

A large teal graphic element consisting of a triangle pointing upwards, which is partially cut off by a horizontal line. Below this line, a vertical rectangle extends downwards, also partially cut off by the same horizontal line. The overall shape is a stylized, abstract representation of a mountain or a structure.

Kestanederesi Wind Power Plant (WPP) Project

Critical Habitat Assessment (CHA) Report

June 2024

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Critical Habitat Assessment (CHA) Report

June 2024

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	May 2024	Esra Demirhan Melisa M. Turan	Gizem A. Gurler	Neslihan Ayvaz	Draft CHA
B	June 2024	Esra Demirhan Melisa M. Turan	Gizem A. Gurler	Neslihan Ayvaz	Final CHA

Document reference: 22100030 | CHA | B |

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Definitions and Abbreviations

Abbreviation	Definition
AoA	Area of Analysis
AoI	Area of Influence
AZE	Alliance for Zero Extinction
BAP	Biodiversity Action Plan
BMMP	Biodiversity Management and Monitoring Plan
CHA	Critical Habitat Assessment
CITES	Convention for the International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
CRM	Collusion Risk Model
DD	Data Deficient
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
EN	Endangered
EOO	Extent of Occurrence
ESIA	Environmental and Social Impact Assessment
EU	European Union
EUNIS	European Nature Information System
GN	Guidance Notes
IAoI	Indirect Area of Influence
IBA	Important Bird Area
IFC	International Finance Cooperation
IUCN	International Union for Conservation of Nature
JPM	J.P. Morgan
KBA	Key Biodiversity Area
LC	Least Concern
NT	Near Threatened
PBF	Priority Biodiversity Features
PR	Performance Requirement
PS	Performance Standard
RAMSAR	Convention on Wetlands of International Importance Especially as Waterfowl Habitat
VP	Vintage Point
VU	Vulnerable
WPP	Wind Power Plant

Executive summary

CHA for Kestanederesi WPP Project has been undertaken in line with IFC PS6 and corresponding GN to identify areas which are considered as critical habitats and critical habitats triggering species. The CHA presents the screening of biodiversity features and threatened wildlife, and plant species identified.

This report aims to identify Critical Habitat and PBF-qualifying biodiversity values associated with the Project, Natural and Modified Habitat, and identify data gaps and the need for additional field surveys, if any. Thus, based on these aims, literature searches, desktop and field studies were conducted, nationally and internationally recognized areas were considered within EAAA. In line with PS6 and corresponding GN, the critical habitats, critical habitat triggered species and important biodiversity features were determined considering that the critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to CR and/or EN species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes within EAAA.

Due to a combination of uncertainties with the Project specific data and global and/or regional availability of relevant literature for some species, a high-level assessment was accomplished for the present CHA. This CHA study should be considered preliminary, as extensive additional baseline surveys have been scheduled in 2024 for flora, fauna, birds, bats, and invertebrate species to enhance the baseline by addressing data quality and quantity. As a living document, the present CHA is expected to undergo significant revision after the data gaps have been bridged following the additional baseline collection.

In light of the assessment, three habitats were determined as priority biodiversity feature. Additionally, three bird species, 11 plant species, 9 bat species, one reptile and 2 invertebrates were identified as PBF for a total of 26 PBF triggers.

1 Introduction

1.1 Project Background

Enerjisa Üretim Santralleri Anonim Şirketi has been awarded to invest in the Aydın Connection Region on 30 May 2019 within the scope of “Renewable Energy Resource Areas (YEKA) Regulation” and “Allocation of Wind Energy Based Renewable Energy Resource Areas (YEKA) and Total Connection Capacities”. Upon this award, a “YEKA Use Rights Agreement” was signed between Enerjisa Üretim Santralleri Anonim Şirketi and Ministry of Energy and Natural Resources (MoENR) on 09 March 2020. Subsequently, the “YEKA Use Rights Agreement” signed by Enerjisa Üretim Santralleri Anonim Şirketi for the Aydın Connection Region was transferred to Enerjisa Enerji Üretim Anonim Şirketi (“Enerjisa Üretim” or “the Project Company”) with the transfer agreements signed on 3 June 2021.

Kestanederesi WPP Project (“the Project”) with 28 turbines and 117.6 MWm/117.6 MWe total installed power, is planned to be implemented by Enerjisa Üretim in Aydın Province, Nazilli and Kuyucak Districts, Yukarıyakacık and Ağıryakacık Neighbourhoods; Manisa Province, Alaşehir District, Kestanederesi Neighbourhood; and İzmir Province, Kiraz District, Akpınar Neighbourhood. The Project components consist of 28 turbines, a switchyard, an administrative building, Project roads (i.e., access and site roads), a 300 tonnes/hour capacity mobile crushing and screening facility, as well as an energy transmission line (ETL) as a Project associate facility. The Project is part of a nine-project wind energy investment package initiated by Enerjisa Üretim which has a 750 MW total installed power from a total of 180 wind turbines located in the Aegean Region of western Turkey; aiming to evaluate and utilize the wind energy potential of the region in an efficient manner and contribute to the national strategy and regional economy.

1.2 Scope of the Study

This report includes CHA for Kestanederesi WPP Project, that has been undertaken in line with IFC PS6 and corresponding GN to identify areas which are considered as critical habitats.

PS6 makes several stipulations for Critical Habitat, including achievement of a net gain for Critical Habitat-qualifying biodiversity. A net gain is required for all Critical Habitat features potentially affected by the Project. Where significant residual adverse effects are not predicted, additional conservation actions supported by qualitative evidence and expert opinion may be sufficient to substantiate a net gain. If, however, after the application of feasible preventive and restorative actions in the first steps of the mitigation hierarchy (avoid, mitigate, restore), there is a potentially significant residual impact on a Critical Habitat qualifying feature then ecological compensation (offset) is required with measurable conservation outcomes at an appropriate geographical scale. In Natural Habitat, no net loss, where possible, is required. A robust project specific ESIA baseline is vital, followed by an iterative and thorough application of the mitigation hierarchy to ensure that impacts are avoided, minimized, and restored as far as feasible, reducing the significance of any residual impacts and the requirement for offsetting.

This report is a living document and hence, should be updated to reflect increased understanding of Project program and design throughout construction and operation (until agreed otherwise by Project Lenders) and should also be informed by new information as it becomes available (e.g., as obtained from ongoing/pre-construction surveys or as received from pertinent stakeholders).

The National EIA baseline collected for the Project includes flora, fauna, bird, and bat surveys. These surveys were conducted according to national frameworks and while highly informative for an otherwise ill-studied region in terms of biodiversity (Boz Mountains), are relatively less comprehensive than as prescribed in international guidelines and best practices. Therefore, several deficiencies with each study were identified in terms of data quality and quantity.

One general deficiency that applied to all National EIA studies was that they did not cover roads and ETL route. Flora surveys had data gaps due to changes to turbine locations, as surveys were conducted according to a previously identified turbine layout, which was later changed. Bird surveys were designed according to NatureScot VP methodology, but survey design had deviations from the methodology, and there were uncertainties regarding methodology of Collision Risk Modelling. There were also data gaps pertaining to breeding bird surveys, breeding raptors and summer season coverage. Turkish Breeding Bird Atlas (which is the study incorporated into EBBA and consequently EBBA2), reported insufficient coverage for the atlas square associated with the Project. Furthermore, since Türkiye hosts multiple major and minor migratory routes of birds, bird studies, consisting of only one year at Projects where white and grey literature is not available, does not yield accurate results, and at least two years is needed for satisfactory conclusions. Bat studies did not cover the turbine swept areas well and consisted of only one season. Invertebrate studies were not conducted as part of National EIA, and publications from the region are either very dated or not available. Further details about each study and deficiencies are listed under ESIA Chapter 12 of the Project.

A comprehensive baseline collection study consisting of flora, fauna, birds, bats, and invertebrates was scheduled for 2024 the results of which will enable significant refinement of the present CHA. The studies will close the data gaps described in the previous paragraph. Flora and terrestrial fauna surveys in ecologically appropriate season will cover sensitive species and areas previously not studied. Bird surveys will complete the second year of surveys for year-on-year coverage, include ETL route, provide better visual and seasonal coverage, and expand the breeding bird surveys with line distance sampling. Bat surveys will significantly expand the spatial coverage, number of consecutive nights per season, and 3 seasons will be covered. Invertebrate surveys were previously not conducted and will enhance the baseline as well.

2 Approach

In accordance with IFC PS6, habitats are divided into modified, natural and critical habitats. Critical habitats can be either modified or natural habitats supporting high biodiversity value, including:

- Habitat of significant importance to CR and/or EN species (IUCN Red List)
- Habitat of significant importance to endemic and/or restricted-range species
- Habitat supporting globally significant concentrations of migratory species and/or congregatory species
- Highly threatened and/or unique ecosystems
- Areas associated with key evolutionary processes

PS6 guides how to best identify three classes of area based on vegetation condition ('quality' or 'state'), and significance for biodiversity (see. Table 2-1). PS6 uses the term 'habitat' to refer to these areas, rather than the actual vegetation within them. These three-area classes are (i) Modified Habitat; (ii) Natural Habitat; and (iii) Critical Habitat (with Critical Habitat a subset of Modified and Natural Habitat).

Habitat condition is classified as either Natural or Modified based on the extent of human modification of the ecosystem. Monoculture plantations, agricultural areas and urban areas are usually classed as Modified. Both Natural and Modified Habitats may contain globally important biodiversity values, thereby qualifying as Critical Habitat.

Table 2-1 Habitat Classes

Areas Identified in PS6		Condition of the Area	
		Natural	Modified
High Biodiversity Values	Present	Critical Habitat	Critical Habitat
	Absent	Natural Habitat	Modified Habitat

Since habitat destruction is recognized as a major threat to the maintenance of biodiversity and to assess likely significance of impacts, IFC PS6 requires the following depending on habitat status:

Modified habitats are 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.

Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands.

PS6 applies to those areas of modified habitat that include significant biodiversity value, as determined by the risks and impacts identification process required in PS1. The client should minimize impacts on such biodiversity and implement mitigation measures as appropriate.

Natural habitats are 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.

The client will not significantly convert or degrade natural habitats, unless all of the following are demonstrated:

- No other viable alternatives within the region exist for development of the project on modified habitat;
- Consultation has established the views of stakeholders, including Affected Communities, with respect to the extent of conversion and degradation; and
- Any conversion or degradation is mitigated according to the mitigation hierarchy.

In areas of natural habitat, mitigation measures will be designed to achieve no net loss of biodiversity where feasible. Appropriate actions include:

- Avoiding impacts on biodiversity through the identification and protection of set asides,
- Implementing measures to minimize habitat fragmentation, such as biological corridors;
- Restoring habitats during operations and/or after operations; and
- Implementing biodiversity offsets

Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to CR and/or EN species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.

- In areas of critical habitat, the client will not implement any project activities unless all of the following are demonstrated.
- No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical;
- The project does not lead to measurable adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values;
- The project does not lead to a net reduction in the global and/or national/regional population of any CR or EN species over a reasonable period of time; and
- A robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the client's management program.

In such cases where a client is able to meet the requirements defined above, the project's mitigation strategy will be described in a BAP and will be designed to achieve net gains of those biodiversity values for which the critical habitat was designated.

2.1 Applicable Guidelines and Standards

2.1.1 National Requirements

The primary framework of the Turkish legislation for environmental legislation is the Environmental Law (Law No: 2872). National laws and regulations regarding protection of the habitats and species are listed in Table 2-2.

Table 2-2: National Legislation on Biodiversity

Legislation (Official Gazette Date/Number - Last Revision Date)	National Strategy Documents
Law on National Parks (11.08.1983/18132 - 09.07.2018)	National Plan on on-site Protection of Plant Genetic Diversity (1998)
Terrestrial Hunting Law (11.07.2003/25165 - 28.10.2020)	National Environmental Action Plan (1999)
Law on Animal Protection (01.07.2004/25509 - 13.12.2010)	National Forestry Program (2004)
Regulation on the Protection of Wetlands (04.04.2014/28962 - 23.06.2022)	Climate Change Action Plan (2012)
Regulation for Implementing the Convention on International Trade in EN Species of Wild Fauna and Flora (27.12.2001/24623 - 20.07.2019)	Turkish National Action Plan against Desertification (2015)
Regulation on Protection of Wildlife and Wildlife Development Areas (08.11.2004/25637)	National Rural Development Strategy (2015)
Law on Protection of Cultural and Natural Assets (23.07.1983/18113 - 15.06.2022)	National Biological Diversity Strategy and Action Plan (2019)
Regulation on Collection, Protection and Usage of Plant Genetic Resources (19.07.2012/28358)	
Law on Fisheries (04.04.1971/ 13799 - 17.02.2021)	
The Environmental Protection Agency for Special Areas (08.07.2011/ 27988)	
Environment Law (11.08.1983 / 18132 - 15.06.2022)	
Forestry Law (08.09.1956 / 9402 - 25.12.2021)	
Law on Pasture (28.02.1998 / 23272 - 18.01.2019)	
Law on Coastal Areas Management (17.04.1990 / 20495 - 28.10.2020)	

2.1.2 International Requirements

International agreements, conventions, and protocols regarding protection of the habitats and species are listed below:

- The Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention) (1981)
- The Convention on the Conservation of European Wildlife and Natural Habitats (BERN) (1984)
- United Nations Framework Convention on Climate Change (1994)
- RAMSAR (1994)
- The UN Convention on Biological Diversity (1997) and Cartagena Protocol on Biosafety (2004)
- Kyoto Protocol (2009)
- The Convention on International Trade in EN Species of Wild Fauna and Flora (CITES) (1996)
- Paris Agreement (2016)

2.1.3 Project Standards

The Project, which will be realized using the planned financing provided by a group of development finance institutions and commercial lenders, jointly “Project Lenders” and with partial coverage by the German ECA Euler Hermes Aktiengesellschaft (“EH”). The Project Company intends to develop the Project in alignment with the policy and requirements of the Lenders (i.e., EP IV, IFC and EBRD standards).

The international lender standards concerning biodiversity for the Project are represented by the IFC PS6 and related GN6, EBRD PR6 and GN6 as well as Equator Principles IV (EP IV).

The impact assessment and CHA are carried out in accordance with the following international requirements:

- IFC PSs on Environmental and Social Sustainability,
- EBRD's Environmental and Social Policy and PRs
- IUCN Red List of Threatened Species
- The Birds Directive (2009/147/EC)
- The Habitats Directive (92/43/EEC10)
- Post-construction Bird and Bat Fatality Monitoring for Onshore Wind Energy Facilities in Emerging Market Countries - Good Practice Handbook (2023)

The IFC PS6 objectives can be listed as:

- To protect and conserve biodiversity,
- To maintain the benefits from ecosystem services,
- To promote the sustainable management of living natural resources through the adoption of practices that integrates conservation needs and development priorities.

Similarly, the EBRD PR6 objectives are as defined below:

- Protect and conserve biodiversity using a precautionary approach,
- Adopt the mitigation hierarchy in the design and implementation of projects with the aim of achieving no net loss, and where appropriate, a net gain of biodiversity,
- Maintain ecosystem services, and
- Promote good international practice in the sustainable management and use of living natural resources.

2.2 Data Collection

The baseline collection methodology relies primarily on desktop components which are detailed below and the data from field surveys conducted as part of National EIA. The Consultant conducted a brief site reconnaissance visit as well. Protected areas and internationally recognized areas such as KBAs and IBAs within the AoA was identified. Such areas require consideration as they provide an indicator of the likely presence of CH-qualifying biodiversity (IFC 2019, GN54) and carry specific requirements under IFC PS6.

2.2.1 Desktop Study

An exhaustive desktop review of the study area comprises the major component of the present Biodiversity study. The desktop component was performed perusing the following:

- National EIA report and its appendices
 - Appendix 18 – Beekeeping Report
 - Appendix 24 – Flora, Fauna, and Ornithology Report
 - Appendix 25 – Bat Report
 - Appendix 26 – Ornithology Report
- Relevant publicly available peer-reviewed literature
- White and grey literature
- Public biodiversity databases
 - eBird¹,

¹ Retrieved November 28, 2023, from Ebird.org.

- European Breeding Bird Atlas²
- iNaturalist³,
- Tramem⁴,
- Trakel⁵,
- Trakus⁶,
- Movebank⁷,
- Global Invasive species database⁸,
- Bizimbitkiler⁹
- Satellite imagery and maps
- Opinions of local biodiversity experts (formal / informal)
- Internationally recognized areas
 - KBAs
 - IBAs
- IUCN Red List
- Nationally threatened species
- BERN convention and appendices
- EU Habitats Directive
 - Annex I habitats
 - Annex II/IV species

Baseline information on terrestrial and aquatic ecology has been collected through ecological surveys conducted within the scope of the National EIA study. Accordingly, the timings of the field studies carried out are given below;

- For flora surveys, three field visits, lasting three days each, in April and May 2022 (National EIA).
- For bat surveys, 8 day/nights of surveys were conducted in August-September 2021 (National EIA).
- For ornithological surveys, two separate studies were conducted. (National EIA).
 - The first study was conducted in 2021 autumn (early August, late August, late September, early November) and 2022 spring (mid-March, late March, early April, mid-April, early May, mid-May, late May) migratory seasons in the Project area.
 - The second study is mainly a desktop study with a site visit component in April-May 2022.
- For terrestrial fauna (non-bat mammals, amphibians, reptiles), in March, April and May 2022. (National EIA).

² Retrieved November 28, 2023, from ebba2.info

³ Retrieved November 28, 2023, from Inaturalist.org.

⁴ Retrieved November 28, 2023, from Tramem.org.

⁵ Retrieved November 28, 2023, from Trakel.org.

⁶ Retrieved November 28, 2023, from Trakus.org.

⁷ Retrieved November 28, 2023, from movebank.org.

⁸ Retrieved November 28, 2023, from iucngisd.org.

⁹ Retrieved November 28, 2023, from Bizimbitkiler.org.tr.

- The observations and examinations were conducted in and around the Project area to assess the ecological structure, vegetation, soil composition, pollinators, and the presence of honeybees on 19 March 2022 (National EIA).

2.2.2 Field Surveys

Given the limited timescale, it was not possible to undertake the biodiversity baseline surveys during appropriate season before the completion of the CHA. It was possible to conduct a brief site visit (one day) which can be described as a site reconnaissance visit.

On 27 September 2023, the Project area was partially visited by two biodiversity consultants of Mott MacDonald. Project area was approached from Oren Village arriving first at the mobilization area. Then locations of T3, T4 and T5 turbines were able to be accessed by the Consultant. The Consultant conducted brief point bird counts and transect walks for flora and terrestrial fauna at each location.

The visit was partial due to the following reasons,

- Access and site roads are only partially accessible by all-terrain vehicle,
- Limited time was available to cover the site on foot,
- Given the constraints, the visit was intended not as an exhaustive site assessment but as a rapid evaluation.

Due to the seasonality (autumn) and weather conditions (rain, high winds) of the day, the visit only provided an opportunity for general observations about habitat characteristics, especially for birds and bats.

For the ecosystem services aspects of the CHA, the use and functions of the flora/habitat was recorded. Information on the use of flora is provided by the field botanist, but interviews with local people were also carried out to validate the data.

If some features were not observed by the Consultant during this visit, it does not necessarily indicate such features are not present and/or abundant.

2.3 Identification of Ecologically Appropriate Area of Analysis

The Project consists of 28 turbines and their pads, the site and access roads, the switchyard area, and the entire length of the ETL and pylons. Although the ETL and pylons are owned and operated by TEIAS, the standards of Project Lenders include these structures, along with the site roads and access roads, in impact assessments and subsequent adaptive management and monitoring programmes.

The investigation into the region's ecology was carried out to define an EAAA, to determine the presence of features that may qualify for Critical Habitat. The EAAA was identified at a scale IAoI of the Project area, considering large-scale ecological processes. This approach ensures that all potential risks within the Project footprint and surrounding vicinity are taken into consideration.

The EAAA was defined using a combination of water catchments, topographic information, and legally protected areas and/or internationally recognized areas of high biodiversity value information and similar habitat types. Species with a very specific distribution and ecological requirements were taken into account in defining the EAAA.

For the purposes of this Draft ESIA, the EAAA for flora and terrestrial fauna (amphibians, reptiles and non-bat mammals) was designated as the wider Boz Mountains KBA borders. Further information regarding the KBA designation is provided under Section 12.3.3. The KBA borders neatly encompass the entire mountain range as an ecologically distinct unit. The EAAA

encompasses an area of 2362 km². The EAAA for flora and terrestrial fauna is shown on Figure 2-1.

Since the Project is situated at the eastern edge of the EAAA, and the expected interaction of the Project from the other directions need also be considered for birds and bats, the EAAA was modified to accommodate avifauna (birds and bats) by employing both the KBA borders, and additionally a 20 km zone around the Project footprint to sufficiently cover the roaming ranges of resident raptors, and migrant birds and bats. The EAAA for birds and bats encompasses an area of 3986 km² and is shown on Figure 2-2.

Within the EAAA, an Aol of the Project on biodiversity values was designated. For flora species, since the main expected impact source is ground preparation during construction phase, and secondary impacts of habitat degradation during operation, the Aol was designated as extending 2 km from the Project footprint. A similar approach was taken for terrestrial fauna species (amphibians, reptiles, and non-bat mammals) however since these species are more mobile, the Aol was designated as extending 5 km from all Project components. For avifauna (birds and bats), which are highly mobile and migratory, and can utilize much larger territories, the extent of impact needs to be studied in a wider area. The primary expected impact source is due to interactions with moving and electrified Project components. Therefore, an Aol of 15 km was adopted. This Aol also ensures coverage of Project roads which are secondary sources of impact for avifauna. Project Aol for all taxa is shown on Figure 2-3.

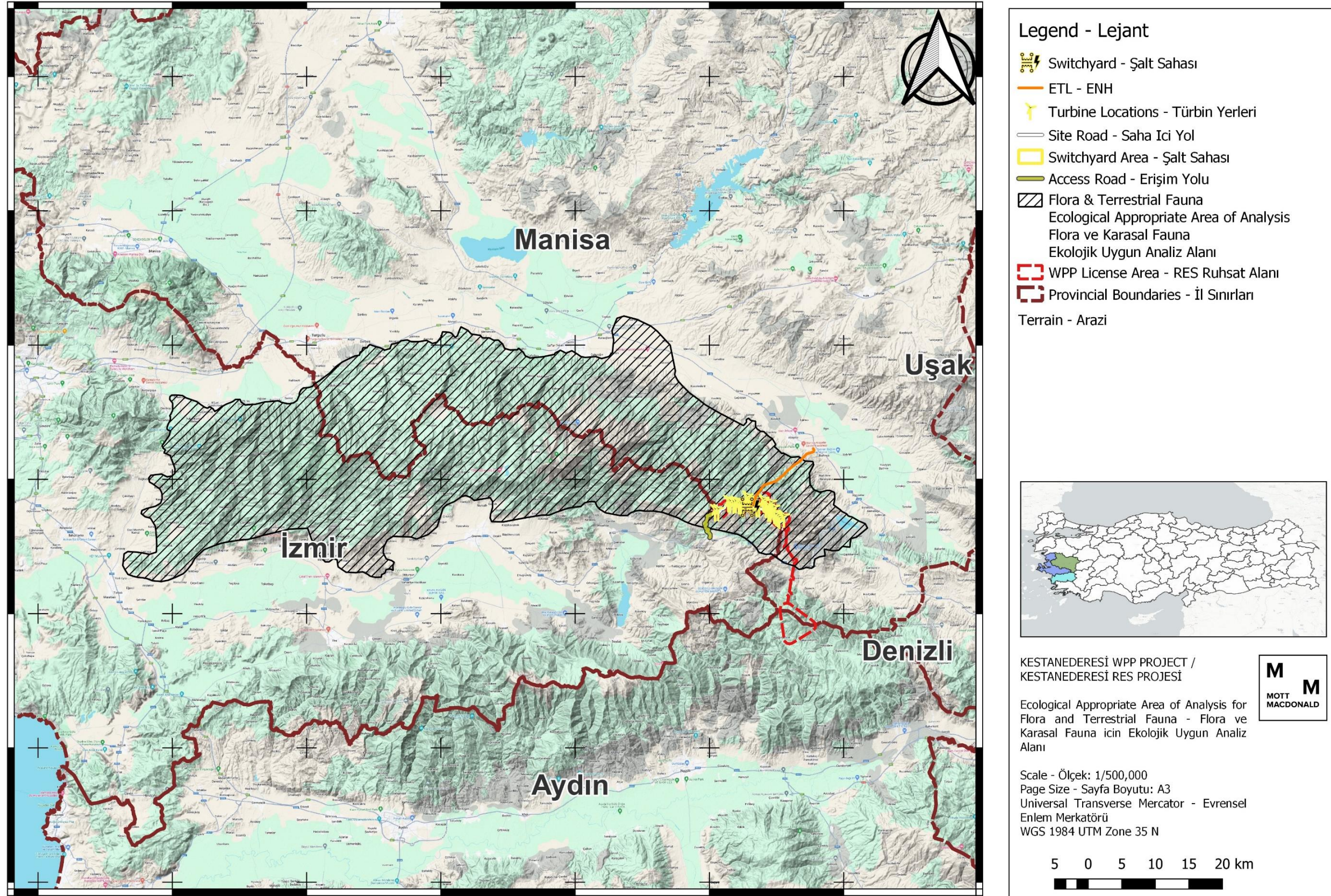


Figure 2-1: EAAA for Flora and Terrestrial Fauna for the Project

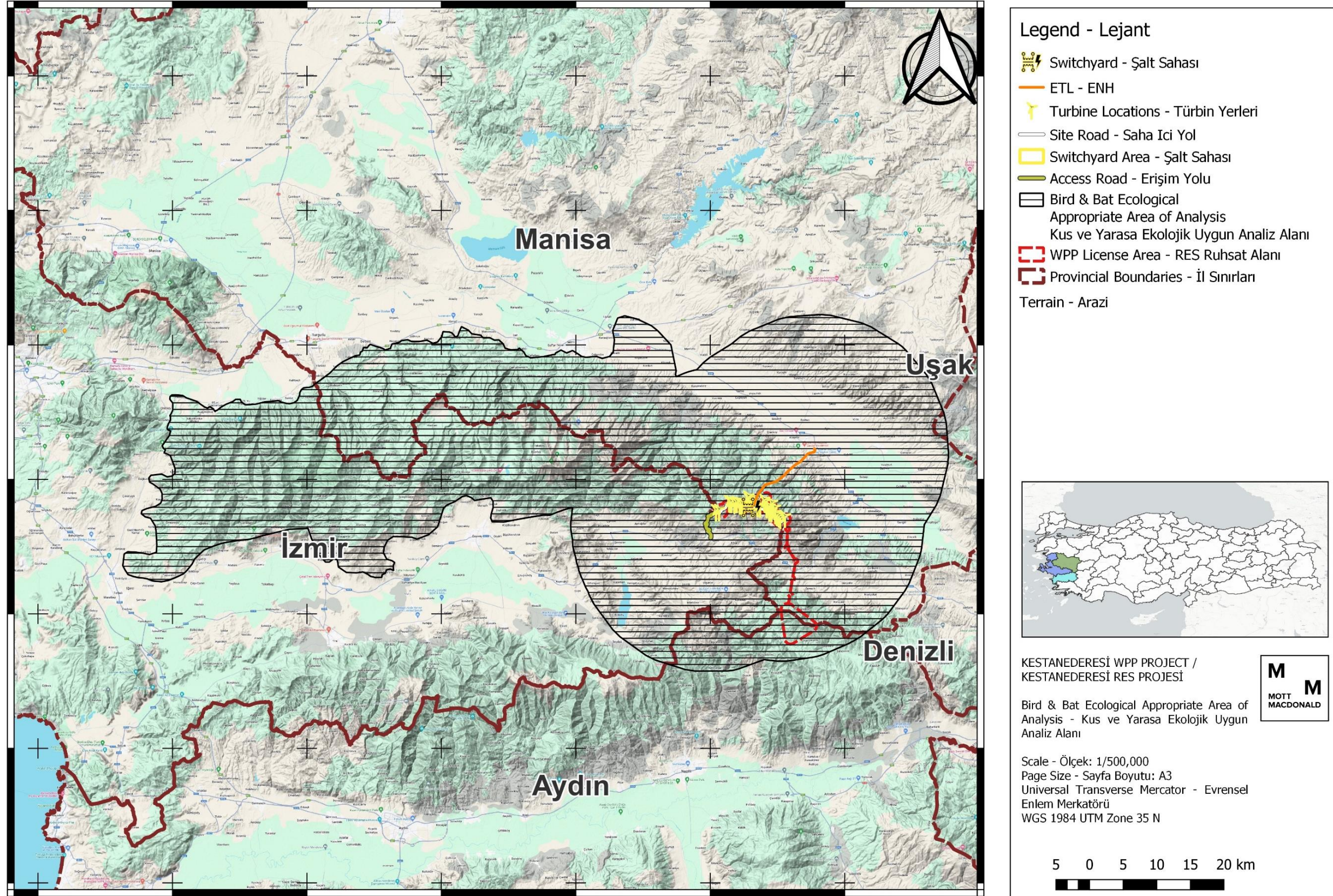


Figure 2-2: EAAA for Birds and Bats for the Project

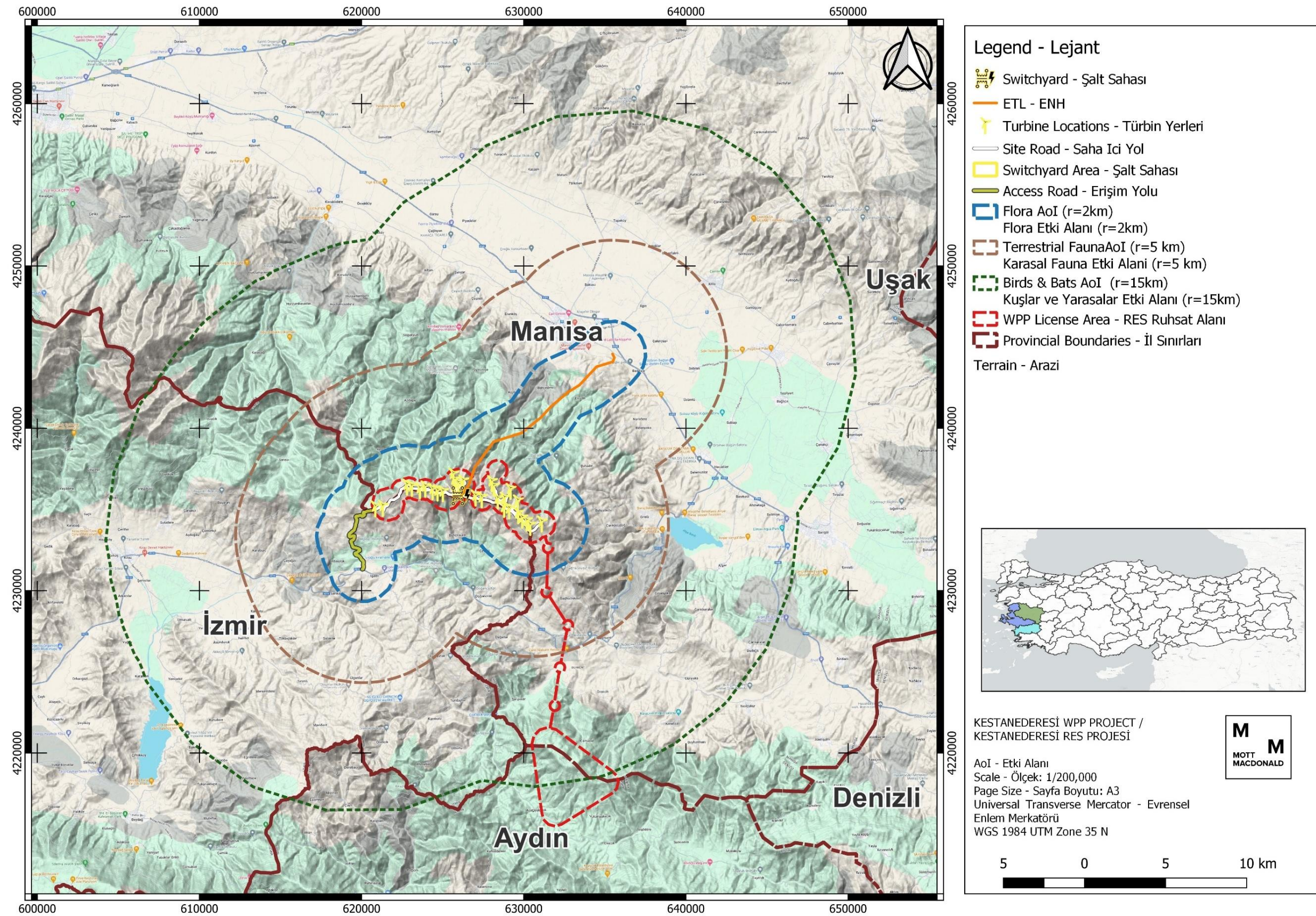


Figure 2-3: AoI for different biological taxa for the Project

2.4 Limitations and Assumptions

The consultant undertakes the CHA study given the following important caveats and limitations:

- 1. Field survey duration:** A limited field survey was undertaken which can be described better as a field reconnaissance survey that lasted one day. Given the limited timescale, it was not possible to undertake the biodiversity baseline surveys for appropriate duration or effort before the completion of the CHA study.
- 2. Field survey season:** The season (autumn) and weather conditions (rainy) of the reconnaissance survey was not very conducive to studying the biodiversity features of the Project. Only a general impression of the habitat characteristics was obtained.
- 3. Field survey coverage:** Only a limited portion of the Project area was able to be accessed. The entirety of the Project was not visited due to lack of vehicle accessible roads and lack of time to cover the area on foot.
- 4. Desktop analysis:** The desktop component relies heavily on National EIA field studies at the Project area. However, important deficiencies with the field studies were identified and described in respective sections for each species groups.
- 5. CHA:** Due to time constraints and the quality of the field data available from the National EIA study, only a high-level CHA is able to be conducted.
- 6. Additional baseline:** Surveys for baseline collection in 2024 were scheduled by the Project company and will be used to update the present CHA study.

2.5 Critical Habitat Assessment Criteria

A high-level screening was undertaken to identify the likely occurrence of species and habitats that could trigger Critical Habitat using the IFC PS6 GN6 (IFC, 2019). These species included IUCN CR and EN species, restricted-range and migratory/ congregatory species that were identified with IUCN geographic ranges within the EAAA. Likelihood of occurrence was evaluated based on consultation with local biodiversity specialists, landcover mapping, habitat preferences of the species etc.

Critical Habitat Criteria are as follows and should form the basis of any CHA:

- Criterion 1: CR and/or EN species
- Criterion 2: Endemic or restricted-range species
- Criterion 3: Migratory or congregatory species
- Criterion 4: Highly threatened and/or unique ecosystems
- Criterion 5: Key evolutionary processes

Projects that are located within internationally and/or nationally recognized areas of high biodiversity value may require a CHA. Examples include the following:

- Areas that meet the criteria of the IUCN's Protected Area Categories Ia, Ib and II,
- KBAs, which encompass IBAs and KBAs,
- UNESCO Natural and Mixed World Heritage Sites,
- Sites that fit the designation criteria of the AZE

Quantitative thresholds for triggering Critical Habitat for Criteria 1-4 are described in Table 2-3.

Table 2-3: Quantitative thresholds for triggering Critical Habitat for Criteria 1-4

Criteria	Quantitative Thresholds
1. CR / EN Species	<p>(a) Areas that support globally important concentrations of an IUCN Red-listed EN or CR species ($\geq 0.5\%$ of the global population AND ≥ 5 reproductive units of a CR or EN species).</p> <p>(b) Areas that support globally important concentrations of an IUCN Red-listed VU species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds in GN72(a).</p> <p>(c) As appropriate, areas containing important concentrations of a nationally or regionally listed EN or CR species.</p>
2. Endemic / Restricted-range Species¹⁰	(a) Areas that regularly hold $\geq 10\%$ of the global population size AND ≥ 10 reproductive units of a species.
3. Migratory / Congregatory Species	<p>(a) Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.</p> <p>(b) Areas that predictably support ≥ 10 percent of the global population of a species during periods of environmental stress.</p>
4. Highly Threatened / Unique Ecosystems	<p>(a) Areas representing $\geq 5\%$ of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.</p> <p>(b) Other areas not yet assessed by IUCN but determined to be of high priority for conservation by regional or national systematic conservation planning.</p>

Criterion 1-3: Species Biodiversity Values

In evaluating Kestanederesi WPP biodiversity values for criterion 1-3, species demonstrated to regularly occur on site (confirmed through survey or considered likely to be present) were screened against the relevant criteria listed in the table above. Taking into consideration factors such as habitat suitability, movements patterns, foraging and breeding habits within the EAAA were assessed for each species to identify potential critical habitat triggers. Since the population size data of the species in the Project area is in the form of relative abundance for the flora species, the population data was evaluated accordingly.

Relative abundance is calculated by local abundance / dominance method using Braun-Blanquette and Pavillard cover percentage scale. The scale is given below:

- Abundant species, weak cover percentage 1
- Abundant species or cover percentage more than 5% 2
- Cover percentage between 25% and 50% 3
- Cover percentage between 50% and 75% 4
- Cover percentage between 75% and 100% 5

For bat species, since both Bat Activity Index is unavailable from the Project area (or a nearby comparable project), and population (global and regional) data are very limited, it is not feasible to undertake CHA based on population sizes and predicted impact on populations. Therefore, all available information was gathered for the species which were observed or clearly indicated in literature for the area, and Priority Biodiversity Feature designations were made based on assigning 1 point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. Species which scored 2 or 3 were included as Priority biodiversity feature.

¹⁰ For terrestrial vertebrates and plants, restricted-range species are defined as those species that have an EOO less than 50,000 km²

For coastal, riverine, and other aquatic species in habitats that do not exceed 200 km width at any point (for example, rivers), restricted range is defined as having a global range of less than or equal to 500km linear geographic span (i.e., the distance between occupied locations furthest apart).

Criterion 4: Highly Threatened / Unique Ecosystems

A desk study was undertaken to identify if a formal IUCN Red List of Ecosystems assessment has been performed in the EAAA. Where no formal IUCN assessment has been undertaken, a search for national/regional level assessments, which use systematic methods, is undertaken and identified. The presence of Annex I priority habitats designated in the EU Habitats Directive was also considered in line with EBRD PR6.

Criterion 5: Key Evolutionary Processes

The structural attributes of a region, such as its topography, geology, soil, temperature, and vegetation, as well as combinations of these variables, can influence the evolutionary processes that give rise to regional configurations of species and ecological properties such as genetically unique populations or subpopulations of plant and animal species. Maintaining these key evolutionary processes inherent in a landscape as well as the resulting species (or subpopulations of species) is important for the conservation of genetic diversity. By conserving species diversity within a landscape, the processes that drive speciation, as well as the genetic diversity within species, ensure the evolutionary flexibility in a system.

The determination of critical habitat for Key Evolutionary Processes is determined qualitatively on a case-by-case basis and heavily reliant on scientific knowledge (IFC, 2019); therefore, a literature review would need to be undertaken as part of a full CHA to assess if the EAAA includes sites where key evolutionary processes occur for biodiversity values.

Priority Biodiversity Features (PBF)

PBF have a high, but not the highest, degree of irreplaceability and/or vulnerability. Although a level below critical habitat in sensitivity, they still require careful consideration during project assessment and impact mitigation.

EBRD PR6 defines PBF as including:

- threatened habitats,
- VU species,
- significant biodiversity features identified by a broad set of stakeholders or governments (such as KBAs or IBAs), and
- ecological structure and functions needed to maintain the viability of PBF.

3 Baseline Conditions

3.1 Internationally Recognised and Nationally Protected Areas

All turbine areas, as well as the majority of the ETL and Project roads (i.e., access roads and site roads) are located within Boz Mountains KBA. KBA was designated with a specific focus on flora species and six plant species are trigger for the KBA: *Bromus macrocladus*, *Colchicum micaceum*, *Ornithogalum improbum*, *Ornithogalum nivale*, *Pseudophleum gibbum* and *Sternbergia lutea*. It should also be noted here that *Sternbergia lutea* is not endemic and its IUCN category is Least concern. Additionally, Apollo butterfly (*Parnassius apollo*), and a fish species, *Barbus pergamonensis* is a trigger for the KBA. Since freshwater habitats located within the Project Aol are seasonal streams, and no impact on surface water is expected as explained below, fish species was scoped out of the CHA. The Project is not located within a nationally protected area and the nearest protected area is 40 km away from the Project area.

3.2 Habitats and Flora

The recorded habitats of the Project are listed in the Table 3-1 below, along with their wide distribution areas within the Aol and Figure 3-1 shows the location of related habitat types in Aol. The amount of habitat lost due to access roads, site roads, turbine footprints, switchyard area and ETLs is given in Table 3.2, Table 3.3, Table 3.4, Table 3.5, Table 3.6.

Table 3-1: Habitat Types of the Project Aol

Broad habitat type	EUNIS Habitat Type	Extend within Project Aol (ha)	Percentage (%)
Woodland	G3.5 Pinus nigra woodland	2454.77	16.37 %
	G4.B Mixed Mediterranean pine - thermophilous oak woodland	1386.98	9.25 %
Step	E4.4 Alpine and subalpine grasslands	3944.56	26.31 %
Inland unvegetated or sparsely vegetated habitats	H2.6 Calcareous and ultra-basic screes of warm exposures	204.40	1.36 %
	H3.2 Boreal arctic base rich inland cliff (calcareous rocky slopes with chasmophytic vegetation)	17.71	0.12 %
Agricultural Fields	I1.1 Intensive unmixed crops	6558.54	43.75%
	I1.2 Mixed crops of market gardens and horticulture	229.25	1.53 %
Built-up Areas	J1 Building, Cities, towns, and villages	194.98	1.31 %

Table 3.2: Habitat Loss on Access Roads

EUNIS	Area (ha)	Percentage
E4.4 Calcareous alpine and subalpine grassland	1.62	0.041%
G3.5 Pinus nigra woodland	0.00	0.000%
H2.6 Calcareous and ultra-basic screes of warm exposures	0.00	0.000%
H3.2 Basic and ultra-basic inland cliffs	0.00	0.000%
I1.1 Intensive unmixed crops	5.84	0.089%
Total	7.46	

Table 3.3: Habitat Loss on Site Roads

EUNIS	Area (ha)	Percentage
E4.4 Calcareous alpine and subalpine grassland	23.06	0.5846%
G3.5 Pinus nigra woodland	0.14	0.0056%
H2.6 Calcareous and ultra-basic screes of warm exposures	2.81	1.3760%
H3.2 Basic and ultra-basic inland cliffs	0.26	1.4702%
I1.1 Intensive unmixed crops	1.03	0.0158%
Total	27.31	

Table 3.4: Habitat Loss on Turbine Footprint

EUNIS	Area (ha)	Percentage
E4.4 Calcareous alpine and subalpine grassland	33.31	0.8443%
G3.5 Pinus nigra woodland	0.00	0.0000%
H2.6 Calcareous and ultra-basic screes of warm exposures	7.12	3.4809%
H3.2 Basic and ultra-basic inland cliffs	1.60	9.0340%
I1.1 Intensive unmixed crops	0.39	0.0060%
Total	42.41	

Table 3.5: Habitat Loss on Switchyard Area

EUNIS	Area	Percentage
E4.4 Calcareous alpine and subalpine grassland	1.44624714	0.0367%
G3.5 Pinus nigra woodland	0	0.0000%
H2.6 Calcareous and ultra-basic screes of warm exposures	0	0.0000%
H3.2 Basic and ultra-basic inland cliffs	0	0.0000%
I1.1 Intensive unmixed crops	0	0.0000%
Total	1.44624714	

Table 3.6: Habitat Loss on ETL

EUNIS	Area (ha)	%
E4.4 Calcareous alpine and subalpine grassland	75.39447423	27.86%
G3.5 Pinus nigra woodland	37.11321336	13.71%
G4.B Mixed mediterranean pine - thermophilous oak woodland	52.16989023	19.28%
H2.6 Calcareous and ultra-basic screes of warm exposures	14.55142458	5.38%
I1.1 Intensive unmixed crops	88.81986548	32.82%
J2.3 Rural industrial and commercial sites still in active use	2.572122533	0.95%
Total	270.6209904	

A list of endemic species, based on all available information listed below, with their conservation status and whether they were encountered during field studies at the Project area is provided. A total of 167 plant taxa were identified. The full list of species is not presented in this document, endemic species are listed with National Red List¹¹ categories in Table 3-7. Given these species have not yet been evaluated by IUCN, national categories have been used.

¹¹ Ekim T. et al. 2000. Red Data Book of Turkish Plants. Türkiye Tabiatını Koruma Derneği. Ankara.

Table 3-7: Endemic Flora Species with National Red List Category

Scientific Name	National Red List Category	BERN	Source
<i>Amblyopyrum muticum</i> var. <i>muticum</i>	EN	-	L
<i>Bromus macrocladus</i>	EN	-	L
<i>Colchicum micaceum</i>	EN	-	L
<i>Ornithogalum improbum</i>	EN	-	L
<i>Sternbergia lutea</i>	LC		L
<i>Pseudophleum gibbum</i>	VU	-	L
<i>Astragalus pisidicus</i> Boiss. & Heldr.	VU	-	L
<i>Astragalus strictispinis</i> Boiss.	VU	-	L
<i>Salvia pisidica</i> Boiss. & Heldr. ex Benth.	VU	-	L
<i>Scutellaria orientalis</i> subsp. <i>carica</i> J.R.Edm.	VU	-	L
<i>Muscari aucheri</i> (Boiss.) Baker	LC	-	O
<i>Astragalus mesogitanus</i> Boiss.	LC	-	L
<i>Astragalus vulnerariae</i> DC.	LC	-	L
<i>Cytisopsis pseudocytisus</i> subsp. <i>reeseana</i> (Guyot) Lassen	LC	-	L
<i>Hedysarum cappadocicum</i> Boiss.	LC	-	L
<i>Trifolium caudatum</i> Boiss.	LC	-	L
<i>Marrubium globosum</i> Montbret & Aucher ex Benth.	LC	-	O
<i>Ornithogalum nivale</i>	LC	-	L

*L: Literature, O: Observation

The fact that there are few endemic taxa in the analysis area and that the IUCN criteria are mostly Least concern, can be attributed to the predominance of the vegetation type dominated by primary black pine forest and the fact that the areas have a uniform bedrock and climate type. In fact, this situation should be seen as the reason for its low diversity in the field.

None of KBA trigger species were observed in the field study. In addition, National EIA was conducted in an ecologically appropriate season (May 2022) for most species, and the relevant species could not be identified as part of the National EIA as well. This situation reduces the possibility of a critical flora species being present in the Project area. There is currently no evidence that KBA trigger flora species occur at the Project Aol, however since turbine locations were moved after National EIA studies were conducted, and since the detection of some species require surveys in June which were not conducted as part of the flora studies, a precautionary approach is adopted, and baseline will be clarified with further studies.

4 different tree types were identified as present in the Aol. These are black pine (*Pinus nigra*), turkey oak (*Quercus cerris*), cyprus oak (*Quercus infectoria*) and poplar (*Populus sp.*) species. Oak species form habitats together with black pines in the Project Aol. According to calculations conducted from forest stand data maps, a total of 4,081 trees are expected to be cut. Considering the changing turbine locations, the number of trees to be cut is expected to be less than given in National EIA, as the new turbine locations are not located in forest areas. In addition, trees cut for the Project would be deducted from the regional Forestry Department quota for the year; thus, no additional trees cut for the Project.

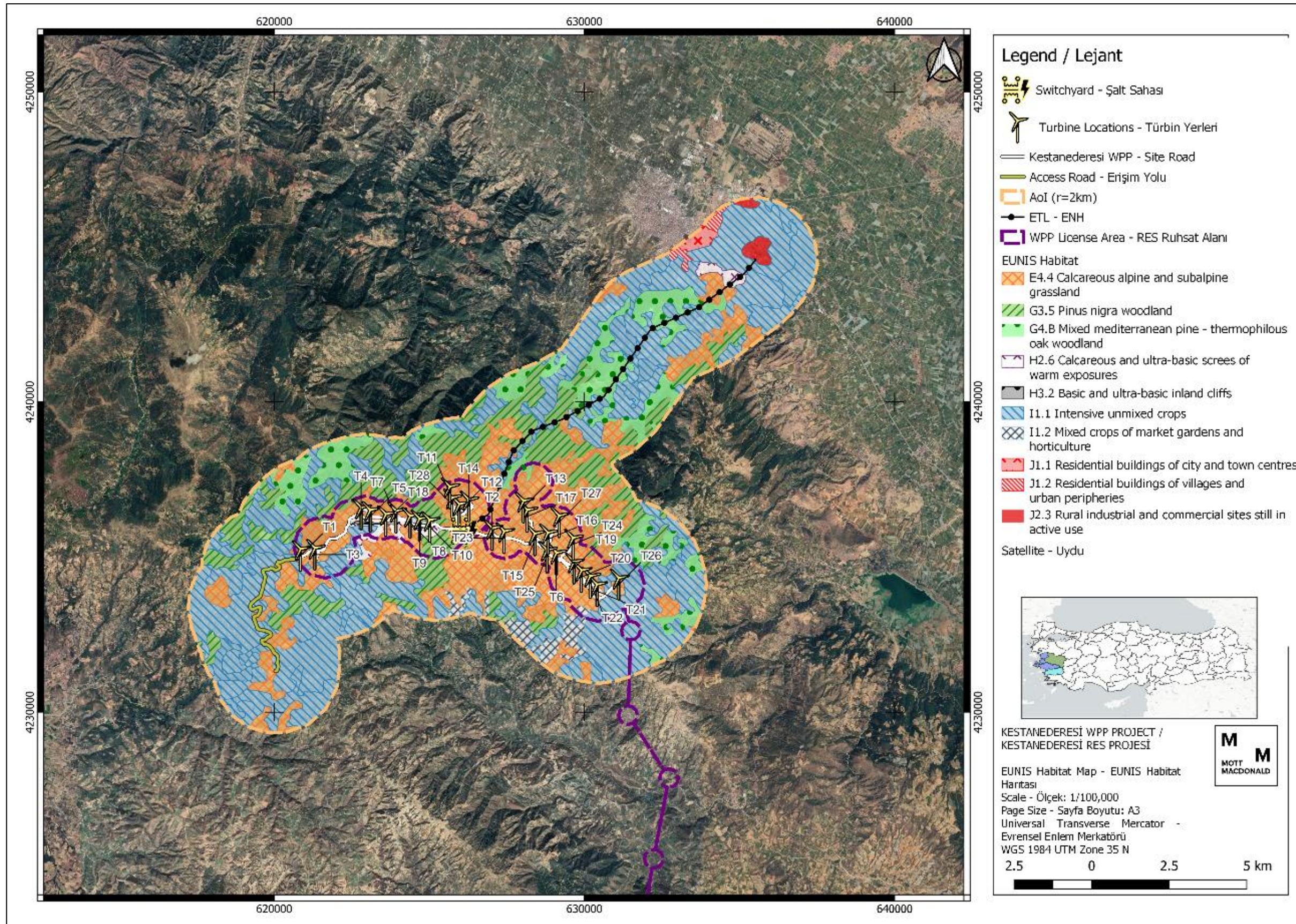


Figure 3-1. EUNIS habitat types of the Project

3.3 Fauna

3.3.1 Birds

A list of species, based on all available information, with their conservation status and whether they were encountered during field studies at the Project area is provided in Table 3-8.

Table 3-8: List of potential species, conservation status and whether they were observed in National EIA or are indicated in literature (L/O)¹²¹³.

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Ruddy Shelduck	<i>Tadorna ferruginea</i>	LC	-	Ann I	App II	O
Common Shelduck	<i>Tadorna tadorna</i>	LC	VU	-	App II	L
Garganey	<i>Spatula querquedula</i>	LC	NT	Ann II	App III	L
Northern Shoveler	<i>Spatula clypeata</i>	LC	EN	Ann II, III	App III	L
Gadwall	<i>Mareca strepera</i>	LC	VU	Ann II	App III	L
Eurasian Wigeon	<i>Mareca penelope</i>	LC	-	Ann II, III	App III	L
Mallard	<i>Anas platyrhynchos</i>	LC	-	Ann II, III	App III	O
Northern Pintail	<i>Anas acuta</i>	LC	VU	Ann II, III	App III	L
Green-winged Teal	<i>Anas crecca</i>	LC	NT	Ann II, III	App III	L
Red-crested Pochard	<i>Netta rufina</i>	LC	VU	Ann II	App III	L
Common Pochard	<i>Aythya ferina</i>	VU	VU	Ann II, III	App III	L
Ferruginous Duck	<i>Aythya nyroca</i>	NT	EN	Ann I	App III	L
Tufted Duck	<i>Aythya fuligula</i>	LC	-	Ann II, III	App III	L
Greater Scaup	<i>Aythya marila</i>	LC	-	Ann II, III	App III	L
Common Scoter	<i>Melanitta nigra</i>	LC	-	Ann II, III	App III	L
Common Goldeneye	<i>Bucephala clangula</i>	LC	-	Ann II	App III	L
Smew	<i>Mergellus albellus</i>	LC	-	Ann I	App II	L
White-headed Duck	<i>Oxyura leucocephala</i>	EN	EN	8I	App II	L
Common Quail	<i>Coturnix coturnix</i>	LC	VU	Ann II	App III	O
Chukar	<i>Alectoris chukar</i>	LC	VU	Ann II	App III	O
Rock Pigeon	<i>Columba livia</i>	LC	-	Ann II	App III	O
Stock Dove	<i>Columba oenas</i>	LC	VU	Ann II	App III	O
Common Wood-Pigeon	<i>Columba palumbus</i>	LC	NT	Ann II, III	-	O
European Turtle-Dove	<i>Streptopelia turtur</i>	VU	VU	Ann II	App III	O
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	LC	-	Ann II	App III	O
Laughing Dove	<i>Spilopelia senegalensis</i>	LC	-	-	App III	L
Little Bustard	<i>Tetrax tetrax</i>	NT	CR	Ann I	App II	L
Common Cuckoo	<i>Cuculus canorus</i>	LC	DD	-	App III	O

¹² Compiled from eBird, National EIA studies, studies at nearby wind farms and other grey literature.

¹³ National status: Kirwan, G., Demirci, B., Welch, H., Boyla, K., Özen, M., Castell, P., & Marlow, T. 2008. *The Birds of Turkey*.

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Eurasian Nightjar	<i>Caprimulgus europaeus</i>	LC	-	Ann I	App II	O
Alpine Swift	<i>Tachymarptis melba</i>	LC	-	-	App II	L
Common Swift	<i>Apus apus</i>	LC	-	-	App III	O
Pallid Swift	<i>Apus pallidus</i>	LC	DD	-	App II	L
Corn Crane	<i>Crex crex</i>	LC	EN	Ann I	App II	L
Eurasian Coot	<i>Fulica atra</i>	LC	-	Ann II, III	App III	L
Common Crane	<i>Grus grus</i>	LC	EN	Ann I	App III	L
Demoiselle Crane	<i>Anthropoides virgo</i>	LC	CR	Appendix III	App II	L
Jack Snipe	<i>Lymnocyptes minimus</i>	LC	-	Ann II, III	App III	L
Common Sandpiper	<i>Actitis hypoleucos</i>	LC	VU	-	App II	L
Yellow-legged Gull	<i>Larus michahellis</i>	LC	-	Ann II	-	L
Black Stork	<i>Ciconia nigra</i>	LC	-	Ann I	App II	O
White Stork	<i>Ciconia ciconia</i>	LC	-	Ann I	App II	O
Great White Pelican	<i>Pelecanus onocrotalus</i>	LC	EN	Ann I	App II	L
Dalmatian Pelican	<i>Pelecanus crispus</i>	NT	VU	Ann I	App II	L
Great Bittern	<i>Botaurus stellaris</i>	LC	VU	Ann I	App II	L
Little Bittern	<i>Ixobrychus minutus</i>	LC	NT	Ann I	App II	L
Gray Heron	<i>Ardea cinerea</i>	LC	-	-	App III	O
Purple Heron	<i>Ardea purpurea</i>	LC	VU	Ann I	App II	L
Great Egret	<i>Ardea alba</i>	LC	EN	Ann I	App II	L
Little Egret	<i>Egretta garzetta</i>	LC	NT	Ann I	App II	L
Cattle Egret	<i>Bubulcus ibis</i>	LC	VU	-	App II	L
Squacco Heron	<i>Ardeola ralloides</i>	LC	VU	Ann I	App II	L
Glossy Ibis	<i>Plegadis falcinellus</i>	LC	EN	Ann I	App II	L
Eurasian Spoonbill	<i>Platalea leucorodia</i>	LC	EN	Ann I	App II	L
Osprey	<i>Pandion haliaetus</i>	LC	DD	Ann I	App II	L
Egyptian Vulture	<i>Neophron percnopterus</i>	EN	VU	Ann I	App II	O
European Honey-buzzard	<i>Pernis apivorus</i>	LC	NT	Ann I	App II	O
Cinereous Vulture	<i>Aegypius monachus</i>	NT	EN	Ann I	App II	L
Eurasian Griffon	<i>Gyps fulvus</i>	LC	EN	Ann I	App II	L
Bearded Vulture	<i>Gypaetus barbatus</i>	NT	EN	Ann I	App II	L
Short-toed Snake-Eagle	<i>Circaetus gallicus</i>	LC	VU	Ann I	App II	O
Lesser Spotted Eagle	<i>Clanga pomarina</i>	LC	EN	Ann I	App II	L
Greater Spotted Eagle	<i>Clanga clanga</i>	VU	VU	Ann I	App II	L
Lesser Spotted Eagle	<i>Clanga pomarina</i>	LC	EN	Ann I	App II	L
Booted Eagle	<i>Hieraetus pennatus</i>	LC	VU	Ann I	App II	O
Steppe Eagle	<i>Aquila nipalensis</i>	EN	CR	-	App II	L
Imperial Eagle	<i>Aquila heliaca</i>	VU	EN	Ann I	App II	L
Golden Eagle	<i>Aquila chrysaetos</i>	LC	-	Ann I	App II	O
Bonelli's Eagle	<i>Aquila fasciata</i>	LC	EN	Ann I	App II	L

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Eurasian Marsh-Harrier	<i>Circus aeruginosus</i>	LC	NT	Ann I	App II	L
Hen Harrier	<i>Circus cyaneus</i>	LC	DD	Ann I	App II	L
Pallid Harrier	<i>Circus macrourus</i>	NT	CR	Ann I	App II	L
Montagu's Harrier	<i>Circus pygargus</i>	LC	EN	Ann I	App II	L
Levant Sparrowhawk	<i>Accipiter brevipes</i>	LC	VU	Ann I	App II	L
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	LC	NT	-	App II	O
Northern Goshawk	<i>Accipiter gentilis</i>	LC	NT	-	App II	O ¹⁴
Black Kite	<i>Milvus migrans</i>	LC	EN	Ann I	App II	L
Red Kite	<i>Milvus milvus</i>	LC	DD	Ann I	App II	L
White-tailed Eagle	<i>Haliaeetus albicilla</i>	LC	CR	Ann I	App II	L
Rough-legged Hawk	<i>Buteo lagopus</i>	LC	-	-	App II	L
Common Buzzard	<i>Buteo buteo</i>	LC	-	-	App II	O
Long-legged Buzzard	<i>Buteo rufinus</i>	LC	NT	Ann I	App II	O
Barn Owl	<i>Tyto alba</i>	LC	NT	-	App II	L
Eurasian Scops-Owl	<i>Otus scops</i>	LC	-	-	App II	L
Eurasian Eagle-Owl	<i>Bubo bubo</i>	LC	-	Ann I	App II	L
Little Owl	<i>Athene noctua</i>	LC	-	-	App II	O
Tawny Owl	<i>Strix aluco</i>	LC	-	-	App II	L
Eurasian Hoopoe	<i>Upupa epops</i>	LC	-	-	App II	O
European Bee-eater	<i>Merops apiaster</i>	LC	-	-	App II	O
European Roller	<i>Coracias garrulus</i>	LC	-	Ann I	App II	L
Eurasian Wryneck	<i>Jynx torquilla</i>	LC	NT	-	App II	L
Middle Spotted Woodpecker	<i>Dendrocoptes medius</i>	LC	-	Ann I	App II	L
Syrian Woodpecker	<i>Dendrocopos syriacus</i>	LC	-	Ann I	App II	O
Lesser Spotted Woodpecker	<i>Dryobates minor</i>	LC	-	-	App II	L
Gray-headed Woodpecker	<i>Picus canus</i>	LC	DD	Ann I	App II	L
Lesser Kestrel	<i>Falco naumanni</i>	LC	VU	Ann I	App II	L
Eurasian Kestrel	<i>Falco tinnunculus</i>	LC	-	-	App II	O
Red-footed Falcon	<i>Falco vespertinus</i>	NT	-	Ann I	App II	L
Eleonora's Falcon	<i>Falco eleonora</i>	LC	EN	Ann I	App II	L
Merlin	<i>Falco columbarius</i>	LC	-	Ann I	App II	L
Eurasian Hobby	<i>Falco subbuteo</i>	LC	-	-	App II	L
Lanner Falcon	<i>Falco biarmicus</i>	LC	VU	Ann I	App II	L

¹⁴ Observed by Ramboll November 2023.

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Peregrine Falcon	<i>Falco peregrinus</i>	LC	VU	Ann I	App II	O
Saker Falcon	<i>Falco cherrug</i>	EN	CR	Ann I	App II	O
Red-footed Falcon	<i>Falco vespertinus</i>	VU	-	Ann I	App II	L
Eurasian Golden Oriole	<i>Oriolus oriolus</i>	LC	-	-	App II	L
Red-backed Shrike	<i>Lanius collurio</i>	LC	-	Ann I	App II	O
Great Gray Shrike	<i>Lanius excubitor</i>	LC	-	-	App II	O
Lesser Gray Shrike	<i>Lanius minor</i>	LC	-	Ann I	App II	O
Masked Shrike	<i>Lanius nubicus</i>	LC	-	Ann I	App II	L
Woodchat Shrike	<i>Lanius senator</i>	LC	-	-	App II	O
Eurasian Jay	<i>Garrulus glandarius</i>	LC	-	Ann II	-	O
Eurasian Magpie	<i>Pica pica</i>	LC	-	Ann II	-	O
Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>	LC	-	Ann I	App II	O ¹⁵
Yellow-billed Chough	<i>Pyrrhocorax graculus</i>	LC	-	-	App II	L
Eurasian Jackdaw	<i>Corvus monedula</i>	LC	-	Ann II	-	O
Rook	<i>Corvus frugilegus</i>	LC	-	Ann II	-	L
Hooded Crow	<i>Corvus cornix</i>	LC	-	Ann II	-	O
Common Raven	<i>Corvus corax</i>	LC	-	-	App III	O
Coal Tit	<i>Parus ater</i>	LC	-	-	App III	O
Eurasian Blue Tit	<i>Cyanistes caeruleus</i>	LC	-	-	App III	O
Great Tit	<i>Parus major</i>	LC	-	-	App III	O
Horned Lark	<i>Eremophila alpestris</i>	LC	-	-	App II	L
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>	LC	-	Ann I	App II	O
Bimaculated Lark	<i>Melanocorypha bimaculata</i>	LC	-	-	App II	L
Calandra Lark	<i>Melanocorypha calandra</i>	LC	-	Ann I	App II	L
Wood Lark	<i>Lullula arborea</i>	LC	-	Ann I	App III	O
Eurasian Skylark	<i>Alauda arvensis</i>	LC	-	Ann II	App III	O
Crested Lark	<i>Galerida cristata</i>	LC	-	-	App III	O
Eastern Olivaceous Warbler	<i>Iduna pallida</i>	LC	-	-	App II	O
Olive-tree Warbler	<i>Hippolais olivetorum</i>	LC	-	Ann I	App II	L
Icterine Warbler	<i>Hippolais icterina</i>	LC	NT	-	App II	L
Moustached Warbler	<i>Acrocephalus melanopogon</i>	LC	-	Ann I	App II	L
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	LC	NT	-	App II	L
Marsh Warbler	<i>Acrocephalus palustris</i>	LC	-	-	App II	L

¹⁵ Observed by Mott MacDonald September 2023.

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Eurasian Reed Warbler	<i>Acrocephalus scirpaceus</i>	LC	-	-	App II	L
Great Reed Warbler	<i>Acrocephalus arundinaceus</i>	LC	-	-	App II	L
River Warbler	<i>Locustella fluviatilis</i>	LC	-	-	App II	L
Bank Swallow	<i>Riparia riparia</i>	LC	VU	-	App II	L
Eurasian Crag-Martin	<i>Ptyonoproe rupestris</i>	LC	-	-	App II	L
Barn Swallow	<i>Hirundo rustica</i>	LC	-	-	App II	O
Red-rumped Swallow	<i>Cecropis daurica</i>	LC	-	-	App II	L
Common House-Martin	<i>Delichon urbicum</i>	LC	VU	-	App II	O
Wood Warbler	<i>Phylloscopus sibilatrix</i>	LC	DD	-	App II	L
Eastern Bonelli's Warbler	<i>Phylloscopus orientalis</i>	LC	-	-	App II	L
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	LC	-	-	App II	L
Willow Warbler	<i>Phylloscopus trochilus</i>	LC	-	-	App II	L
Common Chiffchaff	<i>Phylloscopus collybita</i>	LC	-	-	App II	O
Cetti's Warbler	<i>Cettia cetti</i>	LC	-	-	App II	L
Long-tailed Tit	<i>Aegithalos caudatus</i>	LC	-	-	App III	L
Eurasian Blackcap	<i>Sylvia atricapilla</i>	LC	-	-	App II	L
Garden Warbler	<i>Sylvia borin</i>	LC	-	-	App II	L
Barred Warbler	<i>Curruca nisoria</i>	LC	DD	Ann I	App II	L
Lesser Whitethroat	<i>Curruca curruca</i>	LC	-	-	App II	L
Sardinian Warbler	<i>Curruca melanocephala</i>	LC	-	-	App II	O
Greater Whitethroat	<i>Curruca communis</i>	LC	-	-	App II	O
Goldcrest	<i>Regulus regulus</i>	LC	-	-	App II	L
Common Firecrest	<i>Regulus iicapilla</i>	LC	DD	-	App II	L
Wallcreeper	<i>Tichodroma muraria</i>	LC	-	-	App III	L
Eurasian Nuthatch	<i>Sitta europaea</i>	LC	-	-	App II	O
Krüper's Nuthatch	<i>Sitta krueperi</i>	LC	-	Ann I	App II	O
Western Rock Nuthatch	<i>Sitta neumayer</i>	LC	-	-	App II	O
Short-toed Treecreeper	<i>Certhia brachydactyla</i>	LC	-	-	App II	L
Eurasian Wren	<i>Troglodytes troglodytes</i>	LC	-	-	App II	L
White-throated Dipper	<i>Cinclus cinclus</i>	LC	-	-	App II	L
European Starling	<i>Sturnus vulgaris</i>	LC	-	Ann II	-	O
Rosy Starling	<i>Pastor roseus</i>	LC	-	-	App II	L
Common Myna	<i>Acridotheres tristis</i>	LC	-	-	App III	L
Mistle Thrush	<i>Turdus viscivorus</i>	LC	-	Ann II	App III	O
Song Thrush	<i>Turdus philomelos</i>	LC	-	Ann II	App III	O

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Redwing	<i>Turdus iliacus</i>	NT	-	Ann II	App III	L
Eurasian Blackbird	<i>Turdus merula</i>	LC	-	Ann II	App III	O
Fieldfare	<i>Turdus pilaris</i>	LC	-	Ann II	App III	L
Ring Ouzel	<i>Turdus torquatus</i>	LC	-	-	App II	L
Spotted Flycatcher	<i>Muscicapa striata</i>	LC	-	-	App II	O
Rufous-tailed Scrub-Robin	<i>Cercotrichas galactotes</i>	LC	-	-	App II	L
European Robin	<i>Erithacus rubecula</i>	LC	-	-	App II	L
White-throated Robin	<i>Irania gutturalis</i>	LC	-	-	App II	L
Red-breasted Flycatcher	<i>Ficedula parva</i>	LC	NT	Ann I	App II	O
Semicollared Flycatcher	<i>Ficedula semitorquata</i>	LC	VU	Ann I	App II	L
European Pied Flycatcher	<i>Ficedula hypoleuca</i>	LC	-	-	App II	O
Collared Flycatcher	<i>Ficedula albicollis</i>	LC	-	Ann I	App II	O
Common Redstart	<i>Phoenicurus phoenicurus</i>	LC	-	-	App II	O
Black Redstart	<i>Phoenicurus ochruros</i>	LC	-	-	App II	O
Rufous-tailed Rock-Thrush	<i>Monticola saxatilis</i>	LC	-	-	App II	L
Blue Rock-Thrush	<i>Monticola solitarius</i>	LC	-	-	App II	O
Whinchat	<i>Saxicola rubetra</i>	LC	VU	-	App II	L
European Stonechat	<i>Saxicola rubicola</i>	LC	VU	-	App II	O
Siberian Stonechat	<i>Saxicola maurus</i>	LC	-	-	App II	L
Northern Wheatear	<i>Oenanthe oenanthe</i>	LC	-	-	App II	O
Isabelline Wheatear	<i>Oenanthe isabellina</i>	LC	-	-	App II	L
Pied Wheatear	<i>Oenanthe pleschanka</i>	LC	-	Ann I	App II	L
Black-eared Wheatear	<i>Oenanthe melanoleuca</i>	LC	-	-	App II	O
Finsch's Wheatear	<i>Oenanthe finschii</i>	LC	-	-	App II	L
Dunnock	<i>Prunella modularis</i>	LC	-	-	App II	O
House Sparrow	<i>Passer domesticus</i>	LC	-	-	-	O
Spanish Sparrow	<i>Passer hispaniolensis</i>	LC	-	-	App III	L
Eurasian Tree Sparrow	<i>Passer montanus</i>	LC	DD	-	App III	O
Rock Sparrow	<i>Petronia petronia</i>	LC	-	-	App II	L
Gray Wagtail	<i>Motacilla cinerea</i>	LC	-	-	App II	O
Western Yellow Wagtail	<i>Motacilla flava</i>	LC	-	-	App II	O
Citrine Wagtail	<i>Motacilla citreola</i>	LC	NT	-	App II	L
White Wagtail	<i>Motacilla alba</i>	LC	-	-	App II	O
Tawny Pipit	<i>Anthus campestris</i>	LC	-	Ann I	App II	L
Meadow Pipit	<i>Anthus pratensis</i>	LC	-	-	App II	O
Tree Pipit	<i>Anthus trivialis</i>	LC	DD	-	App II	L

Common Name	Scientific Name	IUCN	National	Bird directive	BERN	L/O*
Red-throated Pipit	<i>Anthus cervinus</i>	LC	-	-	App II	L
Water Pipit	<i>Anthus spinoletta</i>	LC	-	-	App II	O
Common Chaffinch	<i>Fringilla coelebs</i>	LC	-	-	App III	O
Brambling	<i>Fringilla montifringilla</i>	LC	-	-	App III	L
Hawfinch	<i>Coccothraustes coccothraustes</i>	LC	-	-	App II	L
Common Rosefinch	<i>Carpodacus erythrinus</i>	LC	-	-	App II	L
Eurasian Bullfinch	<i>Pyrrhula pyrrhula</i>	LC	DD	-	App III	L
European Greenfinch	<i>Chloris chloris</i>	LC	-	-	App II	O
Eurasian Linnet	<i>Linaria cannabina</i>	LC	-	-	App II	O
European Goldfinch	<i>Carduelis carduelis</i>	LC	-	-	App II	O
European Serin	<i>Serinus serinus</i>	LC	-	-	App II	O
Fire-fronted Serin	<i>Serinus pusillus</i>	LC	-	-	App II	O
Eurasian Siskin	<i>Spinus spinus</i>	LC	-	-	App II	O
Black-headed Bunting	<i>Emberiza melanocephala</i>	LC	-	-	App II	O
Corn Bunting	<i>Emberiza calandra</i>	LC	-	-	App III	O
Rock Bunting	<i>Emberiza cia</i>	LC	-	-	App II	O
Cirl Bunting	<i>Emberiza cirlus</i>	LC	-	-	App II	L
Yellowhammer	<i>Emberiza citrinella</i>	LC	-	-	App II	L
Cinereous Bunting	<i>Emberiza cineracea</i>	NT	VU	Ann I	App II	L
Ortolan Bunting	<i>Emberiza hortulana</i>	LC	-	Ann I	App III	O
Cretzschmar's Bunting	<i>Emberiza caesia</i>	LC	-	Ann I	App II	O
Reed Bunting	<i>Emberiza schoeniclus</i>	LC	NT	-	App II	L

L: Literature, O: Observation

3.3.2 Bats

As part of the National EIA biodiversity studies, five species were recorded which are shown as O (Observed) in Table 3-9. A list of species, based on all available information listed with their conservation status and whether they were encountered during field studies is provided. IUCN column shows Red List evaluation globally except when marked with M: Mediterranean, or E: Europe.

Table 3-9: List of Türkiye's bat species, conservation status, collision risk and whether they were observed in the National EIA (L/O).

Common Name	Scientific Name	Status	IUCN Global	IUCN EU	IUCN Med	BERN	EU Habitat Directive	Collision Risk	Source
Western Barbastelle	<i>Barbastella barbastellus</i>	Declining	NT	VU	NT	I, II	II, IV	Medium	-
Botta's Serotine	<i>Eptesicus bottae</i>	Unknown	LC	-	-	I, II	IV	Medium	-
Anatolian Serotine	<i>Eptesicus anatolicus</i>	Unknown	LC	-	LC	I, II	IV	Medium	L
Serotine	<i>Eptesicus serotinus</i>	Stable	LC	-	-	II	IV	Medium	L

Common Name	Scientific Name	Status	IUCN Global	IUCN EU	IUCN Med	BERN	EU Habitat Directive	Collision Risk	Source
Savi's Pipistrelle	<i>Hypsugo savii</i>	Stable	LC	LC	LC	II	IV	High	O
Schreiber's Bent-winged Bat	<i>Miniopterus schreibersii</i>	Declining	VU	-	-	I, II	II, IV	High	L
Alcathoe Bat	<i>Myotis alcathoe</i>	Unknown	DD	-	-	II	IV	Low	-
Steppe Whiskered Bat	<i>Myotis aurascens</i>	Stable	LC	LC	LC	II	IV	Low	L
Bechstein's Myotis	<i>Myotis bechsteinii</i>	Declining	NT	VU	NT	I, II	II, IV	Low	-
Lesser Mouse-eared Myotis	<i>Myotis blythii</i>	Declining	LC	NT	NT	I, II	II, IV	Low	L
Brandt's Myotis	<i>Myotis brandtii</i>	Stable	LC	-	-	II	IV	Low	-
Long-fingered Bat	<i>Myotis capaccinii</i>	Declining	VU	VU	VU	I, II	II, IV	Low	L
Daubenton's Myotis	<i>Myotis daubentonii</i>	Stable	LC	-	-	II	IV	Low	-
Geoffroy's Bat	<i>Myotis emarginatus</i>	Stable	LC	LC	LC	I, II	II, IV	Low	L
Greater Mouse-eared Bat	<i>Myotis myotis</i>	Stable	LC	LC	LC	I, II	II, IV	Low	L
Whiskered Myotis	<i>Myotis mystacinus</i>	Unknown	LC	LC	LC	II	IV	Low	L
Natterer's Bat	<i>Myotis nattereri</i>	Stable	LC	-	-	II	IV	Low	-
Schaub's Myotis	<i>Myotis schaubi</i>	Unknown	DD	-	DD	II	IV	Low	-
Giant Noctule	<i>Nyctalus lasiopterus</i>	Declining	VU	DD	NT	II	IV	High	L
Lesser Noctule	<i>Nyctalus leisleri</i>	Unknown	LC	LC	LC	II	IV	High	-
Noctule	<i>Nyctalus noctula</i>	Unknown	LC	LC	LC	II	IV	High	O
Desert Long-eared Bat	<i>Otonycteris hemprichii</i>	Unknown	LC	-	-	II	IV	Unknown	-
Kuhl's Pipistrelle	<i>Pipistrellus kuhlii</i>	Unknown	LC	LC	LC	II	IV	High	L
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>	Unknown	LC	LC	LC	II	IV	High	O
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	Stable	LC	-	-	III	IV	High	O
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Unknown	LC	LC	LC	II	IV	High	L
Brown Long-eared Bat	<i>Plecotus auritus</i>	Stable	LC	-	-	II	IV	Low	-
Grey Long-eared Bat	<i>Plecotus austriacus</i>	Declining	NT	NT	-	II	IV	Low	-
Mediterranean Long-eared Bat	<i>Plecotus kolombatovici</i>	Declining	LC	NT	LC	II	IV	Low	L
Mountain Long-eared Bat	<i>Plecotus macbullaris</i>	Declining	LC	NT	NT	II	IV	Low	-

Common Name	Scientific Name	Status	IUCN Global	IUCN EU	IUCN Med	BERN	EU Habitat Directive	Collision Risk	Source
Blasius's Horseshoe Bat	<i>Rhinolophus blasii</i>	Declining	LC	VU	NT	I, II	II, IV	Low	L
Mediterranean Horseshoe Bat	<i>Rhinolophus euryale</i>	Declining	NT	VU	VU	I, II	II, IV	Low	L
Greater Horseshoe Bat	<i>Rhinolophus ferrumequinum</i>	Declining	LC	NT	NT	I, II	II, IV	Low	L
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	Declining	LC	NT	NT	I, II	II, IV	Low	L
Mehely's Horseshoe Bat	<i>Rhinolophus mehelyi</i>	Declining	VU	VU	VU	I, II	II, IV	Low	L
Egyptian Fruit Bat	<i>Rousettus aegyptiacus</i>	Stable	LC	-	NT	I	II, IV	Low	-
European Free-tailed Bat	<i>Tadarida teniotis</i>	Unknown	LC	LC	LC	II	IV	High	O
Naked-rumped Tomb Bat	<i>Taphozous nudiventris</i>	Stable	LC	-	LC	II	IV	Unknown	-
Particoloured Bat	<i>Vespertilio murinus</i>	Stable	LC	LC	-	II	IV	High	L

L: Literature, O: Observation

3.3.3 Mammals (non-bat)

A list of non-bat mammal species, based on all available information listed with their conservation status and whether they were encountered during field studies of National EIA is provided.

Table 3-10 Non-bat mammal species and whether they were observed in the National EIA

Common Name	Scientific Name	IUCN	BERN	Source	Relative Abundance	Endemism
Southern White-breasted Hedgehog	<i>Erinaceus concolor</i>	LC	-	O	High	-
Southern Water Shrew	<i>Neomys anomalus</i>	LC	Appendix III	L	-	-
Pygmy White-toothed Shrew	<i>Suncus etruscus</i>	LC	Appendix III	O	Moderate	-
Levantine Mole	<i>Talpa levantis levantis</i>	LC	Appendix II	O	Moderate	-
European Hare	<i>Lepus europaeus</i>	LC	Appendix III	O	High	-
Caucasian Squirrel	<i>Sciurus anomalus</i>	LC	Appendix II	O	High	-
Asia Minor Ground Squirrel	<i>Spermophilus xanthopymnus</i>	NT	-	O	Low	-
European Water Vole	<i>Arvicola terrestris</i>	LC	-	O	Low	-
Günther's Vole	<i>Microtus guentheri</i>	LC	-	O	Moderate	-
European Pine Vole	<i>Microtus subterraneus</i>	LC	-	O	Moderate	-
Brandt's Hamster	<i>Mesocricetus brandti</i>	NT	-	L	-	-

Common Name	Scientific Name	IUCN	BERN	Source	Relative Abundance	Endemism
Eastern Broad-toothed Field Mouse	<i>Apodemus mystacinus</i>	LC	-	O	Low	-
Long-tailed Field Mouse	<i>Apodemus sylvaticus</i>	LC	-	O	High	-
Black Rat	<i>Rattus rattus</i>	LC	-	O	Low	-
Brown Rat	<i>Rattus norvegicus</i>	LC	-	L	-	-
Lesser Mole Rat	<i>Spalax leucodon</i>	DD	-	O	Moderate	-
Forest Dormouse	<i>Dryomys nitedula</i>	LC	Appendix III	L	-	-
Gray Wolf	<i>Canis lupus</i>	LC	Appendix II	O	Low	-
Golden Jackal	<i>Canis aureus</i>	LC	-	O	High	-
Red Fox	<i>Vulpes vulpes</i>	LC	-	O	High	-
Brown Bear	<i>Ursus arctos</i>	LC	Appendix II	O	Low	-
Least Weasel	<i>Mustela nivalis</i>	LC	Appendix III	O	High	-
European Marbled Polecat	<i>Vormela peregusna</i>	VU	Appendix II	L	-	-
European Pine Marten	<i>Martes martes</i>	LC	Appendix III	L	-	-
Beech Marten	<i>Martes foina</i>	LC	Appendix III	O	High	-
Eurasian Badger	<i>Meles meles</i>	LC	Appendix III	O	High	-
Egyptian Mongoose	<i>Herpestes ichneumon</i>	LC	-	L	-	-
Wild Cat	<i>Felis silvestris</i>	LC	Appendix II	O	High	-
Eurasian Lynx	<i>Lynx (= Felis) lynx</i>	LC	Appendix III	O	Low	-
Caracal	<i>Caracal (= Felis) caracal</i>	LC	Appendix II	L	-	-
Wild Boar	<i>Sus scrofa scrofa</i>	LC	-	O	High	-
Roe deer	<i>Capreolus capreolus</i>	LC	Appendix III	L	-	-

L: Literature, O: Observation

3.3.4 Reptiles and Amphibians

A list of species, based on all available information listed with their conservation status and whether they were encountered during National EIA field studies is provided.

Table 3-11: List of amphibians and reptiles and whether they were observed in the National EIA

Common Name	Scientific Name	IUCN	BERN	Source	Relative Abundance	Endemism
Reptiles						
Common Tortoise	<i>Testudo graeca</i>	VU	Appendix II	O	High	-
Turkish Gecko	<i>Hemidactylus turcicus</i>	LC	Appendix III	L	-	-
Starred Agama	<i>Stellagama stellio</i>	LC	Appendix III	L	-	-
Mediterranean Chameleon	<i>Chamaeleo chamaeleon</i>	LC	Appendix II	O	Moderate	-

Common Name	Scientific Name	IUCN	BERN	Source	Relative Abundance	Endemism
European Copper Skink	<i>Ablepharus kitaibelii</i>	LC	Appendix II	L		-
Levant Skink	<i>Trachylepis aurata</i> (<i>Mabuya aurata</i>)	LC	Appendix III	L		-
Common Wall Lizard	<i>Lacerta muralis</i> (<i>Podarcis muralis</i>)	LC	Appendix II	L		-
Anatolian Rock Lizard	<i>Anatololacerta anatolica</i> (<i>Lacerta danfordi anatolica</i>)	LC	Appendix III	O	Moderate	-
Rock Lizard	<i>Anatololacerta oertzeni</i>	LC	Appendix III	O	Moderate	Endemic
Lebanon Lizard	<i>Phoenicolacerta laevis</i> (<i>Lacerta laevis</i>)	LC	Appendix III	O	Low	-
Lizard of Asia Minor	<i>Parvilacerta parva</i> (<i>Lacerta parva</i>)	LC	Appendix II	O	Moderate	-
Balkan Green Lizard	<i>Lacerta trilineata</i>	LC	Appendix II	L		-
Snake-eyed Lizard	<i>Ophisops elegans</i>	LC	Appendix II	O	High	-
	<i>Ophisaurus apodus</i> (<i>Pseudopus apodus</i>)	LC	Appendix II	L		-
Anatolian Worm Lizard	<i>Blanus strauchi</i>	LC	Appendix III	L		-
European blind snake	<i>Typhlops vermicularis</i>	LC	Appendix III	O	High	-
Javelin Sand Boa	<i>Eryx jaculus</i>	LC	Appendix III	L		-
Red-Bellied Racer	<i>Coluber caspius</i> (<i>Dolichophis schmidtii</i>)	LC	Appendix II	L		-
Large Whip Snake	<i>Coluber jugularis</i>	LC	Appendix II	L		-
Dahl's Whip Snake	<i>Coluber najadum</i>	LC	Appendix II	L		-
	<i>Coluber nummifer</i>	-	Appendix III	L		-
Red Whip Snake	<i>Platyceps collaris</i> (<i>Coluber rubriceps</i>)	LC	Appendix II	L		-
Ring-Headed Dwarf Snake	<i>Eirenis modestus</i>	LC	Appendix III	O	High	-
Four-lined Snake	<i>Elaphe quatuorlineata</i>	NT	Appendix II	L		-
European Ratsnake	<i>Zamenis situla</i> (<i>Elaphe situla</i>)	LC	Appendix II	O	Moderate	-
Montpellier Snake	<i>Malpolon monspessulanus</i>	LC	Appendix III	L		-
Ottoman Viper	<i>Montivipera xanthina</i>	LC	Appendix II	O	Low	-
Amphibians						
Southern Crested Newt	<i>Triturus karelinii</i>	LC	Appendix II	L		-
Eastern Spadefoot	<i>Pelobates syriacus</i>	LC	Appendix II	L		-
Common Toad	<i>Bufo bufo</i>	LC	Appendix III	O	Low	-
Green Toad	<i>Pseudepidalea viridis</i> (<i>Bufo viridis</i>)	LC	Appendix II	O	Moderate	-
European Tree Frog	<i>Hyla arborea</i>	LC	Appendix II	L		-
Eurasian Marsh Frog	<i>Pelophylax ridibundus</i> (<i>Rana ridibunda</i>)	LC	Appendix III	O	Moderate	-
	<i>Rana macrocnemis</i>	LC	Appendix III	O	Low	-

Common Name	Scientific Name	IUCN	BERN	Source	Relative Abundance	Endemism
	<i>Pelophylax bedriagae</i> (<i>Rana bedriagae</i>)	LC	Appendix III	L		-
	<i>Rana tavasensis</i>	LC	Appendix III	L		-

L: Literature, O: Observation

3.3.5 Invertebrates

Apollo butterfly (*Parnassius apollo*) (LC)- is a KBA trigger for the Project area and can comfortably occur at high elevation. Its host plant species (*Sedum sp.*) may occur at the Project area¹⁶. *Sedum* species mostly prefer rocky areas. Information obtained from local butterfly expert indicates that the species is known to have occurred in the Boz Mountains area, its population there is now of uncertain status due to lack of scientific research and citizen science activity, and it is a species of significance that needs monitoring and protection of its host.

In addition, *Bradyporus macrogaster*, *Chorthippus bozdaghi* and *Poecilium kasnaki* were identified as potentially present in desktop studies and might necessitate further baseline information. Upon further evaluation, *Poecilium kasnaki* and *Polyommatus dama* were scoped out of this assessment due to the Project location's considerable distance to both species' distribution ranges.

Bradyporus macrogaster (EN) inhabits steppe-like habitats dominated by xeric grasses and sparse scrub, in some areas like the Aegean coast of Anatolia it enters Mediterranean vegetation, such as sparse xerothermic oak forests or scrub or mesoxeric grass associations.

The project area does not contain a shrub habitat, and the forest areas consists of dense vegetation cover. The species prefers sparse vegetation cover areas in terms of forest areas. The subalpine meadows in the project area do not constitute a suitable habitat for the species. The species composition of this habitat in the Project AoI does not include scrub formation.

Chorthippus bozdaghi (CR) is endemic to Boz Mountain, with a preference for shrubland and grassland habitats at 1,490 - 1,770 m elevation. This species occurs in moist dwarf shrub communities in the subalpine part of Boz Mountain with good water supply. The project impact area does not contain such a habitat type. The plant species composition consists of *Astragalus flavescens*, *Astragalus pungens*, *Osyris alba*, *Bromus tomentellus*, *Festuca valesiaca*, *Vincetoxicum tmoleum*, *Asyneuma limonifolium* etc.

Poecilium kasnaki is endemic to Turkey with a preference to forest habitats and recorded in Isparta and Burdur . Particularly, it prefers *Quercus* sppThe project site is outside the distribution area of the species.

Thus, Although the project impact area contains suitable habitat for the species, as there is no record of the species in the vicinity of the project site and there will be no turbine installation within the habitat suitable for the species.

¹⁶ Retrieved from <http://www.adamerkelebek.org/IcerikDetay.asp?TurId=124&IcerikKatId=2>

4 Critical Habitat Assessment

Evaluation against each criterion is carried out in table format which includes potential trigger species, their IUCN status, relation to the Project AoA, observation status in the AoA and summary of findings. Potential species were selected in line with the CHA Criteria from literature and survey findings. For Criterion 1 to 3, in case of the limited information to estimate numbers of individuals of potentially qualifying species within the AoA, expert opinion has been applied to evaluate the importance of the identified potential Critical Habitat in terms of global populations. The EOO of species has been applied as a surrogate for local population data. This means that a precautionary approach was applied in the evaluation against PS6 thresholds. Global EOO information was obtained from the IUCN Red List Database which covers all of the potential Critical Habitat trigger species. Local distribution data for the AoA was derived from bizimbitkiler.org and TUBIVES (Turkish Plants Data Service). In some cases, the presence of species in the AoA has been inferred based on habitat suitability and in cases where presence has been confirmed, the distribution within the species range and project AoA has been assumed. This results in a conservative Critical Habitat evaluation. For threatened ecosystems, there is limited data on extents and condition within the AoA or wider area.

In total, 70 (43 bird, 16 bat, 1 herpetofauna, 1 invertebrate, 9 plant) species were screened against the relevant criteria and thresholds below to determine if they may trigger Critical Habitat requirements to be applied.

4.1 Criterion 1-3: Species Biodiversity Values

For Criterion 1, CR, EN and VU species were examined whether the Project area supports more than 0.5% globally important concentrations of these species or whether the Project could lead to a decrease in population of species categorized as VU. For this examination, both national and international categories of these species were considered. For Criterion 3, migratory species were examined whether the Project area sustains more than 1% of global population in a regular basis or whether the area supports more than 10% of the global population of the species during environmental stress period.

The global population, the EOO and the Project area were considered to estimate the global range of species in AoA to assign Critical Habitat trigger status of species based on Criterion 1 and 3. When the observed number of species was unknown or species information was obtained from literature; the global population, the EOO and the Project area were considered to estimate the global range of species in AoA to assign Critical Habitat trigger status of species based on Criterion 1 and 3.

For bat species, since both Bat Activity Index is unavailable from the Project area (or a nearby comparable project), and population (global and regional) data are very limited, it is not feasible to undertake CHA based on population sizes and predicted impact on populations. Therefore, all available information was gathered for the species which were observed or clearly indicated in literature for the area, and Priority Biodiversity Feature designations were made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. Species which scored 2 or 3 were included as Priority Biodiversity Feature.

Table 4.1: Plant Species CHA based on Criteria 1 and 2

Scientific Name	IUCN/ National Red List	BERN	EOO (km ²)*	Literature/ Observation	Evaluation	CH Trigger or Priority Biodiversity Feature
<i>Amblyopyrum muticum var. muticum</i>	EN	-		L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1a as Priority Biodiversity Feature.	PBF
<i>Bromus macrocladus</i>	EN	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1c and 2a as Priority Biodiversity Feature.	PBF
<i>Colchicum micaceum</i>	EN	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1c and 2a as Priority Biodiversity Feature.	PBF
<i>Ornithogalum improbum</i>	EN	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1c and 2a as Priority Biodiversity Feature.	PBF
<i>Pseudophleum gibbum</i>	VU	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1b and 2a as Priority Biodiversity Feature.	PBF
<i>Astragalus pisidicus</i>	VU	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1b and 2a as Priority Biodiversity Feature.	PBF
<i>Astragalus strictispinis</i>	VU	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1b and 2a as Priority Biodiversity Feature.	PBF
<i>Salvia pisidica</i>	VU	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1b and 2a as Priority Biodiversity Feature.	PBF
<i>Scutellaria orientalis subsp. carica</i>	VU	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1b and 2a as Priority Biodiversity Feature.	PBF
<i>Sternbergia lutea</i>	EN	-	-	L	This species is not considered as critical habitat trigger species as it was not observed during field studies. Given that the EAAA contains suitable habitat conditions for this species to support, it qualifies under Criterion 1c as Priority Biodiversity Feature.	PBF
<i>Sedum album</i> <i>Sedum amplexicaule</i> <i>Sedum rubens</i>	Widespread species	-	-	L	Apollo butterfly (<i>Parnassius apollo</i>) (LC) host plant species (<i>Sedum sp.</i>) may occur at the Project area. It is KBA trigger species and the current status of Apollo species and their population in the Boz Mountain has not been studied in the region for a long time. <i>Sedum</i> species mostly prefer rocky areas. The Project Aol includes inland cliff. Rocky areas are suitable habitats for <i>Sedum</i> species. No field survey was conducted in these habitats during the Project National EIA study and the Consultant's field survey. For this reason, <i>Sedum</i> species were evaluated as important biodiversity features, recommending that they be investigated in the next appropriate season.	PBF

Table 4-2: CHA for Bird Species depends on Criteria 1-3

Common name	Scientific name	IUCN	National Red List	Bird Directive	BERN	L/O	Global Population	Population Status	Estimated EOO (km ²)	Total Count (National EIA)	Cr 1,3 % Global Range in AoA	Evaluation	CH Trigger or Priority Biodiversity Feature
Levant Sparrowhawk	<i>Accipiter brevipes</i>	LC	VU	Annex I	Appendix II	L	10000-19999	Stable	3620000	-	0.11	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	LC	NT	-	Appendix II	O	2000000-3200000	Stable	54400000	2	0.01	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 20,000 individuals, considering its global population. Estimated individual throughout the year is 147, considering that 2 individuals were observed in the field studies, it is likely that the EAAA could not support 20000 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not Trigger
Cinereous Vulture	<i>Aegypius monachus</i>	NT	EN	Annex I	Appendix II	L	16800-22800	Decreasing	22400000	-	0.02	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Demoiselle Crane	<i>Anthropoides virgo</i>	LC	CR	Annex III	Appendix II	L	230000-261000	Increasing	9410000	-	0.04	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Golden Eagle	<i>Aquila chrysaetos</i>	LC	-	Annex I	Appendix II	O	85000-160000	Stable	139000000	Presence data / unknown	0.00	Although the species was observed in the field studies, the proportion of global range in EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1 and 3. Due to species data only being available as presence/absence in the National EIA study, and uncertainty regarding field observation vs literature, and given the species' unknown national conservation status, long life cycle, availability of nesting habitat, and demonstrated heightened vulnerability to collisions at wind farms, species was designated PBF.	PBF
Bonelli's Eagle	<i>Aquila fasciata</i>	LC	EN	Annex I	Appendix II	L	20000-49999	Decreasing	38400000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Imperial Eagle	<i>Aquila heliaca</i>	VU	EN	Annex I	Appendix II	L	2500-9999	Decreasing	14900000	-	0.03	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Steppe Eagle	<i>Aquila nipalensis</i>	EN	CR	-	Appendix II	L	50000-75000	Decreasing	12600000	-	0.03	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Great Egret	<i>Ardea alba</i>	LC	EN	Annex I	Appendix II	L	590000-2200000	Unknown	366000000	-	0.00	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Purple Heron	<i>Ardea purpurea</i>	LC	VU	Annex I	Appendix II	L	180000-380000	Decreasing	109000000	-	0.00	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Common Pochard	<i>Aythya ferina</i>	VU	VU	Annex II A, III B	Appendix III	L	760000-790000	Decreasing	548000	-	0.73	Given the absence of appropriate habitat for this species within the EAAA, it is assessed that it will not trigger critical habitat.	Not Trigger
Great Bittern	<i>Botaurus stellaris</i>	LC	VU	Annex I	Appendix II	L	115000-340000	Decreasing	86200000	-	0.00	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Common Buzzard	<i>Buteo buteo</i>	LC	-	-	Appendix II	O	2000000-3500000	Increasing	33500000	11	0.01	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 20,000 individuals, considering its global population. Estimated individual throughout the year is 238, considering that 11 individuals were observed in the field studies. Thus, it is likely that the EAAA could not support 20000 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not Trigger
Long legged buzzard	<i>Buteo rufinus</i>	LC	-	Annex I	Appendix II	O	100000-499999	Stable	32300000	4	0.01	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 1000 individuals, considering its global population. Estimated individual throughout the year is 12, considering that 4 individuals were observed in the field studies. Thus, it is likely that the Project. EAAA could not support 1000 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not trigger

Common name	Scientific name	IUCN	National Red List	Bird Directive	BERN	L/O	Global Population	Population Status	Estimated EOO (km ²)	Total Count (National EIA)	Cr 1,3 % Global Range in AoA	Evaluation	CH Trigger or Priority Biodiversity Feature
White Stork	<i>Ciconia ciconia</i>	LC	-	Annex I	Appendix II	O	700000-704000	Increasing	52700000	Presence data / unknown	0.01	Although the species was observed in the field studies, the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1 and 3.	Not Trigger
Black Stork	<i>Ciconia nigra</i>	LC	-	Annex I	Appendix II	O	24000-44000	Unknown	25100000	2	0.02	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 240 individuals, considering its global population. Estimated individual throughout the year is 4, considering that 2 individuals were observed in the field studies, thus, it is not likely that the EAAA supports 240 individuals on a year-round basis.	Not trigger
Short-toed Snake-Eagle	<i>Circaetus gallicus</i>	LC	VU	Annex I	Appendix II	O	50000-99999	Stable	48800000	3	0.01	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 500 individuals, considering its global population. Estimated individuals throughout the year is 4 considering that 3 individuals were observed in the field studies, therefore, it is likely that the EAAA does not support 500 individuals on a year-round basis.	Not trigger
Pallid Harrier	<i>Circus macrourus</i>	NT	CR	Annex I	Appendix II	L	18000-30000	Decreasing	10900000	-	0.04	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Montagu's Harrier	<i>Circus pygargus</i>	LC	EN	Annex I	Appendix II	L	300000-550000	Decreasing	18000000	-	0.02	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Greater Spotted Eagle	<i>Clanga clanga</i>	VU	VU	Annex I	Appendix II	L	3900-10000	Decreasing	15300000	-	0.03	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Lesser Spotted Eagle	<i>Clanga pomarina</i>	LC	EN	Annex I	Appendix II	L	40000-60000	Stable	6550000	-	0.06	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Lanner Falcon	<i>Falco biarmicus</i>	LC	VU	Annex I	Appendix II	L	67000-670000	Decreasing	42800000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Saker Falcon	<i>Falco cherrug</i>	EN	CR	Annex I	Appendix II	O	12200-29800	Decreasing	19100000	Presence data / unknown	0.02	Although the species was observed in the field studies, the proportion of global range in EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1 and 3. Due to species data only being available as presence/absence in the National EIA study, and uncertainty regarding field observation vs literature, and given its conservation status, it was designated PBF.	PBF
Eleonora's Falcon	<i>Falco eleonorae</i>	LC	EN	Annex I	Appendix II	L	32400-33300	Increasing	1890000	-	0.21	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Lesser Kestrel	<i>Falco naumanni</i>	LC	VU	Annex I	Appendix II	L	80000-134000	Stable	24800000	-	0.02	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Peregrine Falcon	<i>Falco peregrinus</i>	LC	VU	Annex I	Appendix II	O	100000-499999	Increasing	413000000	2	0.00	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 1000 individuals, considering its global population. Estimated individual throughout the year is 2, considering that 2 individuals were observed in the field studies, it is likely that the EAAA could not support 1000 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not Trigger
Eurasian Kestrel	<i>Falco tinnunculus</i>	LC	-	-	Appendix II	O	4300000-6700000	Decreasing	106000000	6	0.00	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 43000 individuals, considering its global population. Estimated individual throughout the year is 162, considering that 6 individuals were observed in the field studies, it is unlikely that the EAAA supports 43000 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not Trigger
Red-footed Falcon	<i>Falco vespertinus</i>	VU	-	Annex I	Appendix II	L	287500-400000	Decreasing	3360000	-	0.12	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1 and 3.	Not Trigger
Common Crane	<i>Grus grus</i>	LC	EN	Annex I	Appendix III	L	490000-504999	Increasing	25600000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Bearded Vulture	<i>Gypaetus barbatus</i>	NT	EN	Annex I	Appendix II	L	1675-6700	Decreasing	61700000	-	0.02	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger

Common name	Scientific name	IUCN	National Red List	Bird Directive	BERN	L/O	Global Population	Population Status	Estimated EOO (km ²)	Total Count (National EIA)	Cr 1,3 % Global Range in AoA	Evaluation	CH Trigger or Priority Biodiversity Feature
Eurasian Griffon	<i>Gyps fulvus</i>	LC	EN	Annex I	Appendix II	L	80000-900000	Increasing	20400000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
White-tailed Eagle	<i>Haliaeetus albicilla</i>	LC	CR	Annex I	Appendix II	L	20000-60000	Increasing	42700000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Booted Eagle	<i>Hieraetus pennatus</i>	LC	VU	Annex I	Appendix II	O	150000-195000	Stable	62000000	Presence data / unknown	0.00	Although the species was observed in the field studies, the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Black Kite	<i>Milvus migrans</i>	LC	EN	Annex I	Appendix II	L	4000000 - 5700000	Stable	115653659	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Egyptian Vulture	<i>Neophron percnopterus</i>	EN	VU	Annex I	Appendix II	O	12400-36000	Decreasing	50100000	Presence data / unknown	0.03	Although the species was observed in the field studies, the proportion of global range in EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3. Due to species data only being available as presence/absence in the National EIA study, and uncertainty regarding field observation vs literature, and given the species' conservation status, long life cycle, availability of nesting habitat, and demonstrated heightened vulnerability to collisions at wind farms, species was designated PBF.	PBF
White-headed Duck	<i>Oxyura leucocephala</i>	EN	EN	Annex I	Appendix II	L	5300-8700	Decreasing	14100000	-	0.03	Given the absence of appropriate habitat for this species within the EAAA, it is assessed that it will not trigger critical habitat.	Not Trigger
Dalmatian Pelican	<i>Pelecanus crispus</i>	NT	VU	Annex I	Appendix II	L	11400-13400	Decreasing	12600000	-	0.01	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger
Great White Pelican	<i>Pelecanus onocrotalus</i>	LC	EN	Annex I	Appendix II	L	265000-295000	Unknown	51200000	-	0.02	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
European Honey-buzzard	<i>Pernis apivorus</i>	LC	NT	Annex I	Appendix II	O	290000 - 430000	Stable	18200000	4	0.01	The EAAA should support at least 1 percent of global population of species to have Critical Habitat trigger species based on Criteria 3. Thus, the EAAA should support 2900 individuals, considering its global population. Estimated individual throughout the year is 64, considering that 4 individuals were observed in the field studies, it is likely that the EAAA could not support 2900 individuals on a year-round basis. Hence, the species could not be considered as CH-qualifying species.	Not Trigger
Eurasian Spoonbill	<i>Platalea leucorodia</i>	LC	EN	Annex I	Appendix II	L	63000-65000	Unknown	60400000	-	0.00	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
Glossy Ibis	<i>Plegadis falcinellus</i>	LC	EN	Annex I	Appendix II	L	230000-2220000	Decreasing	199000000	-	0.06	The species was not observed in the field and the proportion for the EAAA is not sufficient to trigger Critical Habitat in terms of Criterion 1c and 3.	Not Trigger
European Turtle-Dove	<i>Streptopelia turtur</i>	VU	VU	Annex II B	Appendix III	O	12800000-47600000	Decreasing	7080000	Presence data / unknown	Cr 1,3 % Global Range in AoA	Although the species was observed in the field studies, the proportion for the EAAA of global range in AoA is not sufficient to trigger Critical Habitat in terms of Criterion 1b and 3.	Not Trigger

Table 4-3: CHA for Bat Species depends on Criteria 1-3

Common Name	Scientific Name	IUCN Global	IUCN EU	IUCN Med	Bern	EU Habitat Directive	Literature/Observation	Collision Risk	Migratory status	Score*	Global Population	Population Status	Estimated EOO (km2)	Cr 1,3 %Global Range in Aol	CH Trigger or Priority Biodiversity Feature
Anatolian Serotine	<i>Eptesicus anatolicus</i>	LC	-	-	I, II	IV	L	Medium	Sedentary	0.5	Unknown (Widespread)	Unknown	Unknown	-	Not trigger
Serotine	<i>Eptesicus serotinus</i>	LC	-	-	II	IV	L	Medium	mostly sedentary	0.5	Unknown	Stable	Unknown	-	Not trigger
Savi's Pipistrelle	<i>Hypsugo savii</i>	LC	LC	LC	II	IV	O	High	Probably migratory	2	Unknown	Stable	15658670	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 2, it will be considered as PBF .
Schreiber's Bent-winged Bat	<i>Miniopterus schreibersii</i>	VU	-	-	I, II	II, IV	L	High	Mid and long range	3	Unknown	Declining	19946710	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 3, it will be considered as PBF .
Steppe Whiskered Bat	<i>Myotis aurascens</i>	LC	LC	LC	II	IV	L	Low	unknown	0		Stable			Not trigger
Lesser Mouse-eared Myotis	<i>Myotis blythii</i>	LC	NT	NT	I, II	II, IV	L	Low	-	0		Declining			Not trigger
Long-fingered Bat	<i>Myotis capaccinii</i>	VU	VU	VU	I, II	II, IV	L	Low	Mid-range seasonal migrant	2	Unknown	Declining	5387022	-	Not trigger – Though the species attained a high score in the assessment, based on its habitat requirements (elevation and proximity to water), and Myotis generally being less prone to collision, PBF was not designated.
Geoffroy's Bat	<i>Myotis emarginatus</i>	LC	LC	LC	I, II	II, IV	L	Low	mostly sedentary	0		Stable			Not trigger
Greater Mouse-eared Bat	<i>Myotis myotis</i>	LC	LC	LC	I, II	II, IV	L	Low	Mid-range migrant	1		Stable			Not trigger
Whiskered Myotis	<i>Myotis mystacinus</i>	LC	LC	LC	II	IV	L	Low	mostly sedentary	0		Unknown			Not trigger
Giant Noctule	<i>Nyctalus lasiopterus</i>	VU	DD	NT	II	IV	L	High	Long distance migrant	3	0-9999	Declining	8955906	0.02	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 3, it will be considered as PBF .
Noctule	<i>Nyctalus noctula</i>	LC	LC	LC	II	IV	O	High	Long distance migrant	2	Unknown	Unknown	24101079	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 2, it will be considered as PBF .
Kuhl's Pipistrelle	<i>Pipistrellus kuhlii</i>	LC	LC	LC	II	IV	L	High	Sedentary	1	Unknown	Unknown	51385949	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. It will be considered as PBF .
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>	LC	LC	LC	II	IV	O	High	Long distance migrant	2	Unknown	Unknown	11175990	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 2, it will be considered as PBF .
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	LC	-	-	III	IV	O	High	Long distance migrant	2	Unknown	Stable	Unknown		Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a

Common Name	Scientific Name	IUCN Global	IUCN EU	IUCN Med	Bern	EU Habitat Directive	Literature/Observation	Collision Risk	Migratory status	Score*	Global Population	Population Status	Estimated EOO (km2)	Cr 1,3 %Global Range in Aol	CH Trigger or Priority Biodiversity Feature
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	LC	LC	LC	II	IV	L	High	Probably migratory	2	Unknown	Unknown	10673041	-	mid or long-distance migrant. As the species scored 2, it will be considered as PBF .
Mediterranean Long-eared Bat	<i>Plecotus kolombatovici</i>	LC	NT	LC	II	IV	L	Low	Sedentary	0		Declining			Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 2, it will be considered as PBF .
Blasius's Horseshoe Bat	<i>Rhinolophus blasii</i>	LC	VU	NT	I, II	II, IV	L	Low	Mostly sedentary	0	Unknown	Declining	8849478	-	Not trigger
Mediterranean Horseshoe Bat	<i>Rhinolophus euryale</i>	NT	VU	VU	I, II	II, IV	L	Low	Sedentary	0	50-2000	Declining	10858126	0.01	Not trigger
Greater Horseshoe Bat	<i>Rhinolophus ferrumequinum</i>	LC	NT	NT	I, II	II, IV	L	Low	Mostly sedentary	0		Declining			Not trigger
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	LC	NT	NT	I, II	II, IV	L	Low	Mostly sedentary	0		Declining			Not trigger
Mehely's Horseshoe Bat	<i>Rhinolophus mehelyi</i>	VU	VU	VU	I, II	II, IV	L	Low	mostly sedentary	1	Unknown	Declining	18885688	-	Not trigger
European Free-tailed Bat	<i>Tadarida teniotis</i>	LC	LC	LC	II	IV	O	High	probably sedentary	1	5-400	Unknown	18885688	>0.0	Not trigger
Particoloured Bat	<i>Vespertilio murinus</i>	LC	LC	-	II	IV	L	High	Long distance migrant	2	Unknown	Stable	25697109	-	Assessment was made based on assigning one point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. As the species scored 2, it will be considered as PBF .

*Priority Biodiversity Feature designations were made based on assigning 1 point each for the following criteria: (1) conservation status is VU or higher, (2) collision risk is high (half point for medium) and (3) species is a mid or long-distance migrant. Species which scored 2 or 3 were included as Priority Biodiversity Feature.

Table 4-4: CHA for Herpetofauna and Invertebrates

Common Name	Scientific Name	IUCN	BERN	EU Habitat Directive	Literature/ Observation	Global Population	Population Status	Estimated EOO (km ²)	%Global Range in Aol (≥0.5)	Evaluation	CH Trigger or Priority Biodiversity Feature
Reptile											
Common Tortoise	<i>Testudo graeca</i>	VU	Appendix I, II	Appendix II, IV	O	Unknown	Unknown	Unknown	-	This species is distributed throughout Türkiye and its population is in good condition. Therefore, it was not considered as a critical habitat trigger under Criterion 1b. Due to its international status, it has been evaluated as a priority biodiversity element.	PBF
Invertebrate											
Big-Bellied Glandular Bush-Cricket	<i>Bradyporus macrogaster</i>	EN	-	-	L	Unknown	Decreasing	200000	-	Big-Bellied Glandular Bush-Cricket is found in forest, scrub and grassland habitats at altitudes ranging from 0 to 1,270 metres. The species inhabits steppe-like habitats dominated by xeric grasses and sparse scrub, in some areas like the Aegean coast of Anatolia it enters Mediterranean vegetation, such as sparse xerothermic oak forests or scrub or mesoxeric grass associations. The project area does not contain a shrub habitat, and the forest areas consists of dense vegetation cover. The species prefers sparse vegetation cover areas in terms of forest areas. The subalpine meadows in the project area do not constitute a suitable habitat for the species. The species composition of this habitat in the Project Aol does not include scrub formation. Thus, the species is not considered as critical habitat trigger species.	Not Trigger
Bozdagh Grasshopper	<i>Chorthippus bozdaghi</i>	CR	-	-	L	Unknown	Decreasing	10	-	Bozdagh Grasshopper is an endemic Boz Mountain KBA trigger species with a preference for shrubland and grassland habitats within the elevation range as 1,490 - 1,770 metres. Although there is a lack of information on the population size of the species, it is known that its population is declining and restricted to higher elevations. This species occurs in moist dwarf shrub communities in the subalpine part of Bozdag Mts with good water supply. The plant species composition consists of Astragalus flavescens, Astragalus pungens, Osyris alba, Bromus tomentellus, Festuca valesiaca, Vincetoxicum tmoleum, Asyneuma limonifolium etc. The species prefers moist dwarf shrub communities. However, the project impact area does not contain such a habitat type. Thus, the species is not considered as critical habitat trigger species.	Not Trigger
-	<i>Poecilium kasnaki</i>	EN	-	-	L	Unknwon	Unknown	2923	-	The species is endemic to Turkey with a preference to forest habitats and recorded in Isparta and Burdur ¹⁷ . The project site is outside the distribution area of the species. Although the project impact area contains suitable habitat for the species, as there is no record of the species in the vicinity of the project site and there will be no turbine installation within the habitat suitable for the species, the species is not considered as critical habitat trigger species.	Not Trigger
Apollo	<i>Parnassius apollo</i>	LC	Appendix II	Appendix IV	L	Unknown	Decreasing	19281210	-	Invertebrate field survey was not carried out during National EIA studies; however, the host plant of the relevant species was detected in the Project area. Although its IUCN category and national red list status is LC, it has been evaluated as a priority biodiversity feature due to its KBA trigger and limited habitats in Türkiye.	PBF
Mesopotamian Blue butterfly	<i>Polyommatus dama</i>	EN					Decreasing			The species is scope-out due to it is not distributed in western Turkey ¹⁸ .	Not Trigger

¹⁷ Sama, G., Jansson, N., Avcı, M., Sarıkaya, O., Coşkun, M., Kayış, T., and Özdikmen, H. 2011. Preliminary report on a survey of the saproxilic beetle fauna living on old hollow oaks (*Qercus* spp.) and oak wood in Turkey (Coleoptera: Cerambycidae). *Munis Entomology & Zoology* 6(2): 819-831.

¹⁸ <https://www.trakel.org/kelebekler/?fsx=2fsdl17@d&tur=Mezopotamya%20%C3%87okg%C3%B6zl%C3%BCs%C3%BC>

4.2 Criterion 4: Highly Threatened or Unique Ecosystems

Based on EUNIS level 3, nine habitat types were determined based on desk study and field observation. Two of these habitat types, E4.4 and H3.2 are listed in Annex I of the EU Habitats Directive. The IUCN category of E4.4 Alpine and subalpine grasslands habitat is LC. This habitat is considered to be ‘threatened’ by virtue of its inclusion on Annex I of the EU Habitats Directive; this denotes that the habitat is in need of conservation at a European level. The habitat is not considered a priority habitat under this Directive (i.e., a habitat in danger of disappearance). Therefore, it is not considered that this habitat represents an area ‘determined to be of high priority for conservation by regional or national systematic conservation planning’. The EAAA is therefore not considered of sufficient value for it to qualify as Critical Habitat under Criterion 4 for this habitat type. Given its threatened status, the EAAA is considered of sufficient value for it to qualify as Priority Biodiversity Feature under Criterion 4 for this habitat type.

Likewise, the " H3.2 - calcareous rocky slopes with chasmophytic vegetation" habitat, which is in IUCN category DD but is included in Annex I, has also been evaluated as a priority biodiversity feature given that the habitat is not considered a priority habitat under this Directive. Table 4-5 provides a summary of this assessment.

Table 4-5: Criterion 4- Highly Threatened / Unique Ecosystems Assessment

Broad habitat type	EUNIS Habitat Type	EU Habitat Directive Annex I	IUCN	CH/PBF
Woodland	G3.5 Pinus nigra woodland	-	LC	Not Trigger
	G4.B Mixed mediterranean pine - thermophilous oak woodland	-	-	Not Trigger
Step	E1.22 Arid subcontinental steppic grassland (Festucion valesiaca)	-	-	Not Trigger
	E4.4 Alpine and subalpine grasslands	(6170) Not Priority	LC	PBF
Agricultural Fields	I1.1 Intensive unmixed crops	-	-	Not Trigger
	I1.2 Mixed crops of market gardens and horticulture	-	-	Not Trigger
Inland unvegetated or sparsely vegetated habitats	H2.6 Western Mediterranean and thermophilous scree	(8130) Not Priority	-	-
	H3.2 Boreal arctic base rich inland cliff (calcareous rocky slopes with chasmophytic vegetation)	(8210) Not Priority	DD	PBF
Built-up Areas	J1 Building, Cities, towns, and villages	-	-	Not Trigger

4.3 Criterion 5: Key Evolutionary Processes

The Project area is located within the Mediterranean biodiversity hotspot. It is the third richest hotspot globally in terms of plant biodiversity, and amphibian and fish endemism are relatively high too. The hotspot is very large (including 5,000 Mediterranean islands). The highly modified nature of the habitats (most forest areas are presented with code B-it means degraded-) within the EAAA means it is extremely unlikely to qualify as Critical Habitat for Key Evolutionary Processes.

5 CONCLUSION

The present CHA results are presented below. Due to gaps in both white and grey literature, and Project specific baseline, it was evaluated that not enough data exists in order to safely conclude or rule out Critical Habitat triggers. The CHA is therefore preliminary and high level. The biodiversity values that were identified as sensitive are presented below as PBF triggers, with the recommendation that further baseline collection is carried out in 2024. According to the results of enhanced baseline, accurate identification of CH trigger species will be possible. As such, the present CHA study is expected to be significantly revised with robust, Project specific data.

Based on the data available for the CHA, Critical Habitat trigger species were not identified, and PBF are listed in Table 5-1.

Table 5-1 PBF

Scientific Name / Habitat Type	IUCN	Source
Habitat		
E4.4 Alpine and subalpine grasslands	LC	-
H3.2 Boreal arctic base rich inland cliff (calcareous rocky slopes with chasmophytic vegetation)	DD	-
Plant		
<i>Amblyopyrum muticum var. muticum</i>	EN	Literature
<i>Bromus macrocladus</i>	EN	Literature
<i>Colchicum micaceum</i>	EN	Literature
<i>Ornithogalum improbum</i>	EN	Literature
<i>Pseudophleum gibbum</i>	VU	Literature
<i>Astragalus pisidicus</i>	VU	Literature
<i>Astragalus strictispinis</i>	VU	Literature
<i>Salvia pisidica</i>	VU	Literature
<i>Scutellaria orientalis subsp. carica</i>	VU	Literature
<i>Sternbergia lutea</i>	EN	Literature
<i>Sedum album</i>		Literature
<i>Sedum amplexicaule</i>		Literature
<i>Sedum rubens</i>		Literature
Bird		
<i>Neophron percnopterus</i>	EN /VU (Nat.)	Observation
<i>Falco cherrug</i>	EN / CR (Nat.)	Observation
<i>Aquila chrysaetos</i>	LC	Observation
Mammal		
<i>Hypsugo savii</i>	LC	Observation
<i>Miniopterus schreibersii</i>	VU	Literature
<i>Nyctalus lasiopterus</i>	VU	Literature
<i>Nyctalus noctula</i>	LC	Observation

Scientific Name / Habitat Type	IUCN	Source
<i>Pipistrellus kuhlii</i>	LC	Literature
<i>Pipistrellus nathusii</i>	LC	Observation
<i>Pipistrellus pipistrellus</i>	LC	Observation
<i>Pipistrellus pygmaeus</i>	LC	Literature
<i>Vespertilio murinus</i>	LC	Literature
Reptile		
<i>Testudo graeca</i>	VU	Observation
Invertebrate		
<i>Chorthippus bozdaghi</i>	CR	Literature
<i>Parnassius apollo</i>	LC	Literature

