



KIYIKOY WIND POWER PLANT CAPACITY EXTENSION

Biodiversity Action Plan (BAP)

ALENKA Enerji Uretim ve Yatirim A.Ş.

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1. INTRODUCTION

Kiyikoy Wind Power Plant (WPP) is located in Vize district of Kırklareli province in the northwestern part of Turkey. Alenka Enerji Üretim ve Yatırım A.Ş., a special purpose vehicle established for the development of the Project by the previous owner, has been operating the first phase of the Kiyikoy WPP with an installed capacity of 28 MWm/27 MWe (14 turbines, 2 MWm each) since August 2014.

On 1 December 2017, Borusan EnBW Enerji Yatırımları ve Üretim A.Ş. and Borusan Danışmanlık Ortak Hizmetleri A.Ş. (jointly referred to as BEE) acquired the Kiyikoy WPP from its previous owner and became the sole owner of the Project. BEE, through the Project Company, considers increasing the total installed capacity of the Project to 100 MWm/99 MWe as part of the Kiyikoy WPP Capacity Extension Project through construction and operation of 20 new turbines (3.6 MW, Vestas V136 model).

BEE is considering international and national finance for the implementation of the Project. In line with the Environmental and Social (E&S) Policy and related Performance Requirements (2014) of the European Bank for Reconstruction and Development (EBRD), an Environmental and Social Impact Assessment (ESIA) Disclosure Package has been disclosed to the public at the websites of the Project Company and the EBRD on 9 October 2019 for 60-day period before Financial Close.

2. PURPOSE AND SCOPE

This Biodiversity Action Plan (BAP) is prepared as a part of the Project Environmental and Social Management System (ESMS) and within the scope of the ESIA Disclosure Package of the Project.

This BAP is developed to set out the requirements associated with the management of biodiversity features throughout Project life in compliance with national legislation and international requirements. The purpose of this BAP is to guide the Project activities so as to avoid and minimize potential impacts on biodiversity features.

The potential impacts of WPP developments on biodiversity features during land preparation, construction and operation phases can be summarized as below:

- (1) Land Preparation and Construction (removal of topsoil and clearance of vegetation; movement of construction vehicles/machinery; erection of turbines and construction of access roads and associated facilities, if any)
 - Habitat loss and fragmentation
 - Damage to/loss of flora species
 - Disturbance to and direct mortality of fauna species
 - Disturbance to flora and fauna species due to dust emissions
 - Disturbance to fauna species due to noise emissions
 - Accidental introduction of invasive alien species
- (2) Operation of the WPP
 - Collision of birds/bats with turbines and blades leading to injury or mortality
 - Bat mortality due to barotrauma caused by rapid air pressure reduction near moving turbine blades
 - Barrier effect for preferred migratory routes/flight corridors of birds/bats
 - Displacement from habitats used by birds/bats
 - Fragmentation of landscape which can reduce the ability of an area to support bird/bat populations

This Project BAP will be in place throughout construction and operation phases of the Project and any new field data/information will be assessed and integrated to the BAP. Through implementation of this BAP, the Project will achieve no net loss, and if possible, net gain of PBF/CH and demonstrate this through robust monitoring and adaptive management approach.

It is the responsibility of the Project Company to implement this BAP, to provide relevant training to staff and to ensure that all measures are in place to achieve compliance with this Plan by all parties including contractors and subcontractors.

BAP is a living document and should be updated as necessary throughout the Project lifetime. The next update will be based on the field biodiversity surveys to be conducted in Spring 2020.

3. PROJECT STANDARDS

The legal framework on biodiversity conservation and assessment applicable to the Project is given below.

Framework	Legislation, Guidelines and Standards
International Conventions and Protocols (ratified by Turkey)	<ul style="list-style-type: none"> UN Convention on Biological Diversity (CBD) and the Cartagena Protocol on Biosafety (ratified in 1997) The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (ratified in 1984) The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (ratified in 1996) The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (ratified in 1994) The Convention Concerning the Protection of World Cultural and Natural Heritage (UNESCO World Heritage Convention) (ratified in 1983) Convention to Combat Desertification (ratified in 1998) International Treaty on Plant Genetic Resources for Food and Agriculture (ratified in 2007) European Landscape Convention (ratified in 2003) Convention on the Conservation of Migratory Species of Wild Animals (CMS) / Agreement on the Conservation of Populations of European Bats (EUROBATS) (<i>Turkey is not a party</i>) CBD – Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets
Main National Laws and Regulations	<ul style="list-style-type: none"> Law on National Parks (No. 2873, dated 9 August 1983) Law on Environment (No. 2872, dated 9 August 1983) Law on Terrestrial Hunting (No. 4915, dated 1 July 2003) Law on Forests (No. 6831, dated 31 August 1956) Law on Protection of Animals (No. 5199, dated 24 June 2004) Law on Water Products (No. 1380, dated 22 March 1971) Law on Agriculture (No. 5488, dated 18 April 2006) Law on Veterinary Services, Plant Health, Food and Feed (No. 5996, dated 11 June 2010) Law on the Protection of Breeder's Rights for New Plant Varieties (No. 5042, dated 8 January 2004) Seed Law (No. 5553, dated 31 October 2006) Law on the Conservation of Cultural and Natural Assets (No. 2863, dated 21 July 1983) Law on Biosafety (No. 5977, dated 18 March 2010) Regulation on the Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Official Gazette No. 24623, dated 27 December 2001) Regulation on the Preservation of Wetlands (Official Gazette No. 28962, dated 4 April 2014) Bylaw on Fisheries (Official Gazette No. 22223, dated 10 March 1995) Regulation on the Collection, Storage and Use of Plant Genetic Resources (Official Gazette No. 21316, dated 15 August 1992) 2019-2020 Hunting Season Decision No. 18 of Central Hunting Commission dated 23 May 2019 (Official Gazette No. 30808, dated 21 June 2019)
Main National Strategy Documents	<ul style="list-style-type: none"> 11th Development Plan (2019-2023) National Biodiversity Action Plan (2018-2028) EU Integrated Environment Strategy (2007-2023)
National Guidelines	<p><u>Protected Areas</u></p> <ul style="list-style-type: none"> Important Bird Areas (IBAs) of Turkey (Magnin and Yerar, 1997) Key Biodiversity Areas (KBAs) of Turkey (Eken et al., 2006) 122 Important Plant Areas (IPA) of Turkey (Ozhatay et al., 2008) <p><u>Flora</u></p> <ul style="list-style-type: none"> Flora of Turkey and East Aegean Islands (Davis, 1965-1988)

Framework	Legislation, Guidelines and Standards
	<ul style="list-style-type: none"> • Turkish Plant Names (Baytop, 1994) • Red Data Book of Turkish Plants (Ekim et al., 2000) <p data-bbox="451 331 512 353"><u>Fauna</u></p> <ul style="list-style-type: none"> • Pocket Book of Birds of Turkey • General and Turkish Zoogeography (Demirsoy, 2002)
<p>International Standards and Guidelines</p>	<ul style="list-style-type: none"> • EBRD PR 6 (2014) on Biodiversity Conservation and Sustainable Management of Living Natural Resources • EBRD PR6 Guidance Note on Biodiversity Conservation and Sustainable Management of Living Natural Resources • EU Habitats Directive (92/43/EEC) • EU Birds Directive (2009/147/EC) • EUROBATS Publication Series No. 6 Guidelines for consideration of bats in wind farm projects (Revision 2014)

4. THE BIODIVERSITY BASELINE

The baseline biodiversity features of the Project Area including habitat and vegetation composition, terrestrial flora and fauna, avifauna and bat species are described in detail in the ESIA Report and summarized below.

4.1. Legally Protected and Internationally Recognised Areas

The Project License Area does not coincide with any legally protected areas. The legally protected areas in the vicinity of the Project License Area are given in Table 4-1.

Table 4-1. Legally Protected Areas in the vicinity of the Project

Name	Category	Level of Conservation	Distance to the Project License Area (km)
Legally Protected Areas			
Pabuccdere 1 st Degree Natural Protection Area (*)	Natural Protection Area (SIT)	National	0.3
Natural Protection Area	Natural Protection Area (SIT)	National	3
Kasatura Bay	Nature Protection Area	National	4.8
Igneada Longoz Forests	National Park	National	8.0
Camlikoy Nature Park	Nature Park	National	8.0
Istanbul Catalca YHGS	Wildlife Development Area	National	9.2
Saka Lake	Nature Protection Area	National	12.0
Cilingoz Nature Park	Nature Park	National	18.0
(*) As per the official letter issued by the Provincial Directorate of Environment and Urbanization dated 4 December 2015, the Project License Area does not fall within any natural protection area (SIT) and nature assets. In 11 April 2017, Edirne Conservation of Nature Assets Regional Commission confirmed that the Project License Area does not fall within the Pabuccdere 1 st Degree Natural Protection Area.			

The Project Area is located on the “Via Pontica” bird migration corridor along the west coast of the Black Sea. It is a major route for raptors in the region. The most important and the most studied bottleneck area on this migration route is the Bosphorus (Strait of Istanbul). A total of 500,000 storks and over 250,000 raptors are known to fly over the Bosphorus. On the country-wide scale, the avifauna of Turkey is represented by 400 regular species, including 39 species of birds of prey, 4 species of vultures, and 2 species of storks. Moreover, Turkey lies on two main migration routes of the soaring birds.

The Project License Area falls within the boundaries of Istranca Mountains Key Biodiversity Area (KBA) according to the “KBAs of Turkey” and as given in the World Database of KBAs. Both Igneada Forests KBA, IBA, IPA and Terkos Basin KBA, IBA and IPA are in the vicinity of the Project License Area as shown in Figure 4-1.

The flora and fauna species qualifying Istranca Mountains KBA are given in Table 4-2. Although the Project Area is located on Via Pontica migration corridor along the west coast of the Black Sea which is a major route for raptors in the region, there are no migratory soaring birds that qualify the Istranca Mountains KBA.

Igneada Forests KBA, IBA and IPA is a complex of seasonally flooded forests, swamps, freshwater lakes and sand-dunes on the Black Sea coast near the Turkish-Bulgarian border. The site is also a migratory bottleneck, where more than 8,000 *Ciconia ciconia* regularly pass in autumn. Although no comprehensive counts have been undertaken, available data suggest that the IBA is also a bottleneck for migrating raptors. Both *Ciconia ciconia* (White Stork) and *Ciconia nigra* (Black Stork) are amongst IBA trigger species¹.

Terkos Basin KBA, IBA and IPA, which includes the Terkos Lake designated as Wetlands of International Importance (Ramsar), is one of Istanbul's oldest water resources. The Basin is located to the north of Catalca

¹ BirdLife International (2019) Important Bird Areas factsheet: İğneada Forests.

Peninsula which is mostly within the boundaries of the province of İstanbul. The KBA continues north within the boundaries of the Kırklareli province, until the Kiyikoy coasts. The Basin is surrounded by the Istranca Mountains to the west and the Terkos Lake to the east. The majority of the area is covered with forests. The IBA trigger species are: *Branta ruficollis* (Red-breasted Goose), *Aythya nyroca* (Ferruginous Duck), *Ciconia nigra* (Black Stork), *Microcarbo pygmaeus* (Pygmy Cormorant) and *Chlidonias hybrida* (Whiskered Tern)².

Table 4-2. KBA Qualifying Species of Istranca Mountains KBA

Taxon Name	IUCN Red List of Threatened Species (*)	National Red List
Flora		
<i>Symphytum pseudobulbosum</i>	-	CR
<i>Veronica turrilliana</i>	DD	VU
Birds		
<i>Bubo bubo</i> (Eurasian Eagle-owl)	LC	LC
<i>Caprimulgus europaeus</i> (European Nightjar)	LC	LC
<i>Circaetus gallicus</i> – Europe (Short-toed Snake-eagle)	LC	LC
<i>Dendrocopos medius</i> (Middle Spotted Woodpecker)	LC	LC
<i>Dendrocopos syriacus</i> (Syrian Woodpecker)	LC	LC
<i>Emberiza hortulana</i> (Ortolan Bunting)	LC	LC
<i>Ficedula semitorquata</i> (Semi-collared Flycatcher)	LC	LC
<i>Lanius minor</i> (Lesser Grey Shrike)	LC	LC
<i>Lullula arborea</i> (Woodlark)	LC	LC
Mammals		
<i>Barbastella barbastellus</i> (Western Barbastelle Bat)	NT*	VU
<i>Lutra lutra</i> (Eurasian Otter)	NT	-
<i>Miniopterus schreibersii</i> (Schreiber's Bent-winged Bat)	NT*	NT
<i>Myotis bechsteini</i> (Bechstein's Myotis)	NT*	VU
<i>Myotis blythii</i> (Lesser Mouse-eared Myotis)	LC	LC
<i>Myotis capaccinii</i> (Long-fingered Bat)	VU	LC
<i>Myotis emarginatus</i> (Geoffroy's Bat)	LC*	VU
<i>Myotis myotis</i> (Greater Mouse-eared Bat)	LC*	LC
<i>Rhinolophus blasii</i> (Blasius's Horseshoe Bat)	LC*	VU
<i>Rhinolophus blasii</i> – SE Europe (Blasius's Horseshoe Bat)	LC*	VU
<i>Rhinolophus Euryale</i> (Mediterranean Horseshoe Bat)	NT*	VU
<i>Rhinolophus ferrumequinum</i> (Greater Horseshoe Bat)	LC*	NT
<i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat)	LC	NT
<i>Rhinolophus mehelyi</i> (Mehely's Horseshoe Bat)	VU	VU
<i>Sorex araneus</i> – Istranca	LC	-
<i>Sorex minutus</i> – Istranca (Eurasian Pygmy Shrew)	LC	-
<i>Talpa levantis</i> – Thrace (Levantine Mole)	LC	LC
Amphibians		
<i>Triturus karelinii</i>	LC	LC
Reptiles		
<i>Testudo graeca</i> (Common Tortoise)	VU	NT
<i>Testudo hermanni</i>	NT	NT
Dragonfly		
<i>Somatochlora borisi</i> (Bulgarian Emerald)	VU*	-
(*) Conservation status updates made from the IUCN Red List of Threatened Species at https://www.iucnredlist.org/ . Source: Yalçın, G. 2006. <i>Istranca Dağları (MAR011)</i> , 101-111 (Cilt 1). <i>Türkiye'nin Önemli Doğa Alanları. Doğa Derneği, Ankara</i> (https://www.dogaderneqi.org/istranca-daglari/).		

² BirdLife International (2019) Important Bird Areas factsheet: Terkos Basin.

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Figure 4-1. Key Biodiversity Areas in the Vicinity of the Project License Area

4.2. Habitats Audit

The Project License Area is defined by the following EUNIS habitats:

- EUNIS Habitat G1.A: Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland

The dominant vegetation type at the Project License Area. These woodlands are widespread in Marmara and Black Sea Regions of Turkey. These forests within the Project License Area are not in climax phase. The forest coverage at the Project License Area is around 80-90% and the height of the trees above ground varies between 2 to 6 meters. The ground cover flora of this habitat has high level of species richness; herbs and ferns (annual herbaceous plants) generally create a dense layer below the canopy.

- EUNIS Habitat E2.1: Permanent mesotrophic pastures and aftermath-grazed meadows

Pastures are present at limited scale within the Project License Area. They develop in forest openings and are feeding areas of the livestock.

- EUNIS Habitat J4.2: Road networks

Road networks within the Project License Area.

The habitats at the Project Area are not listed under EU Habitats Directive Annex I.

The total footprint of the Capacity Extension Project will be 25.9 ha including turbines and the internal site access roads all coinciding with EUNIS Habitat G1.A as detailed below:

Table 4-3. Habitats at Project Footprint

Project Units	Area of Capacity Extension Project Units (ha)	EUNIS Habitat Code
Turbines	13.4	G1.A
Internal Site Access Roads	12.5	G1.A
Substation	0.0	-
Total	25.9	

4.3. Species Audit

4.3.1. Biodiversity Field Surveys

The Project Area has been studied within the scope of the Capacity Extension Project starting from early Spring 2019 and the baseline field surveys targeting flora and fauna (including avifauna and bats) species were carried out.

A summary of the field surveys conducted to date as part of the ESIA process is given in Table 4-4.

Table 4-4. ESIA Biodiversity Field Survey Programme

Biodiversity Study Topic	Field Survey Scope																										
Flora																											
Baseline	<ul style="list-style-type: none"> • Early Spring: 1-2 April 2019 • Spring: 29-30 April 2019 • Early Summer: 16-17 June 2019 • Late Summer: 8-9 July 2019 <p>The field surveys were carried out mainly in areas where the new wind turbines and new access roads will be constructed and areas that will be directly affected by the Project Activities including existing access roads, substation, existing offices. Considering the area of impact of the turbines, surveys were conducted around each wind turbine encompassing an area of 200 m x 200 m.</p>																										
Seed Collection	June – July 2019																										
Flora Salvaging and Plantation	30-31 October 2019 (for <i>Centaurea hermannii</i>)																										
Fauna (except birds and bats)																											
Baseline	<ul style="list-style-type: none"> • 2015-2017 (studies conducted within the scope of TurkStream Project, the faunal composition of the areas was studied using Sherman traps and photo traps) • 1-2 April 2019 • 29-30 April 2019 • 17-18 May 2019 • 17-18 June 2019 • 8-9 July 2019 • 9-10 August 2019 <p>All the turbine locations were visited within the scope of the 2019 fauna field survey program. At each turbine location 30 min of transect survey was conducted at and around each turbine.</p>																										
Bird Activity																											
Spring 2019 Migration (Breeding Season)	<table border="0"> <tr> <td>Field Visit #1</td> <td>12-19 March 2019</td> </tr> <tr> <td>Field Visit #2</td> <td>19-21 March 2019</td> </tr> <tr> <td>Field Visit #3</td> <td>26-28 March 2019</td> </tr> <tr> <td>Field Visit #4</td> <td>2-4 April 2019</td> </tr> <tr> <td>Field Visit #5</td> <td>9-11 April 2019</td> </tr> <tr> <td>Field Visit #6</td> <td>16-18 April 2019</td> </tr> <tr> <td>Field Visit #7</td> <td>23-25 April 2019</td> </tr> <tr> <td>Field Visit #8</td> <td>30 April – 2 May 2019</td> </tr> <tr> <td>Field Visit #9</td> <td>7-9 May 2019</td> </tr> <tr> <td>Field Visit #10</td> <td>14-16 May 2019</td> </tr> <tr> <td>Field Visit #11</td> <td>21-23 May 2019</td> </tr> <tr> <td>Field Visit #12</td> <td>28-30 May 2019</td> </tr> <tr> <td>Field Visit #13</td> <td>11-13 June 2019</td> </tr> </table> <p>Target Species: Migratory soaring birds Methodology: Vantage Point (VP) (on high ground) Methodology both for migratory and breeding/resident species as described in the Onshore Wind Farm Guidance published by Scottish Natural Heritage (SNH) Stationary bird counts at 5 VPs Total Survey Effort: 316h48min (72h per VP)</p>	Field Visit #1	12-19 March 2019	Field Visit #2	19-21 March 2019	Field Visit #3	26-28 March 2019	Field Visit #4	2-4 April 2019	Field Visit #5	9-11 April 2019	Field Visit #6	16-18 April 2019	Field Visit #7	23-25 April 2019	Field Visit #8	30 April – 2 May 2019	Field Visit #9	7-9 May 2019	Field Visit #10	14-16 May 2019	Field Visit #11	21-23 May 2019	Field Visit #12	28-30 May 2019	Field Visit #13	11-13 June 2019
Field Visit #1	12-19 March 2019																										
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Field Visit #9	7-9 May 2019																										
Field Visit #10	14-16 May 2019																										
Field Visit #11	21-23 May 2019																										
Field Visit #12	28-30 May 2019																										
Field Visit #13	11-13 June 2019																										
Breeding Bird Surveys	<p>Target Species: Globally threatened species as well as locally important species (e.g. European Turtle Dove (<i>Streptopelia turtur</i>) is a common and widespread species in Turkey but is classified as Vulnerable by the IUCN Global Red List)</p> <p>One hour transect surveys were conducted along the available forest roads.</p>																										

Biodiversity Study Topic	Field Survey Scope	
	<p>Three transects were used:</p> <ul style="list-style-type: none"> • Between T1 and VP2 • Between T11 and VP4 • Between the junction after T 29 and VP5, along the straight track of water works <p>It consisted 1-hour walks on three transects. Each transect was walked two times during the breeding season. No distance sampling was done, and the breeding density was not estimated.</p> <p>The breeding bird survey follow the breeding codes of the European Breeding Bird Atlas.</p>	
Autumn 2019 Migration (Post-breeding Season)	Field Visit #1	13-15 August 2019
	Field Visit #2	20-22 August 2019
	Field Visit #3	27-29 August 2019
	Field Visit #4	3-5 September 2019
	Field Visit #5	10-12 September 2019
	Field Visit #6	17-19 September 2019
	Field Visit #7	24-26 September 2019
	Field Visit #8	1-3 October 2019
	Field Visit #9	8-10 October 2019
	Field Visit #10	15-17 October 2019
	Field Visit #11	22-24 October 2019
	Field Visit #12	29-31 October 2019
	<p>Target Species: Migratory soaring birds Stationary bird counts at 5 Vantage Points (VPs) Total Survey Effort: 364h10min (72h per VP)</p>	
Bat Activity		
Methodology	<p>Two full nights of recording. During each night of survey, one transect and three static acoustic surveys were conducted. Static surveys started 30 minutes before sunset and ended 30 minutes after sunrise. Each static detector recorded up to 12 hours on each survey night. For static acoustic surveys, six survey/sampling points (SP) have been selected.</p> <p>Four full spectrum bat detectors (Batlogger M, Elekon) with omni-directional microphones (FG Black, Elekon) were used during the surveys. The detectors were triggered by bat calls using the advance crest (CrestAdv) methodology. Recordings were made at 312,500 Hz sample rate and each of them logged time and temperature. In static acoustic surveys, the microphones were located at approximately 1.5 m above the ground. In transect acoustic surveys, recordings were also geo-tagged by using the built-in GPS of the detectors.</p> <p>Bat recordings were analysed using BatSound v3.31 and BatExplorer v2.1.4 and species identifications were done by following the methodology described in Barataud (2015) including the parameters in Dietz and Kiefer (2014).</p>	
Spring 2019 Bat Activity	14 May 2019	SP1, SP2, SP3
	15 May 2019	SP1, SP2, SP3
	16 May 2019	SP4, SP5, SP6
	17 May 2019	SP4, SP5, SP6
Summer 2019 Bat Activity	2 July 2019	SP4, SP5, SP6
	3 July 2019	SP4, SP5, SP6
	4 July 2019	SP1, SP2, SP3
	5 July 2019	SP1, SP2, SP3
Autumn 2019 Bat Activity	27 August 2019	SP4, SP5, SP6
	28 August 2019	SP4, SP5, SP6
	29 August 2019	SP1, SP2, SP3
	30 August 2019	SP1, SP2, SP3

Biodiversity Study Topic	Field Survey Scope
Birds and Bats	
Mortality Monitoring (Methodology)	<p>Two guidelines extensively used in Europe for carcass studies were utilized in order to design a methodological framework while assessing potential impacts of wind turbines on birds and bats, namely, EUROBATS (Publication Series No. 6) Guidelines for Consideration of Bats in Wind Farm Projects Revision 2014 (Rodrigues et al., 2015) and Guideline for Assessing the Impact of Wind Farms on Birds and Bats (Atienza et al., 2014).</p> <p>GenEst (a generalized estimator of mortality) is a suite of statistical models and software tools for generalized mortality estimation specifically designed for estimating the number of bird and bat fatalities at solar and wind power facilities. GenEst is used to estimate the real number of carcasses from the observed number.</p> <p>Carcasses of domestic house mouse (<i>Mus musculus</i>) dyed with brown food coloring were used to imitate bat carcasses to assess the searcher efficiency and the carcass persistence.</p> <p>Searcher Efficiency (SE) and Carcass Persistence (CP) trials were conducted in Spring 2019 and Autumn 2019.</p> <p>All 14 active turbines and the area under the ETL were surveyed in Spring 2019 and Autumn 2019 for 12 consecutive weeks per season.</p>

4.3.2. Species of Conservation Importance

The flora and fauna Species of Conservation Importance have been identified through screening the conservation status of the species identified at the Project Area as given in the ESIA Report. The species falling under at least one of the below categories are considered as Species of Conservation Importance:

- Regional endemic
- VU or EN or CR by the IUCN Red List (Global or National)
- Istranca Mountains KBA qualifying species
- Annex II and/or Annex IV of the EU Habitats Directive
- Annex I of the EU Birds Directive

The screened species are further evaluated as per the Priority Biodiversity Feature (PBF)/Critical Habitat (CH) thresholds set by IFC PS6 Guidance Note (2019). The details of the assessment are provided in the ESIA Report. The remaining list of screened species are considered as target species and considered within the scope of this BAP. The list of target species is given in Table 4-5.

Table 4-5. Target Species of Conservation Importance

Biodiversity Feature	Qualification
Flora Species	
<i>Centaurea hermannii</i>	Potential CH trigger
<i>Crocus olivieri subsp. istanbulensis</i>	Potential CH trigger
<i>Ferulago confuse</i> <i>Symphytum tuberosum subsp. Nodosum</i> <i>Cirsium baytopae</i> <i>Euphorbia amygdaloides var. robbiae</i>	Priority biodiversity feature
Birds	
<i>Ciconia ciconia</i> (White Stork)	CH trigger
<i>Pernis apivorus</i> (European Honey-Buzzard)	CH trigger
<i>Buteo buteo</i> (Common Buzzard)	Priority biodiversity feature Highest risk of collision calculated for spring and autumn migration
<i>Aquila heliaca</i> (Eastern Imperial Eagle)	Priority biodiversity feature

Biodiversity Feature	Qualification
<i>Circus macrourus</i> (Pallid Harrier)	Species of conservation importance as listed under Annex I of the EU Birds Directive and NT by the IUCN.
EU Birds Directive Annex I species recorded at the Project License Area	Species of conservation importance as listed under Annex I of the EU Birds Directive.
Bats	
<i>Pipistrellus pipistrellus</i> (Common Pipistrelle)	Priority biodiversity feature
<i>Pipistrellus nathusii</i> (Nathusius' Pipistrelle)	Priority biodiversity feature
EU Habitats Directive Annex II and/or KBA qualifying bat species recorded at the Project License Area	Priority biodiversity feature
Other Fauna Species	
<i>Emys orbicularis</i> (European pond turtle)	Priority biodiversity feature
<i>Testudo graeca</i> (Common tortoise)	Priority biodiversity feature (Istranca Mountains KBA qualifying species)
<i>Testudo hermanni</i> (Hermann's tortoise)	Priority biodiversity feature (Istranca Mountains KBA qualifying species)
<i>Talpa levantis</i> (Levantine mole)	Istranca Mountains KBA qualifying species

5. BIODIVERSITY ACTION PLAN

The Project Area being located within Istranca Mountains KBA and close to Igneada Forests KBA/IBA/IPA and Terkos Basin KBA/IBA/IPA and on Via Pontica migratory route is alone sufficient to demonstrate the overall biodiversity importance and the need to have in place well-informed and well-established measures in line with the mitigation hierarchy.

This Project BAP will be in place throughout construction and operation phase of the Project and any new field data/information will be assessed and integrated to the BAP. Through implementation of BAP, the Project will achieve no net loss, and if possible, net gain of PBF/CH and demonstrate this through robust monitoring and adaptive management approach.

The BAP is structured to have general actions as listed in Table 5-1 targeting the conservation of habitats at the Project Area and species listed in Table 4-5 together with awareness raising of site staff on protection of biodiversity features.

Species specific actions are elaborated for 2 flora species qualified as potential CH triggers and 2 avifauna species qualified as CH triggers. As discussed in detail within the ESIA Report, it is not appropriate to consider the Project Area to be Critical Habitat for migratory soaring birds. Nonetheless, the study area is clearly of importance to White Stork and European Honey Buzzard. In addition to these, although CH thresholds are not triggered, 1 avifauna species having high risk of collision calculated for spring and autumn migration study results and 2 bat species recorded to have both high activity at the Project Area and recorded mortality due to the existing turbines are added under the species specific action plans as given in Section 6.

Table 5-1. Biodiversity Action Plan

Overall Objective	Specific Objective	Proposed Actions	Implementation Period	Status (November 2019)
Preservation of Habitats at the Project Area	Avoid and minimize impacts on EUNIS Code G1.A Habitat and vegetation	<ul style="list-style-type: none"> Avoid destruction of vegetation for purposes other than planned Project activities Careful siting of temporary facilities to avoid direct impact Store topsoil stripped to be further used for reinstatement and rehabilitation 	Land preparation and construction	Not yet started
	Avoid and minimize impacts on nests/breeding/roosting sites of small mammals, birds and bats within the Project impact area	<ul style="list-style-type: none"> Ensure resident birds are not impacted by construction activities through minimizing the area of construction to limit habitat loss and fragmentation, proper disposal of on-site waste, restore disturbed areas and apply other good construction techniques. Nests of small mammals identified during field surveys to be checked by biodiversity experts at pre-construction and experts to be involved if removal of nests/animals are required. 	Land preparation and construction	Not yet started
	Avoid and minimize impacts on temporary water bodies where amphibians can reside and breed within the Project impact area	<ul style="list-style-type: none"> Seasonal and temporary water bodies identified at the Project Area during the wet season to be checked by biodiversity experts at pre-construction phase and depending on the construction program at or around such areas measures to avoid impacts on fauna elements to be put in place including carriage of susceptible fauna elements to suitable habitats or rescheduling works around such temporary water bodies. During field surveys in summer of 2019 these temporary water bodies were observed to be dry. Avoid direct impact on temporary water bodies through disturbance/contamination 	Land preparation and construction	Not yet started
	Avoid and minimize impacts on habitats due to accidental introduction of invasive alien species (IAS)	<ul style="list-style-type: none"> Undertake a pathway analysis to identify existing and future potential pathways of IAS invasion relevant to the project. This would consider the project location, the likely sources of equipment or materials for the project and what species (both native and IAS) are present at those source sites which could become IAS at the project site. Monitor the presence and spread of invasive flora species as part of BAP monitoring during the vegetative season, with attention to disturbed areas. If spreading of invasive species is observed, an appropriate eradication program will be developed and implemented 	Land preparation and construction	Not yet started
Preservation of Flora Species of Conservation Importance	Achieve net gain of potential CH trigger flora species	<ul style="list-style-type: none"> Implement Species Action Plans (SAP) as given in Section 6 of this BAP. 	Land preparation and construction, operation	SAP implementation started
	Avoid and minimize impacts on flora species listed as PBF and achieve no net loss (and preferably net gain)	<ul style="list-style-type: none"> Careful siting of temporary facilities to avoid direct impact Implement dust and noise mitigation measures to minimize impacts As an ex-situ measure collect seeds and submit to Turkey Seed Gene Bank 	Land preparation and construction	<p>Seeds collected and sent for the following flora species:</p> <p><i>Cirsium baytopae</i>, <i>Euphorbia amygdaloides</i> var. <i>robbiae</i>, <i>Ferulago confuse</i></p> <p>As the flowering period (May-June 2019) of <i>Symphytum tuberosum</i> subsp. <i>Nodosum</i> was very wet seed collection to be further conducted as per this BAP.</p>
Preservation of Fauna Species (excluding birds and bats) of Conservation Importance	<p>Avoid and minimize impacts on fauna species listed as PBF and/or Istranca Mountains KBA qualifying species. Achieve no net loss for PBF.</p> <p><i>Testudo graeca</i> (Common tortoise) <i>Testudo hermanni</i> (Hermann's tortoise) <i>Emys orbicularis</i> (European pond turtle) <i>Talpa levantis</i> (Levantine mole)</p>	<ul style="list-style-type: none"> Implement speed limits for all construction vehicles to avoid directly mortality of fauna species. Implement dust and noise mitigation measures to minimize impacts on fauna species At pre-construction phase areas potentially susceptible to construction impacts to be monitored and identified by fauna experts especially for fauna elements with low mobility to ensure their relocation to suitable habitats if needed Fauna species with low mobility to be relocated to suitable habitats by fauna experts Nests of small mammals identified during field surveys to be checked by biodiversity experts at pre-construction and experts to be involved if removal of nests/animals are required. 	Land preparation and construction	Not yet started
Collection of Site-Specific Data for Birds and Bats to Implement BAP Actions and, if required, to Develop New Actions	Updated Site Level Bird Activity Monitoring Data	<ul style="list-style-type: none"> Continue bird activity monitoring throughout the construction phase of the Project including the first two years of operation, the monitoring would be continued by the Independent Ornithological Expert (IOE). The scope of monitoring works will be reviewed and approved by the IOE. 	Land preparation and construction, operation	Bird monitoring to start in Spring 2020 as per the IOE approved scope of work

Overall Objective	Specific Objective	Proposed Actions	Implementation Period	Status (November 2019)
	Updated Site Level Bird Collision Risk Assessment	<ul style="list-style-type: none"> Update the collision risk assessment for migratory and resident bird species as per the collected field data. 	Land preparation and construction, operation	With the start of the bird monitoring in Spring 2020, update data per migration period as relevant
	Updated Site Level Bat Activity Monitoring Data	<ul style="list-style-type: none"> Continue bat activity monitoring throughout construction phase of the Project including the first two years of operation, the monitoring would be continued by the Independent Ornithological Expert (IOE). The scope of monitoring works will be reviewed and approved by the IOE. 	Land preparation and construction, operation	Bat activity monitoring to start in Spring 2020 as per the IOE approved scope of work
	Updated Site Level Carcass Study (Birds + Bats)	<ul style="list-style-type: none"> Continue carcass study at the existing WPP and extend it to the Capacity Extension Project the first two years of operation and then to be executed by the IOE throughout the loan duration of the Project. The scope of works will be reviewed and approved by the IOE. 	Land preparation and construction, operation	To start from Spring 2020 as per the IOE approved scope of work
Preservation of Bird Species of Conservation Importance	Achieve no net loss of potential CH trigger and PBF bird species:	<ul style="list-style-type: none"> Implement Species Action Plans (SAP) as given in Section 6 of this BAP. 	Land preparation and construction, operation	Not yet started
	<ul style="list-style-type: none"> - <i>Ciconia ciconia</i> (White Stork) - <i>Pernis apivorus</i> (European Honey-Buzzard) - <i>Buteo buteo</i> (Common Buzzard) <p>Avoid and minimize impacts on bird species listed as PBF (no net loss for PBF) and/or Annex I of the EU Birds Directive and/or recorded in high numbers as migrating over the Project Area:</p> <ul style="list-style-type: none"> - <i>Aquila heliaca</i> (Imperial Eagle) - <i>Ciconia nigra</i> (Black Stork) - <i>Circus macrourus</i> (Pallid Harrier) - Other migratory species recorded that fall under EU Birds Directive Annex I 	<ul style="list-style-type: none"> Implement habitat management and maintenance practices at the site level to reduce the risk of attracting collision-prone birds such as avoiding establishing ponds or waste sites within the development. Ensure that turbines and infrastructures do not offer perching or breeding opportunities for birds. In line with Before-After Impact Control approach, depending on the outcome of the field data and updated risk assessment at post-construction phase, implement active turbine management strategy including development of shut-down on demand protocol to ensure risks are mitigated associated with the turbines leading to injury or mortality of bird species, if necessary. 	Land preparation and construction, operation	Not yet started
Preservation of Bat Species of Conservation Importance	Avoid and minimize impacts on injury and/or mortality of:	<ul style="list-style-type: none"> Due to the high mortality recorded for these species, implement Species Action Plans (SAP) as given in Section 6 of this BAP. 	Land preparation and construction, operation	Not yet started
	<ul style="list-style-type: none"> - <i>Pipistrellus nathusii</i> (Nathusius' Pipistrelle) - <i>Pipistrellus pipistrellus</i> (Common Pipistrelle) <p>Avoid and minimize impacts on injury and/or mortality of EU Habitats Directive Annex II and/or KBA qualifying bat species recorded at the Project Area</p>	<ul style="list-style-type: none"> Ensure that turbines and infrastructures do not offer perching or breeding opportunities for bats. In line with Before-After Impact Control approach, depending on the outcome of the field data at post-construction phase, implement measures as per EUROBATS Guidelines including increase of cut-in speed of turbine blades associated with bat injury or mortality to ensure risks are mitigated associated with the turbines leading to injury or mortality of bat species. Additional conservation measures for bat species will be developed in case the results of monitoring of bat mortality will show significant effects. These measures might include support to bats conservation off-site like roosts protection and enhancement, and awareness raising at the local and national level in cooperation with local qualified experts. 	Land preparation and construction, operation	Not yet started
Awareness Raising of Site Staff on Protection of Biodiversity	Avoid and minimize impacts on habitats and biodiversity features	<p>Train on-site employees:</p> <ul style="list-style-type: none"> ✓ To be aware of nests, avoid any displacement without an expert opinion on the status of the nests ✓ To avoid any impacts on the temporary water bodies ✓ To avoid direct/indirect impacts on flora and fauna elements 	Land preparation and construction, operation	Not yet started

6. SPECIES ACTION PLANS

The species action plans are elaborated for flora, avifauna and bat species based on the data collected throughout 2019 within the scope of the ESIA Report.

This section of the BAP is structured to initially include background information on the following species and then the specific actions to be implemented at the site level to achieve no net loss, and if possible, net gain.

Biodiversity Feature
Flora Species
<i>Centaurea hermannii</i>
<i>Crocus olivieri subsp. istanbulensis</i>
Birds
<i>Ciconia ciconia</i> (White Stork)
<i>Pernis apivorus</i> (European Honey-Buzzard)
<i>Buteo buteo</i> (Common Buzzard)
Bats
<i>Pipistrellus pipistrellus</i> (Common Pipistrelle)
<i>Pipistrellus nathusii</i> (Nathusius' Pipistrelle)

Actions developed for bird and bat species including operational measures for the existing and/or future turbines will also target conservation of other bird and bat species not listed above.

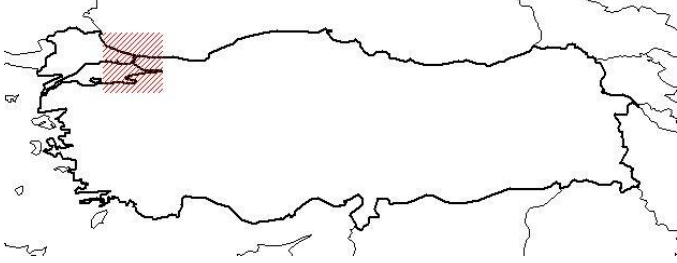
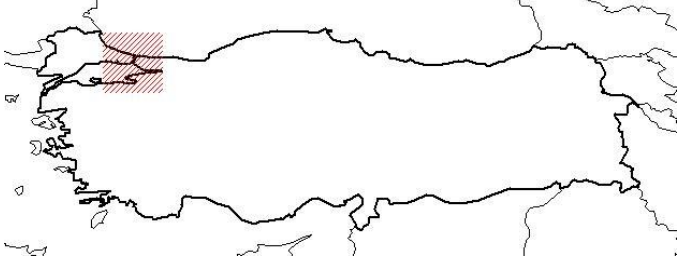


Any new field data/information that will be collated within the framework of biodiversity monitoring programme will be assessed and integrated to the BAP.

6.1. Flora Species

6.1.1. Background Information

The baseline flora field surveys carried out in Spring 2019 within the scope of the ESIA Report and further assessment revealed that both *Centaurea hermannii* and *Crocus olivieri* subsp. *Istanbulensis* are potential CH triggers. To this end, species specific measures are developed to achieve no net loss and net gain of the species as given in Table 6-2.

Table 6-1. Background Information on Flora Species

Species	<i>Centaurea hermannii</i>	<i>Crocus olivieri</i> subsp. <i>Istanbulensis</i>
Conservation Status	IUCN (Global): DD IUCN (National): EN	IUCN (Global): - IUCN (National): EN
Endemism	Regional endemic	Regional endemic
Population	Data not available at regional and country level Site level population data reported in the ESIA Report: Number of individuals recorded at an area of 200mx200m around each turbine is T33 (22 individuals), T32 (2 individuals), T28 (20 individuals), T29 (15 individuals)	Data not available at regional and country level Site level population data reported in the ESIA Report: Number of individuals recorded at an area of 200mx200m around each turbine is T16 (8 individuals), T17 (10 individuals)
Distribution	 Source: Turkish Plants Data Service (TUBIVES) (http://www.tubives.com/)	 Source: Turkish Plants Data Service (TUBIVES) (http://www.tubives.com/)
Habitats	The species is spread in mixed deciduous forests. It prefers high organic material. Habitat preferences of <i>C. hermannii</i> are different from those other <i>Centaurea</i> species prefer and <i>C. hermannii</i> adapted itself to such clayey-loamy soils containing very low CaCO ₃ , low Na and high organic material amounts and requesting very low pHs.	The species is spread in mixed deciduous forests. It prefers clayey-loamy and clayey soils, neutral and slightly acidic soils which are rich in potassium, organic matter and phosphorus. Flowering time is spring.
Biology and Ecology	Flowers yellow or orange, marginal not radiant. Flowering time is June- July.	Distinguished from other subspecies with leatherlike, wholly and coarsely fibrous corm tunic.
	 (Photo: Prof. Dr. Hayri Duman)	 © Ibrahim Sözen

6.1.2. Action Plan

The specific actions to avoid and minimize impacts of the land preparation and construction activities to the potential CH trigger flora species and to achieve no net loss and net gain are given below.

Table 6-2. Action Plan for Flora Species

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
1	Achieve no net loss of <i>C. hermannii</i>	1.1	Seed collection and submission to Turkey Seed Gene Bank (ex-situ measure). Seed collection period of the species is July.	Borusan EnBW/Alenka and expert botanist	Before land preparation	Seeds collected and submitted to the Gene Bank	Completed
		1.2	Flora salvaging from areas identified to hold the species that will be directly impacted by construction activities (around T28, T29, T32 and T33). Number of individuals recorded at an area of 200mx200m around each turbine is: T33 (22 individuals), T32 (2 individuals), T28 (20 individuals), T29 (15 individuals) Salvaged flora species to be planted to the existing WPP area at suitable habitats to be identified by the expert botanist. Areas to be marked appropriately.	Borusan EnBW/Alenka and expert botanist	Before land preparation	Individuals of salvaged flora species planted at suitable habitats	Completed, reporting by the expert botanist ongoing
		1.3	If new areas around the Project footprint is to be identified by the site staff or during biodiversity monitoring, the area will be marked and if activities are to take place at such areas further flora salvaging and plantation will be conducted by the expert botanist.	Borusan EnBW/Alenka and expert botanist	Before land preparation, during construction	New areas holding the species to be marked Flora salvaging and plantation in place if new areas are identified	To be reported if new areas are identified
		1.4	Plant the species in pots for the site staff to get acquainted to the species to ensure no deliberate or accidental loss takes place.	Borusan EnBW/Alenka and expert botanist	Before land preparation	Species planted in pots for the site staff	Completed, reporting by the expert botanist ongoing
2	Achieve net gain of <i>C. hermannii</i>	2.1	Monitor the plantation areas (as per Action 1.2) during May-June period and ensure that the number of individuals are higher than the baseline conditions.	Borusan EnBW/Alenka and expert botanist	During construction and operation	Number of individuals at plantation areas higher than Project baseline conditions	To be monitored in Spring 2020
		2.2	If the number of individuals at the plantation areas are not surpassing the baseline conditions re-plant the species and monitor until net gain is achieved. Net gain is to be verified by the expert botanist.	Borusan EnBW/Alenka and expert botanist	During construction and operation	Number of individuals at plantation areas higher than Project baseline conditions	To take place depending on the outcome of Action 2.1
3	Achieve no net loss of <i>Crocus olivieri</i> subsp. <i>Istanbulensis</i>	3.1	The bulbs of the species will be removed together with the topsoil during topsoil stripping (the topsoil acts as a gene bank) at areas identified to hold the species that will be directly impacted by construction activities (around T16 and T17). Number of individuals recorded at an area of 200mx200m around each turbine is: T16 (8 individuals), T17 (10 individuals)	Borusan EnBW/Alenka and expert botanist	During land preparation	Topsoil at the designated areas stripped	Not yet started

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
		3.2	Separately store and manage the stripped topsoil containing the bulbs of the flora species at identified storage areas. Do not mix the topsoil stripped from the areas mentioned under Action 3.1 with other topsoil.	Borusan EnBW/Alenka and expert botanist	During land preparation and construction	Topsoil containing the bulbs separately stored in a designated area	Not yet started
		3.3	During the flowering time of the species, expert botanist to identify areas where potential flora salvaging and plantation can be carried out to ensure Target 4 is achieved.	Borusan EnBW/Alenka and expert botanist	Spring 2020	Flora salvaging and plantation completed based on Spring 2020 field survey findings	Not yet started
		3.4	If new areas around the Project footprint is to be identified by the site staff or during biodiversity monitoring, the area will be marked and if activities are to take place at such areas flora salvaging and plantation will be conducted by the expert botanist.	Borusan EnBW/Alenka and expert botanist	During land preparation and construction	New areas marked	Not yet started
		3.5	Use the separately stored topsoil for reinstatement purposes.	Borusan EnBW/Alenka and expert botanist	During post-construction	Separately stored topsoil used for reinstatement purposes	Not yet started
4	Achieve net gain of <i>Crocus olivieri</i> subsp. <i>Istanbulensis</i>	4.1	Monitor the reinstated areas (as per Action 3.5) and plantation areas (as per Action 3.3) within the scope of biodiversity monitoring during flowering period and ensure that the number of individuals are higher than the baseline conditions.	Borusan EnBW/Alenka and expert botanist	During construction and operation	Number of individuals at reinstated and/or plantation areas higher than Project baseline conditions	To be monitored during flowering period
		4.2	If the number of individuals at the reinstated and/or plantation areas are not surpassing the baseline conditions re-plant the species and monitor until net gain is achieved. Net gain is to be verified by the expert botanist.	Borusan EnBW/Alenka and expert botanist	During construction and operation	Number of individuals at reinstated and/or plantation areas higher than Project baseline conditions	To take place depending on the outcome of Action 4.1

6.2. Avifauna Species

6.2.1. Background Information

The bird monitoring studies conducted throughout 2019 within the scope of the ESIA Report revealed that both White Stork (*Ciconia ciconia*) and European Honey-Buzzard (*Pernis apivorus*) fly over the Project Area at numbers exceeding 1% of their global populations. As discussed in detail within the ESIA Report, it is not appropriate to consider the Project Area to be Critical Habitat for migratory soaring birds. Nonetheless, the study area is clearly of importance to White Stork and European Honey Buzzard.

In addition to these, the collision risk assessment study revealed that Common Buzzard (*Buteo buteo*) has the highest risk of collision amongst all species for both spring and autumn seasons. This said, the carcass studies carried out in 2019 have not reported any casualties related to these species.

Table 6-3. Background Information on Bird Species

Species	White Stork (<i>Ciconia ciconia</i>)	European Honey-Buzzard (<i>Pernis apivorus</i>)	Common Buzzard (<i>Buteo buteo</i>)
Conservation Status	IUCN (Global): LC EU Birds Directive Annex I	IUCN (Global): LC EU Birds Directive Annex I	IUCN (Global): LC
Population	Population trend: Increasing (Ref 1) The global population size is estimated at 700,000-704,000 individuals. The European population is estimated at 447,000-495,000 mature individuals (Ref 1).	Population trend: Decreasing (Ref 2) The global population size is estimated at 280,000-420,000 individuals (Ref 2).	Population trend: Stable (Ref 3) The global population size is estimated at 2,100,000-3,700,000 individuals (Ref 3).
Distribution	See Figure 6-1	See Figure 6-2	See Figure 6-3
Habitats	The species inhabits open areas, generally avoiding regions with persistent cold, wet weather or large tracts of tall, dense vegetation such as reedbeds or forests, shallow marshes, lakesides, lagoons, flood-plains, rice-fields and arable land especially where there are scattered trees for roosting.	It is a forest species, breeding in temperate and boreal woods; it is recorded up to 2,000 m. Nests are built in woods, preferentially in deciduous trees.	It inhabits a wide variety of habitats but requires at least some tree cover for nesting and roosting; ideal habitat appears to be forest edge, or mosaics of forest and open areas (Ref 3).
Behaviour	This species is a Palearctic migrant that travels with the assistance of thermal updrafts, the occurrence of which restricts the migratory routes the species can take. For example, the species must avoid long stretches of open water such as the Mediterranean Sea and must therefore bypass it on narrow fronts to the west or east, after which it crosses the Sahara on a broad front. Once within Africa the species becomes considerably nomadic in response to changing abundances of food (e.g. locust swarms). It breeds from February to April in the Palearctic, whilst the tiny breeding population in South Africa breeds from September to November. It nests in loose colonies of up to 30 pairs or solitarily. The main departure from the European breeding grounds occurs in August with the species travelling in large flocks of many thousands of individuals, generally arriving in Africa by early-October. It forages singly, in small groups of 10-50 individuals, or in large flocks if prey is abundant and on its wintering grounds it may gather in large numbers (hundreds or thousands of individuals) at abundant food sources (e.g. locust swarms or grass fires). The species feeds diurnally and roosts communally at night in trees.	This is a migratory species, wintering in 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 species is diurnal.	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 (Ref 3).
Threats	The species is threatened by habitat alteration including the drainage of wet meadows, prevention of floods on flood-plains (by dams, embankments, pumping stations and river canalisation schemes), conversion of foraging areas, development, industrialisation and intensification of agriculture (Ref 1).	Very highly vulnerable to the effects of potential wind energy development (Ref 2)	Highly vulnerable to the impacts of potential wind energy developments (Ref 3)

Species	White Stork (<i>Ciconia ciconia</i>)	European Honey-Buzzard (<i>Pernis apivorus</i>)	Common Buzzard (<i>Buteo buteo</i>)
			
	(Photo: Tomáš Bělka) (Ref 1)	(Photo: Peter Harris) (Ref 2)	(Photo: Dušan Boucný) (Ref 3)

References:

- (1) BirdLife International 2016. *Ciconia ciconia*. The IUCN Red List of Threatened Species 2016: e.T22697691A86248677. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22697691A86248677.en>.
- (2) BirdLife International 2016. *Pernis apivorus*. The IUCN Red List of Threatened Species 2016: e.T22694989A93482980. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694989A93482980.en>.
- (3) BirdLife International 2017. *Buteo buteo* (amended version of 2016 assessment). The IUCN Red List of Threatened Species 2017: e.T61695117A119279994. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T61695117A119279994.en>.



Figure 6-1. Distribution Map of *Ciconia ciconia* (White Stork)³

³ BirdLife International (2019) Species factsheet: *Ciconia ciconia*. (Downloaded from <http://www.birdlife.org> on 28/09/2019. <http://datazone.birdlife.org/species/factsheet/white-stork-ciconia-ciconia>)



Figure 6-2. Distribution Map of *Pernis apivorus* (European Honey-Buzzard)⁴

⁴ BirdLife International (2019) Species factsheet: *Pernis apivorus*. (Downloaded from <http://www.birdlife.org> on 28/09/2019. <http://datazone.birdlife.org/species/factsheet/european-honey-buzzard-pernis-apivorus>)

Distribution map

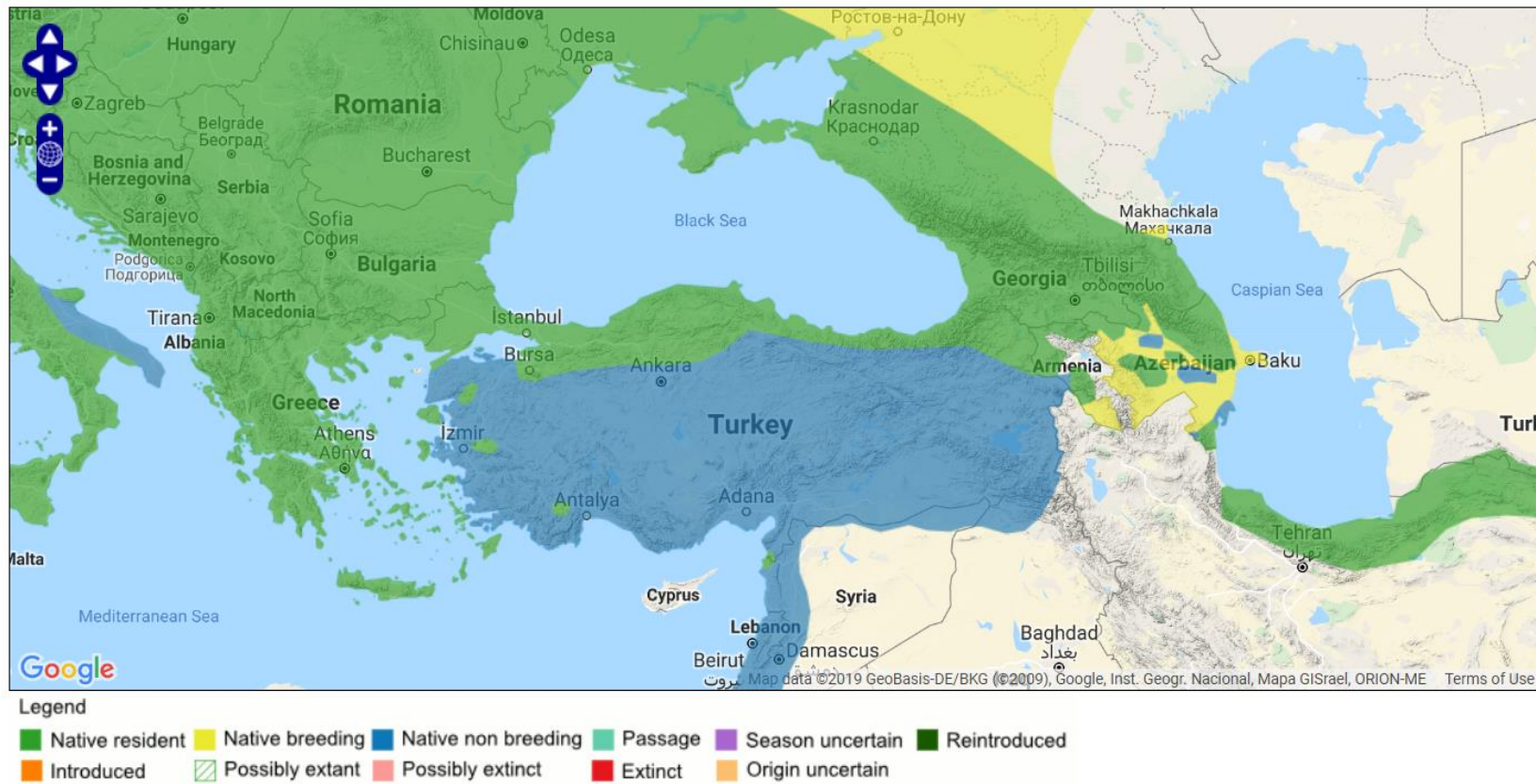


Figure 6-3. Distribution Map of *Buteo buteo* (Common Buzzard)⁵

⁵ BirdLife International (2019) Species factsheet: *Buteo buteo*. Downloaded from <http://www.birdlife.org> on 16/11/2019. <http://datazone.birdlife.org/species/factsheet/eurasian-buzzard-buteo-buteo>

6.2.2. Action Plan

The specific actions to avoid and minimize impacts of the existing and future turbines on bird species are given below. Additional site-specific data and findings on the bird species will further feed into the overall management approach.

Table 6-4. Action Plan for Birds

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
1	Collection of Site-Specific Bird Data	1.1	<p>Appoint a qualified Independent Ornithological (for bird and bat) Expert (IOE) on a non-objection basis by the Lenders to provide independent expert advice on the seasonal bird and bat activity and carcass monitoring reports and provide input as per the active turbine management strategy of the Project.</p> <p>The IOE will be appointed by the Company throughout the Project loan duration. The expert will be employed during the migration periods. The IOE scope will be reviewed with the Lenders every 3 years</p> <p>IOE to approve the scope of works for bird/bat activity and carcass monitoring studies.</p> <p>The monitoring programme should include an adaptive management component and inform the need for additional or modified mitigation measures to avoid and/or reduce, or at a last resort offset/compensate for, impacts to birds and bats.</p>	Borusan EnBW/Alenka, Lenders	To be appointed in Spring 2020	IOE appointed	Not yet appointed
		1.2	<p>Appoint site survey team to continue seasonal (spring and autumn) bird migration studies at the 5 Vantage Points (VPs) identified during the ESIA study.</p> <p>The monitoring study will include a minimum of 36 hours at each VP per season and ideally 72 hours as per the methodology used during the ESIA baseline data collection.</p> <p>Continue breeding bird survey study including numerical data to monitor potential impacts on breeding species (amongst the species to be monitored and counted are Turtle Dove, raptors and nightjar).</p> <p>The scope of works to be reviewed by the IOE and approved by the EBRD before the start of surveys in Spring 2020.</p>	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension Project and including the first two years of operation	Site survey team appointed; scope of field work approved by the IOE	Not yet appointed, not yet reviewed and approved
		1.3	<p>With the start of the operation of the Capacity Extension Project, IOE to review and, if necessary, update the scope of the bird monitoring studies as identified in Action 1.2.</p>	Borusan EnBW/Alenka, IOE	First two years of operation of the Capacity Extension Project	Scope of work reviewed and approved	To start with operation phase
		1.4	<p>Update the collision risk assessment as per the new seasonal monitoring data collected.</p> <p>IOE to review and verify the collision risk assessment and to propose additional actions based on the revised risk assessment.</p>	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension Project and including the first two years of operation	Collision risk assessment updated, results reviewed and verified by the IOE, if required additional measures/actions proposed by the IOE	First collision risk assessment update to be done with the Spring 2020 migration survey results
2	Collection of Site-Specific Bird Carcass Data	2.1	<p>Appoint site survey team to continue seasonal (spring to autumn) carcass study at the Project Area as per the scope agreed upon during the ESIA study.</p> <p>The scope of works to be approved by the IOE before the start of surveys in Spring 2020.</p>	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension	Site survey team appointed; scope of field work reviewed and	Not yet appointed, not yet reviewed and approved


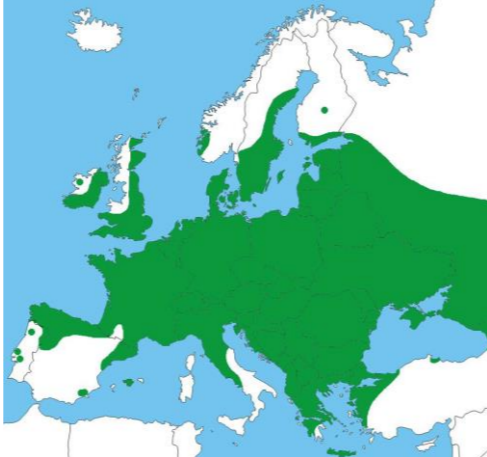

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
					Project and then the operation	approved by the IOE	
		2.2	With the erection of the new turbines and the start of the operation of the Capacity Extension Project, IOE to review and update as necessary the scope of the bird carcass study as identified in Action 2.1 taking into account the updated collision risk assessment study results (Action 1.4).	Borusan EnBW/Alenka, IOE	Operation of the Capacity Extension Project	Scope of work reviewed and approved	To start with operation phase
		2.3	If new and different species (based on qualitative and quantitative aspects) are identified by the site survey team, upon discussion with the IOE, additional measures to be developed and implemented if required.	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 for the existing WPP to continue through the operation of the Capacity Extension Project	Field findings of new species	Not yet started
3	Achieve no net loss of bird species	3.1	Implement habitat management and maintenance practices at the site level to reduce the risk of attracting collision-prone birds such as avoiding establishing ponds or waste sites within the development	Borusan EnBW/Alenka	Throughout land preparation and construction and operation	Measures in place to avoid attracting collision-prone birds	Not yet started
		3.2	Based on the outcome of the updated collision risk assessment under Action 1.4 and the carcass study findings, implement active turbine management strategy including development of shut-down on demand protocol for turbines having the potential to lead to injury or mortality of the bird species. The turbine shut down protocol will define criteria and mechanisms to be used in taking shut down decisions by the IOE. Wind turbines will be shut-down based on a written Notice to Close issued by the IOE, although due to the requirement to provide immediate shut down in the field the first point of command will be via telecommunication links (Information on these instances will be provided to the Lenders within 3 days) The IOE will provide written notice and keep a register of all such actions which will be immediately reported to the Lenders as well as local authorities upon request.	Borusan EnBW/Alenka, IOE	Throughout operation phase of the Capacity Extension Project	Shut-down on demand protocol developed and implemented	Not yet developed
		3.3	For resident bird species, based on further numerical data to be collected under Target 1 and Target 2, develop site specific conservation measures such as protection and enhancement of bird nests. Site survey teams and the IOE to develop potential additional management measures.	Borusan EnBW/Alenka, IOE	Starting from collection of Spring 2020 field data	Additional management measures in place	Discussions to start in Q4 2019

6.3. Bat Species




6.3.1. Background Information

The bat activity and carcass studies conducted throughout 2019 within the scope of the ESIA Report revealed that both Nathusius' Pipistrelle (*Pipistrellus nathusii*) and Common Pipistrelle (*Pipistrellus pipistrellus*) are highly vulnerable to the potential impacts of the existing turbines and the future turbines. To this end, background information on the biology and ecology of the species is summarized in Table 6-5 to feed into potential actions to be developed within the scope of the species action plan as given in Table 6-6.

Table 6-5. Background Information on Bat Species

Species	Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)
Conservation Status	IUCN: LC EU Habitats Directive Annex IV Regarded as a species of special concern by Eurobats (Ref 3)	IUCN: LC EU Habitats Directive Annex IV
Biology	Small bat, weighing less than 10 g (6-16 g). It is very well adapted to flight, weighing as little as a 2-Euro coin and having a wingspan of app. 230 mm. Colouration of fur varies between reddish and dark brown dorsally and light grey to cream on the ventral surface. Moulting begins in summer prior to autumn migration. This small bat can live up to 13 years (Ref 5). Small (wingspan of 220-250mm) and usually uniformly coloured brown bat with dark snout, ears and wings. It is quite similar to other Pipistrelle species with the exception of its 5th finger which tends to be longer (e.g. than 43 mm) (Ref 4).	Small, dark brown bat with no fur on its tail membrane and a wingspan of 180-240mm. It has an agile and erratic flight and uses a hawking technique to prey on small insects (Ref 7).
Population	Unknown (Ref 3)	Stable (Ref 6) A widespread and abundant species, one of the most common bats in many parts of its range. Summer maternity colonies generally number 25-50 individuals, although colonies of as many as 200 have been recorded. In winter, it tends to occur singly or in small groups, although some very large groups have been recorded (e.g., up to 45,000 in caves in Romania and Slovakia) (Ref 6).
Distribution	<i>P. nathusii</i> is a migratory species. Occurs in Eastern, Central and Southern Europe (Ref 1). It is restricted to Europe, Asia Minor and Transcaucasia where it is found up to 63°N. In the Mediterranean, it is generally widespread across southern Europe although apparently absent from most of Iberia. Its long-distance seasonal migration causes the species to also occur on Corsica, Sardinian, Sicily and Peloponnes (Ref 4). The distribution covers vast parts of Europe. However, the breeding areas of this species are mainly in north-eastern Europe and it hibernates mainly in south-western or southern parts of Europe. Within the last decades a shift of the breeding area to the south and west was recorded, while hibernating individuals were found further to the north (Ref 5).	Distributed through Europe up to southern Scandinavia and Baltic countries. Occurring also in some parts of Northwest Africa and Southwest Asia to Central and Eastern Asia. <i>P. pipistrellus</i> is one of the most common species in many areas of its distribution range (Ref 1). The range of the <i>P. pipistrellus</i> extends from the British Isles through southern Scandinavia, over much of Europe to the Volga and Caucasus. It also occurs through parts of north-western Africa (Morocco, Algeria and Tunisia) and south-west Asia to central and eastern Asia (Ref 7).
	 	
Foraging Preferential Habitat	Frequently found in riparian habitats and wetlands. Hunts 4–15 m above ground, on paths and woodland edges, also over water (Ref 1).	Hunts in several habitats, although more common in wetlands and urban areas (Ref 1).

Species	Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)
	<p>Forages over a range of habitats including woodland, edge, wetlands (among which natural ones are preferred) and open parkland (Ref 3).</p> <p>Emerge shortly after sunset flying 4 to 15 m above ground, fast in straight lines with strong deep wingbeats, chasing small to medium flying insects which are consumed during flight (aerial hawking). Typical foraging habitats are woodlands and water bodies (Ref 5).</p>	<p>It forages in a variety of habitats including open woodland and woodland edges, Mediterranean shrubland, semi-desert, farmland, rural gardens and urban areas (Ref 6).</p>
Usual Commuting Routes	Follows landscape structures, as forest edges, hedges, roads or forest aisles, but also across open fields (Ref 1).	Linear landscape elements such as hedgerows, forest edges and tree lines but also open spaces (Ref 1).
Diet	<p>Small to medium flying insects. Mostly Chironomidae (Ref 1).</p> <p>It feeds mainly on Diptera and Lepidoptera (Ref 3).</p> <p>Diet consists mainly of flying insects, such as non-biting midges, mosquitoes and black flies (Ref 4).</p> <p>The diet contains a high proportion of Diptera; predominately Chironomidae (non-biting midges) and other insects like Lepidoptera, Arachnida and Culicidae. The diet varies between summer colonies and migrating individuals but this could also reflect the habitat and season (Ref 5).</p>	<p>Mosquitoes and other small flying insects (Ref 1).</p> <p>It feeds on small moths and flies (Ref 6).</p>
Breeding and Hibernation	<p>Roosts in trees, bat boxes and sometimes in buildings. Hibernates in crevices, cliffs, buildings, and caves (Ref 1).</p> <p>Summer roosts are located in tree holes, buildings, and bat boxes, mainly in woodland areas. Winter roost sites include crevices in cliffs, buildings and around the entrance of caves, often in relatively cold, dry, and exposed sites (Ref 3).</p>	<p>Uses virtually all kinds of natural and artificial structures as roosts, though not common in caves. Hibernates and breeds in colonies that can reach thousands of individuals (Ref 1).</p> <p>Summer roosts are mainly found in buildings and trees, and individuals frequently change roost site through the maternity period. Most winter roost sites are located in crevices in buildings, although cracks in cliffs and caves and possibly holes in trees may also be used (Ref 6).</p>
Migration Category	<p>Long distance (>500 km) (Ref 1). Long distance (>100 km) (Ref 2)</p> <p>It is a migratory species, with movements of up to 1,905 km recorded. Migrations typically follow a NE-SW route (Ref 3).</p> <p>Undertakes a seasonal long-distance migration, usually from northeast to southwest Europe, along the coast or river valleys (Ref 4).</p> <p>Adapted to seasonal climatic changes performing large-scale movements to escape harsh environmental conditions and low levels of food resources. The autumn migration period spans approximately two months (Ref 5).</p> <p>Central European summer habitats are used as stopover sites during migration. Females leaving stopovers earlier than males is a common phenomenon, resulting in territorial males being the last recorded animals in summer habitats (Ref 5).</p> <p>The minimum migratory speed has been estimated at ca. 50-60 km/day and energetic demands of continuous flights are fulfilled using a 'mixed-fuel strategy', based on a combination of directly metabolised dietary proteins from insects preyed while flying and fatty acids from body reserves (Ref 5).</p> <p>The majority of mating takes place along its migration routes. The peak of the mating season changes according to geographical position of the locality: it appears in late July and early August in Sweden, in mid and late August and beginning of September in the Czech Republic, north-eastern Germany and Poland, whereas it takes place in September and October in the southern parts of Europe (Ref 5).</p>	<p>Most populations are considered sedentary (<50 km), but there is evidence of long-distance (>500 km) migratory behaviour (Ref 1).</p> <p>Regional (10-100 km) (Ref 2).</p> <p>It is not especially migratory in most of its range, but movements of up to 1,123 km have been recorded. In at least parts of its range it seems to benefit from urbanisation (Ref 6).</p> <p>A rather sedentary species, with summer and winter roosts often only 20km apart. However, long distance migrations have also been recorded (Ref 7).</p>
Threats	<p>Although not major threats, the species is affected by habitat fragmentation on migration routes, loss of and disturbance to roosts in buildings, loss of mature trees with cavities and/or loose bark, etc., and water quality changes which may affect food supply (Ref 3).</p> <p>The species is especially vulnerable to increased mortality at on and offshore wind turbines. Nathusius' pipistrelles are even at the top of the wind farm casualties' statistics. Due to a lack of experience sub-adults are particularly at risk. Since first-year bats are already part of the reproducing population, this becomes even more problematic. Stable isotope analysis revealed that individuals found dead at German wind farms likely originated from northern Baltic countries and Russia demonstrating the wide-scale impact of wind farms for the species (Ref 5).</p>	<p>In parts of the range there is deliberate persecution as people do not want thousands of bats roosting in their buildings. As a high proportion of colonies are found in buildings, the species may be particularly vulnerable to other anthropogenic factors, such as disturbance, timber treatment and building renovation (Ref 6).</p> <p>It occurs in many protected areas. No specific conservation actions are known. Adoption of bat-friendly practices in the construction and maintenance of buildings is a proposed action (Ref 6).</p>

Species	Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)
	 <p>(Photo credit: Jeroen van der Kooij) (Ref 3)</p>	 <p>(Photo credit: Jeroen van der Kooij) (Ref 6)</p>
	 <p>(Photo credit: Nigel Milbourne) (Ref 5)</p>	 <p>(Ref 7)</p>

References:

- (1) Peste, F. et al. (2015). How to mitigate impacts of wind farms on bats? A review of potential conservation measures in the European context, *Environmental Impact Assessment Review* (51), pp. 10-22.
- (2) Action Plan for the Conservation of All Bat Species in the European Union (2018-2024), Editors: Slyvia Barova (European Commission) and Andreas Streit (UNEP/EUROBATS), October 2018.
- (3) Paunović, M. & Juste, J. 2016. *Pipistrellus nathusii*. The IUCN Red List of Threatened Species 2016: e.T17316A22132621. <http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T17316A22132621.en>. Downloaded on 16 November 2019.
- (4) EUROBATS (https://www.eurobats.org/about_eurobats/protected_bat_species/pipistrellus_nathusii)
- (5) Bat Species of the Year 2015: *Pipistrellus nathusii*, Facts compiled for BatLife Europe by D.Hargreaves, H. Jahelkova, O. Lindecke and G. Reiter.
- (6) Hutson, A.M., Spitzenberger, F., Aulagnier, S., Coroiu, I., Karataş, A., Juste, J., Paunovic, M., Palmeirim, J. & Benda, P. 2008. *Pipistrellus pipistrellus*. The IUCN Red List of Threatened Species 2008: e.T17317A6968203. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T17317A6968203.en>. Downloaded on 16 November 2019.
- (7) EUROBATS (https://www.eurobats.org/about_eurobats/protected_bat_species/pipistrellus_pipistrellus)

6.3.2. Action Plan

The specific actions to avoid and minimize impacts of the existing and future turbines on bat species are given below. Additional site-specific data and findings on the bat species will further feed into the overall management approach.

Table 6-6. Action Plan for Bats

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
1	Collection of Site-Specific Bat Activity Monitoring Data	1.1	<p>Appoint a qualified Independent Ornithological (for bird and bat) Expert (IOE) on a non-objection basis by the Lenders to provide independent expert advice on the seasonal bird and bat activity and carcass monitoring reports and provide input as per the active turbine management strategy of the Project.</p> <p>The IOE will be appointed by the Company throughout the Project loan duration. The expert will be employed during the migration periods. The IOE scope will be reviewed with the Lenders every 3 years</p> <p>IOE to approve the scope of works for bird/bat activity and carcass monitoring studies.</p> <p>The monitoring programme should include an adaptive management component and inform the need for additional or modified mitigation measures to avoid and/or reduce, or at a last resort offset/compensate for, impacts to birds and bats.</p>	Borusan EnBW/Alenka, Lenders	To be appointed in Spring 2020	IOE appointed	Not yet appointed
		1.2	<p>Appoint site survey team to continue seasonal (spring, summer, autumn) bat activity monitoring studies at Sampling Points (SP) to be identified.</p> <p>Bat activity monitoring should be conducted between March and October and focus on monitoring at ground level and at height with appropriate automatic bat detectors in order to determine the use of the airspace by different bat species. Transects monitoring can be suspended as it does not provide data useful to inform the mitigation strategy.</p> <p>Conduct accurate statistical analysis of the data gathered in order to refine the understanding of the use of the airspace by bats within the existing and new wind farms, including correlations with key meteorological parameters (wind speed, temperature, humidity and precipitation). Data will need to be processed by an expert in statistical analysis and presented in detailed reports with original data annexed.</p> <p>The scope of monitoring works to be reviewed by the IOE and approved by the EBRD before the start of surveys in Spring 2020.</p>	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension Project and including the first two years of operation	Site survey team appointed; scope of field work reviewed and approved by the IOE, automatic bat detectors installed (if technical possible to attach it to the turbine)	Not yet appointed, not yet reviewed and approved
		1.3	<p>With the start of the operation of the Capacity Extension Project, IOE to review and approve and, if necessary, update the scope of the bat activity monitoring study as identified in Action 1.2.</p>	Borusan EnBW/Alenka, IOE	First two years of operation of the Capacity Extension Project	Scope of work reviewed and approved	To start with operation phase
2	Collection of Site-Specific Bat Carcass Data	2.1	<p>Appoint site survey team to continue carcass monitoring at the existing WPP and extend it to the Capacity Extension Project for the first two years of operation between March and October. Continuation of the carcass monitoring to be executed by the IOE throughout the loan duration of the Project will be decided according to the results of the first two years of operation results.</p> <p>The scope of works to be reviewed and approved by the IOE before the start of surveys in Spring 2020.</p>	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension Project and including the first two years of operation	Site survey team appointed; scope of field work reviewed and approved by the IOE	Not yet appointed, not yet reviewed and approved
		2.2	<p>With the erection of the new turbines and the start of the operation of the Capacity Extension Project, IOE to review and update as necessary the scope of the bat carcass study as identified in Action 2.1.</p>	Borusan EnBW/Alenka, IOE	Erection of the new turbines, operation of	Scope of work reviewed, updated as	To start with the erection of

Target Reference	Target	Action Reference	Specific Actions	Responsibility/Partnership	Timeline	Indicators	Status (Nov 2019)
			The scope of works to be approved by the IOE.		the Capacity Extension Project	necessary and approved	turbines and operation phase
		2.3	If new and different species (based on qualitative and quantitative aspects) are identified by the site survey team, upon discussion with the IOE, if required carry out DNA analysis to identify the species.	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 during land preparation and construction of the Capacity Extension Project and including the first two years of operation	DNA results of new species	Not yet started
3	Achieve no net loss of bat species	3.1	Based on the 2019 bat activity and carcass survey results, adjust the wind turbine cut-in speed (the speed at which turbines start producing electricity) to 5 m/s for the 10 existing wind turbines with highest bat mortality between April and October (from sunset to sunrise) until the results of further monitoring studies will allow to define more specific measures in terms of turbines involved, periods and cut-in wind speed. Free-wheeling i.e. free spinning of rotors under low wind conditions with no power generation, will be eliminated to the extent feasible in the case of the existing turbines. Success of the implementation will be verified by the IOE through carcass studies as highlighted in Action 2.1.	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 for the existing WPP	Cut-in wind speed adjusted at all operational turbines	Implementation to start in April 2020
		3.2	IOE to reassess the proposed cut-in wind speed based on the additional bat activity data collected and correlation with meteorological parameters (wind, temperature, humidity and precipitation). The measures will be reassessed by the IOE each year based on the new information collected on the existing WPP and the Capacity Extension Project.	Borusan EnBW/Alenka, IOE	Starting from Spring 2020 for the existing WPP and continue including the Capacity Extension Project	Cut-in wind speed adjusted at all operational turbines as per IOE feedback	Implementation to start in April 2020
		3.3	The installation of bat deterrents on existing turbines will be assessed and decided based on a cost-benefit analysis. The bat studies will allow to understand the effectiveness of the bat detectors on the existing turbines and to determine if they are a suitable alternative to the implementation of cut-in wind speed on the existing and new wind turbines. IOE to provide expert feedback on the applicability and overall efficiency of bat deterrent systems for avoiding impacts on bat species.	Borusan EnBW/Alenka, IOE	Discussion on the applicability of the available systems to start in Q4 2019, if found feasible timeline for implementation to be reviewed	Assessment of the feasibility of installation of bat deterrent systems in place, if found feasible bat deterrent systems to be installed at existing and/or new turbines	Discussions to start in Q4 2019
		3.4	Based on further data to be collected under Target 1 and Target 2 and as per the ecology of the bat species of concern as given in Table 6-5 of this BAP, develop site-specific conservation measures taking into account the potential habitat management and maintenance practices. Additional conservation measures for bats might include support to bats conservation off-site like roosts protection and enhancement, and awareness raising at the local and national level in cooperation with local qualified experts. Site survey teams and the IOE to develop potential additional management measures.	Borusan EnBW/Alenka, IOE	Starting from collection of Spring 2020 field data	Additional management measures in place	Discussions to start in Q4 2019

7. BIODIVERSITY MONITORING PROGRAMME

At post-ESIA phase, a comprehensive biodiversity monitoring programme will be in place and implemented throughout land preparation/construction and operation phases of the Project. A tentative programme for the year 2020 is given below. The below tentative programme will be finalized and approved in Q1 2020.

Table 7-1. Biodiversity Monitoring Programme for 2020

Biodiversity Element/Topic	Field Survey Scope/Timing
Flora	
Net gain assessment for <i>C. hermannii</i>	Spring 2020
Topsoil Stripping and Separate Storage	Topsoil to be stripped around T16 and T17 will be separately stored (for <i>Crocus olivieri subsp. Istanbulensis</i>)
Flora Salvaging and Plantation	Spring 2020 (for <i>Crocus olivieri subsp. Istanbulensis</i>)
Invasive Alien Species	The presence and spread of invasive flora species during the vegetative season to be monitored with attention to disturbed areas. If spreading is observed, an eradication program will be developed and implemented
Fauna (except birds and bats)	
Nests of small mammals	To be checked by biodiversity experts at pre-construction and experts to be involved if removal of nests/animals are required.
Fauna species with low mobility <i>Testudo graeca</i> (Common tortoise) <i>Testudo hermanni</i> (Hermann's tortoise) <i>Emys orbicularis</i> (European pond turtle)	At pre-construction phase, areas potentially susceptible to construction impacts to be monitored by fauna experts especially for fauna elements with low mobility to ensure their relocation to suitable habitats if needed.
Bird Activity	
Spring 2020 Migration (Breeding Season)	From mid-March 2020 to mid-June 2020 (min 36 hours at each VP) Target Species: Migratory soaring birds Methodology: Vantage Point (VP) (on high ground) Methodology both for migratory and breeding/resident species as described in the Onshore Wind Farm Guidance published by Scottish Natural Heritage (SNH)
Breeding Bird Surveys	Breeding bird survey study to include numerical data to monitor potential impacts on breeding species (amongst the species to be monitored and counted are Turtle Dove, raptors and nightjar) The breeding bird survey to follow the breeding codes of the European Breeding Bird Atlas.
Autumn 2020 Migration (Post-breeding Season)	From mid-August 2020 to end of October 2020 (min 36 hours at each VP)
Bat Activity	
2020 Bat Activity	March – October 2020 (monitoring at ground level and at height with appropriate automatic bat detectors)
Birds and Bats	
Mortality Monitoring	March – October 2020

8. REPORTING, REVIEW AND UPDATE

The Project Company will ensure the periodic review and update of the BAP with incoming new field data from site surveys and will report on the progress and status of BAP actions provided herein. New action items can be developed based on the progress achieved on the existing biodiversity targets as outlined within Section 5 and Section 6 of this BAP. External consultants will be involved in site data collection and review/update of the BAP and, if required, reporting on its progress.

As a living document BAP will be due for revisions and updates as the Project proceeds, allowing to reflect any additional measures required to be taken for conservation of species based on the updated field data and risk assessment.

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