or in small groups of less than 30 individuals. The global population is estimated at 24,000-44,000 individuals (IUCN, 2017). The overall population trend is unknown. The species is threatened by habitat degradation across its distribution range. The species is also occasionally killed by collisions with powerlines and overhead cables, and hunting in southern Europe and tropical Asia (especially during migration) have caused population declines.

More than 1% of the global population use the flyway passing over the project site, with counts above this threshold coming from seven surveys (Ecoda 2013; Environics 2016a, 2016b; RCREEE 2018, RCREEE and ECOConsult 2020). The highest count was from the project site of 2,156 birds, about 9.0% of the global population, during the spring of 2020 (RCREEE and ECOConsult 2020). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

White Stork *Ciconia ciconia* - Least Concern (LC)

**Justification for triggering threshold of criterion**

The White Stork is a Palearctic migrant that travels with the assistance of thermal updrafts, the occurrence of which restricts the migratory routes the species can take. The global population is estimated at 700,000-704,000 individuals. The overall population trend is increasing, although some populations are decreasing or stable. The species is threatened by habitat alteration across its distribution range. During the winter in Africa, there may be high rates of mortality due to changes in feeding conditions owing to drought, desertification and the control of locust populations by insecticides. On migration and in its winter quarters, the species might also be hunted for food and sport (BirdLife International 2016c).

More than 1% of the global population use the flyway passing over the project site, with counts above this threshold coming from nine surveys (Ecoda 2013; Environics 2016a, 2017b; RCREEE 2018, RCREEE and ECOConsult 2020). The maximum count is of 154,545, approximately 22.1% of the global population, in spring 2020 (RCREEE and ECOConsult 2020). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Great White Pelican *Pelecanus onocrotalus* - Least Concern (LC)

**Justification for triggering threshold of criterion**

Northern populations of this species are fully migratory (del Hoyo et al. 1992) and travel via important stop-over sites (Nelson 2005). Other populations are sedentary, dispersive (del Hoyo et al. 1992, Nelson 2005) or nomadic, flying over land to seek suitable feeding locations (Nelson 2005).

The global population is estimated to 265,000-295,000 individuals. The overall population trend is uncertain, with some populations decreasing, while others are increasing, stable or have unknown trends. The species is threatened by habitat destruction, persecution and hunting for sport. It also suffers mortality due to collisions with electric powerlines during migration, dispersal or on its wintering grounds and is often found drowned in fishing nets. In Egypt, adults of this species are hunted and sold for food at markets (BirdLife International 2016).

More than 1% of the global population use the flyway passing over the project site, with counts above this threshold coming from four survey surveys (Ecoda 2013; RCREEE 2018, RCREEE and ECOConsult 2020). The highest count in the vicinity of the Project was of 6,242 birds, over 2% of the global population, in the ACWA area in spring 2016 (RCREEE 2018). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

European Honey-buzzard *Pernis apivorus* - Least Concern (LC)

**Justification for triggering threshold of criterion**

The European Honey Buzzard has an extremely large range, from Europe to Russia, and South Africa to the south. This is a migratory species, wintering in tropical Africa. It leaves its breeding grounds in August and September, returning between April and June. Birds are mostly solitary except on migration, when they flock

throughout, gathering in large numbers at preferred crossing points as well as roosting socially. They fly chiefly by soaring, although are able to cross wide stretches of water with flapping flight.

The global population is estimated to 280,000-420,000 individuals. The overall population trend is decreasing. The species is threatened by deforestation, forest conversion and shooting. Human disturbance is also a threat. It is very highly vulnerable to the effects of potential wind energy development (BirdLife International 2016b).

More than 1% of the global population use the flyway passing over the project site (Ecoda 2013; Environics 2016b; RCREEE 2018, RCREEE and ECOConsult 2020). The highest count in was of 21,626 birds, approximately 7.7% of the global population, in spring 2020 at the project site (RCREEE and ECOConsult, 2020). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Egyptian Vulture <i>Neophron percnopterus</i> - Endangered (EN)
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**Justification for triggering threshold of criterion**

Resident populations of Egyptian Vulture occur in Ethiopia and East Africa, Arabia, the Indian Subcontinent and Saharan and Sahelian parts of Africa. Populations of the species that breed in its northernmost range conduct long-distance intercontinental migrations, flying over land and often utilising the narrowest part of the Strait of Gibraltar or the Bosphorus and Dardanelles on their way to Africa. These birds winter within the resident range, and in addition throughout the Sahel region of Africa.

The species is declining in virtually all parts of its range, apparently for a number of different reasons. In India, it has declined by > 90% in the last decade; European populations have declined by 50-79% over the last three generations. Western, eastern and southern African populations also appear to have declined significantly, as do Arabian populations. The population is undergoing rapid decline due to disturbance, direct and indirect poisoning, electrocution by powerlines and collisions with wind turbines, reduced food availability and habitat change.

In Europe, the breeding population is estimated to number 3,000-4,700 breeding pairs, equating to 6,000-9,400 mature individuals (BirdLife International 2015). Europe forms 25-49% of the global range, so a very preliminary estimate of the global population size is 18,000-57,000 individuals, roughly equivalent to 12,000-38,000 mature individuals, although further validation of this estimate is needed.

More than 1% of the global population use the flyway passing over the project site (RCREEE and ECOConsult 2020). The only count that exceeded the threshold was of 395 individuals at the project site in spring 2020 (RCREEE and ECOConsult 2020) approximately 2.2% of the global population. Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Lesser Spotted Eagle <i>Clanga pomarina</i> – Least Concern (LC)
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**Justification for triggering threshold of criterion**

Birds breeding in India are resident, but otherwise this is a migratory species, migrants leaving their breeding grounds between August and November, and returning in March and April. It relies heavily on soaring flight using thermals, and thus avoids large bodies of water. Birds are generally observed singly or in pairs, but will congregate at plentiful food sources, and migrate in flocks.

The main threats posed to this species are through habitat loss (notably the draining of wet forests and meadows, and on-going deforestation) and hunting. The latter is especially prevalent on migration, with possibly thousands of birds shot annually in Syria and Lebanon. Forest management activities are reported to have a negative effect on the species. It is also very highly vulnerable to the impacts of potential wind energy developments.

The European population is estimated at 16,400-22,100 pairs, which equates to 32,800-44,200 mature individuals. Europe forms approximately 73% of the global range, so a very preliminary estimate of the global population size is 44,900-60,500 mature individuals, although further validation of this estimate is needed. It is placed in the band 40,000 to 60,000 mature individuals. A survey in 2014 counted 47,594 individuals in southern Turkey. Whilst c.58,000 individuals were recorded in 2008 during migration counts over the Bosphorus. Although this species may have undergone a decline, recent annual counts in Israel suggest the population has recovered to some extent in recent years. In Europe, the population size is estimated to be stable.

More than 1% of the global population use the flyway passing over the project site (RCREEE and ECOConsult 2020). The only count that exceeded the threshold was of 1,705 individuals at the project site in spring 2020 (RCREEE and ECOConsult 2020) approximately 2.8% of the global population. Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Greater Spotted Eagle <i>Pomarina pomarina</i> - Vulnerable (VU)
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**Justification for triggering threshold of criterion**

The Spotted Eagle occupies a fragmented range, breeding in lowland forests near wetlands from Estonia, Poland, Belarus, Russia, Ukraine, Kazakhstan, China, Mongolia, Pakistan and north-west India. It is a migratory species, with birds leaving their breeding grounds in October and November to winter in southern Europe, southern Asia and north-east Africa. They usually return in February and March. Birds migrate on a broad front, tending to pass in singles, twos and threes with the occasional larger group.

The global population is estimated at 5,000-13,200 individuals (IUCN 2018). The species has undergone a decline as a result of habitat loss and degradation throughout its breeding and wintering ranges. The European population (25-49% of the global range) is estimated to have decreased by 50-79% in three generations (c. 50 years). Beside habitat destruction and disturbance (the species being intolerant to human presence in their territories), poaching and electrocution are considered as important threats. Hybridization with the Lesser Spotted Eagle have been observed but it remains unclear if this is of conservation concern (BirdLife International 2017b).

More than 1% of the global population use the flyway passing over the project site (RCREEE and ECOConsult 2020). The highest count that exceeded the threshold was of 341 individuals at the project site in spring 2020 (RCREEE and ECOConsult 2020) approximately 6.8% of the global population. Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Steppe Eagle <i>Aquila nipalensis</i> - Endangered (EN)
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**Justification for triggering threshold of criterion**

Steppe Eagle nests in areas of steppe and semi-desert east of 43°E in European Russia from the Republic of Kalmykia, across Kazakhstan into Kyrgyzstan, China and Mongolia. A small breeding population has also been recorded in Turkey. The species is migratory, with birds wintering in south-east Africa and southern Asia. Migrants leave their breeding grounds between August and October, returning between January and May. It avoids sea crossings and thus forms large concentrations at bottleneck sites.

Combined totals from across the whole range estimate the number of pairs at 31,372 (26,014-36,731) which equates to 62,744 (52,028-73,462) mature individuals or 94,116 (78,042-110,193) individuals. The global population is estimated to number less than 37,000 pairs.

More than 1% of the global population use the project site (Ecoda 2013; Environics 2016a, 2017b; RCREEE 2018, RCREEE and ECOConsult, 2020). The highest count over the project area was of 17,152 birds during

spring 2020 at the project site (RCREEE and ECOConsult 2020), representing approximately 23% of the global population when adjusted for immature birds (IUCN,2019). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Levant Sparrowhawk *Accipiter brevipes* – Least Concern (LC)

**Justification for triggering threshold of criterion**

The Levant Sparrowhawk breeds from East Europe to Russia and Kazakhstan to the east and Iran to the south. The species is a migrant, likely wintering in sub-Saharan Africa. Birds leave their breeding grounds in September, returning in April and May. It is usually solitary, but may hunt in pairs, and travels in flocks on migration which become especially large at certain bottlenecks. It is sometimes active at twilight, and frequently migrates at night using flapping flight.

The global population is estimated at 7,400-18,400 mature individuals. The population is suspected to be stable. No substantial threats are known for the species except that it is highly vulnerable to the impacts of potential wind energy development (BirdLife International 2016).

More than 1% of the global population is estimated to use the flyway passing over the project site (Ecoda 2013; Environics 2017b; RCREEE 2018, RCREEE and ECOConsult 2020). The highest count was in the RSWE Project area itself, where 4,230 birds – which represent approximately 48% of the global population (including immature individuals) – were observed in spring 2020 (RCREEE and ECOConsult 2020). Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

Eurasian Buzzard *Buteo buteo* – Least Concern (LC)

**Justification for triggering threshold of criterion**

The Eurasian Buzzard has an extremely large range and lives in a wide variety of habitats. Populations in Scandinavia and most of the former Soviet Union are migratory, wintering in Africa and southern Asia. Those elsewhere are resident. Migrants move south between August and November and make the return journey between February and May. Birds tend to occur singly or in pairs, sometimes forming small family groups at roosts. However, they can migrate in groups, and as birds avoid sea crossings (and even freshwater bodies) as far as possible, they form huge concentrations at peninsulas and narrow straits. Migration is strictly diurnal, and also often follows mountain ranges and ridges.

The global population is estimated to 2,170,000-3,690,000 mature individuals, with 75% of the population living in Europe. The overall population trend is stable. The most important historical threat though has been from persecution, including through poisoned bait traps, with pesticides and habitat loss also causing some declines. It is highly vulnerable to the impacts of potential wind energy developments. Ingestion of lead shot may also be a threat.

Approximately 1% of the global population use the flyway passing over the project site. 86,740 birds were counted at the RSWE project site during spring 2020 (RCREEE and ECOConsult 2020). When the potential proportion of immature birds is taken into account this represents about 2.8% of the global population. Because the Project area does not represent a bottleneck or stop-over area, this species does not qualify the Project area as Critical Habitat, but the Project should aim to avoid all impacts in order to achieve no net loss.

**4.1.5 Criterion v (PR6) & 5 (PS6) – areas associated with key evolutionary processes**

This criterion is defined by the physical features of a landscape that might be associated with particular evolutionary processes, and/or subpopulations of species that are phylogenetically or morpho-genetically

distinct and may be of special conservation concern given their distinct evolutionary history (IFC 2012b, paragraph GN95).

Although key evolutionary processes may operate at various spatial scales, in the sense of PR6/PS6 these are usually considered at a relatively fine scale rather than broad biogeographic regions (e.g. an individual mountain that may have acted as a glacial refugium and thus hosted the evolution of a suite of endemic species). No quantitative significance thresholds exist for this criterion, so there is a reliance on expert opinion and qualitative value judgement. Areas associated with key evolutionary processes were screened using expert advice.

Given the very sparse vegetation, composed mainly of widespread desert plant species with limited evidence of local endemism, and the low density of animal species, it is very unlikely that any key evolutionary processes could occur in the Project area. Therefore, the Project area does not qualify for Criterion v/5.

#### **4.1.6 Criterion vi (PR6) - ecological functions that are vital to maintaining the viability of biodiversity features**

PR6 requires that ecological functions that are vital to maintaining the viability of Critical Habitat-qualifying features are also qualifying as Critical Habitat. It might include specific habitat features such as riparian zones and river, dispersal or migration corridors, hydrological regimes, seasonal regimes or food sources, keystone or habitat-forming species (EBRD 2014), that are essential for the long-term survival of the species.

In the context of this Project, only migratory species meet thresholds for Critical Habitat. Habitat essential for the long-term survival of these species are breeding areas, stop-over points along the migratory corridor and wintering areas. The Project is located within the migratory corridor and is crossed by high numbers of migratory birds. However, as mentioned earlier, there is no mention, in the field surveys (Ecoda 2013; Environics 2016a, 2016b, 2017a, 2017b; RCREEE 2018, ECOConsult), that the Project area is used as a stop-over during the migration (and the vegetation in the vicinity of the Project does not suggest that the area might be a stop-over under normal circumstances). This means that, even if the Project area is essential for the migration of the birds, it does not include ecological functions that are essential for the migration of the birds. Therefore, the Project area does not qualify for Criterion vi.

## **4.2 Natural Habitat and Modified Habitat**

Based on the field assessments that have been carried out at the project site and also based on the literature, the study area encompasses mostly Natural Habitat - particularly hamada desert areas classified as barren areas with no or minimal vegetation along runoff wadis. Small patches of sparse shrubs are present along the sea. Modified Habitats are urban areas present in few locations along the Red Sea.

## **4.3 Priority Biodiversity Features**

### **4.3.1 PBF Criterion i: Threatened habitat**

Earlier assessment undertaken at the project site and the study area as a whole did not identify any vegetation or ecosystems present in the vicinity of the Project that might be threatened, see Section 4.1.1. Therefore, no vegetation type qualifies for Criterion i under Priority Biodiversity Features.

### **4.3.2 PBF Criterion ii: Vulnerable species**

One globally Vulnerable reptile species has a significant presence in the Project area and is thus identified as a Priority Biodiversity Feature – *Uromastix aegyptia* (Egyptian Spiny-tailed Lizard). Three globally Vulnerable, and two Endangered migratory soaring birds are seasonally present in the Project area in notable numbers. These species are more appropriately discussed in section 4.3.3.

Egyptian Spiny-tailed Lizard *Uromastyx aegyptia* – Vulnerable (VU)

**Justification for triggering PBF criterion ii**

The Egyptian Spiny-tailed Lizard has a patchy distribution from Egypt (east of the Nile), eastwards into Israel, Jordan, southern Syria, Iraq and Iran and southwards into the Arabian Peninsula. It occurs in open, flat, gravelly, stony and rocky areas, and it is infrequently seen in sandy areas. Animals forage on low vegetation close to their burrows, where it lives in loose colonies.

There is no information about the global population but the species is generally uncommon and declining throughout its range in Egypt. The species is threatened by habitat loss due to over-grazing, quarries and agricultural expansion, and pet and medicinal trade (some of them being illegal). The species is protected by Egyptian legislation (Wilms et al. 2012), implying that it cannot be killed or captured in any protected area.

During the ecological field assessments that were carried out at the project site in autumn 2019 and spring 2020, the species was not recorded although it was recorded in the project area (Ecoda 2013; RCREEE 2018). Also, the species was recorded in autumn 2016 in the Lekela BOO Project area to the south of the project site (Envionics 2018). Despite its broad distribution, the Egyptian Spiny-tailed Lizard is assessed globally as Vulnerable, declining throughout its range, and poorly-known, and thus considered a Priority Biodiversity Feature.

**4.3.3 PBF Criterion iii: Significant biodiversity features identified by a broad set of stakeholders or governments**

Available data show that globally-important concentrations of ten migratory soaring bird species migrate over the area in the vicinity of the Project, see Table 3. The analysis in section 4.1.4 shows that although these species meet the thresholds of criterion iv, the area does not qualify as Critical Habitat because these species do not use it as a stop-over during migration, and the project area is not a bottleneck in the flyway corridor. However, the concentrations of these species are of significant interest to national and international conservation stakeholders. In addition to the above-mentioned ten species, Sooty Falcon *Falco concolor*, is a globally threatened (Vulnerable) species has been documented to pass through the study area in significant numbers (but below the numerical thresholds for Critical Habitat). The threatened status of the species is an indication of its interest to conservation stakeholders.

Sooty Falcon *Falco concolor* – Vulnerable (VU)

**Justification for triggering PBF criterion iii**

The species breeds colonially in hot and arid environments, using on cliffs, small rocky islands and rugged desert mountains. Breeding occurs in a discontinuously range including Libya, eastwards through Egypt to the Red Sea islands off Sudan, Djibouti and Ethiopia, islands and coasts of Saudi Arabia, Yemen, Israel, Jordan and Bahrain, as well as islands in the Persian Gulf. Breeding is timed to coincide with the autumn migration of small birds on which it feeds. It is a migratory species, with birds arriving in their wintering grounds in Madagascar (and in a few extant in coastal Mozambique and eastern South Africa) from late October and returning to breeding sites in April. Migrants generally travel singly, or in pairs or small flocks.

The global population is estimated at 2,800-4,000 mature individuals. The species has undergone a decline, which seems to be due to pressures in wintering grounds or on migration, although precise drivers of the decline remain unclear.

The species is known to breed in Egypt and more specifically along the Galalah Highlands by the western coastline of the Gulf of Suez, see Figure 7. Although its numbers in the project area and its vicinity does not meet the Critical Habitat threshold since a maximum of 0.7% of the global population has been observed (RCREEE 2018), the species is believed to be of high conservation value.

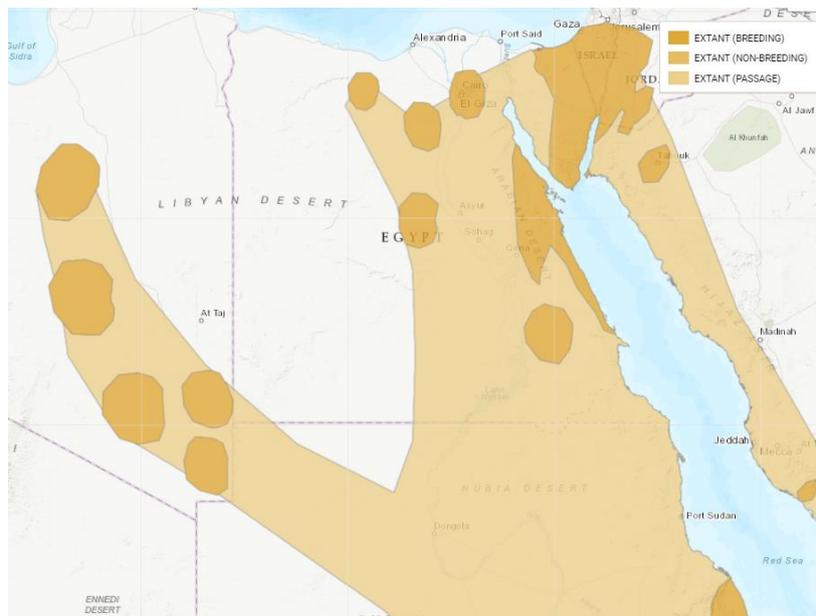


Figure 7. Geographic range of Sooty Falcon *Falco concolor* (IUCN, 2020)

#### 4.3.4 PBF Criterion iv: Ecological structure and functions that are vital to maintaining the viability of biodiversity

As for Critical Habitat, PR6 requires that ecological functions that are vital to maintaining the viability of Priority Biodiversity Features also qualify as Priority Biodiversity Features. As is the case for migratory birds reaching Critical Habitat thresholds, migratory birds qualifying as Priority Biodiversity Features do not appear to stop over within the Project area. Therefore, the Project area does not include ecological functions essential for the viability of the migratory bird species and does not qualify under Criterion iv.

Regarding the Egyptian Spiny-tailed Lizard, it is documented to be present at the project site (RCREEE, 2018), but nothing suggests that the area contains specific ecological functions that are vital for the species. Therefore, the study area does not qualify under Criterion iv.

## 5 PROTECTED AREAS & INTERNATIONALLY RECOGNISED AREAS

The project site does not overlap with any protected areas or internationally recognised areas. The Project concession is located, at its closest point, more than 22km from Gebel El Zeit Important Bird Area (IBA), see Figure 8. The IBA is defined as a Key Biodiversity Area since all IBAs are. This IBA is a 100 km-long strip extending from Ras Ghareb to the bay of Ghubbet El Gemsa, along the Gulf of Suez. The Gebel El Zeit area is a very important migration corridor and stop off point for soaring migrants, particularly birds of prey and storks. It is the narrowest point in the southern part of the Gulf of Suez. Over 250,000 White Storks and many other migrant soaring birds are funnelled through this stretch of coast on both spring and autumn journeys. Birds of prey, storks and pelicans migrate through and usually land, rest or roost near the coastline and on the surrounding desert plains and hills. The IBA is classified under criteria A1 (site regularly holding significant numbers of globally threatened species) and A4 (site known to hold congregations of more than 1% of the global population of a species) (BirdLife, 2020).

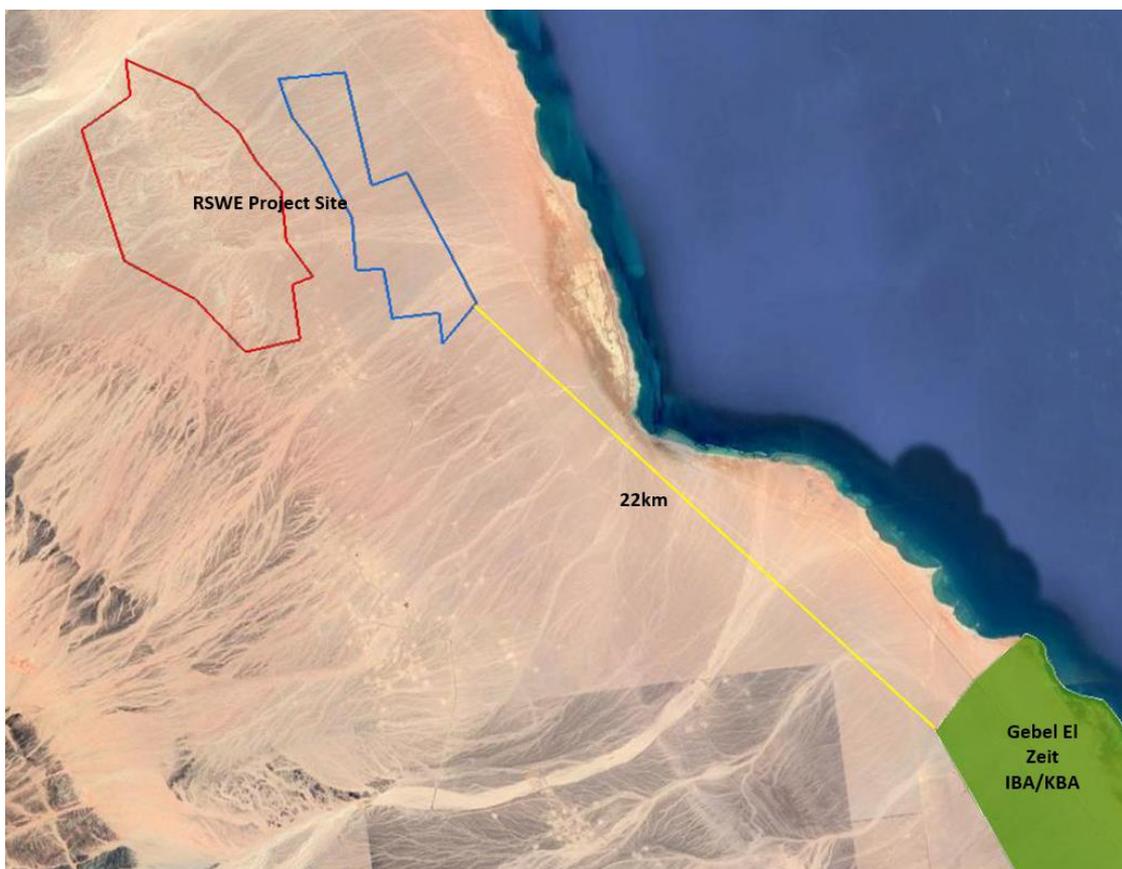


Figure 8. Location of the project site in reference to Gebel El Zeit IBA/KBA

Malahet Ras Shukeir, which is located inside the IBA/KBA of Gebel El Zeit, was proposed as a National Protected Area in 1999. El-Galala El-Qebalya is another proposed protected area to the north of the Project (4815km<sup>2</sup>), which was also proposed as a Protected Area in 1999. No wind farm developments are planned in the area, and the RSWE project site is by the southeastern boundaries of the proposed protected area. Both proposed protected areas are outside the Presidential Decree area for the development of wind energy projects.

## 6 NEXT STEPS

The Project site is not located in a Critical Habitat, but it is located to Gebel El Zeit IBA, which is identified as a Critical Habitat. However, although the project site is not located inside a Critical Habitat, globally important numbers of migratory soaring birds pass over the Project area and wind farm development in this narrow migratory corridor present a risk to these species. This means the Project will need to pay attention specifically to avoid collisions of migratory soaring birds.

In Natural Habitat, no net loss is required where feasible. No net loss is required, and preferably a net gain, for priority biodiversity features. Based on this, the Project should aim to avoid all impacts on – and thus achieve no net loss for – the ten migratory bird species passing over the Project area in globally important numbers, and the single globally threatened bird species passing over in notable numbers. Being identified as a Priority Biodiversity Feature, special efforts should be made to avoid and minimise negative impacts on the species and its habitats.

Taking into consideration that further avifaunal in-flight assessments are still planned to take place at the project site for two migration seasons; autumn 2020 and spring 2021, it is crucial to integrate the results of these assessments in an update of this CHA to ensure that the most up-to-date and relevant data is included as part of this assessment.

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