MANAGEMENT PLAN FOR
Khar Yamaat Nature Reserve
2014 – 2018
Улсын тусгай хамгаалалттуй Хар ямаатын байгалийн нөөц газрын хамгаалалтын горим, менежментийн төлөөлөгө батлах тухай

Монгол Улсын Засаг захиргaa нутаг дэвсгэрийн нэгж, түүний удирдлагын тухай хуулийн 20 дугаар зүйлийн 20.1.7 дахь заалт, 25 дугаар зүйлийн 25.1 дэх хэсэг, Тусгай хамгаалалттай газар нутгийн тухай хуулийн 28 дугаар зүйлийн 28.1 дэх хэсэгийг тус тус удэслэн аймгийн Засаг даргаас оруулсан Улсын тусгай хамгаалалттай Байгалийн нөөц хамгаалалтын горим, менежментийн төлөөлөгөөний төлөөлөгөөнд аймгийн Иргэдийн Төлөөлөгчдийн Хүрлэн арваннэдугээр хүрэлдаанаас ТОГТООХ Нь:

1. Улсын тусгай хамгаалалттай "Хар Ямаат"-ын Байгалийн нөөц газрын хамгаалалтын горимыг нэдүүдөөг хавсрах талаар, "Хар Ямаат"-ын Байгалийн нөөц газрын хамгаалалтын менежментийн төлөөлөгөө /2014-2018 он/-г хөёрдугаар хавсрах талаар тус тус баталсаг.

2. Батлагдсан хамгаалалттай горим, менежментийн төлөөлөгөөний дагуу үйл ажиллагааг хэрэгжүүлж ажиллуулахыг аймгийн Засаг дарга /Ж.Оюунбаатар/-т, тогтоолын биеэлэлтийн хяналт тавьж ажиллахыг Байгаль орчин, хөдөөгийн хөдөлгөөний хороо /Н.Алтангэрэл/-д тус тус даалгасаг.

ДАРГА
С.ПУРЭВЖАВ
Монгол улсын Засаг захиргaa, нутгэ дэвсгэрний нээж, түүний удирдлагаын тухай хуулийн 18 дугаар зүйлний 18.1.2 "3", Тусгай хамгаалалттай газар нутгийн тухай хуулийн 28 дугаар зүйлний 3, Тусгай хамгаалалттай газар нутгийн үндэсний хөтөлбөрийн 4 дугээр зүйлний 4.5.1 дэх заалг, тооллогч комиссын 04 тоот тогтолтыг тус тус үндэслэн ИТХ-ын зэлжит 9 дугээр хуралдаанаас ТӨГӨОХ Нь:

Нэг: Хар яамаатын байдагийн нөөц газрын орчны бусидийн экосистемийн их бүрдлээг хамгаалах, байдагийн нөөцийг тогтвортой ашиглах, нэхээн сэрэээн үйл ажиллагааг хангах зорилготой хамгаалалтын үр дүнг 1 дугээр хавсралтаар, хамгаалалтанд авсан зорилго, чиглэлд нийцүүлэн биологийн олон янын байдлыг хамгаалах, байдагийн нөөцийг зохицоогийн ашиглах, судлах, сурталчилах, нэхээн сэрэээн үйл ажиллагааны үндэслэлтэй боловсролыг болгох шаардлагыг хурээнд талуудын оролцоотойгоор болох сруулсан үндэслэлтэй төлвөөгийг 2 дугаар хавсралтаар тус тус баталсагтай.

Хоёр: Хар яамаатын байдагийн нөөц газрын хамгаалалтын захиргаа нь үндэслэлтэй төлвөөгийг хэрэгжилт үйл ажиллагааны гүйцэтгэлийг дэвшүүлсэн зорилго, зорилт тэдгээрийн шалгүүр үзүүлэлтүүдийн дагуу талуудын оролцоотойгоор жил бүр үнэлж тайлбаг Байдаг орчны газарт ирүүлэх.
ABBREVATES:

CBO – Community Based Organization
CAP – Conservation Action Planning
ESBP – Eastern Steppe Biodiversity Project
FOS – Foundation of Success
GEF – Global Environment Facility
IUCN – International Union for Conservation of Nature
LPA – Locally Protected Area
MAS – Mongolian Academy of Sciences
MEGD – Ministry of Environment and Green Development
NGO – Non-Governmental Organization
NR – Nature Reserve
NP – National Park
PA – Protected Area
SPA – Strictly Protected Area
TNC – The Nature Conservancy
UNDP – United Nations Development Programme
WCS – Wildlife Conservation Society
WWF – World Wildlife Fund for Nature
WWF MPO – WWF-Mongolia Programme Office
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1. Background Information

1.1 Justification of Designation of Khar Yamaat as Nature Reserve in the National Protected Area Network

Khar Yamaat and Tumentsogt Mountains and their vicinities are the furthest edge or ending low mountains of Khan Khentii Mountain range and regarded as “Steppe’s Khangai” because of its unique natural formation included rich fauna and flora species, natural springs, poplar groves, and rocks and cliffs those are rarely found elsewhere in the steppe region. This area supports a broad migration distance for the Mongolian gazelle, a key representative species of Eastern Mongolian Steppe ecosystem, and Kherlen River’s floodplain landscape, which is an important stopover point for a number of water and shore birds on their flyways. Since it supports specific biodiversity and landscape characteristics in combination, the area was taken under state protection as Nature Reserve by the State Ikh Khural (The Parliament) Resolution No: 28 in 1998 in order to ensure the protection of these specific ecosystem characteristics in consistency with traditional livestock husbandry activities and restoration of natural resources and to use it as a scientific research point [4].

1.2 Justification of Development of the Management Plan

The National Program on Protected Areas approved by the State Ikh Khural in 1998 states “a management plan describing its long and short term objectives shall be developed and implemented for each Protected Area” [9].

Management plan for Khar Yamaat Nature Reserve (NR) was first drafted under the UNDP/GEF Biodiversity Conservation and Sustainable Livelihood Options in Grasslands of Eastern Mongolia (ESBP in short) in 2005, but it was not approved because a preparation for its implementation was not ensured at that time. Therefore, this management plan has been drafted through participatory stakeholder engagement in consistency with its conservation purpose and objectives under the necessity to upgrade the management options to protect Khar Yamaat NR biodiversity, sustainably use natural resources, and carry out researches and studies, promotional and public awareness activities, and restoration for the designated area.

1.3 Methodology Used for the Plan Development

The management plan for Khar Yamaat NR has been developed in accordance with the methodological recommendations for drafting of management plans for Protected Areas [10] developed by the Ministry of Environment and Green Development in 2012 and the guideline (CAP and MIRADI) for conservation planning jointly developed by international organizations (e.g. TNC, WWF, WCS, RARE, and FOS).

To plan and implement conservation activities of Khar Yamaat NR through stakeholder engagement, three public consultation meetings were organized in local areas and representative biological species of the ecosystem and their priority concerns were defined and potential conservation strategy and objectives as well as actions were proposed on these consultation meetings.
Khar Yamaat NR lies at boundaries of the southeast of Bayan-ovoo soum of Khentii aimag and northwest of Tamenti soum of Sukhbaatar aimag. The NR is located at about 1000 m a.s.l and covers 50,691 ha (Appendix 1 and Figure 1). Geographically, it is a transition zone from the furthermost edge or ending part low mountains continued in the southeast of Khan Khentii Mountain range into Eastern Mongolian steppe region. In terms of its covering area, Khar Yamaat NR includes 337.5 thousand ha (12 %) from a territory of Bayan-ovoo soum and 250.0 thousand ha (0.04 %) from a territory of Tamenti soum.

Researchers and explorers regard that Tamenti and Khar Yamaat Mountains were formed due to uplift of granite rock compounds as a result of magma and tectonic activization of Mesozoic Era. In terms of its geological formation, the NR belongs to Upper Jurassic series of Mesozoic Era, Lower Cretaceous series, Lower and Middle series of Carboniferous Period of Palaeozoic Era, and Vend-Cambrian System of Cambrian Period. According to the tectonic-structural province classification, Khar Yamaat is included in the central and southern Mongolian folded system boundary and deep fractural zone. The area is distributed by various types of sediments and rocks formed in different geological periods and unlike in their compounds and formations. The NR is distributed by the rocks including unsorted rocks of Triassic System, basalt-andasite of Lower series of Cretaceous System, sandstone-gravelite, conglomerate, plutonic rock-granodiorite, adamelite granite, tanolite plutonic rock, plagio-granite, coal bearing sedimentary rock-breccia, and more alkaline granite-granocienite [2].

Khar Yamaat NR lies in a sub-region of Kherklen-Khukh Lake of great region of Eastern Mongolian steppe according to the natural and geographic province classification and in a sub-region of Baruu-Urt of Eastern Mongolian region of Central Asian great region according to the geomorphologic province classification. There are Dulaan Mountain (1161.0 m) distributed by a small forest stand, Khar Yamaat Mountain (1381.8 m), and Tamenti Mountain (1357.7 m) in the southern semisphere of the NR. Valleys of these mountains are dominant by rolling hills. Absolute heights of the ground surface range from 800 m to 1358
m a.s.l while lowering in the further north specifically to Kherlen River valley [1].

According to the climate province classification in Mongolia, Khar Yamaat NR is included in the region with moderately dry cool summer and harsh winter conditions (National Atlas, 1990). According to the long-term annual mean air and soil temperatures, the air temperatures are –0.1°C in Bayan-ovoo and 1.2°C in Tumentsogt soum while the soil temperatures are 1.6°C in Bayan-ovoo soum and 4.0°C in Tumentsogt soum. The average air temperatures in January and July are –21.3°C and 18.8°C in Bayan-ovoo soum and -18.8°C and 19.9°C in Tumentsogt soum respectively. About 10 percent of annual rainfall occurs in winter and snow thickness reaches 7 cm at the end of February. Annual rainfall amount is 250-300 mm in average. Average relative humidity is low (46-50 %) in April and May and humidity coefficient is 0.10-0.13 in May. In springs, rainfall rarely occurs, but dry wind is abundant. Average wind speed is 3.6-3.9 m/sec, but it is 4.2-4.7 m/sec in April and May, the windiest months [2].

Khar Yamaat NR lies in a sub-basin of Kherlen River of Pacific Ocean Basin. Kherlen River runs for about 20 km along the northern boundary of the NR with 896-873 m surface slope. Over 80 percent of total rainfall occurred in frost-free seasons (May to September) flows through feeding the surface water bodies. It shows that rain water plays an important role in feeding of rivers and streams while snow and groundwater provides for a small portion in water feeding. In the region, which is less in perennial rivers, the importance of groundwater is high. The NR is included in the region that has sufficient water supply in terms of its ground freshwater resource. Water discharge rate in water points is 0.5-1.5 l/sec [1]. There are some natural springs with permanent discharges such as Yamaatyn Bulag, Sharyn Bulag, and Chuluutyn Bulag (“Bulag” is “natural spring”) those are ice-free in winters. In addition to these natural permanent water bodies, there are four deep wells (Figure 3) located within the NR.

Birch and poplar stands grown on the northern slopes of Khar Yamaat and Tumentsogt Mountains, major highlands of watershed mountains located in the central part of Khar Yamaat NR, are dominant by mountain forest’s dark turf soil while upper parts of the northern slopes with meadow-steppe herbaceous plants and tops of the mountains are distributed by mountainous non-carbonate and less carbonate chernozems. Southern slopes of the mountains are abundant with cuts and have rocky formations in some parts so that these parts are distributed by dark brown immature thin mountain soil. Rolling hills continued from the watershed-mountains in different directions within the NR are distributed by gravelly or stony dark Kastanozems. Sandy loam dark Kastanozems are mostly found in lower areas (such as Nogoonii Am, Tsogiin Khooloi Am, and terraces of Kherlen River) those are continued from broad or roomy bottoms and foothill slopes towards Kherlen River. The mouths such as Urtyn Am and Yamaatyn Bulag are stable and dominant by meadow-dark Kastanozems while some broad dry mouths are distributed by meadow dark soil of steppe-like relic marshy nature. The northern boundary of the NR along Kherlen River floodplain is distributed by less developed alluvial turf soil, alluvial meadow, and alluvial meadow-swampy/marshy soils depending on soil forming alluvial sediment occurrence depths and bottom soil’s water tables.
Management Plan for Khar Yamaat Nature Reserve

Photograph by: ©Munkhnast

Stipa steppe
2 CURRENT ENVIRONMENTAL AND SOCIO-ECONOMIC STATES OF KHAR YAMAAT NATURE RESERVE

2.1 CURRENT BIODIVERSITY STATUS

Khar Yamaat NR supports the furthermore edge or ending low mountains of Khan Khentii Mountain range those have the specific natural formations those are rarely found elsewhere in the steppe region. The NR is a home to flora and fauna species of specific mountainous dry steppe community characteristics. In terms of its ecosystem, the steppe ecosystem prevails (Table 1 & Figure 2).

<table>
<thead>
<tr>
<th>Ecosystem classifications</th>
<th>Areas (ha)</th>
<th>Areas (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial rivers and floodplains</td>
<td>4674.6</td>
<td>9.2</td>
</tr>
<tr>
<td>Moderately dry steppe</td>
<td>16424.4</td>
<td>32.2</td>
</tr>
<tr>
<td>Meadow steppe</td>
<td>16589.3</td>
<td>32.6</td>
</tr>
<tr>
<td>Dry steppe</td>
<td>13250.0</td>
<td>26.0</td>
</tr>
<tr>
<td><strong>Total covering areas</strong></td>
<td><strong>50938.3</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

According to the botanical province classification, the NR belongs to a sub-region of Eastern Mongolian steppe of Mongolian steppe region of Eurasian steppe’s great region. There are 427 species of vascular plants of 220 genera of 61 families in Tumontsoot soum's territory [1] and there are about 230 species grown in the area included in the NR. Among the plant species recorded, there are a very rare species large-leaved gentian (*Gentiana macrophylla*) and six rare species Chinese ephedra (*Ephedra sinica*), milk-vetch (*Astragalus mongolicus*), wild liquorice (*Glycyrrhiza uralensis*), *Saposhnikovia divaricata*, Jerusalem-sage (*Phlomis tuberosa*), and *Valeriana officinalis*.

Low mountains in Khar Yamaat NR are regarded as the furthermore edge or ending part of Khentii Mountain range and distributed by a small
sized poplar (*Populus*) grove and the shrubbery and semi-shrubbery species such as wild apple tree (*Malus*), bird cherry (*Padus*), rose (*Rosa*), and apricot (*Armeniaca*). Bayan-ovo soum has a total of 125 ha forest resource, which are all located inside Khar Yamaat NR. Out of them, 95 ha are the area covered by forest, 67 ha by natural forest, and 28 ha by shrubs and *Colligonum*. There is 30 ha non-forest area [7]. There is also willow (poplar) stand along Kherlen River [6].

Khar Yamaat NR is distributed by the mammals such as Daurian souslik (*Spermophilus dauricus*), Siberian jerboa (*Allactaga sibirica*), Brandt’s vole (*Lasiopodomys brandti*), Daurian pika (*Ochotona dauurica*), Tolai hare (*Lepus tolai*), Daurian hedgehock (*Mesochinus dauricus*), Manul (*Otocolobus manul*), Grey wolf (*Canis lupus*), Corsac fox (*Vulpes corsac*), Red fox (*Vulpes vulpes*), Mongolian gazelle (*Procapra gutturosa*), Roe deer (*Capreolus pygargus*), and Red deer (*Cervus elaphus*) and amphibians and reptiles such as Radde’s toad (*Bufo raddei*), Mongolian racerunner (*Eremias argus*), and Pallas’ Coluber (*Elaphe dione*) [1].

The NR is one of the Important Bird Areas in the country. It is distributed by globally threatened and near threatened and the bird species listed in the Mongolian Red Book such as Swan goose (*Anser cygnoides*), Falcated teal (*Anas falcata*), Saker falcon (*Falco cherrug*), Lesser kestrel (*Falco naumanni*), White-naped crane (*Grus vipio*), Hooded crane (*Grus monacha*), Great bustard (*Otis tarda*), Asiatic dowitcher (*Limnodromus semipalmatus*), Black-tailed godwit (*Limosa limosa*), Black stork (*Ciconia nigra*), and Whooper swan (*Cygnus cygnus*) [5].

The current biodiversity status of Khar Yamaat NR has been reviewed based on previous research and study materials and consultation with local communities. Under this task, the following biological species have been selected as representative species for the NR:

**Representative biological species:**
- Roe deer (*Capreolus pygargus* P 1771)

**Representative ecosystems:**
- Poplar stand;
- *Stipa* steppe;
- Kherlen River floodplain;

### 2.1.1 Roe deer (*Capreolus pygargus* P 1771)

Globally, the species is found in forested areas in the Russian Federation, Kazakhstan, China, Mongolia, and Korea.

According to the international (IUCN, 2010) and regional assessments (IUCN, 2006), it is regarded as a species of least concern. The species is distributed in forested areas in Mongolia. Additionally, it is also found in the river valleys and lake shores distributed by bushy plants, dwarf birch, poplar, high grass, and reed in Eastern Steppe region of Mongolia and even in a sand dune nearby Khalkh River. Throughout Mongolia, 21.5 percent of its distribution range has been included in the national Protected Area network [8].
Presumably, Roe deer is found within 40 percent of Khar Yamaat NR’s covering area, however about 20 individuals of the species are stably recorded within six percent of total covering area for now (Observation and monitoring data collected by the NR ranger). As the Roe deer is selected as one of the biodiversity target, the meadow steppe ecosystem covering a total of 32.6 percent of the NR will be indirectly protected.

2.1.2 Poplar stand

As mentioned above, low mountains in Khar Yamaat NR are regarded as the furthermost edge or ending part of Khentii Mountain range. There are a total of 125 ha of poplar stand, where the shrubbery and semi-shrubbery species such as wild apple tree, bird cherry, rose, and apricot are grown. This area is significant because it creates a unique micro-climatic environment in the steppe dominant ecosystem. There are few individuals of roe deer (*Capreolus pygargus*) and red deer (*Cervus elaphus*) located in this area. As this poplar stand creating a unique micro-climatic environment is selected as conservation target, it will provide an opportunity to protect forest ungulates and their habitats within Khar Yamaat NR.

2.1.3 Stipa steppe

*Stipa* steppe ecosystem including dry steppe and moderately dry steppe ecosystems covers 29,674.4 ha or 58.3 percent of the NR (*Table 1 and Figure 2*). The most dominant *Stipa* steppe community is the *Caragana- Stipa Krylovii* steppe distributed by sandy or gravely soil. Regarding the fauna species, the area is distributed by the Mongolian gazelle (*Procapra gutturosa*), Brandt’s vole (*Lasiopodomys brandti*), Mongolian gerbil (*Meriones unguiculatus*), Corsoc fox (*Vulpes corsac*),
Manul (Otocolobus manul), Saker falcon (Falco cherrug), Steppe eagle (Aquila nipalensis), Upland buzzard (Buteo hemilasius), and Mongolian lark (Melanocorypha mongolica) [11]. Moreover, the ungulates such as Red deer (Cervus elaphus) and Roe deer (Capreolus pygargus), whose suitable habitat is a forest, are found in the area. As the prevailing ecosystems within Khar Yamaat NR are selected as a conservation target, the steppe ecosystem and its wildlife species will be protected.

2.1.4 Kherlen River floodplain

Kherlen River is one of the major rivers in Mongolia those are originated from Khentii Mountain range and inflow into Khulun Lake (Dalai Lake). The river runs and passes by for about 20 km along the NR’s northern boundary. There are small sized poplar stands grown gravely and sandy loam soils distributed along the river. The poplar stands’ herbaceous covers are sparse and they have multiple branches with 0.3-0.4 densities. A total covering area of the poplar stand is 20-30 ha. Average height of the species is 1.5-2.0 m, thickness is 1.0-2.0 cm, and density is 0.3-0.4. There are 800-1000 bushes per a hectare [6].

Kherlen River is a stopover point for a number of globally threatened and near threatened and the bird species listed in the Mongolian Red Book such as Swan goose (Anser cygnoides), Falcated teal (Anas falcata), Saker falcon (Falco cherrug), Lesser kestrel (Falco naumanni), White-naped crane (Grus vipio), Hooded crane (Grus monacha), Great bustard (Otis tarda), Asiatic dowitcher (Limnodromus semipalmatus), Black-tailed godwit (Limosa limosa), Black stork (Ciconia nigra), and Whooper swan (Cygnus cygnus) [5].
Khar Yamaat NR covers parts of territories of Bayan-ovoo soum of Khentii aimag and Tumentsogt soum of Sukhbaatar aimag. Total population of the two soums is 4,024 of 1,224 households. (Tables-2 and 3).

**Table 2.**
**Total population of Bayan-ovoo soum of Khentii aimag and Tumentsogt soum of Sukhbaatar aimag**

<table>
<thead>
<tr>
<th>Soums</th>
<th>Total households</th>
<th>Herder families</th>
<th>Households in the soum centres</th>
<th>Total population</th>
<th>Individuals of working ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayan-ovoo</td>
<td>500</td>
<td>288</td>
<td>212</td>
<td>1682</td>
<td>976</td>
</tr>
<tr>
<td>Tumentsogt</td>
<td>724</td>
<td>402</td>
<td>378</td>
<td>2342</td>
<td>1484</td>
</tr>
<tr>
<td>Total</td>
<td>1224</td>
<td>690</td>
<td>590</td>
<td>4024</td>
<td>2460</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>within</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khar Yamaat NR</td>
<td>36</td>
<td>36</td>
<td></td>
<td>142</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3.**
**Animal husbandry**

<table>
<thead>
<tr>
<th>Soums</th>
<th>Camel</th>
<th>Horse</th>
<th>Cattle</th>
<th>Sheep</th>
<th>Goat</th>
<th>Total</th>
<th>Average numbers of livestock per a herder family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayan-ovoo</td>
<td>319</td>
<td>9472</td>
<td>7202</td>
<td>48579</td>
<td>30436</td>
<td>96008</td>
<td>293</td>
</tr>
<tr>
<td>Tumentsogt</td>
<td>260</td>
<td>9809</td>
<td>6695</td>
<td>31089</td>
<td>23669</td>
<td>71522</td>
<td>363</td>
</tr>
<tr>
<td>Total</td>
<td>579</td>
<td>19281</td>
<td>13897</td>
<td>79668</td>
<td>54105</td>
<td>167530</td>
<td></td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>within</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khar Yamaat NR</td>
<td>20</td>
<td>2166</td>
<td>1429</td>
<td>12256</td>
<td>7057</td>
<td>23020</td>
<td></td>
</tr>
</tbody>
</table>

According to the seasonal movements of local households, they stay along Kherlen River in summer, stay in the southern valley of the river in spring and autumn, and most of the households move to sheltering places of mountains in winter (Figure 3).
2.3 CURRENT CONSERVATION MANAGEMENT PRACTICE

Conservation management of Khar Yamaat NR was laid to Dornod Protected Area Administration in 1998-2006 and to Onon Balj National Park Administration starting from 2007. However, it has been handed over to the WWF Mongolia Programme Office since July, 2013 in accordance with the Agreement for Delegation of Khar Yamaat NR Conservation Management signed by the Ministry of Environment and Green Development, Khentii and Sukhbaatar Aimag Governors, and WWF Mongolia Programme Office.

2.4 THREATS AND PRESSURES TO THE BIODIVERSITY AND THEIR IMPACT INTENSITIES/EXTENTS

After the target or representative biodiversity is selected, threats and pressure to these selected species along with their causes have been defined and threat-pressure impacts and their extents have been analyzed (Diagram 1). Extents, scopes, and restorative capacities of the selected species, communities, and ecosystems have been assessed with “extremely high, high, moderate, and low” and their average meanings are shown in the table below (Table 4).

<table>
<thead>
<tr>
<th>Priority concerns and constraints to the target or representative biodiversity</th>
<th>Poplar stands</th>
<th>Stipa steppe</th>
<th>Kherlen River floodplain</th>
<th>Roe deer</th>
<th>Overall assessments of the priority concerns and constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsustainable use and harvest of poplar</td>
<td></td>
<td>HIGH</td>
<td></td>
<td></td>
<td>MODERATE</td>
</tr>
<tr>
<td>Pests</td>
<td>LOW</td>
<td></td>
<td></td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Dryness</td>
<td>HIGH</td>
<td>LOW</td>
<td>HIGH</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td>Off-road driving or multiple auto tracks</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Farming</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Fire</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Unsustainable use of secondary natural resources</td>
<td>MODERATE</td>
<td>MODERATE</td>
<td>MODERATE</td>
<td>MODERATE</td>
<td></td>
</tr>
<tr>
<td>Overgrazing</td>
<td>HIGH</td>
<td>MODERATE</td>
<td>HIGH</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td>Poaching</td>
<td></td>
<td>HIGH</td>
<td>HIGH</td>
<td>HIGH</td>
<td></td>
</tr>
<tr>
<td><strong>Overall assessments of the target or representative biodiversity</strong></td>
<td><strong>HIGH</strong></td>
<td><strong>MODERATE</strong></td>
<td><strong>HIGH</strong></td>
<td><strong>HIGH</strong></td>
<td><strong>HIGH</strong></td>
</tr>
</tbody>
</table>

During the participatory stakeholder consultation meetings to define threats and pressures on the target biodiversity of Khar Yamaat NR the participants defined and assessed threats and pressures on poplar stands, Kherlen River floodplain, and Roe deer as HIGH and threat and pressure on *Stipa* steppe as MODERATE. Furthermore, they assessed dryness, overgrazing, and poaching as HIGH, while unsustainable use
and harvest of secondary natural resources and poplar as MODERATE. According to the cumulative or final assessment results, overall threats and pressures throughout the NR were assessed as HIGH.

Poplar grown along Kherlen River are not suitable for making ger frames (including sticks and walls) so that local residents mostly use it for making arag sheezgii (sets of dung-baskets used for collecting and carrying dried animal dung) and fire making in winter. As the river banks and valleys are continually resided by local herders during three seasons a year (Figure 3), the poplar stand is often damaged and eaten by livestock. Thus, these human and livestock induced negative impacts are often result in loss of its regular natural regeneration process and natural resource depletion. Consequently, the poplar stand and its vicinity are likely to be turned into the steppe nature as its herbaceous plants are lost and modified. Due to increasing dryness and unsustainable use and harvest of natural resources, some parts are likely to decertify.

At present, a total of 26,677 heads of livestock including 23,020 heads of livestock owned by 36 local herder households from Bayan-ovoo soum of Khentii aimag and 3,361 heads of livestock those are left with the soum’s local herders to be looked after are grazed within the NR. From Bayan-ovoo soum, 12 percent of its total territory is included in Khar Yamaat NR, but 24 percent of the soum’s total livestock are grazed inside the NR. In addition to these heads of livestock in inside the NR, the households from Bayan-ovoo and Tumentsogt soums residing nearby the NR boundaries also let go in the NR for grazing. However, impacts from these livestock herds entering the NR were not assessed in the past. These findings show that overgrazing has become one of the most deteriorating factors for the NR biodiversity.

In recent years, the poplar stands are increasingly getting dried up. Uncared or non-cleaned dried poplar stands usually provide a cause to start fire. Due to dryness and livestock impacts, the poplar stand’s natural regeneration has been deteriorated.
In addition to the pastureland use, some other activities e.g. logging, collection of wild berries, medicinal plants, and harvests of some kinds of medicinal, food, and technical plants for household and food purposes are undertaken within the NR. In practice, the food and medicinal plants such as almond (*Amygdalus* L), white potato (*Solanum tuberosum* L), hawthorn (*Crataegus* L), and rose (*Rosa* L) are harvested without any studies on their reserves.

Trapping and hunting of wild species in NR is prohibited. Thus, wildlife hunting is an illegal action for the NR. However, some people travelling and local residents do poach roe deer having caused reductions in its small population.

In comparing to the rest of Mongolia, tourism is less developed in Khar Yamaat NR and its vicinity. However, local people and travellers often visit some scenic areas with unique natural formations such as Shireet forest, Ineedeg Rock, Buural Am, Arslan Rock, and Jambalnavag’s Cave for vacationing and wildlife (plant and animal) watching. When travelling to these scenic areas, the vacationers and travellers do leave garbage and drive off-road.

There are three fluorspar mines in operation nearby the NR (*Figure 3*). There are a paved road put in the south of the NR boundary and a dirt track between Khentii and Dornod aimags in the north of the NR. Wildlife including resident and migratory species’ populations and their habitats within the NR would be occupied and fragmented due the existing infrastructure and human and livestock residence nearby.
The management plan scheduled for 2014 – 2018 defines the activities addressed at protection and preservation of ecosystems, very rare and rare wildlife (plant and animal) species and historical and cultural monuments, studies of their evolutionary processes, and their sustainable use to be implemented through the stakeholder engagement within a total of 50,938 ha of Khar Yamaat NR (Figure 1).

**Mission**

“Turn Khar Yamaat NR into a model NR, where its co-existing ecosystems are well preserved in their natural states and community based management is run”

**Goal**

**Goal 1**: To have the roe deer population size increased by 60 percent by 2023 as compared to that was assessed in 2014 (*Criteria: population size, numbers of its individuals, and its distribution range-core region*);

**Goal 2**: To have Khar Yamaat NR forest resource increased by 10 percent by 2023 (*Criteria: covering area of the forest land, forest resource, and forest ungulate populations*)

**Goal 3**: To preserve the *Stipa* steppe ecosystem within Khar Yamaat NR in the same condition, which was assessed in 2010, by 2023 (*Criteria: the species compositions & overall vegetation cover*);

**Goal 4**: To have Kherlen River floodplain poplar reserve inside Khar Yamaat NR increased by 10 percent by 2023 in comparing to that was assessed in 2014 (*Criteria: distribution of poplar & overgrazing rate*).

**Strategy**

Upon the consideration of causes of the threats and pressures above, we have defined the following strategies for mitigation of the threats and pressures to Khar Yamaat NR biodiversity (*Diagram 1*):

1. To implement the NR conservation management options through stakeholder engagement;
2. To improve the pastureland management;
3. To improve natural resource management;
4. To improve public awareness;
5. To develop environmentally friendly tourism (eco-tourism);
6. To expand researches and studies and establish a database.
Diagram 1 Analysis of threat and pressures to the biodiversity
3.3.1 Strategy 1: To implement the NR conservation management options through stakeholder engagement

The following outputs are expected as four objectives are defined and respective actions (Table 5) are planned and implemented under the strategy: to implement the NR conservation management through stakeholder engagement (Diagram 2)

Diagram 2. Expected outputs under the strategy to implement the NR conservation management options through stakeholder engagement.
Objectives/outcomes:

1.1 By 2018, an optimal management structure will be applied and operations will be regularized for Khar Yamaat NR;
1.2 By 2017, the financial sources required for the management plan implementation will be completely defined and planning will be upgraded;
1.3 By 2018, operations of Buffer Zone Council will be regularized and a fund will be established;
1.4 By 2018, illegal actions against the environment within Khar Yamaat NR will be ceased.

<table>
<thead>
<tr>
<th>Objectives/outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (year)</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2018, an optimal management structure will be applied and operations will be regularized for Khar Yamaat NR</td>
<td>The management structure &amp; its stability; numbers of trainings attended by the team members; Numbers of the equipment &amp; tools supplied</td>
<td>1.1.1</td>
<td>2014</td>
<td>To define an optimal management structure for Khar Yamaat NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.2</td>
<td>2014-2015</td>
<td>To establish a management team of Khar Yamaat NR and develop its operational procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.3</td>
<td>2015-2018</td>
<td>To develop and implement a capacity building programme for the management team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.4</td>
<td>2014-2018</td>
<td>To review needs of the equipment and tools required for specialists and rangers, produce a list, and supply them phase-by-phase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.5</td>
<td>2015-2018</td>
<td>To expand a network of volunteer rangers and build their capacities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.6</td>
<td>2015-2018</td>
<td>To develop a guideline for appraisal of human resource knowledge, skills, and performance results, assess them with the guideline, and introduce an optimal rewarding system based on the assessment results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.1.7</td>
<td>2015-2018</td>
<td>To construct and equip the NR administration premise in accordance with the standards</td>
</tr>
<tr>
<td>By 2017, the financial sources required for the management plan implementation will be completely defined and planning will be upgraded</td>
<td>Deficiency rate in the financing required for the management plan implementation; performance rates of the business plan; &amp; METT scores</td>
<td>1.2.1</td>
<td>2014-2016</td>
<td>To develop a business plan for the management plan implementation, assess, and improve</td>
</tr>
</tbody>
</table>
### 1.2. Management Plan Implementation

<table>
<thead>
<tr>
<th>No</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.2</td>
<td>2015-2018</td>
<td>To assess the management plan implementation through stakeholder assessment (MIRADI, METT) &amp; upgrade</td>
</tr>
<tr>
<td>1.2.3</td>
<td>2014-2018</td>
<td>To implement biotechnological measures based on studies and researches conducted</td>
</tr>
<tr>
<td>1.2.4</td>
<td>2014-2018</td>
<td>To organize stakeholder meetings, consultations, and other events (e.g. Open Day) in order to attract more financial sources and ensure stakeholder engagement</td>
</tr>
<tr>
<td>1.2.5</td>
<td>2014-2018</td>
<td>To develop and implement a project to implement the management plan</td>
</tr>
<tr>
<td>1.2.6</td>
<td>2014-2018</td>
<td>To seek for the options to increase self income generation and implement pilot actions</td>
</tr>
</tbody>
</table>

**By 2018, operations of Buffer Zone Council will be regularized and a fund will be established.**

### 1.3. Implementation of Buffer Zone management plan; establishment of the fund

<table>
<thead>
<tr>
<th>No</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.1</td>
<td>2014-2015</td>
<td>To establish the Buffer Zone boundaries</td>
</tr>
<tr>
<td>1.3.2</td>
<td>2015-2018</td>
<td>To establish a Buffer Zone Council (BZC) and build capacities of the BZC members</td>
</tr>
<tr>
<td>1.3.3</td>
<td>2015-2018</td>
<td>To develop, implement, assess, and improve the BZ management plan through stakeholder engagement</td>
</tr>
<tr>
<td>1.3.4</td>
<td>2015-2018</td>
<td>To develop and implement a project to establish and develop a Buffer Zone Fund (BZF)</td>
</tr>
<tr>
<td>1.3.5</td>
<td>2015-2018</td>
<td>To provide supports through the BZC and BZF to the actions such as the sustainable pastureland use, production of value added products, and establishment of tree nursery(ies) in Bayan-ovoo and Tumentsogt soums</td>
</tr>
<tr>
<td>1.3.6</td>
<td>2014-2018</td>
<td>To cooperate with the economic entities engaged in natural resource use and natural resource based businesses within the Buffer Zone through making tripartite agreements and Memorandum of Understanding (MoU) with them</td>
</tr>
</tbody>
</table>
### Management Plan for Khar Yamaat Nature Reserve

#### By 2018, illegal actions against the environment within Khar Yamaat NR will be ceased

<table>
<thead>
<tr>
<th>Numbers of illegal action incidents; stakeholder engagement</th>
<th>1.4.1 2014-2018</th>
<th>To ensure the enforcement of a set of special regimes to be adhered throughout Khar Yamaat NR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.4.2 2015-2016</td>
<td>To establish and demarcate internal zones of Khar Yamaat NR</td>
</tr>
<tr>
<td></td>
<td>1.4.3 2014-2018</td>
<td>To organize public awareness activities for the NR and its BZ residents with regard to natural resources, sustainable use of resources, respective legislations</td>
</tr>
<tr>
<td></td>
<td>1.4.4 2014-2018</td>
<td>To prepare and implement joint patrolling schedules and improve capacities</td>
</tr>
<tr>
<td></td>
<td>1.4.5 2014-2018</td>
<td>To analyze illegal actions and priority concerns and establish a database (&quot;IRVES&quot; application, other relevant database compilation applications, and use of the database)</td>
</tr>
<tr>
<td></td>
<td>1.4.6 2014-2018</td>
<td>To supply with advanced inspection and patrolling tools and devices</td>
</tr>
<tr>
<td></td>
<td>1.4.7 2014-2016</td>
<td>To rehabilitate the areas illegally used/mined and abandoned mining site</td>
</tr>
</tbody>
</table>

### 3.3.2 Strategy 2: To improve the pastureland management

The following outputs are expected as two objectives are defined and respective actions (Table 6) are planned and implemented under the strategy: to improve the pastureland management within Khar Yamaat NR (Diagram 3).
Diagram 3. Expected outputs under the strategy to improve the pastureland management
Objectives/outcomes:

2.1 By 2018, introduction of the optimal pastureland management option consistent with Khar Yamaat NR goals and needs will commenced;

2.2 By 2018, at least four community based organizations (CBOs) will be within the NR BZ and capacities will be built.

<table>
<thead>
<tr>
<th>Objectives/outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (years)</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2018, introduction of the optimal pastureland management option consistent with Khar Yamaat NR goals and needs will commenced.</td>
<td>Appraisal of pastureland use procedure compliance; degrees of pastureland deterioration; numbers of livestock; size of reserved pastureland and compliance of the regulations for its use</td>
<td>2.1.1</td>
<td>2014 - 2018</td>
<td>To establish haymaking and pastureland monitoring points within Khar Yamaat NR and its buffer zone and carry out monitoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.2</td>
<td>2014 - 2018</td>
<td>To annually assess the pastureland reserve and carrying capacities and regulate the pastureland use based on the assessment findings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.3</td>
<td>2014 - 2018</td>
<td>To develop and implement the pastureland use procedure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.4</td>
<td>2014 - 2018</td>
<td>To develop and implement the procedure for reserved pasture and its utilization in harsh weather conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.5</td>
<td>2014 - 2015</td>
<td>To reflect and integrate the procedure for pastureland use within Khar Yamaat NR with land use plans of Bayan-ovoo and Tumentsogt soums</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.6</td>
<td>2014 - 2018</td>
<td>To support livestock quality and nutrients and production of value added products by local communities residing the NR and its buffer zone and raise awareness on best practices for dissemination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.7</td>
<td>2014 - 2018</td>
<td>To cooperate with local communities residing the NR through making tripartite agreements</td>
</tr>
</tbody>
</table>
### Strategy 3: To improve natural resource management

The following outputs are expected as two objectives are defined and respective actions (Table 7) are planned and implemented under the strategy: to improve natural resource management within Khar Yamaat NR (Diagram 4).

<table>
<thead>
<tr>
<th>No.</th>
<th>Year</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.8</td>
<td>2014 - 2018</td>
<td>To organize awareness on values, importance, and sustainable use of pastureland for residents of the NR and its BZ</td>
</tr>
<tr>
<td>2.1.9</td>
<td>2014 - 2018</td>
<td>To carry out inventories on pastureland water supply and protect heads of natural springs</td>
</tr>
<tr>
<td>2.1.10</td>
<td>2014 - 2018</td>
<td>To study causes and factors leading to pastureland deterioration and take restoration measures for deteriorated pastureland</td>
</tr>
<tr>
<td>2.2.1</td>
<td>2014 - 2018</td>
<td>To assist the NR and its BZ residents in establishing and joining their communities and strengthening their communities</td>
</tr>
<tr>
<td>2.2.2</td>
<td>2014 - 2018</td>
<td>To organize capacity trainings and awareness raising events (e.g. meetings, consultations) for the CBOs</td>
</tr>
<tr>
<td>2.2.3</td>
<td>2014 - 2018</td>
<td>To provide methodological and technical assistance in development and implementation of management plans to the CBOs</td>
</tr>
</tbody>
</table>

By 2018, at least four community based organizations (CBOs) will be within the NR BZ and capacities will be built.
Diagram 4. Expected outputs under the strategy to improve natural resource management

- Research data will be available
- Planning will be improved
- Local communities’ knowledge & approach to sustainably use natural resources will be improved
- Impacts of livestock will be reduced
- Off-road driving & multiple auto tracks will be reduced
- Unsustainable use of secondary natural resource will be reduced
- Use of poplar will be reduced
- Overgrazing will be reduced

Species:
- Stipa steppe
- Poplar stand
- Roe deer
- Kherlen River floodplain
Objectives/outcomes:

3.1. By 2018, human induced negative impacts on poplar stands within the NR (e.g. unregulated tourism activities and livestock) will be reduced by 60 percent;

3.2. By 2018, human induced negative impacts on floodplain forest stands will be reduced.

<table>
<thead>
<tr>
<th>Objectives/ outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (years)</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2018, human induced negative impacts on poplar stands within the NR (e.g. unregulated tourism activities and livestock) will be reduced by 60 percent.</td>
<td>Distribution of poplar stand; area(s) being naturally regenerated</td>
<td>3.1.1</td>
<td>2014 - 2018</td>
<td>To carry out studies and monitoring on forest state and compile findings and results in the database</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1.2</td>
<td>2014 - 2018</td>
<td>To ensure natural regeneration and conduct afforestation in priority areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1.3</td>
<td>2014 - 2018</td>
<td>To make the poplar stands free of livestock grazing through the enforcement of the procedure for pastureland use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1.4</td>
<td>2014 - 2018</td>
<td>To establish emergency fire suppression teams and improve their capacities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.1.5</td>
<td>2014 - 2018</td>
<td>To organize public awareness on fire prevention and waste reduction</td>
</tr>
<tr>
<td>By 2018, human induced negative impacts on floodplain forest stands will be reduced.</td>
<td>Covering areas of floodplain forest stands</td>
<td>3.2.1</td>
<td>2014 - 2018</td>
<td>To designate monitoring points in the floodplain forests for regular observation, monitoring, and studies and compile their findings in the database</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2.2</td>
<td>2014 - 2018</td>
<td>To take restoration measures in the floodplain forests through cooperation with local residents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2.3</td>
<td>2014 - 2018</td>
<td>To organize public awareness and trainings on mitigation of the human induced activities leading to fire, wastes, and unsustainable poplar use</td>
</tr>
</tbody>
</table>

3.3.4 Strategy 4: To improve public awareness

The following outputs are expected as one objective is defined and respective actions (Table 8) are planned and implemented under the strategy: to improve public awareness within Khar Yamaat NR (Diagram 5).
Diagram 5. Expected outputs under the strategy to improve public awareness

- Public awareness will be improved
- Residents’ understanding will be improved
- Public engagement will be increased
- Unsustainable use of poplar will be reduced
- Unsustainable use of secondary natural resource will be reduced
- Overgrazing will be reduced
- Numbers of fire occurred will be reduced
- Wastes produced will be reduced
- Poaching will be reduced
- Off-road driving & multiple auto tracks will be reduced
- Poplar stand
- Kherlen River floodplain
- Stipa steppe
- Roe deer
Objectives/outcomes:

4.1 By 2018, understanding and knowledge on the NR values and importance of local communities residing the NR and its buffer zone will be improved by 30 percent.

<table>
<thead>
<tr>
<th>Objectives/outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (years)</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4.1.1</td>
<td>2014 - 2018</td>
<td>To carry out surveys on knowledge, approach, practices, experiences of local communities residing the NR and its BZ and develop a communications plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.2</td>
<td>2014 - 2018</td>
<td>To organize awareness on values and importance of PAs for residents of the NR and its BZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.3</td>
<td>2014 - 2018</td>
<td>To demarcate the NR boundaries in accordance with the standards and place billboards for public awareness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.4</td>
<td>2014 - 2018</td>
<td>To support eco-clubs joined by children and youth, improve their capacities, and regularize their operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.5</td>
<td>2014 - 2018</td>
<td>To cooperate and assist secondary schools to be a supporter of the concept of sustainable development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.6</td>
<td>2014 - 2015</td>
<td>To support and motivate active participation of local communities residing the NR and its BZ in conservation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.7</td>
<td>2014 - 2018</td>
<td>To organize a study tour(s) to the PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.8</td>
<td>2014 - 2018</td>
<td>To disseminate awareness on Khar Yamaat NR through mass media and social networks (e.g. website, newsletter, &amp; newspapers)</td>
</tr>
</tbody>
</table>

3.3.5 Strategy 5: To develop environmentally friendly tourism (eco-tourism)

The following outputs are expected as the objective below is defined and respective actions (Table 9) are planned and implemented under the strategy: to develop environmentally friendly tourism (eco-tourism) within Khar Yamaat NR (Diagram 6).
Diagram 6. Expected outputs under the strategy to develop environmentally friendly tourism (eco-tourism)
Objective/outcome:

5.1 By 2017, a tourism development programme and travel routes will be prepared and put in practice.

<table>
<thead>
<tr>
<th>Objectives/ outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (years)</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>To designate and map travel routes in consistency with the soums’ land use practice and development plans and have a tourism development programme approved and implemented</td>
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<tr>
<td></td>
<td></td>
<td>5.1.1</td>
<td>2014 - 2015</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.2</td>
<td>2014 - 2015</td>
<td>To conduct surveys on tourism resource, carrying capacities, and tourism induced negative impacts and compile findings and results into the database</td>
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<tr>
<td></td>
<td></td>
<td>5.1.3</td>
<td>2014 - 2016</td>
<td>To develop tourism infrastructure, establish camping areas and demarcate routes, close unnecessary auto tracks, and ensure the safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.4</td>
<td>2014 - 2018</td>
<td>To have new tourism products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.5</td>
<td>2014 - 2018</td>
<td>To provide tourists and visitors with information and prepare, print, and promote awareness materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.6</td>
<td>2014 - 2018</td>
<td>To train local residents as guide, build capacities, and create a network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.7</td>
<td>2014 - 2018</td>
<td>To cooperate with tour operators and companies through partnership agreements, integrate tourism activities with local business entities and NGOs’ operations, and mobilize them into tourism activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.1.8</td>
<td>2016 - 2018</td>
<td>To mobilize local communities into tourism activities through possession of some products by them on contract basis and improve their capacities in the field</td>
</tr>
</tbody>
</table>

3.3.6 Strategy 6: To expand researches and studies and establish a database

The following outputs are expected as two objectives are defined and respective actions (Table 10) are planned and implemented under the strategy: to expand researches and studies within Khar Yamaat NR and establish a database (Diagram 7).
Diagram 7. Expected outputs under the strategy to expand researches and studies and establish a database.
**Objectives/outcomes:**

6.1 By 2018, research and monitoring will be regularized and the database will be established;

6.2 By 2020, a long-term climate change and biodiversity research network will be established;

<table>
<thead>
<tr>
<th>Objectives/outcomes</th>
<th>Criteria</th>
<th>No</th>
<th>Proposed timeline (year)</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>6.1.1</td>
<td>2014</td>
<td>To define areas and scopes of compulsory or essential researches and studies and develop a research &amp; monitoring programme</td>
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<tr>
<td></td>
<td></td>
<td>6.1.2</td>
<td>2014 - 2018</td>
<td>To conduct general and essential (specific) researches and studies</td>
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<tr>
<td></td>
<td></td>
<td>6.1.3</td>
<td>2014 - 2018</td>
<td>To provide specialists, rangers, and volunteer rangers with an integrated research and monitoring methodology and guideline and improve their capacities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.1.4</td>
<td>2014 - 2018</td>
<td>To carry out monitoring and studies on the target or representative biodiversity selected in the management plan</td>
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<tr>
<td></td>
<td></td>
<td>6.1.5</td>
<td>2015 - 2018</td>
<td>To conduct studies and pilot actions on the wildlife (plant and animal) species (e.g. Argali, Takhi, marmot, red deer etc) potentially to be re-introduced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.1.6</td>
<td>2014 - 2018</td>
<td>To produce a report by compiling research and monitoring data in Bio-Fund and other necessary software for comparison</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.1.7</td>
<td>2014 - 2018</td>
<td>To make research data publicly known and completely use them for decision making</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.2.1</td>
<td>2014 - 2015</td>
<td>To define areas of comprehensive researches and studies at the regional level and develop a programme</td>
</tr>
</tbody>
</table>
3.4  THE OPTIONS TO IMPLEMENT THE MANAGEMENT PLAN

The main option to implement Khar Yamaat NR management plan is to ensure and integrate cooperation with all stakeholders. A management team to deal with implementation of Khar Yamaat NR management plan will be established and will implement the plan through improved effective cooperation with the soums’ governments, aimags’ Governor’s Offices, Environmental and Specialized Inspection Departments, Law Enforcement and Research Institutions, researchers and explorers, CBOs for conservation, local business entities and NGOs, and volunteer rangers. The joint activities will be implemented through integration with the aimags’ and soums’ Governor’s Action Plans, the Soum Development Plans, and other relevant programmes and action plans. The NR administration will prepare annual comprehensive action plan and arrange discussions by the management team and implementation of the plan.

The management plan defines six strategies, 12 objectives and 75 activities for implementation. A business plan for the plan implementation will be developed and financial sources will be comprehensively defined and drawn.

3.5  EVALUATION AND MONITORING

Implementation of the management plan and performances will be annually assessed against the goals, objectives, and criteria through stakeholder engagement. Overall performance of the Protected Area will be assessed bi-annually (2014, 2016, and 2018) by using the checklist of Management Effectiveness Assessment of Mongolian Protected Area System that is widely used in international practices. Findings and results of this assessment shall be a basis for revisions to the proposed activities and budgets.
REFERENCES


APPENDIX 1. BOUNDARY OF KHAR YAMAAT NATURE RESERVE

Appendix to the Government
Resolution No: 28 (1998)

BOUNDARY OF KHAR YAMAAT NATURE RESERVE

2. Khar Yamaat

Kherlen River (930.6), from then in the east along the southern bank of Kherlen River to a wooden bridge, from then in the southeast to Kholboo Mountain (1131.2), Turuu Undur Mountain, from then in the southwest to highland (1170.1), from then in the south to Chuluut Ovoo (1158.8), from then in the southwest to highlands 1090.2 and 1322.0, Tsagaan Chuluut (1352.4), from then in the west to highland 1341.7, from then in the northwest to highland 1239.3, Delgerkhaan Ovoo (1224.8), from then in the north to highland 1124.9, from then in the northwest to Kherlen River (930.8).
APPENDIX 2: ANALYSIS OF REPRESENTATIVE OR TARGET BIODIVERSITY STATE

Analysis of representative or target biodiversity state has been done through stakeholder engagement.

**Current state of target biodiversity**

- **representative or target biodiversity**
- **Important ecological factors selected as criteria for assessment**
- **Criteria**

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>Current states</th>
<th>Assessments</th>
<th>A source:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Khar Yamaat NR</strong></td>
<td>Ordinary/ normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Poplar stand</strong></td>
<td>Ordinary/ normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area(s) of forest land</strong></td>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Area(s) covered by forest</strong></td>
<td>Good</td>
<td>&lt; 90</td>
<td>91 - 92</td>
</tr>
<tr>
<td><strong>Forest resource</strong></td>
<td>Ordinary/ normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amount of growing trees per a hectare</strong></td>
<td>Ordinary/ normal</td>
<td>&lt; 1319</td>
<td>1320 - 1340</td>
</tr>
<tr>
<td><strong>Forest ungulates</strong></td>
<td>Poor</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Red deer population size</strong></td>
<td>Poor</td>
<td>&lt; 3</td>
<td>4 - 10</td>
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<tr>
<td><strong>Stipa steppe</strong></td>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pastureland deterioration</strong></td>
<td>Poor</td>
<td></td>
<td></td>
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<tr>
<td><strong>Density of Brandt’s Vole</strong></td>
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</tr>
<tr>
<td><strong>Numbers of livestock</strong></td>
<td>Poor</td>
<td>2501</td>
<td>&lt; 2001</td>
</tr>
<tr>
<td><strong>Xerophytic grass</strong></td>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overall canopy of community</strong></td>
<td>Extremely good</td>
<td>&lt; 20</td>
<td>20 - 29</td>
</tr>
<tr>
<td><strong>Numbers of species within a community</strong></td>
<td>Ordinary/ normal</td>
<td>&lt; 10</td>
<td>11 - 12</td>
</tr>
<tr>
<td><strong>Yields/growth</strong></td>
<td>Extremely good</td>
<td>&lt; 39</td>
<td>40 - 59</td>
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<td><strong>Steppe hoofed species</strong></td>
<td>No information</td>
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<td></td>
</tr>
<tr>
<td><strong>Populations of Mongolian gazelle in migration</strong></td>
<td>Insufficient information</td>
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</tbody>
</table>
## Management Plan for Khar Yamaat Nature Reserve

### Roe deer

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution</td>
<td>Ordinary/normal</td>
</tr>
<tr>
<td>Core area</td>
<td>Ordinary/normal</td>
</tr>
<tr>
<td>Populations</td>
<td>Poor</td>
</tr>
<tr>
<td>Numbers of individuals</td>
<td>Poor</td>
</tr>
<tr>
<td>Favourable conditions of habitats</td>
<td>Good</td>
</tr>
<tr>
<td>Amount/size of poplar stand</td>
<td>Good</td>
</tr>
<tr>
<td>Forest resource</td>
<td>Good</td>
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</tbody>
</table>

### Kherlen River floodplain

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floodplain vegetation</td>
<td>Ordinary/normal</td>
</tr>
<tr>
<td>Poplar distribution (within Bayan-ovoo soum)</td>
<td>Ordinary/normal</td>
</tr>
<tr>
<td>Migratory birds</td>
<td>Insufficient information</td>
</tr>
<tr>
<td>Compositions of migratory birds</td>
<td>Insufficient information</td>
</tr>
<tr>
<td>Pastureland deterioration</td>
<td>Poor</td>
</tr>
<tr>
<td>Numbers of livestock</td>
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### Distribution

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<tr>
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<tbody>
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### Core area

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<tr>
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### Populations

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<th>17 - 25</th>
<th>26 - 35</th>
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### Favourable conditions of habitats

<table>
<thead>
<tr>
<th>Category</th>
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<th>93 - 95</th>
<th>96 &lt;</th>
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<td>Forest management/2011 (verbal reports)</td>
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### Forest resource

<table>
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<th>&lt; 1319</th>
<th>1320 - 1339</th>
<th>1340 - 1380</th>
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<td>Forest management/2011 (verbal reports)</td>
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### Poplar distribution

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### Migratory birds

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### Compositions of migratory birds

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### Pastureland deterioration

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### Numbers of livestock

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