

Sainshand – Tsagaan Suvarga Transmission Line Project

Biodiversity Management Plan

DECEMBER 2025





SAINSHAND – TSAGAAN SUVARGA
TRANSMISSION LINE PROJECT

Biodiversity Management Plan

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Acronyms

Acronym	Definition
BBOP	Business and Biodiversity Offsets Programme
BMP	Biodiversity Management Plan
BoCC	Birds of Conservation Concern
CESMP	Construction Environmental and Social Management Plan
CMS	Conservation of Migratory Species
DD	Data deficient
EBRD	European Bank for Reconstruction and Development
ECOW	Ecological Clerk of Works
EN	Endangered
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
IBA	Important Bird Area
IUCN	International Union for Conservation of Nature
LC	Least Concern
LPA	Local Protection Area
MoE	Ministry of Energy
NGO	Non-Governmental Organisation
NPTG	National Power Transmission Grid
NT	Near Threatened
OHTL	overhead transmission line
OHS	Occupational Health and Safety
PBF	Priority Biodiversity Feature
PIU	Project Implementation Unit
SEP	Stakeholder Engagement Plan

Acronym	Definition
UNDP	United Nations Development Programme
VU	Vulnerable

Non-Technical Executive Summary

The Biodiversity Monitoring Plan

The Biodiversity Monitoring Plan (BMP) is a framework for mitigating and monitoring biodiversity which may be impacted by the Project. The scope of this BMP includes management measures to mitigate adverse impacts during construction, and operation; a description of the ecological monitoring and reporting commitments; and a definition of roles and responsibilities. This BMP has been created alongside the Environmental and Social Impact Assessment (ESIA), Chapter 9: Biodiversity, Flora and Fauna.

Project Overview

The Project involves building a 220 kilovolt (kV) 214-kilometre (km) long overhead transmission line (OHTL) between Sainshand and Tsagaan Suvarga in Dornogovi aimag, southeast Mongolia. The Project is being funded by the European Bank for Reconstruction and Development (EBRD), with the Ministry of Energy (MoE) acting as the developer of the Project, and the National Power Transmission Grid (NPTG) in charge of the operation and maintenance of the OHTL.

Construction will involve the installation of 690 electrical towers of different designs and heights, using steel and aluminium structures. It is currently anticipated that the construction will take approximately 24 months to complete, starting in 2026, and that the substation will be operational in 2028/9.

Environmental Context

The Project area lies within the Southern Gobi Ecological Region, a semi-desert region with low hills, sparse vegetation, and little surface water, forming a largely natural landscape. Some parts of the route pass through actively locally protected areas, including Uushiin Govi in Mandakh and Khuvsgul, and Ganzaga Uuliin Urgutgul, which are important for local wildlife, especially migratory ungulates.

Biodiversity and Conservation

Surveys identified several key species in the area, including:

- Goitered Gazelle,
- Asiatic Wild Ass,
- Mongolian Gazelle,
- Birds of Conservation Concern (BoCC), and
- Endangered and Rare plants.

Birds not of conservation concern were also considered within this BMP, as they contribute to biodiversity of the ecosystem. The area faces pressures from human activities, such as overgrazing by livestock and poaching. Climate change and desertification are also ongoing concerns for habitat quality.

Possible Project Impacts

Construction and maintenance activities may disturb wildlife, with noise especially affecting nesting BoCC during the breeding season, however most large mammals are expected to move away from noise-affected areas. There is a low but present risk of bird collisions with the transmission lines once operational. Worker activities could also lead to issues such as poaching, fire, or the introduction of invasive species. Dust from construction is expected to be minor, due to the naturally windy and arid environment. Oil and fuel spills are a potential risk but are considered unlikely with proper management. Overall, impacts are generally limited and manageable.

**Targets, Actions and Future Monitoring**

To protect biodiversity, the mitigation hierarchy will be implemented to avoid, minimise, and restore environmental impacts during both construction and operation. Key actions include re-routing/ micro-siting the OHTL route to avoid sensitive habitats, scheduling work outside wildlife breeding periods, fencing rare plant areas, and using bird diverters in specific areas to reduce collision risks. Strict controls will be placed on worker activities to prevent fires and ensure proper waste management.

A comprehensive monitoring program will be put in place to track the effectiveness of biodiversity protection measures. Key actions include monitoring bird populations and habitats, reporting any wildlife collisions with vehicles or machinery, recording anecdotal sightings of priority species, and annually assessing rare and endangered plant restoration over two years following construction. These efforts will help ensure impacts are minimised and allow for a quick response if ecological issues arise.

1 Introduction

1.1 Overview

This Biodiversity Management Plan (BMP) has been prepared by Arcadis for the proposed Sainshand to Tsagaan Suvarga Overhead Transmission Line (OHTL) project located in Dornogovi aimag, Mongolia (here after referred to as 'The Project') on behalf of the European Bank for Reconstruction and Development (EBRD).

This BMP details the Project's biodiversity management initiatives, commitments and obligations. The aim of the BMP is to safeguard and promote the viability of priority species and habitats associated with the Project. A key priority for the Project is the continued support for the conservation of the Gobi Desert of Mongolia.

This BMP provides a framework for the implementation of the Project's biodiversity mitigation and management measures during the pre-construction, construction and operation phases that will be followed by the Construction Contractor. An outline biodiversity monitoring and evaluation strategy has been included to evaluate the efficiency and success of biodiversity management measures and to enable adjustments to be made if required.

Implementation of this BMP will ensure the Project's alignment with best practice, legislative requirements and the Project's commitments to biodiversity; including EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. The objectives of Performance Requirement 6, are to:

- 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.
- Promote good international practice in the sustainable management and use of living natural resources.

This BMP is a dynamic document that will be adapted and updated as and when new information becomes available throughout the lifespan of the Project to ensure its relevancy.

The Ministry of Energy (MoE) will be the developer for the Project. The MoE is responsible for energy policy and associated infrastructure development in Mongolia and is the Project Proponent in the context of this Project. The MoE will appoint a dedicated Project Implementation Unit (PIU) to serve as the main point of contact for coordination and communication with EBRD and consultants during construction of the Project. Ideally, the same professionals that worked on the EBRD-funded Choir-Sainshand OHTL project will work on this Project, to enable continuity of application of the EBRD projects and application of any lessons learned. If this is not possible then a clear handover document and workshop should be implemented between the appropriate parties to support knowledge transfer.

The National Power Transmission Grid (NPTG) is a state-owned power transmission utility that is responsible for the operation and maintenance of all 22kV, 35kV, 110kV and 220kV substations and overhead transmission lines in Mongolia, as well as the operation and maintenance of the 84 substations that support these. The NPTG will be responsible for the operation and maintenance of the OHTL, including managing the two substations and ensuring the safety of the transmission lines.

1.2 Management of this Plan

This BMP has been prepared as part of the ESIA process to meet EBRD Environmental and Social Policy (ESP) 2019 and Performance Requirements. It will be held by the MoE and will form part of the tender documentation for Construction Contractors.



The Construction Contractor will be required to follow this BMP and prepare a detailed Construction Environmental and Social Management Plan (CESMP), incorporating the requirements of this BMP for approval by the MoE and the PIU who will be engaged to assist with Project implementation.

At least three months prior to the operation phase, the requirements of this BMP for the operation phase will be incorporated into the Project O&M ESMP by the NPTG.

1.3 The Project

Proposed route

The Project consists of constructing a 220kV double circuit overhead line, approximately 204km in length, to improve connections between the Sainshand substation in the east to the Tsagaan Suvarga mine substation in the west. The OHTL will ensure reliable energy delivery in the region, supporting economic growth.

The OHTL runs from Sainshand, the administrative capital of Dornogovi aimag, and passes through the soums (districts) of Ulaanbadrakh, Saikhandulaan and Mandakh, where Tsagaan Suvarga is located (Figure 1). Sainshand city is located approximately 415km south-east of Mongolia's capital city, Ulaanbaatar, while Tsagaan Suvarga is the location of a mine in the Mandakh soum, approximately 180km south-west of Sainshand. This Project route is located within the East Gobi Depression Zone of the Greater Gobi Region, characterised by expansive plains below 1,000m in elevation and gently rising low hills ranging from 1,000m to 1,100m. This zone has sparsely populated desert vegetation, which are adapted to the arid climate. Key features in the zone include herder camps and grazing lands. The nearest permanent settlement is Sainshand city (approximately 4.4km at its nearest point), then Zuun-Bayan and Mandakh, approximately 26km and 43km away respectively from the Project. There is also a Student Military Training Centre near Zuun-Bayan (22km from the Project route).

The Sainshand substation is being constructed as part of the EBRD-funded Choir-Sainshand OHTL project and is due to be completed before the construction of the Sainshand to Tsagaan Suvarga Project. The Sainshand substation will be located approximately 4.4km north-east of Sainshand city, in an area called Khuurai Bazyn Khyar (at around 1,010m above sea level). Whilst the Sainshand substation does not need this Project to operate, the Sainshand-Tsagaan Suvarga OHTL will need the Sainshand substation to operate. The existing 220/35/22kV substation at Tsagaan Suvarga is located within the licensed mining area.

Sainshand is also an important railway hub along the Trans-Mongolian Railway, which connects Russia and China through Ulaanbaatar. A 27km industrial railway line links Sainshand to Altanshiree soum, which the Project route intersects three different times. There is no direct paved road along the proposed route between Sainshand city and Tsagaan Suvarga.

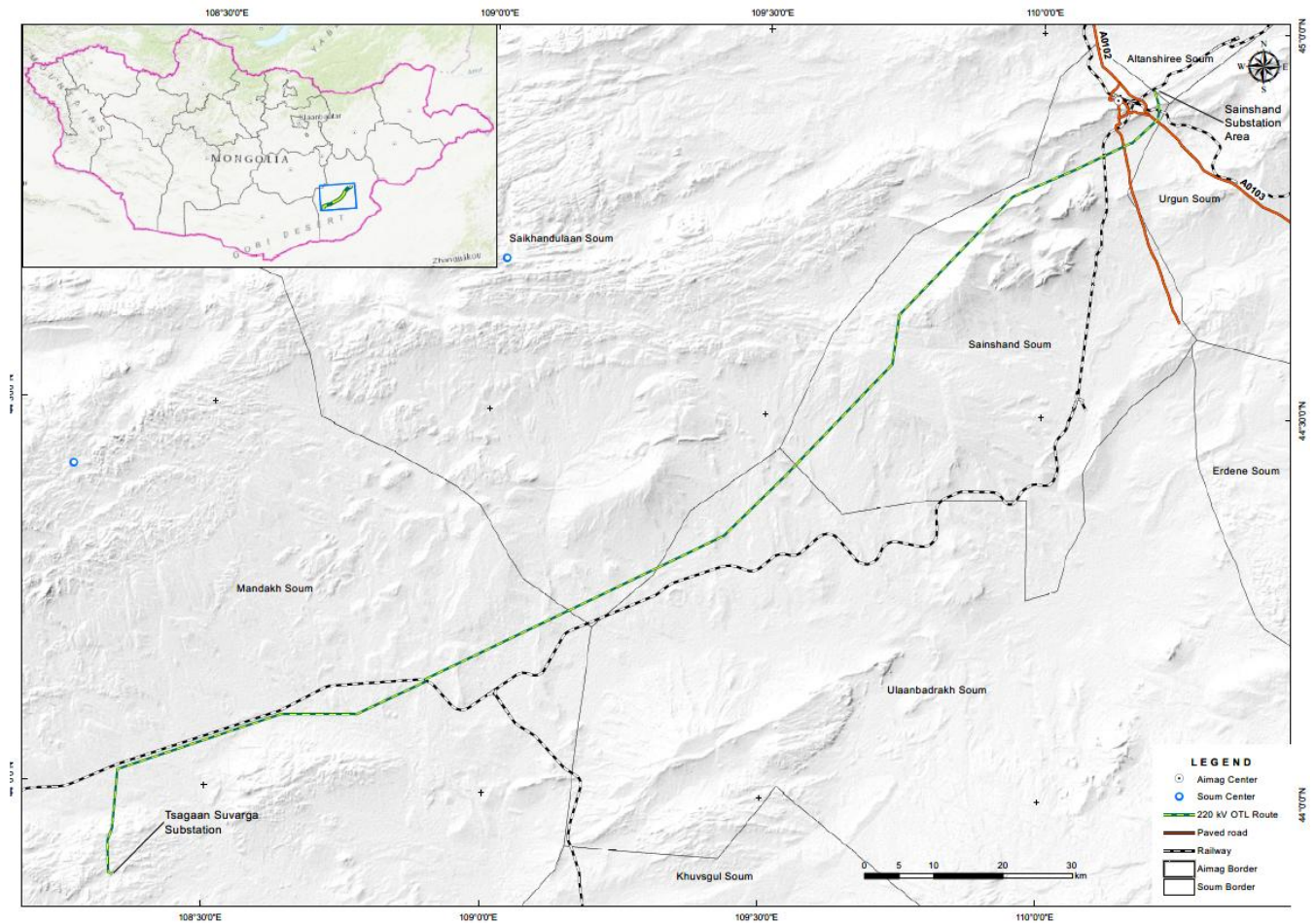


Figure 1: Project Location

Tower design

The Project will involve the installation of 690 electrical towers of different designs and heights, as illustrated in Table 1 and Figures 2 and 3. The conductor wire will be AS-400/51, and the ground wire jd70-2000. A 48-core optical cable and lighting protection cable will also be provided (specification OKT-Ц-а-48). The towers and lines for the transmission lines will be made from steel and aluminium. There is a variation in distance between individual towers that accounts for differences in surface elevation along the route and the characteristics of the terrain (rocks, dry stream beds, hills, and valleys), ranging from 139m to 323m for the anchor span and 139m to 7,449m for the transition span.

Table 1: Overhead transmission line towers

Type (see Figures 2 and 3)	Foundation System (see Figure 4)	Quantity	Height
PS220-2/ΠC220-2	4xΦ3-2, 4xAP-6	612	36m
PS220-2/ΠC220-6	4xΦ3-2, 4xAP-6	31	41.5 m
U220-2/Y220-2	4xΦ5-AM, 16xAP-6	31	31.6 m
U220-2+5/Y220-2+5	4xΦ5-AM, 16xAP-6	7	36.2 m
U220-2+9/Y220-2+9	4xΦ5-AM, 16xAP-6	8	40.6 m

Хэлхээний тоо		Хоёр хэлхээт	Хоёр хэлхээт	Хоёр хэлхээт	Хоёр хэлхээт	Хоёр хэлхээт
Тулгуурын төрөл		Завсрын тулгуур	Завсрын тулгуур	Эргэлтийн ба таталтын анкер тулгуур	Эргэлтийн ба таталтын анкер тулгуур	Эргэлтийн ба таталтын анкер тулгуур
Месжилтийн район		III-IV	I-IV	I-IV	I-IV	I-IV
Дэмжүүлэгчийн хэлбэр		AC-300/39, AC-400/51	AC-300/39, AC-400/51	AC-300/39, AC-400/51	AC-300/39, AC-400/51	AC-300/39, AC-400/51
Троссын хэлбэр		ОКГТ-Ц-А-4В G.652D-14,0	ОКГТ-Ц-А-4В G.652D-14,0	ОКГТ-Ц-А-4В G.652D-14,0	ОКГТ-Ц-А-4В G.652D-14,0	ОКГТ-Ц-А-4В G.652D-14,0
Төрөл						
Тулгуурын нэлэ		ПС 220-2	ПС 220-6	У220-2	У220-2х5	У220-2х9
Тулгуурын жин, кг	Цинкгүй	5503	8467	14398	17603	19486
	Цинктэй	5517	8798	14981	18290	20245

Foundation Specification Sheet

Figure 3: Tower foundation specifications

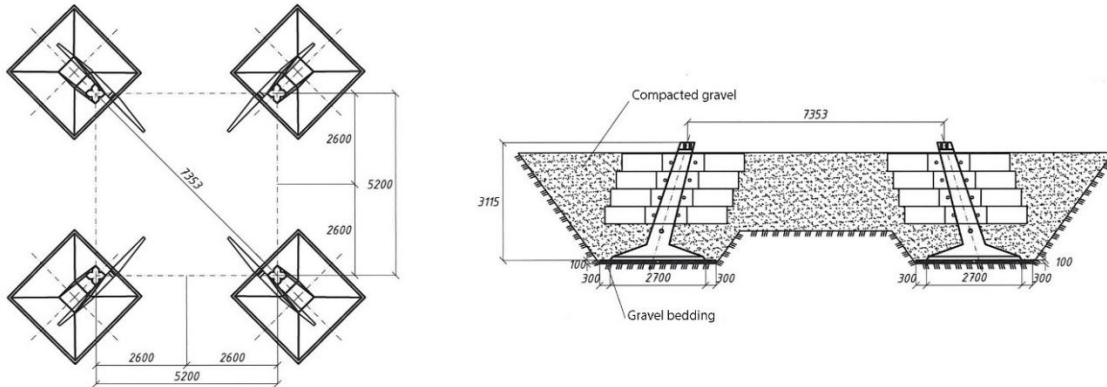
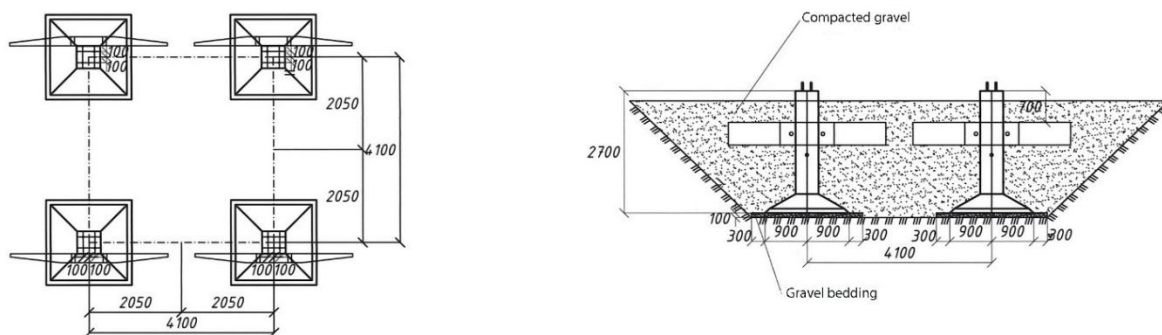
Installation drawing of the $\Phi 5$ type foundationInstallation drawing of the $\Phi 3-2$ type foundation

Figure 4: Indicative installation drawing for tower foundations

Construction Approach

At the time of writing, there is no information available on whether worker's accommodations will be used or any other temporary sites, such as site offices, storage areas, worker accommodation, parking areas, etc. Whilst this will be determined by the construction contractor, the PIU has proposed that a main camp and workers' accommodation would be located near to Sainshand substation, with around two to three smaller camps anticipated to be used along the OHTL.

Existing roads will be used wherever feasible, and in the absence of official roads, routes will be identified and marked to ensure safety and minimize environmental impact. The ground will be levelled and excavated for the concrete tower foundations, and the steel towers will be erected using cranes, while conductors and shield wires will be strung manually or using scaffolding where necessary. No pads will be installed between the towers.

Operation

Maintenance works, including foot patrols for tower and ecological inspections, security patrols to detect tampering, and annual tower audits where 10% of the towers are thoroughly examined for loose bolts/worn components will be established as routine maintenance. Planned maintenance will be scheduled as necessary and should be carried out on the OHTL in accordance with manufacturer equipment specifications or due to the need to repair equipment. As stated previously, operation and maintenance will be carried out by NPTG.

Emergency maintenance describes activities relating to correction of unplanned events. This could include spectrum of minor faults to major defects such as tower failures.

Timeline

The Project tendering and contract award programme is not currently known. It is currently anticipated that the construction will take approximately 24 months to complete, starting in 2026. It is anticipated that the substation will be operational by 2028/9.

Approach to Biodiversity

The area is predominantly desert with sparse vegetation. The project must mitigate impacts on soil degradation, desertification, and biodiversity. Measures include using existing roads for access and minimizing disturbances to grazing lands.

A summary of the Project's approach and commitments to achieving best practice biodiversity management are listed as follows:

- Identification and characterisation of biodiversity baseline conditions for the Project based on desk study and survey data;
- Identification of important biodiversity features (species and habitats) of high conservation value and relevance to the Project based on survey data;
- Application of the mitigation hierarchy to avoid, minimise and rehabilitate Project related impacts to these biodiversity features during Project construction and operation;
- Compensation of significant residual impacts to biodiversity receptors; and
- Adherence to national regulatory requirements.

1.4 Scope

This BMP is a framework for managing Project risks and impacts to biodiversity and to identify and prioritise appropriate impact management actions. BMPs and Biodiversity Action Plans are recommended as global leading practice by bodies such the UN Global Compact and are a requirement for EBRD Performance Requirement 6 compliance.

Specifically, a BMP:

- Collates diverse biodiversity management measures in one place, despite various departmental responsibilities for their implementation;
- Provides a summary of all biodiversity actions planned by the Project, supporting institutional memory;
- Facilitates communication about sound project biodiversity risk management to external audiences such as regulators;
- Provides reassurance that risks and impacts are being managed, and ensures investment is prioritised towards actions that most cost-effectively tackle highest risks; and
- Provides a basis for planning and tracking progress.

This BMP fits within the impact assessment process and is a core component of the Project's Environmental and Social Management Plan (ESMP). The scope of this BMP includes:

- Management measures to mitigate adverse impacts during pre-construction, construction, operation and closure phases;
- A description of the ecological monitoring and reporting commitments including location, frequency and key performance indicators for adaptive management; and
- A definition of roles and responsibilities

1.4.1 The Mitigation Hierarchy

The Project has applied the steps of the mitigation hierarchy so that adverse potential Project-related impacts are avoided, minimised and restored or rehabilitated where feasible. The mitigation hierarchy is a framework for managing biodiversity and ecosystem services risks as well as direct and indirect project-related impacts to biodiversity receptors and important ecosystem services (CSBI, 2015). The Project's adherence to the steps of the mitigation hierarchy is a requirement of EBRD Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. The steps of the mitigation hierarchy are defined by the Business and Biodiversity Offsets Programme (BBOP) (Forest Trends Association, 2019) as follows:

- **Avoidance:** this is the first step in the mitigation hierarchy and is defined as measures taken to avoid causing direct and indirect project-related impacts from the outset. Examples of avoidance measures include the spatial or temporal relocation or removal of infrastructure, to completely avoid impacting key components of biodiversity (i.e. particularly priority species, habitats or ecosystem services). Avoidance is often regarded as the most effective way of reducing potential negative impacts to biodiversity and ecosystem services.
- **Minimisation:** this is the second component of the mitigation hierarchy. Minimisation measures (or mitigation measures) are designed to reduce the duration, intensity and / or extent of direct, indirect and cumulative project-related impacts that cannot be completely avoided, as far as is practically feasible. Robust and pragmatic minimisation measures can be effective in reducing biodiversity impacts below significance thresholds.
- **Rehabilitation / Restoration:** this third step in the mitigation hierarchy should be applied to rehabilitate or restore biodiversity and / or ecosystem services that are impacted by project activities that cannot be completely avoided and / or minimised. An example includes rehabilitating degraded habitats or restoring cleared habitats to reduce residual project-related impacts.
- **Offset:** Biodiversity offsets are measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, to achieve no net loss or a net gain of biodiversity. Biodiversity offsets are measurable positive conservation outcomes on priority biodiversity features that are attributed to project activities, and whose magnitude outweighs that of the residual adverse biodiversity impacts arising from the project development. Offsets require investments in conservation management protection where the results of these investments can be quantified.

1.4.2 Stakeholder Consultation and Engagement

Stakeholders are individuals, groups or organisations that either affect, are affected by, or have an interest in biodiversity management. Stakeholder consultation and support is integral to the design and implementation of this BMP, and it is important that stakeholders are engaged in this Project's BMP process.

This has been achieved through consultation with community leaders along the route, to discuss the potential impacts that they are aware of resulting from construction. These involved initial ESIA Scoping Engagement, undertaken between May to June 2025, and ESIA Baseline / Impact Engagement, undertaken between 22 June to 28 June 2025. These consist of Key Informant Interviews (KIIs), Focus Group Discussions (FGDs) in each soum, including women, elderly, youth, micro and small businesses and herders who have camps in the vicinity of soum centre and Household Surveys (HHS) for those HHs or HH assets identified within 1km either side of the OHTL route.

The list of stakeholders currently includes:

- All herder camps / households with structures (gers, buildings, wells) within 1km either side of the OHTL.
- Mining concessions within the Project area of influence and Tsagaan Suvarga mine workers.
- Owners/users of allocated land crossed by the route of the OHTL.

- Livestock herders.
- Utility and service operators:
 - Railway owner crossed by the Project.
 - Other OHTL owners (NPTG) crossed by the Project.
 - Water and Electricity suppliers
 - Health centre, Police, Fire
- Contractors, Suppliers, and Service Providers (Employees)
- Soum / bagh residents, including vulnerable individuals and groups
- Local business owners within the Project area of influence
- Government of Mongolia (GoM)
- Ministries and Departments / Regulators
- Aimag Level Government and self-governing body (Dornogovi): Governor, *Khural* Speaker, *Khural* Members, and *Aimag* Administration Departments (Planning, Environment, Inspection, Land)
- Soum Governor, *Khural* Speaker and elected *Khural* Members, *soum* administration, and *Bagh* Governor
- Regional and National non-governmental organisations (NGOs) and Community based organisations (CBOs)
- MoE
- NPTG
- EBRD
- Construction and infrastructure trade bodies, Trade Unions

1.4.3 Important Documents

There are important links between this BMP and other Project Documentation as follows:

- Environmental and Social Impact Assessment (ESIA): Sainshand- Tsagaan Suvarga, more specifically Chapter 9: Biodiversity, Flora and Fauna;
- Stakeholder Engagement Plan (SEP): Sainshand – Tsagaan Suvarga.

2 Habitats and Species

2.1 Identification of Important Receptors

To identify the relevant priority habitats and species, a number of methods were implemented:

- Desk study
- Reconnaissance / Scoping survey
- Usage of data gathered from 2022 / 2024 Avian Surveys
- Baseline flora and fauna surveys.

The report also identifies the Priority Biodiversity Features (PBFs) for the Project based on surveys. These features are of high conservation importance for the Project. This process of prioritisation ensures that mitigation actions present within this BMP are focused on the highest biodiversity values and risks within the Survey Area (considered to be the OHTL route and associated working areas, as well as habitats in the immediate vicinity, approx. 250 - 500m from the route). Therefore, the PBFs identified here correspond with the high value receptors discussed within the ESIA. Although not PBFs, the Medium value receptors are also considered within this BMP, as they contribute to the overall value of the ecosystem.

PBFs (High value receptors):

- Goitered Gazelles (*Gazella subgutturosa*)
- Asiatic Wild Ass (*Equus hemionus*)
- Mongolian Gazelles (*Procapra gutturosa*)
- Recorded bird species of conservation concern: Saker Falcons (*Falco cherrug*), Cinereous Vultures (*Aegypius monachus*), Swan Goose (*Anser cygnoides*), Common Pochard (*Aythya farina*), Ferruginous Duck (*Aythya nyroca*), Eurasian Curlew (*Numenius arquata*), Black-tailed Godwit (*Limosa limosa*), Northern Lapwing (*Vanellus vanellus*), Common Crane (*Grus grus*) and Falcated Duck (*Mareca falcata*).
- Endangered plant species Spotted Arnebia (*Arnebia guttata*) and *Brachanthemum gobica*
- Rare Phragmites communis, Oxytropis aciphylla, Potaninia Mongolica and Cynomorium songaricum.

Medium value receptors:

- Habitats and common flora- plant species other than Endangered and Rare plants listed above.
- Uushin Gobi Local Protection Area (LPA) and Ganzaga Uuliin Urgutgul LPA
- Bird species not considered to be of conservation concern.

This document provides a summary of the biodiversity characteristics within the Survey Area, focusing exclusively on High and Medium value receptors. It is important to note that this summary does not encompass Low value receptors such as amphibians, which are covered in detail in the ESIA. For comprehensive results and findings please refer to the complete ESIA.

2.2 Overview of Biodiversity Characteristics Within Survey Area

2.2.1 Designated Sites

International and State Protected Sites

The Project does not traverse any internationally protected sites such as Ramsar Convention sites or the East Asian-Australasian Flyway and network sites. The closest internationally protected site is Ikh Nartiin Chuluu (Ikh Nart), an Important Bird Area (IBA) and state-designated Nature Reserve, located approximately 120km northwest of Sainshand within the Study Area.

Within Dornogovi aimag, a total of eight State Special Protected Areas (Mongolian Law on Special Protected Areas (1994)) have been designated. The OHTL does not pass through any of these sites and the majority are over 50km from the OHTL. Two sites are within 50km of the OHTL, namely Suikhent Uul (National Monument Area, 33.4 km away from OHTL), and Arvannaimiin Bogd Uul (Nature Reserve, 23 km away from OHTL) (Figure 5).

It is considered that no international or national designated sites have the potential to be adversely impacted by the Project as they are all situated over 20km from the OHTL.

Local Protected Sites

Two LPAs have been designated within the Southern Gobi Ecological Region, partly due to being identified to be within a Priority Conservation Area. These are Uushiin Gobi (in Mandakh and Khuvsgul soums) and Ganzaga Uuliin Urgutgul, which the OHTL passes through (Figure 6). The route also passes through Zoogiin Kholoi LPA, but as this area has been released from protection, it is not considered within this BMP.

These areas support a diversity of mammals, particularly ungulates, and birds. For further information on these LPAs, please refer to the full ESIA.

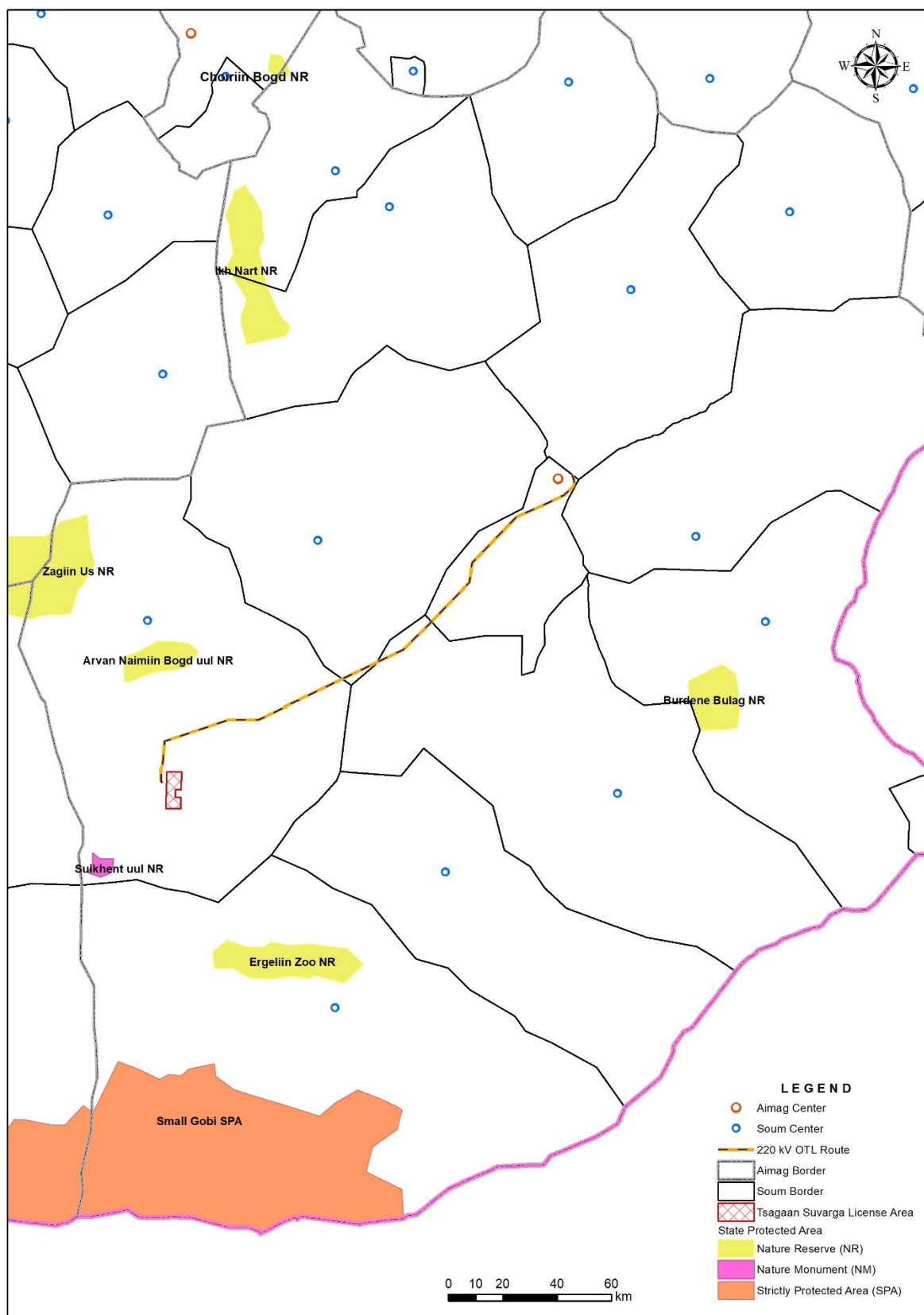
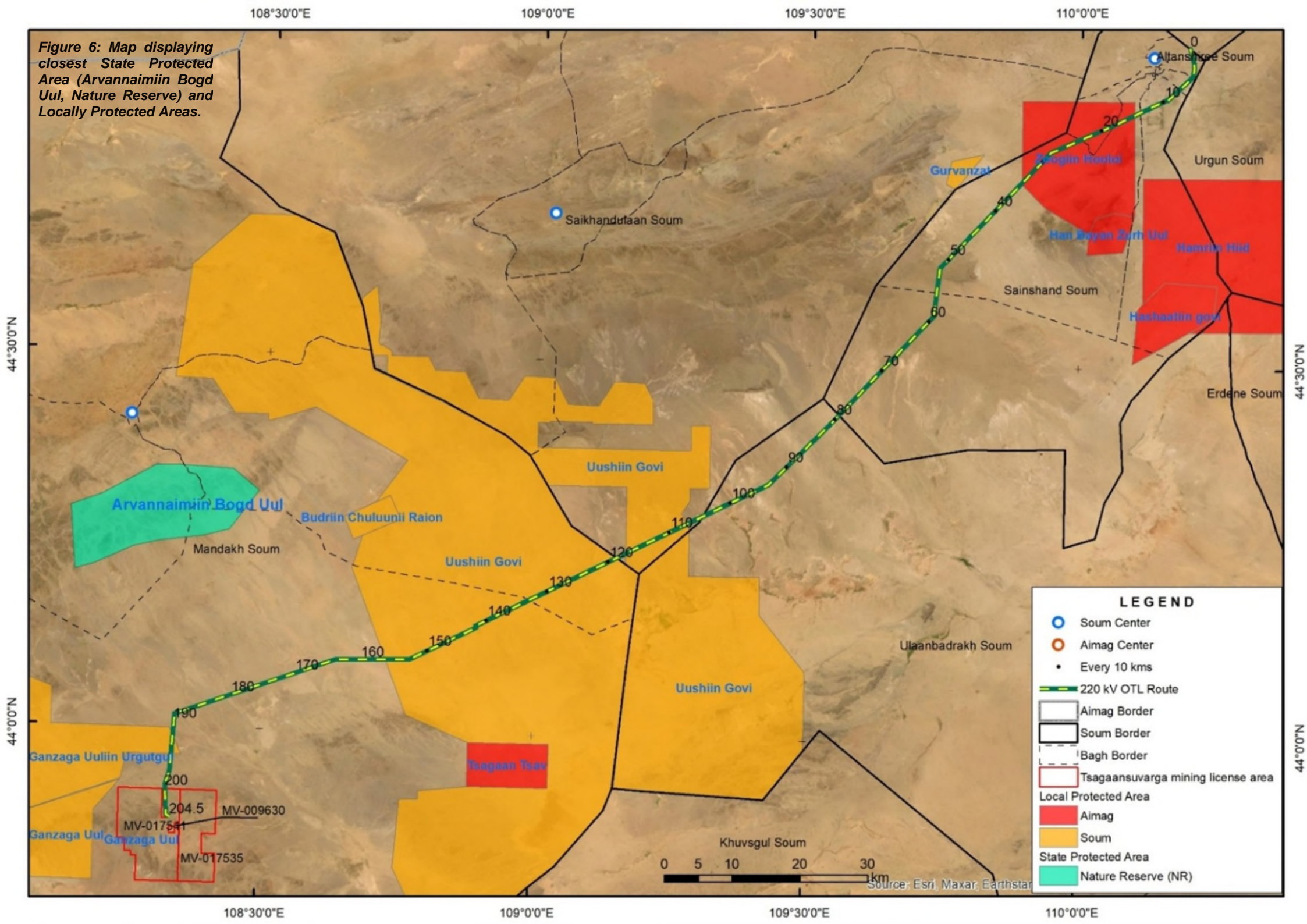


Figure 5: Map displaying closest International and State Protected Areas,

Figure 6: Map displaying closest State Protected Area (Arvannaimiin Bogd Uul, Nature Reserve) and Locally Protected Areas.



2.2.2 Habitats and Flora

Critical Habitats:

Based on field surveys and international criteria, the Project Area does not meet the thresholds for designation as Critical Habitat. No critically endangered, endangered, or vulnerable species are present in significant numbers, and no endemic or restricted-range species were found. Migratory and congregatory species were observed, but their numbers were too low to be globally significant, and no internationally recognized important habitats exist nearby. The area also lacks highly threatened or unique ecosystems and does not exhibit key evolutionary processes as defined by conservation guidelines.

Overview of Mongolian Habitats and Survey Area

Mongolia has a varied biodiversity landscape where the Siberian taiga forest, Central Asian steppe, Altai Mountains and Gobi Desert meet. The Mongolian Gobi covers one-third (32%) of Mongolia's total territory, encompassing an area of 510,000 square kilometres in the southeastern part of the country. This eco-region is classified as a cool desert with a harsh continental climate, characterized by long, cold winters. In the extremely arid desert of the Altai-Uvur Gobi, annual precipitation does not exceed 40mm, while in the bordering Gobi-Altai Mountains, it can exceed 200mm. However, the amount of annual precipitation varies greatly, with some areas receiving no rainfall at all. The long-term average air temperature is colder than -20°C in January and exceeds 33°C in July (TNC Conservation Priorities in Mongolian Gobi Region, Heiner et al, 2013).

The Survey Area belongs to the Eastern Gobi region, as defined by the zoo-geographical regions of Mongolia. This classification is based on the ecological regions outlined in the Red Book of Mammals of Mongolia (2006) and the Red Book of Birds of Mongolia (2011). This region is characterized by semi-desert with low hills and sparse vegetation (Photographs 1 and 2). Other than the marshy areas observed, created from sewage run-off, there is no permanent natural surface water along the Survey Area. From the initial screening / bird surveys conducted between the 1st and 6th of April 2022 and 19th and 21st of May 2025 (SEA & WSCCM, 2022; Ecotrend, 2025) and field survey conducted between 22nd and 29th of June 2025, it was observed that the landscape in the Survey Area was generally homogenous. An ephemeral pond was observed, but it is unlikely to have water unless there is heavy rain, which is rare. During the EcoTrend 2025 surveys, these were found to be dry.



Photograph 1: View of the area, including the plant *Achnatherum splendens*



Photograph 2: View of the area, including the plant *Artemisia rutifolia*

Habitats:

Eleven plant communities were identified along the Project route which formed distinct habitats. These are:

- ***Artemisia, Convolvulus ammannii***: Flat plain (Sainshand substation area and starting point of OHTL). Typical of sandy/ gravelly soils within dry steppe. Can form low shrublands.
- ***Anabasis brevifolia, Artemisia sp., Cleistogenes squarrosa, Reaumuria soongorica***: Typical of flat, wind-swept plains with sandy/ gravelly soils, dry steppe with sparse vegetation.
- ***Reaumuria soongorica, Nitraria sibirica, Achnatherum splendens***: Marshy area due to discharge from a wastewater facility or run-off from Sainshand infrastructure. Typical of sandy soils with seasonal water availability.
- ***Xanthium sibiricum***: Marshy area due to discharge from a wastewater facility or run-off from Sainshand infrastructure. Typical of disturbed soils near seasonal water sources. Sandy/ clay soils and sparse vegetation.
- ***Reaumuria soongorica, Anabasis brevifolia, Cleistogenes squarrosa***: Typical of flat, sandy/ gravel plains, dry steppe with coarse soils, low rainfall and sparse vegetation.
- ***Stipa gobica, Cleistogenes squarrosa, Reaumuria soongorica***: Typical of flat plain and low hills, dry steppes, with gravelly/ coarse soils, strong winds and sparse vegetation.
- ***Zygophyllum xanthoxylon, Caragana microphylla, Caragana stenophylla, Reaumuria soongorica***: Typical of sandy valleys with dry, wind-swept conditions and minimal rainfall.
- ***Eurotia ceratoides, Anabasis brevifolia, Cleistogenes squarrosa***: Typical of arid steppe, gravelly/ coarse plains with dry, wind-swept conditions and minimal rainfall.
- ***Zygophyllum xanthoxylon, Potaninia Mongolica, Anabasis brevifolia***: Typical of sandy/ rocky shrublands within dry, wind-swept valleys.
- ***Nitraria sibirica, Artemisia, Anabasis brevifolia, Reaumuria soongorica***: Typical of moist valley with sandy / gravelly soils, and sparse vegetation. Ephemeral pond located in this area.
- ***Anabasis brevifolia, Arnebia guttata***: Typical of low hills/ valleys with dry, sandy plains and minimal rainfall.

These are depicted in Figures 7 and 8, alongside the individual Vegetation plot locations. These locations varied in condition, with 69.6% (16 / 23 Plots) in good condition, 26.1% (6 / 23 Plots) degraded, and 4.3% (1 / 23 Plots) severely degraded. The severely degraded plot was considered due to overgrazing and human activity (due to its location and land use of the area). This is presented in Table 2.

Table 2: Condition of Vegetation along route

Plot no.#	Plot Description	Vegetation Condition
Plot1 (TL)	A valley between hills, near horse racing grounds	Completely Degraded
Plot1 (SS)	The gentle slope of a hill	Degraded
Plot2	A gravelly flat plain	Degraded
Plot3	A valley with salt-rich soil and feather grass	Good
Plot4	The gentle slope of a hill's side	Good
Plot5	A stony plain in the steppe	Degraded
Plot6	Hill top	Good
Plot7	A broad valley between hills	Degraded
Plot8	Among gently rounded hills	Good
Plot9	The slope of rolling hills	Good
Plot10	Steppe	Good
Plot11	A sandy valley with shrub vegetation	Good
Plot12	A hilly area with stony soil	Good
Plot13	Haloxylon Ammodendron-Nitraria Sibirica dominant valley	Good
Plot14	A stony valley plain	Good
Plot15	Zygophyllum xanthoxylon-Brachanthemum gobica-Reaumuria soongorica valley plain	Good
Plot16	A hill slope	Good
Plot17	Stony semi-desert plain with sandy soil	Good
Plot18	Hillside slope	Good
Plot19	Flat plain	Good
Plot20	A valley with stony soil	Good
Plot21	Foot and slope of hillside	Degraded
Plot22	The slope between hills	Degraded



Figure 8: Vegetation Communities of Survey Area (Part 2)

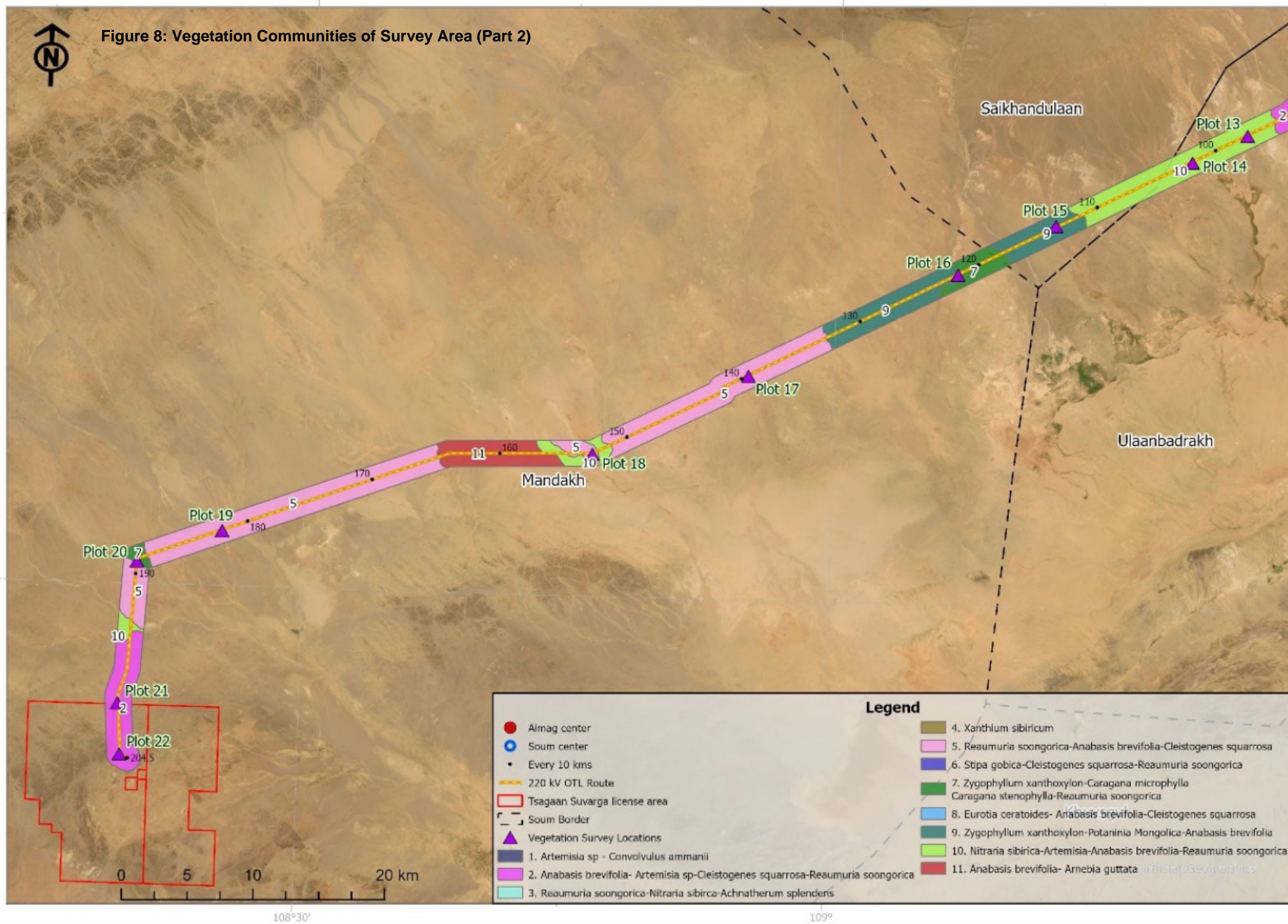
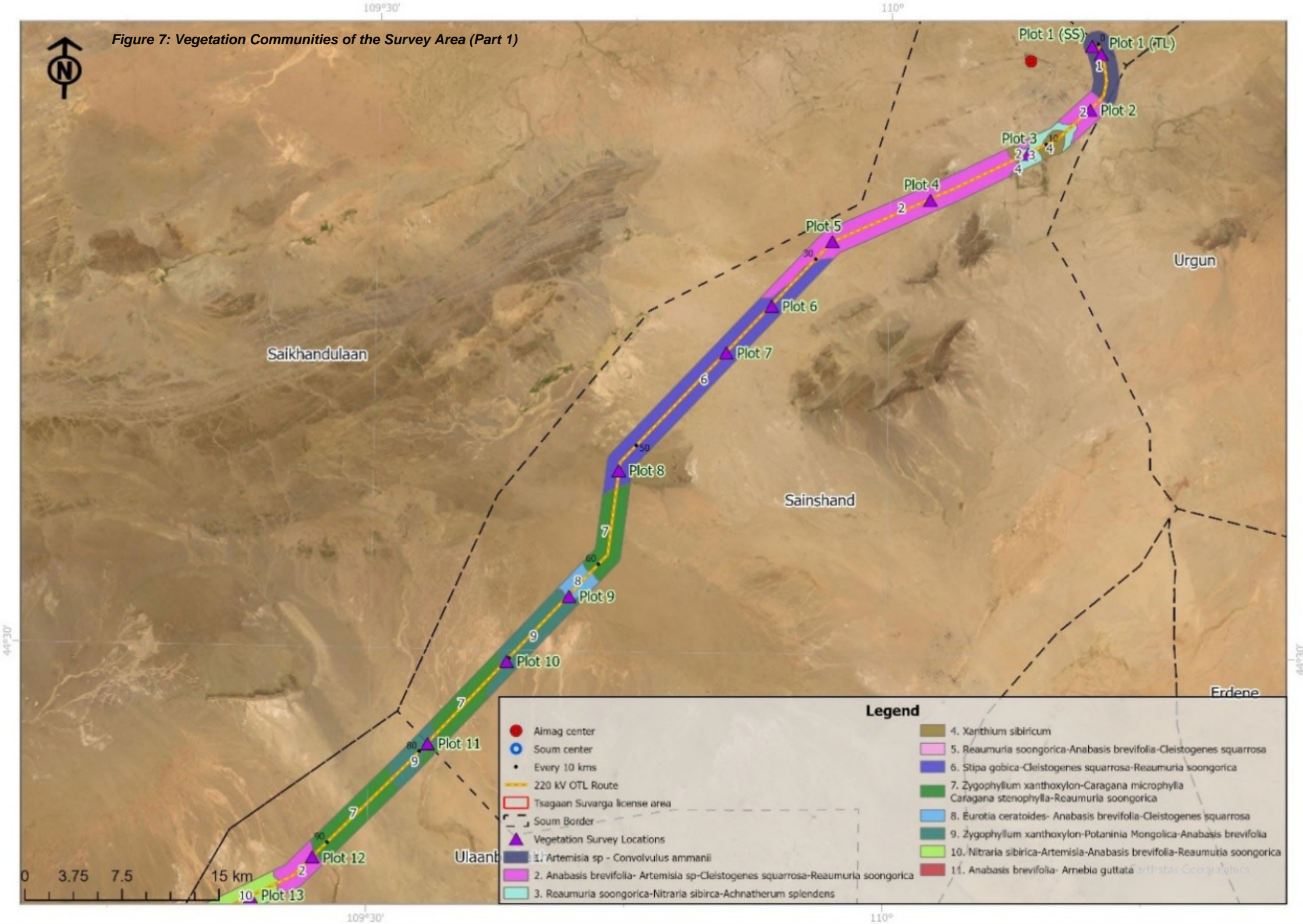




Figure 7: Vegetation Communities of the Survey Area (Part 1)



Endangered and Rare Flora Species:

This survey confirmed the presence of 58 plant species in the Survey Area. A full list of vascular plant species and their respective habitats is provided in the ESIA, as recorded by EcoTrend ecologists. Among the recorded species, only *Phragmites communis* has been assessed by the IUCN Red List of Threatened Species and is categorized as Least Concern, while most other species have yet to be evaluated. In total, six plant species located within the project footprint are classified as rare or endangered at the national scale. The locations and status of these species are described in Table 3. These species are listed as follows:

Endangered:

- Spotted Arnebia (*Arnebia guttata*), listed as Endangered in the annex of the Law on Natural Plants of Mongolia (1995) but categorized as Least Concern in the Mongolian Red List of Plants (2012).
- *Brachanthemum gobicum*, included in the annex of the Law on Natural Plants of Mongolia (1995) and categorized as Near Threatened in the Mongolian Red List of Plants.

Rare Flora:

- *Cynomorium songaricum*, listed as Rare in the Mongolian Red Book (2014) and Government Resolution No. 165 of 2004. Categorized as Vulnerable in the Mongolian Red List of Plants (2019).
- *Potania mongolica*, listed as Rare by Government Resolution No. 153 (1995) and No. 165 (2004), and classified as Near Threatened in the Mongolian Red List of Plants.
- *Oxytropis aciphylla*, included in the annexes of Government Resolutions No. 153 and No. 165, and classified as Least Concern in the Mongolian Red List of Plants.
- *Phragmites communis*, classified as Least Concern by both IUCN and the Mongolian Red List of Plants, although it is listed as Rare by Mongolian government resolutions.

Table 3: Conservation Status of Endangered and Rare Plant Species

Scientific name	Coordinates		Abundance	Law on Natural Plants of Mongolia (1995)	Annexes of Government Resolutions No. 153 of 1995 and No. 165 of 2004	Mongolian Red List of Plant
	N	E				
Endangered						
Spotted Arnebia (Arnebia guttata)	43.91848	108.32907	Sp	+		LC*
	43.88356	108.3323	Cop1			
	44.1132	108.80883	Cop1			
	44.52535	109.67496	Cop2			
Brachanthemum gobica	44.26163	109.20773	Cop3	+		NT**
	44.22671	109.11559	Cop3			
Rare						
Cynomorium songaricum	43.93999	108.33906	Sp		+	VU**
	44.309558	109.36731	Sp			
Potaninia Mongolica	44.46734	109.60112	Cop2		+	NT*
	44.14394	108.89172	Cop2			
	44.11132	108.97646	Cop2			
	44.49284	109.63262	Cop3			
Oxytropis aciphylla	44.70941	109.84187	Sol		+	LC*
	44.53872	109.69232	Un			
	44.43478	109.55727	Un			
	44.88101	110.19446	Un			
	44.81719	110.03911	Sp			
	44.74234	109.88553	Sp			
Phragmites communis	44.85011	110.13436	Sp		+	Not listed
Source: *Mongolian Red List of Plants, Volume 2, Ulaanbaatar, 2019						
**Mongolian Red List of Plants, Version IV, 2024						

2.2.3 Large Mammals

The Project is located within a broader wildlife corridor that supports a variety of mammal species, including the Mongolian gazelle (*Procapra gutturosa*; IUCN LC, National Red List EN (Endangered)), Goitered gazelle (*Gazella subgutturosa*; IUCN LC (Least Concern), National Red List VU (Vulnerable)), and Asiatic Wild Ass (*Equus hemionus hemionus*; IUCN NT (Near Threatened), National Red List EN).

As previously mentioned, the project area overlaps with important steppe and shrubland habitats, such as the Uushiin Govi, an area considered to be of regional conservation significance due to the limited alternatives in the surrounding regions. This region was observed to support significant populations of the Goitered gazelle during field surveys, confirming its role as a critical habitat corridor for migratory species. The Ganzaga Uuliin Urgutgul area also supports diverse bird and small mammal populations.

Surveys conducted along the proposed route recorded direct evidence of mammal activity, including tracks, droppings, and sightings. Notable large mammal species observed include feral populations of the Bactrian camel (*Camelus bactrianus*, DD (Data Deficient)), Goitered Gazelles, Asiatic Wild Ass and one sighting of the Mongolian gazelle. Camera trap surveys recorded limited activity of these species, highlighting their transient use of the area as part of larger migratory patterns.

Further to these, small mammals were also recorded, however, as these are not considered to be Medium or High value receptors in the ESIA, they will not be considered in this BMP. Key PBFs are described below in more detail:

Mongolian Gazelle

During the Baseline Fauna Survey, one Mongolian gazelle was observed near the 121–122km point of the OHTL. Although these gazelles are globally listed as Least Concern, they are considered Endangered in Mongolia (Regional Red List, 2006) due to threats like habitat loss, fragmentation, overgrazing, and hunting. The species is also listed in Appendix II of the Convention on the Conservation of Migratory Species (CMS). Infrastructure such as roads disrupt their migration routes, leading to population isolation and increased disease risk, while climate change and land degradation further threaten their habitats. As key herbivores, Mongolian gazelles are important for ecosystem health, but their numbers are declining in areas of intense human activity, including near the Project site.

Goitered Gazelle

Goitered gazelles were mainly observed in the central and southern areas of the Project, particularly in Uushiin Govi and Ganzaga Uuliin Urgutgul, with the largest group of nine individuals seen over an 80km stretch in Uushiin Govi. Listed as Vulnerable both globally and regionally, as well as being listed in Appendix II of CMS, their populations are declining due to habitat fragmentation from infrastructure, overgrazing, land conversion, and poaching; their avoidance of human activity makes them especially sensitive to disturbance from developments such as roads and transmission lines.

Asiatic Wild Ass/ Khulan

Asiatic Wild Ass were mainly observed in the Uushiin Govi and Ganzaga Uuliin Urgutgul areas, with the largest group comprising 13 individuals, and a few additional sightings northeast of the project route. Listed as Listed as Near Threatened globally and as Endangered in Mongolia, their populations are declining due to habitat fragmentation from infrastructure, overgrazing, and resource extraction, all of which disrupt their nomadic migratory patterns and degrade their habitat. They are also one of the species listed in the Green Status Assessment which assesses conservation actions, and is recorded as Largely Depleted, emphasising the need to take conservation action to protect this species and its habitat.

2.2.4 Birds

Over the combined bird surveys conducted within the Survey Area (2022, Sustainability East Asia (SEA) and Wildlife Science and Conservation Centre of Mongolia (WSCCM); 2024, Arcadis and EcoTrend; 2025, EcoTrend), a total of 10 bird species have been assessed to be of High value, due to their conservation status and their vulnerability to collisions. These include:

- **Saker Falcon** (IUCN EN, National Red List VU)
- **Swan Goose** (IUCN EN, National Red List NT)
- **Common Pochard** (IUCN VU, National Red List LC)
- **Ferruginous Duck** (IUCN NT, National Red List VU)
- **Cinereous Vulture** (IUCN NT, National Red List LC)
- **Eurasian Curlew** (IUCN NT, National Red List LC)
- **Black-tailed Godwit** (IUCN NT, National Red List LC)
- **Northern Lapwing** (IUCN NT, National Red List LC)
- **Common Crane** (IUCN LC, National Red List NT)
- **Falcated Duck** (IUCN LC, National Red List NT)

It was observed that the landscape was generally dry with no ideal bird habitat, concluded from the dry ephemeral pond and lack of large vegetation communities, other than a few hilly areas and two dry riverbeds containing elm trees and almond shrubs. Unidentified nests were found on the elm trees, with birds such as Golden Eagle and Saker Falcon also observed in the area. There was also survey evidence of nesting Cinereous Vultures, and other nesting species such as Medium-value receptors Black Kites and Upland Buzzards. Multiple PBFs were recorded visiting or stopping over at a marshy site, consisting of run-off from Sainshand infrastructure which flows into the area during periods of rain. Potential Asian Houbara Bustard habitat was identified, but none were recorded across surveys, and so this species will not be considered further.

The main potential impact affecting birds is collision risk, particularly to larger species which are not manoeuvrable in flight such as the identified PBFs. Records of these birds flying at OHTL height were mostly single sightings or very low, other than for Cinereous Vultures, which were recorded regularly in comparison but with a total flight time of only 14 minutes, considered low when compared to total survey time. This species is also the most at risk for losing their nests due to vegetation clearing, as some were confirmed to be breeding.

For Medium-value receptors, including all birds that are not of conservation concern, the majority were found to have low risks of collision, with the highest being Palla's Sandgrouse, which flew at collision altitude for 11 minutes. However, considering their avoidance behaviour, the impact is expected to be low, and so no dispersal barrier to migratory birds is considered to occur. The locations of all birds (both PBFs and Medium-value receptors) recorded in the latest 2025 survey are depicted in Figures 9 and 10, as well as the confirmed Cinereous Vulture nest location.

Figure 9: Bird species tracking (Part 1)

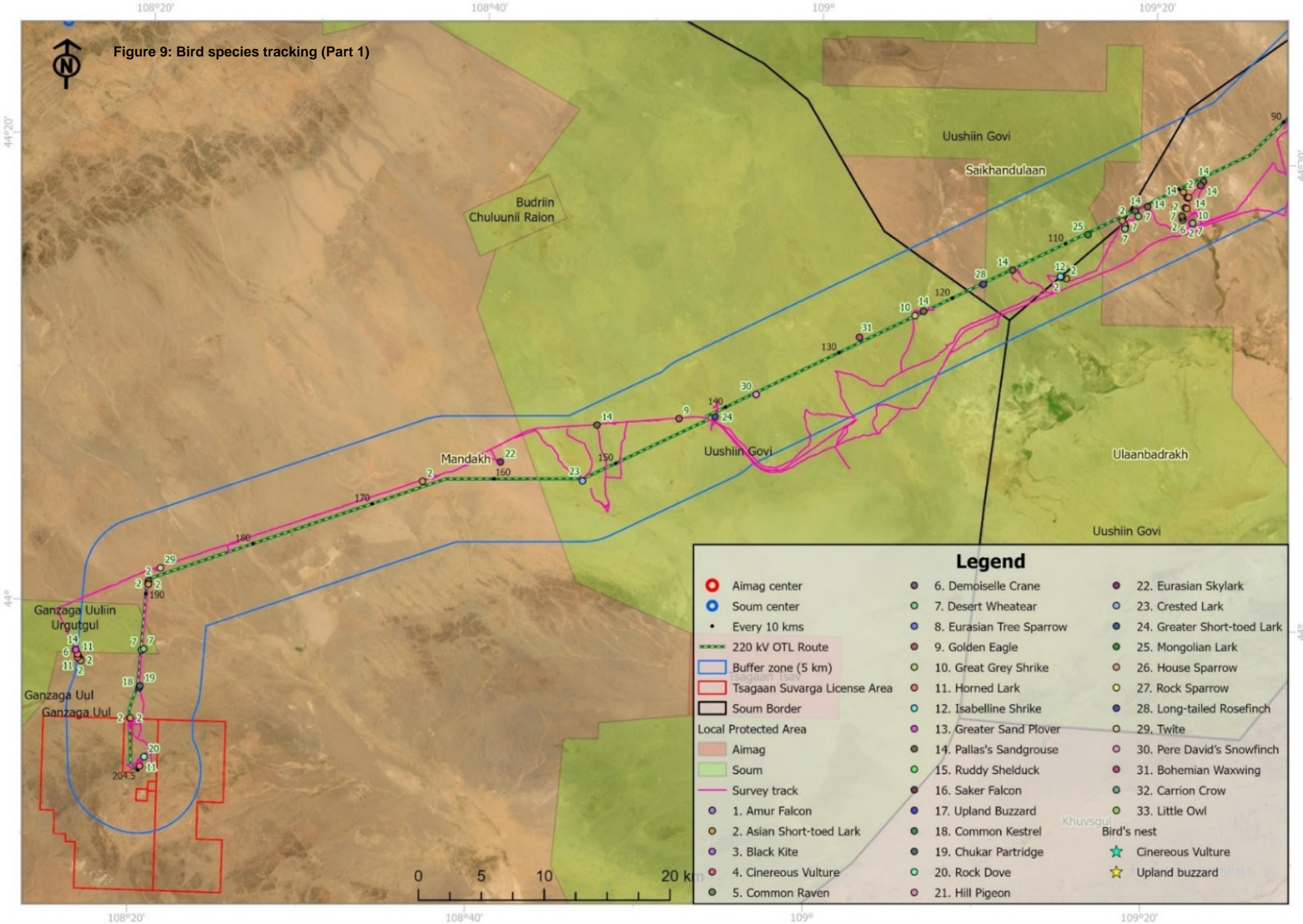
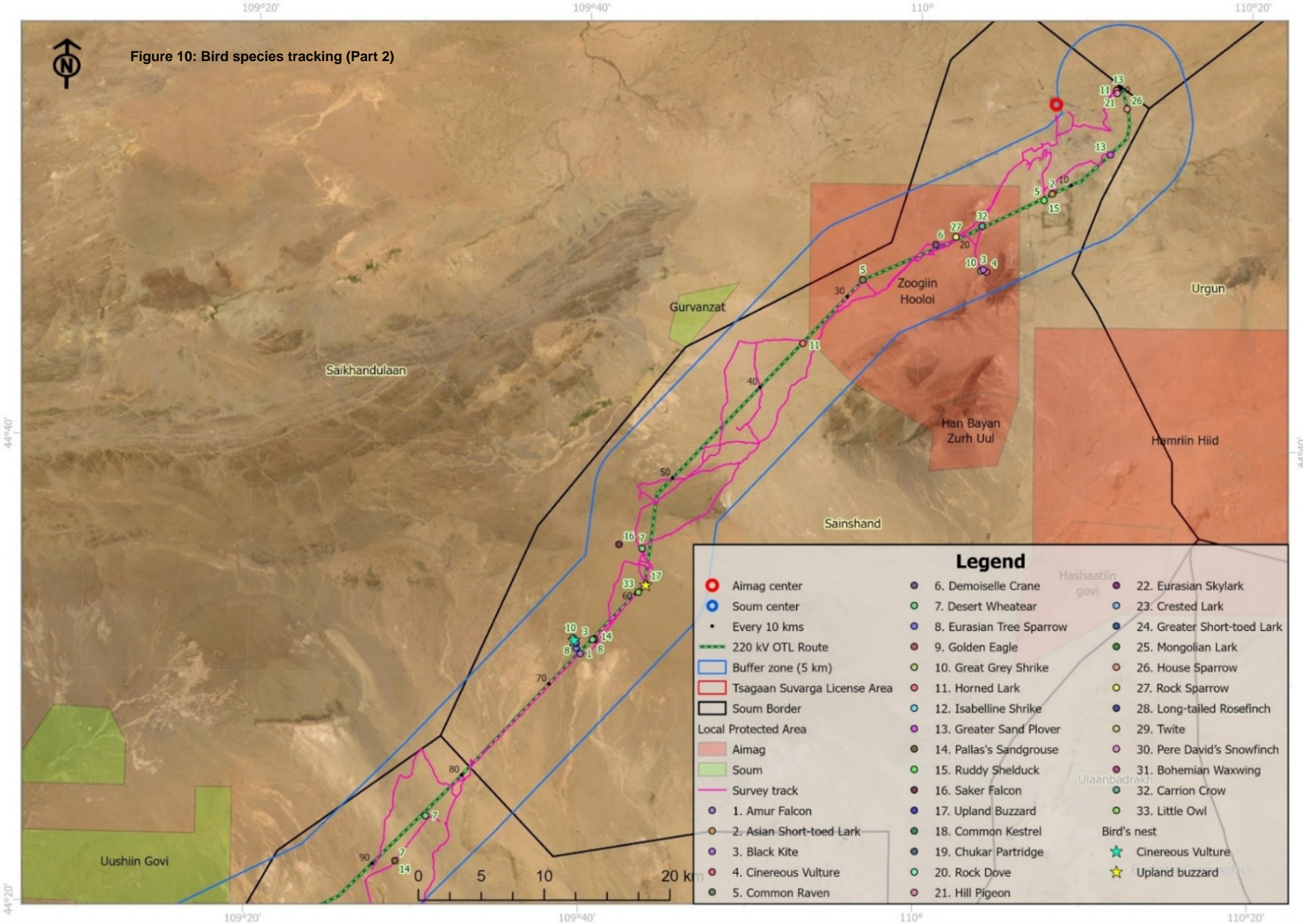




Figure 10: Bird species tracking (Part 2)



2.2.5 Reptiles and Amphibians

No amphibians were recorded during the surveys and so have been assessed as a Low value receptor and are not considered further.

Multi-ocellated Racerunner and Tuvan toad-headed agama were recorded along the proposed route during surveys. The Tuvan toad-headed agama was spotted along the entire route, across 15 different sites, with an average of 2 sighted per site, while the Multi-ocellated Racerunner was recorded in only one instance, with one individual present.

Both recorded reptile species are classified as LC according to the IUCN Red List (IUCN, 2025) and the Mongolian Red List of Reptiles and Amphibians (2006). Furthermore, neither species is included in the List of Endangered Species under the Law on Animals (2012), nor in Annex 1 of Government Resolution No. 7 of 2012, titled "List of Rare Animals", and so they are also classed as a Low value receptor and are not considered further in this BMP.

2.2.6 Bats

Data from the fauna surveys undertaken in 2025 identified two bat species in the Survey Area. These were the Gobi Big Brown Bat (*Eptesicus gobiensis*, IUCN LC, Mongolian Red List LC) and Kozlov's Long-eared Bat (*Plecotus kozlovi*, IUCN LC, Mongolian Red List DD). Kozlov's Long-Eared Bat is named as 'Grey Long-eared bat (*Plecotus austriacus*)' in the Mongolian Red List of Mammals (2006), as the source was published before a study using genetic analysis (Spitzenberger et al., 2006) identified Kozlov's Long-eared Bat as a separate species, rather than a subspecies. The species was assessed as Data Deficient (DD) due to insufficient information on its distribution, population size and trends, and the extent of potential threats. No endangered or rare species were observed during the survey, and there was little roosting potential within the Survey Area, therefore bats are not considered further in this BMP.

2.2.7 Existing Threats to Biodiversity

The current threats to habitat quality and species diversity were identified as occurring within the Survey Area. These threats are predominantly linked to anthropogenic activities in the region, such as the increasing numbers of livestock leading to overgrazing, and desertification/ extreme weather events due to climate change. Existing threats to biodiversity in the project area are as follows:

- **Poaching:** The Mongolian Red list for Mammals explains that the key conservation pressure on mammals identified in the Survey Area is largely intentional mortality through poaching. However, it's noted that this has reduced over the past years due to increased law enforcement (The Nature Conservancy, 2016).
- **Habitat loss / degradation:** Unsustainable pasture management with increasing numbers of livestock has led to overgrazing, eroding the soil. This causes the land to be less resilient to severe droughts and other environmental stressors brought upon by climate change, as well as reducing its fertility. The main causes of desertification are human activities such as the previously mentioned overgrazing and deforestation, but also due to the Gobi Desert being a climate hotspot, where climate change is felt at a faster rate than in other areas of the world. In response, the Mongolian government and UNDP launched the ENSURE project, which implemented a "5-Year Rangeland Management Plan" in the southern Gobi. This initiative led to a 23.4% reduction in livestock numbers among participating herder groups, aiming to align grazing pressure with the land's carrying capacity (UNDP, 2024) Despite these efforts, over 76.9% of Mongolia's land remains affected by degradation, exacerbated by climate change, which has increased average temperatures by 2.26°C over the past 80 years.

- **Habitat Fragmentation:** Caused due to the construction of roads with limited / no wildlife corridors, which isolates migrating animals and lowers their population's genetic diversity. This is mostly due to mining-related infrastructure present in the area, which disrupt Asiatic Wild Ass' migratory routes and reduce access to critical water and forage resources (Buuveibaatar et al., 2016). The OHTL is not expected to fragment habitats or act as a dispersal barrier, as most bird flights occur above or below cable height, and large mammals can pass beneath the lines without obstruction.

2.2.8 Possible Project- Related Impacts to Biodiversity

The development of the Project will result in impacts of varying degrees of significance to terrestrial and aquatic habitats and species during construction and operation phases, with some ongoing residual impacts. A full assessment of direct and indirect Project related impacts are presented within the ESIA.

Construction Phase:

- **Habitat and Flora Destruction and Degradation:** Construction will cause some habitat and plant degradation from vehicle movement and excavation, but the overall footprint is small (limited to pylon bases and surrounding areas) with strong natural regeneration observed around existing pylons. Rare and endangered plants are at higher risk, as permanent loss would lead to higher impacts.
- **Animal Mortality:** Vegetation clearance may affect species with strong site fidelity, especially ground-nesting birds. Small mammals and reptiles are expected to be able to escape. Large mammals may be at risk from vehicle collisions, though this is reduced by their avoidance behaviours and low vehicle speeds.
- **Disturbance:** Although noise modelling indicates low impact, nesting birds of prey are highly sensitive to noise disturbances, especially during breeding season. The Cinereous Vulture, a species of conservation concern, was the only high-value bird recorded nesting, though its nest was located away from the OHTL. If disturbed, nest abandonment could occur. Most non-avian fauna will disperse beyond the 350m noise buffer zone.
- **Pollution Events:** Dust generation is likely to be minor due to the naturally windy, dusty environment for which local flora is adapted to, and oil and fuel spills are possible but unlikely to cause major incidents.
- **Construction worker pressures:** Risks include poaching, accidental rare plant harvesting, potential introduction of invasive species, improper waste management attracting wildlife, and high fire risk due to dry, windy conditions.

Operation Phase:

- **Habitat and Flora Destruction and Degradation:** Once operational, a maintenance track will be required along the OHTL. Observations of existing tracks show minimal ecological impact, with vegetation growing between and beside tyre marks. Improved access may increase livestock grazing, degrading soil and habitats over time.
- **Animal Mortality:** Bird and bat collision risk with the OHTL is low overall, including for high-value species like the Cinereous Vulture, due to birds' avoidance of pylons and landscape visibility. Key high-activity areas should be prioritized in mitigation. Further details on the bird collision risk assessment can be found in the ESIA. Vehicle collisions during maintenance are considered to be unlikely. Some bird species, especially raptors and corvids, may nest particularly on lattice pylons- if active nests are removed during maintenance, it could lead to the loss of eggs or nestlings.
- **Disturbance:** Noise disturbance during maintenance is expected to be minimal, mainly from vehicles. However, prolonged activity near nesting birds of prey could cause nest abandonment. Non-bird fauna is unlikely to be significantly affected.
- **Pollution Events and Hydrology:** Oil and fuel spill risks are lower than during construction, though potential environmental harm remains if a spill occurs. The installation of pylons may slightly alter drainage

patterns, increasing runoff. However, no extensive hard surfaces are planned, and pylon bases occupy minimal space.

- **Maintenance Worker Pressures:** Low due to fewer and less frequent workers, although wildfire risk remains high during dry periods.

3 Targets and Actions for Biodiversity Management

3.1 Overview

Measures will be implemented by the Project to avoid and minimise impacts to biodiversity, and progressive restoration / maintenance measures will also be employed where possible. Diligent application of best practices for managing potential impacts to biodiversity is expected to significantly decrease the potential for residual impacts.

The implementation of specific avoidance and mitigation measures will focus on key PBFs for the Project, namely Large Mammals (Mongolian gazelles, Goitered gazelles, and Asiatic Wild Ass), Birds of conservation concern (Saker Falcons, Cinereous Vultures, Swan Goose, Common Pochard, Ferruginous Duck, Cinereous Vulture, Eurasian Curlew, Black-tailed Godwit, Northern Lapwing, Common Crane, and Falcated Duck), nationally Rare and Endangered plant species (Spotted Arnebia, *Brachanthemum gobica*, *Phragmites communis*, *Oxytropis aciphylla*, *Potania Mongolia* and *Cynomorium songaricum*), as well as other Medium receptors such as birds not of conservation concern and specific habitats. Mitigation measures designed for reducing direct and indirect impacts to these PBFs and their habitats will also benefit other fauna, hence specific mitigation measures are not required for other species.

The ESIA developed for the Project provides detailed plans and procedures for the protection and management of environmental and social receptors, including biodiversity. These plans will be implemented by the Construction Contractor. A summary of the key avoidance, mitigation and habitat restoration / rehabilitation measures that will be implemented by the Project is presented below.

It is recommended the mitigation measures outlined within this section are applied to both construction and operational phase maintenance works where appropriate. Where mitigation is therefore focussed on impacts unique to the operational phase, these will be marked with '**(Operational Only)**'.

At the time of writing, a detailed construction plan is not available. Therefore, this BMP includes general mitigation which will need to be revised according to specific construction details once a plan is finalised.

3.2 Avoidance Measures

Several measures have been developed to avoid impacts, as much as feasible, on priority species and habitats, as described below:

Target A: Avoid the degradation of intact habitats.

- The OHTL route is recommended to be aligned alongside existing railway infrastructure to minimize disturbance to undisturbed habitats and reduce the footprint on ecologically sensitive areas. Currently, the OHTL deviates from the rail line for approximately 22km, taking the route within 100m of the ephemeral pond discussed previously. The alternative route is demonstrated on Figure 11, between pylon numbers 139 and 210. This would not require additional turning points or extra cable length, as it is also 22km in length. As well as avoiding good condition habitat and flora, this adjustment avoids the ephemeral pond which was also highlighted for its potential to support high numbers of birds (when wet), therefore avoiding collision risk.
- Microsite pylons across remaining habitats to minimise impacts across undisturbed areas.



- In the marshy area and dry riverbeds, where groundwater could be close to the surface, natural drainage patterns should be maintained and not obstructed where practicable. This includes in the siting of any construction workers' accommodation camp(s) or laydown areas, as per the Water Environment Chapter of the ESIA. Further to this, Heavy machinery should not cross smaller riverbeds except at formal temporary crossing locations, and any channels shall be restored if altered by temporary construction activities.

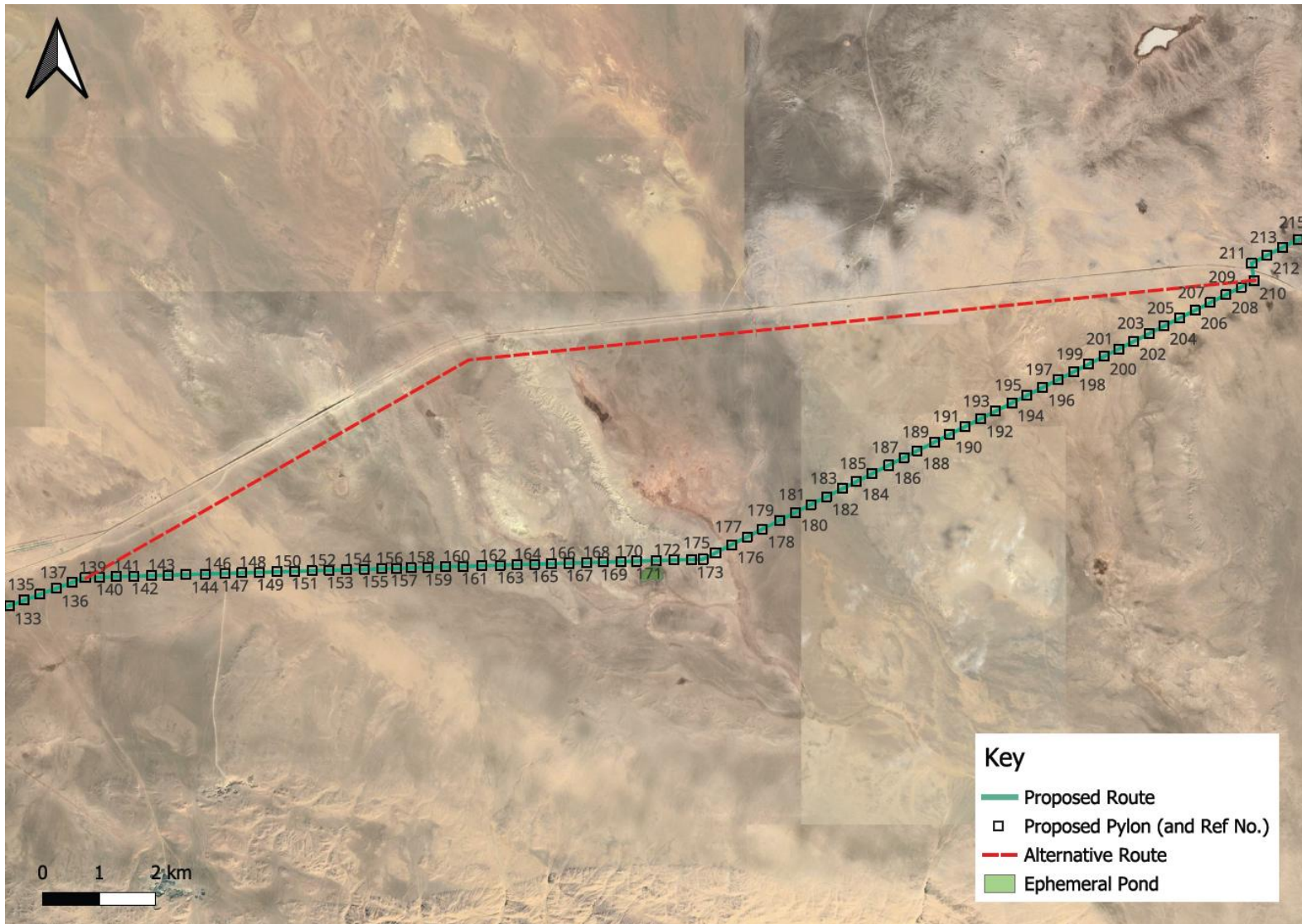


Figure 11: Recommended Route Adjustment

Target B: Avoid direct impacts to rare and endangered plant species.

- Areas with rare flora shall be identified according to Figure 12 and fenced off (with approx. 2m buffer zones) by an environmental officer/ ecological consultant. Where access is unavoidable, plants around base of tower will be added to monitoring plan after construction to keep track of their natural regeneration. There shall be limited vegetation clearance.
- Also sensitively locate site construction compounds, lay-down areas, and access routes to avoid undisturbed habitat and flora; use existing tracks where possible.
- Position pylons carefully within the allowable limits to minimise impacts on habitats and Rare or Endangered flora (micro-siting).
- Ensure no herbicides are used.

Target C: Avoid disturbance to wildlife and their habitats.

- Construction will be scheduled to avoid breeding and migration periods (March to August inclusive), especially around important features like the ephemeral pond, the marshy areas and known nest sites.
- Excavations should avoid any animal burrows noted in the area, through micro-siting of pylons.
- If the environmental officer/ ecological consultant finds that large mammals are using or approaching a water source near the work area, construction should be suspended until they naturally move away (especially at Uushiin Govi and Ganzaga Uuliin Urgutgul LPA).
- A strict ban on poaching should be enforced, made clear during onboarding, and monitored by a designated site manager.
- Any nests of high-value raptor species noted should have a 500m buffer applied, with appropriate demarcation and signage.
- The elm trees which support nesting Cinereous Vultures should be identified by an ecological consultant and retained (marked with star on Figure 12).
- If on approaching an area of works at the start of the working day, large mammals are found to be using a water source to drink, the construction activities should be suspended until these animals naturally move off. Similarly, if large mammals start to approach working areas to access a nearby water source, construction activities should be suspended until these animals naturally disperse to at least 350m. This approach is especially important at Uushiin Govi and Ganzaga Uuliin Urgutgul LPA where the main distribution of Red Listed large mammals were found during survey work (Uushiin Govi LPA is also designated as it supports populations of these species).

Target D: Avoid proximity to existing OHTLs to avoid bird collision risks.

- The proposed OHTL route will be re-routed to increase distance from existing transmission lines, reducing the likelihood of birds colliding with multiple structures. This includes the previously mentioned re-alignment of the OHTL alongside existing railway infrastructure.

Target E: Avoid disturbance to wildlife from lighting and noise.

- No nighttime working is proposed, and so artificial light will not be required. If this changes, measures should be taken to prevent light disturbance (e.g., directional low-lux lighting, nighttime driving strategy).
- Construction activities with high levels of noise (excavation and erection of towers), as outlined in the Noise and Vibration chapter of the ESIA, should ideally be avoided within a 500m buffer of any raptor nest (particularly species of conservation concern, such as Cinereous Vulture which was recorded nesting) while the nest is active. A nest site of this species is located outside this 500m buffer (approximately 1km away), however any new nests or additional High value raptor species noted should have the 500m buffer applied. Appropriate demarcation and signage should be applied around this buffer. Once nesting is complete, works can continue within the buffer area. If it is essential to carry out work within this 500m buffer during construction works, then a suitably qualified and experienced ecologist should be contacted to monitor the

nest and ensure no significant levels of distress or disturbance occurs to the bird. Limits of works may also be applied by the ecologist within this 500m buffer.

3.3 Minimisation Measures

Biodiversity management controls have been developed to mitigate high-risk potential impacts during construction and operation phases to priority biodiversity species and habitats. Implementation of these best-practice mitigation measures will reduce as much as feasible the residual impacts on priority biodiversity features. The following section details the principal targets and actions that will be required to ensure no long-term impact on priority biodiversity features.

Target F: Minimize vegetation loss and soil degradation/ pollution during construction.

- Low-impact machinery with spread loads will be used, and heavy equipment will be restricted to designated areas to prevent soil compaction and erosion.
- Translocate Rare/Endangered plants if impact is unavoidable, using qualified professionals (last resort option- if not found to be necessary during construction, will be dependent on results of operational monitoring, as explained in the [‘Monitoring, Evaluation and Management’](#) chapter).
- Brief workers on identifying Rare/Endangered flora.
- Designated refuelling stations should be established, and spill kits should be made readily available for the rapid clean-up of any accidental spills, as per the Water Environment chapter of the ESIA.

Target G: Reduce impact towards wildlife during construction

- Prior to vegetation clearance or excavation, walk the area to flush out mammals, reptiles, and invertebrates; clear vegetation systematically to allow animals to escape. If vegetation clearance must occur during the bird breeding season, the area should be walked beforehand to check for active nests. A 20m no-works buffer should be applied around any active nest until fledging is complete.
- Brief construction workers on the presence of endangered fauna (especially large mammals) and flora, and appropriate procedures if encountered.
- If work within the 500m buffer around high-value raptor species’ nests is essential, a qualified ecologist should monitor the nest to ensure no significant disturbance occurs. Limits of work may be applied.
- **(Operational only)** There is a risk active bird nests built on pylons could be removed during maintenance operations. OHTL maintenance workers should be briefed and educated on the importance of not removing or disturbing such nests, as well as the appropriate steps to take if they are found. This is particularly relevant to Cinereous Vultures, which were found to be nesting during Surveys.
- Clearance of low vegetation should ideally avoid the bird breeding season (March to August inclusive). If this is not possible, the area of vegetation clearance should be walked prior to clearance to check for bird nests. If an active nest is found (being built / attended by adult / contains eggs or young), then a no-works buffer zone of at least 20m around the nest should be applied until all chicks have fledged the nest. This buffer should be clearly marked out. Vegetation removal outside a 20m buffer of an active nest can continue, however the vegetation and nest can only be removed once the bird has finished the nesting cycle

Target H: Reduce airborne dust impacts on sensitive plant communities.

- As per the Air Quality Chapter of the ESIA, dust suppression techniques such as regular watering and seasonal machinery restrictions will be implemented, with dust levels monitored within 250m of the OHTL.
- Site layout will be planned so that machinery and dust-causing activities are located away from receptors.
- Ensure all vehicles’ engines are switched off when stationary- no idling.

Target I: Enforce the speed limit of service vehicles.

- Enforcing speed laws through site access roads will reduce the number of possible vehicle collisions on site.

Target J: Prevent the spread of invasive plant species.

- Construction equipment will be cleaned and inspected regularly, and invasive species will be removed immediately if detected.

Target K: Limit disturbance to nocturnal and sensitive wildlife species.

- Construction activities will be restricted to daylight hours, and noise-reducing equipment will be used during breeding seasons.

Target L: Prevent wildlife attraction and pest proliferation due to food waste.

- A secure food waste management system will be implemented, including sealed containers, centralized disposal zones, and regular off-site waste removal.

Target M: Minimize risks to birds from infrastructure.

- Coloured line spacer bird diverters will be selectively installed in high-risk flyway zones to prevent impact to species such as the Saker Falcon and Cinereous Vultures. Alternative bird diverters include coils, hanging 'flags' and globes, often attached the earth wire of the OHTL. To cover the full extent of sensitive areas, bird diverters would need to be installed and spaced in line with best practice (typically every 10m), between the following pylons:
 - **Area 1** - Pylon No. 18 to 32
 - **Area 2** includes the ephemeral pond, which will be avoided if the OHTL is shifted to follow the railway line, therefore not requiring bird diverters.
 - **Area 3** - Pylon No. 462 to 472
 - **Area 4** - Pylon No. 513 to 526
 - **Area 5** - Pylon No. 643 to 667

Target N: Reduce fire risks during construction and operation/maintenance activities.

- Fire prevention controls will be upheld, including having designated smoking and cooking zones during construction, and increasing surveillance during equipment maintenance.
- Enforce zero tolerance for littering; implement waste management programme.
- Avoid bonfires and burning of waste materials, as per the Air Quality Chapter in the ESIA.

Target O: Mitigate unforeseen ecological impacts through adaptive management.

- A long-term monitoring plan will be implemented to track flora and fauna, with mitigation measures adjusted as needed in consultation with regulatory stakeholders. This includes tracking bird and bat mortality due to project infrastructure and conducting further surveys if significant negative impacts determined. This is further detailed in '[Monitoring, Evaluation and Management](#)' chapter.

3.4 Restoration Measures

Target P: Restore habitats disturbed during construction/ operation to support ecological recovery.

- As per the Soils and Natural Hazards Chapter of the ESIA, a Soil Management Plan will be developed by a Soil Scientist prior to construction. This will ensure that the site will be prepared accordingly, with construction areas carefully organised to minimise soil degradation, vegetation cleared from topsoil, and access routes, compounds and stockpile areas strategically planned.
- Soils from temporary land use areas should be reinstated to their original condition.

- Allow for natural regeneration due to high bare-ground percentage.

Target Q: Support long-term recovery of flora and fauna populations.

- Restored habitats will be monitored annually to assess recovery, and adaptive management strategies will be applied based on ecological assessments.

Target R: Support conservation through education and enforcement.

- Toolbox talks will be given to the Construction Contractor and any sub-contractors before commencing of works, educating them on fauna and flora laws and how to recognise PBFs.
- Laws protecting endangered species will be strictly enforced.

4 Monitoring, Evaluation and Management

4.1 General information

A draft set of monitoring actions has been developed based on the avoidance and mitigation measures designed for the Project. Where possible, thresholds will be established for each monitoring approach that will alert the Project that mitigation measures need to be adapted and revised biodiversity management measures are required. Monitoring following construction shall be under the responsibility of NPTG, who will oversee the maintenance of the OHTL and either appoint an Environmental officer/ Ecological Clerk of Works to guide monitoring works, or utilize the same one appointed by MoE during construction. This monitoring approach is outlined below and summarised in Table 4.

4.1.1 Bird Monitoring

Given the importance of conserving the PBFs, in line with PR6 requirements, an avifauna monitoring programme will be established for the Project by an experienced ecologist to monitor the effectiveness of the mitigation measures, to assess for any significant changes in priority bird species numbers and habitat usage within the project area and adjacent sensitive habitats and identify the requirement for adaptive management (to ensure no net loss in accordance with Performance Requirement 6). Vantage point surveys should be conducted during spring and autumn seasons, for the first 2 years post- construction, to ensure birds are not being significantly negatively impacted. Alongside this, bird corpse searches should be done along the OHTL, looking out for and recording any bird carcass that is found to have been electrocuted. This programme may be run in collaboration with protected area managers and Non-Governmental Organisations (NGOs) (i.e. Eurasian Bustard Alliance).

Indicators:

- Changes in frequency of habitat usage by priority bird species
- Changes in number of breeding / nesting and migratory bird species (benchmarked against existing monitoring data)
- Changes in flight behaviour around OHTL
- Changes in frequency of bird corpses found during monitoring years.

4.1.2 Vehicle/ Machinery Collision Reporting

The increase in vehicle traffic and machinery usage increases the risk of accidental injury and mortality to fauna, including priority species, caused by collisions with moving vehicles and machinery.

A mandatory wildlife incident reporting system will be established to record and monitor any accidental vehicle and machinery collisions with fauna and sightings associated with the Project during construction and operational maintenance. The incident reporting system will be followed by the Construction Contractor and

managed by a supervising engineer with support from an experienced ecologist when required. The following information will be recorded by the contractors:

- Species details, any distinguishing features
- Location (e.g. GPS data)
- Time and date
- Weather conditions
- Photographs, if possible
- Any measures or actions undertaken, if applicable
- Relevant government authorities will be notified as necessary.

Indicators:

- Reports of dead fauna
- Reports of a collision with wild fauna.

4.1.3 Anecdotal Observations

A reporting system will be established to monitor anecdotal observations of PBF sightings and field signs recorded by staff and contractors during construction. The reporting system will be followed by the contractors and managed by a supervising engineer with support from an experienced ecologist when required. This information will be used to assess the requirement for adaptive management.

4.1.4 Monitoring Efficacy of Habitat Restoration (Rare and Endangered Flora)

The status of the endangered and rare plants affected within the Survey Area will be closely monitored for the first 2 years following construction. This will entail the establishment of permanent quadrats within key areas by the Construction Contractor. These key areas are suggested to be at the points where the rare and endangered species were found, marked in Figure 12.

These quadrats will be inspected and photographed by ecologists on an annual basis (as Spotted Arnebia and the other rare/ endangered plants present are known to be slow growing, some taking up to two years to flower) as a means of recording plant health over time. The quadrats will serve as an indicator of success for the wider restored habitats. Seasonal walkover assessments will also be undertaken to assess establishment over time. Currently, there are no plant translocation or replanting needs, since the vegetation coverage of the area is quite sparse and it is expected that the plants will be able to naturally regenerate over time, as the works are not likely to lead to lasting vegetation impacts. If this monitoring reveals a decline in plant coverage correlated to the construction/ operation of the OHTL, translocation action may be required in the future.

Indicators:

- Changes in plant numbers
- Changes in coverage

Figure 12: Map with locations of rare and endangered plants to be monitored.

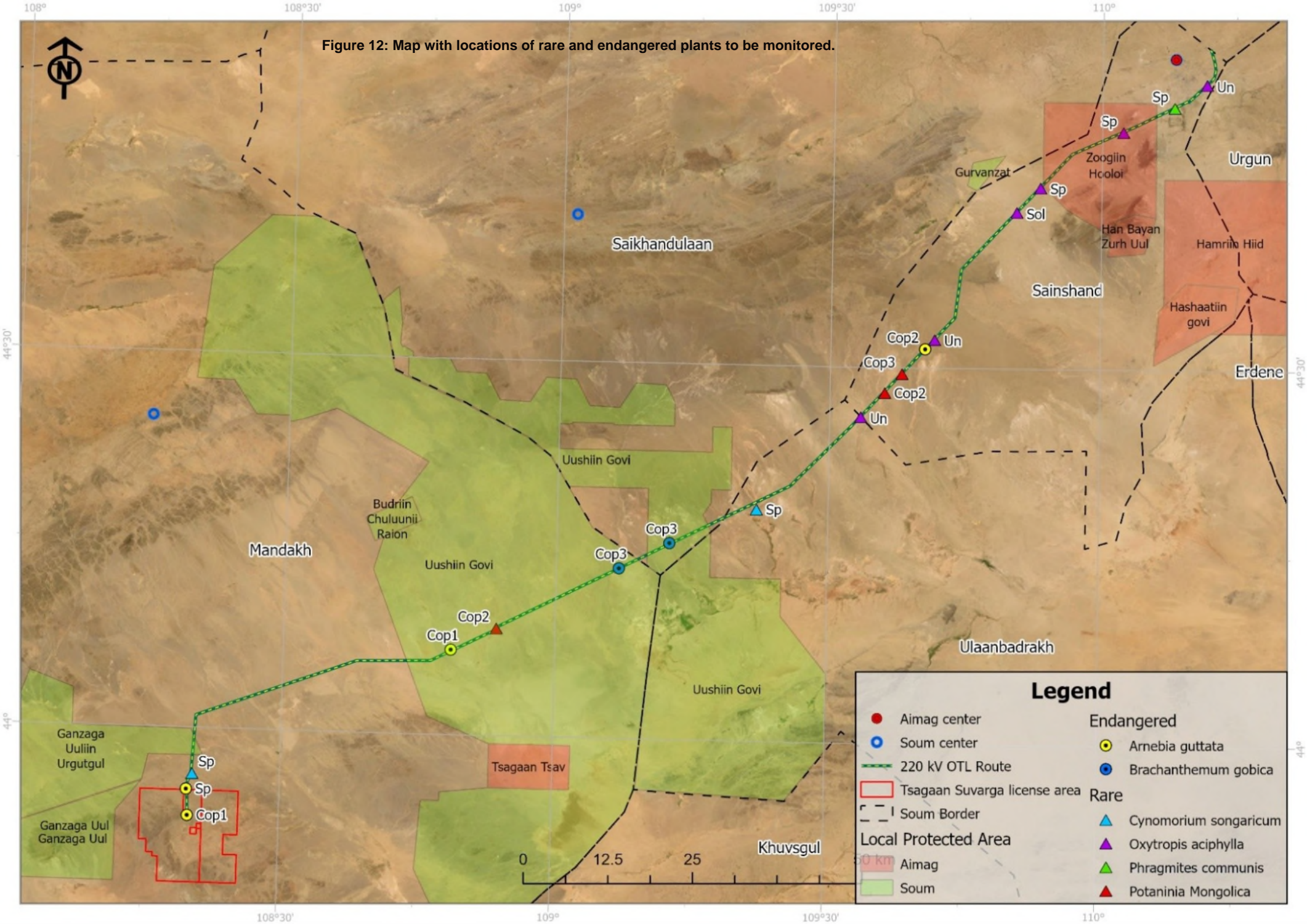




Table 4: Summary of recommended monitoring approaches

Monitoring	Indicators	Recommended Frequency
Bird Monitoring	<ul style="list-style-type: none"> • Changes in frequency of habitat usage by priority bird species • Changes in number of breeding / nesting and migratory bird species (benchmarked against existing monitoring data) • Changes in flight behaviour around OHTL • Changes in frequency of bird corpses found during monitoring years. 	<ul style="list-style-type: none"> • 1 census during autumn • 1 census during spring • First 2 years of operation
Vehicle/ Machinery Collision Reporting	<ul style="list-style-type: none"> • Reports of dead fauna • Reports of a collision with wild fauna. 	<ul style="list-style-type: none"> • Ongoing
Anecdotal Observations	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Ongoing
Monitoring Efficacy of Habitat Restoration (Rare and Endangered Flora)	<ul style="list-style-type: none"> • Changes in plant numbers • Changes in coverage 	<ul style="list-style-type: none"> • First 5 years of operation • Annual quadrat checks and seasonal walkovers

5 Implementation

A summary of the roles, responsibilities and monitoring systems for the delivery of avoidance, mitigation and management measures which relate to biodiversity management is presented below.

5.1 Roles and Responsibilities

The EBRD will finance this Project. Responsibility for Project delivery will be with the Project Owner; however, reports will be required to be submitted to EBRD on the status of the Project, including any requirements as set out in this BMP.

The MoE will be the Project Owner and has responsibility for the overall delivery of the Project and will be assisted in this role by a PIU. A Construction Contractor will be appointed to construct the Project, and they will be overseen by an MoE appointed Supervision Engineer.

Implementation of this BMP will require appropriate staff, financial resources, equipment and support systems. It is the responsibility of all MoE staff and Construction Contractor to comply with the requirements set out in this BMP. The responsibility of Construction Contractor and suppliers will be defined through standard terms and conditions of contracts that are consistent with the commitments of the BMP.

The MoE is responsible for setting up a suitably experienced and qualified Environment Team within the PIU to oversee implementation of the BMP by the Project. An internal staff member may be trained for the role of environmental officer, or alternatively, a dedicated environmental officer/ consultant may be recruited or commissioned to fulfil the responsibilities on their behalf, given the current lack of in-house capacity. This environmental officer will act as the equivalent to an Ecological Clerk of Works (ECoW). They will report directly to the MoE assigned Project Manager. The environment team will be responsible for the day-to-day implementation and continued improvement of the BMP, compliance monitoring, compliance with physical and biodiversity rehabilitation activities and reporting.

The MoE will contract experienced ecologists to implement key mitigation and monitoring measures as described. An experienced ecologist is defined as a suitably qualified working professional (i.e. that holds a university degree and/ or doctorate in a relevant field) who is highly experienced at undertaking technical biodiversity survey work and assessments and is competent at providing ecological services.

A more detailed breakdown of roles and responsibilities in implementing this BMP is present in Table 5. It is expected that other stakeholders may be identified during future Project phases and as such, this list will be updated as required and will be reviewed regularly and updated throughout the Project cycle.

Table 5: Summary of roles and responsibilities

Organisation	Project Function and Responsibilities	Report To
MoE	<ul style="list-style-type: none"> Loan beneficiary. Responsible for energy sector policy and for associated infrastructure development. Responsible for developing and implementing the Project as well as for all land acquisition and O&M activities. 	GoM
PIU	<ul style="list-style-type: none"> Set up within the MoE to help deliver Project implementation. 	MoE
EBRD	<ul style="list-style-type: none"> Funding of Project. 	EBRD Board

Organisation	Project Function and Responsibilities	Report To
Construction Contractor	<ul style="list-style-type: none"> Responsible for constructing the Project to tender specifications, including capacity building. Project Manager: Have overall responsibility for the implementation of the Construction ESMP and this BMP relevant to the construction phase (Environmental and Social) E&S Manager: Managing all on-site ecological and vegetation management activities in compliance with this BMP; developing procedures to support this BMP, working with the ECoW to carry out the ecological monitoring; reporting on progress to the Construction Project Manager and PIU Consultant; and monitoring any Sub-contractors to ensure the requirements and responsibilities set out in this BMP are met. 	MoE
Supervision Engineer	<ul style="list-style-type: none"> During construction, the MoE will appoint a Supervision Engineer to assist the MoE in the selection of the Construction Contractor and to monitor the Construction Contractor on site. Responsible for undertaking daily monitoring of implementation of ESMP / EIA, Occupational Health and Safety (OHS) and Social requirements Input into monthly reporting Ensure the training of workers, use of appropriate equipment, machinery and vehicles and compliance with health and safety procedures and protective equipment Documentation and reporting of occupational accidents, diseases and incidents Compliance monitoring The provision of quarterly reports on status of implementation of the criteria on ESMP, ESIA, ESAP, OHS and social and environmental mitigation measures. The report will include a chapter on environmental, social and biodiversity performance, based on ESIA, ESMP, SEAP and BMP items. The content of the report will be agreed with MoE (subject to review by EBRD). In case of any accidents or negative impact on the environment (not predicted by the ESIA / ESMP) the supervising engineer will report to MoE and EBRD immediately. 	MoE
NPTG	<ul style="list-style-type: none"> Loan beneficiary. Will be responsible for operation and maintenance of the OHTL, including contractor management. 	MoE
O&M General Contractors	<ul style="list-style-type: none"> Comply with requirements of the BMP, ESIA, Environmental and Social Action Plan (ESAP) and ESMP, relevant to their specific job requirements 	MoE

Organisation	Project Function and Responsibilities	Report To
	<ul style="list-style-type: none"> Uphold the Project's biodiversity objectives as defined in the BMP and ESAP Use appropriate materials, equipment, machinery and vehicles to minimize risks Attend training and site inductions Reporting of accidents and incidents 	
Environmental officer/ Ecological Clerk of Works (ECoW)	<ul style="list-style-type: none"> The ECoW or an equivalent position will provide technical guidance on the implementation of the BMP Coordinate the pre-construction surveys, biodiversity checks and monitoring in accordance with the BMP, ESMP and ESAP Undertake supervisory tasks such as the supervision of the vegetation clearance works The provision of biodiversity inductions and presentation to all contractors and staff Compliance monitoring and enforcement. Coordinate habitat restoration plan 	MoE
Experienced Ecologists	<ul style="list-style-type: none"> Support MoE and Project contractors during the construction phase Undertake pre-clearance checks The provision of method statements Undertake specialist supervisory tasks such as the supervision of the vegetation clearance works Deliver targeted post-construction monitoring works (bird monitoring, efficacy of habitat restoration monitoring) Provide specialist ecological advice regarding the habitat restoration plan 	MoE

5.2 Capacity Building

The Construction Contractor will provide training that is relevant to the roles and responsibilities of all employees and contractor, inclusive of an initial induction for on-site workers. During periodic site inspections, workers' knowledge of general environmental, health and safety issues will be evaluated to monitor enforcement and compliance with Project procedures.

The PIU Environment Team will also receive specific training relevant to their job requirements. This may include species identification, survey techniques, the use of equipment and data analysis.

The Construction Contractor will be fully aware of the ESIA/ESMP and BMP provisions and trained regarding their implementation. The MoE staff will provide training on ESMP/BMP implementation and reporting, in line with EBRD's guidelines. The Gobi Desert region of Mongolia has a shortage of skilled workers and experienced E&S officers, so capacity building training is crucial for the Project.

5.3 Procurement

At the time of writing, procurement was underway by the MoE/PIU to appoint a Construction Contractor. Specific procurement details will be clarified during the tender process.

5.4 Monitoring and Reporting Commitments

The MoE will be responsible for overseeing the delivery of the monitoring works throughout the construction phase, while NPTG will be responsible for operation and maintenance, including for the ecological monitoring and mitigations discussed in this BMP. Future actions required will be under the responsibility of the MoE/PIU, to comply with the EBRD PRs and other Project commitments arising, for example, from national regulatory requirements.

The MoE will provide an annual environmental and social report to EBRD which includes reporting on project progress, compliance, the provision of any material changes or updates to the ESAP, BMP and ESMP in accordance with the loan agreement. During construction, there will be monthly management meetings, where required.

5.5 Updating the BMP

This BMP will be reviewed annually and may be updated as necessary in case of significant changes in construction methods and any associated mitigation.

5.6 Performance Review and Auditing

This Project BMP will be held by the MoE, as the Project owner. As identified earlier, the Construction Contractor will be expected to incorporate construction related BMP requirements. The PIU will undertake regular audits of Contractor performance.

During construction, the format for reporting will be agreed between the MoE / PIU Consultant and Construction Contractor and will include reporting in relation to actions set out in this BMP, including a performance report from the PIU to the EBRD. Site inspection/monitoring will be undertaken by the Construction Contractor to ensure that works are being undertaken in conformance with the requirements of the Project Environmental and Social Management System (ESMS) and CESMP. These inspections will be undertaken on a daily, weekly and monthly basis by the roles identified in the CESMP, and will be recorded using Checklists, Forms and Registers. Any non-conformances will be recorded, and appropriate corrective measures undertaken by the Construction Contractor.

Internal audits will be conducted by the Construction Contractor E&S Manager on the CESMP to assess its effectiveness and relevance as follows:

- A full annual review:
- Following a reportable incident, or a significant non-compliance; and
- Following an addition, up-date or change order to the CESMP.

During the design phase and operation phase, the format for reporting will be agreed between MoE, NPTG and the EBRD and will include reporting in relation to actions set out in this BMP.

This may include updates of this BMP and the measures proposed in relation to impacts identified related to the final detailed design, reporting on the monitoring of vehicle / animal collisions, and reporting on the overall net gain provisions of the Project

Furthermore, The Law on Environmental Protection, adopted on March 30, 1995, and last amended in 2024, established that any industry, economic entity and organization is required to commission an environmental assessor to conduct an environmental audit. Therefore, an environmental audit will be conducted every two years, and the EBRD will implement recommended measures in environment audit report and submit the report about its implementation to province Environment Agency within the term stated in audit report.

5.7 Disclosure

In line with Appendix 2 of the ESP 2019, the EBRD has assigned the Project a Category A status as the Project is a greenfield development and comprises “Construction of high voltage overhead electrical power lines”. As such, there is a need for a comprehensive ESIA, followed by public disclosure for a minimum period of 120 days.

5.8 Conclusion

The construction and operation of the proposed OHTL presents a range of environmental impacts, most of which are manageable with appropriate mitigation measures. Baseline surveys indicate that while common habitats and species are generally resilient and capable of natural regeneration, rare/ endangered flora and certain high-value fauna (particularly migratory ungulates and birds identified to be PBFs) are more vulnerable to disturbance, habitat loss, and fragmentation.

Construction activities may temporarily affect habitats, flora, and fauna through ground disturbance, noise, and minor pollution risks, but these impacts are expected to be limited in scale and duration. Operational impacts, including the risk of animal collision against transmission lines, habitat degradation from increased access, and maintenance-related disturbances, are similarly low but require ongoing monitoring, especially for PBFs such as the rare/ endangered flora and BoCC. The fire risk due to dry, windy conditions is a persistent concern throughout both phases.

Continued adaptive management will be essential to address any unforeseen issues and to ensure the long-term protection of the region’s biodiversity. Overall, the project can proceed with a low risk of significant, irreversible environmental impact if mitigation practices are consistently applied.

This BMP has not been informed by the full construction plan as it is not available at this time, and so is likely to change to best suit construction methods once reviewed.

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