

New development plans posing a threat to Great Gobi A SPA and its ecological integrity

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Abstract

The Great Gobi A Strictly Protected Area (SPA), Mongolia's largest protected area (size: 46,333 km²) is of high national and international importance for biodiversity conservation. It is home of several critically endangered species, including the Wild Bactrian Camel, the Gobi Bear, and various other threatened and migratory large mammal species. Established in 1975 and designated as a UNESCO International Biosphere Reserve in 1991, the SPA plays a vital role, both nationally and globally, in preserving wildlife and maintaining ecological integrity. Additionally, the area provides essential ecosystem services, including water and soil retention, as well as carbon sequestration. Since 2014, it has been listed on the Tentative List for UNESCO World Heritage status and is currently undergoing the formal nomination process. However, proposed infrastructure development, such as re-opening the decommissioned local border crossing at Naransevstei to develop an international export hub, pose a serious threat to this protected desert refuge. This article outlines the global and national value of maintaining an intact Great Gobi A SPA and what might be at stake if the Naransevstei border crossing is re-opened and a new transport corridor and associated infrastructure are implemented.

Key words: Gobi, Mongolia, protected area, conservation, integrity, linear infrastructure

The Great Gobi SPA - home to of Mongolia's most endangered species

The Great Gobi A Strictly Protected Area (SPA), established in 1975, was the largest protected area (PA) in the world at the time (fig. 1). From the outset, it was managed based on a comprehensive management plan (ZHIRNOV & ILYIRSKY 1986), positioning it as a pioneering model for global conservation efforts (BATSAIKHAN et al. 2004, MCCARTHY et al. 2022). The continuity of long-term, consistent conservation management is of outstanding and irreplaceable value. As a Strictly Protected Area under the Mongolian Law on Special Protected Areas, human activities are severely restricted. Only non-intrusive research and protective measures are allowed, ensuring minimal disturbance to the area's ecological integrity (GOVERNMENT OF MONGOLIA 1994). The area's remoteness (located 1.200 km by road from Ulaanbaatar in the Transaltai Gobi) and minimal human presence have been critical for sustaining its ecological health and protecting endangered species (BATSAIKHAN et al. 2004).

Great Gobi A SPA is recognized as one of the last refuges for threatened desert-adapted species in Central Asia, playing a vital role for the survival of numerous plant and animal species that have been extirpated from other regions of Mongolia and China (TULGAT & SCHALLER 1992, YADAMSUREN et al. 2019, BATSAIKHAN et al. 2004, KACZENSKY et al. 2002, MCCARTHY et al. 2022). It is particularly critical for some of the world's most endangered large mammals, including the Wild Camel (*Camelus ferus*) and the Gobi Bear (*Ursus arctos gobiensis*) (BATSAIKHAN et al. 2004, LUVSAMJAMBA et al. 2016, YADAMSUREN et al. 2019).

The Wild Camel (fig. 2) is classified as 'Critically Endangered' by both the IUCN Red List of Threatened Species and Mongolia's Red Book of Endangered Species (HARE 2008). This species survives exclusively within the Great Gobi A SPA and as two fragmented populations in western China (HARE 2008, YADAMSUREN et al. 2019). Almost all of Mongolia's Wild Camels are found within the Great Gobi A SPA (YADAMSUREN et al. 2019), which supports estimated 40 % of the global population, totalling estimated 1000 individuals worldwide (JEMMET 2023, YADAMA-SUREN et al.

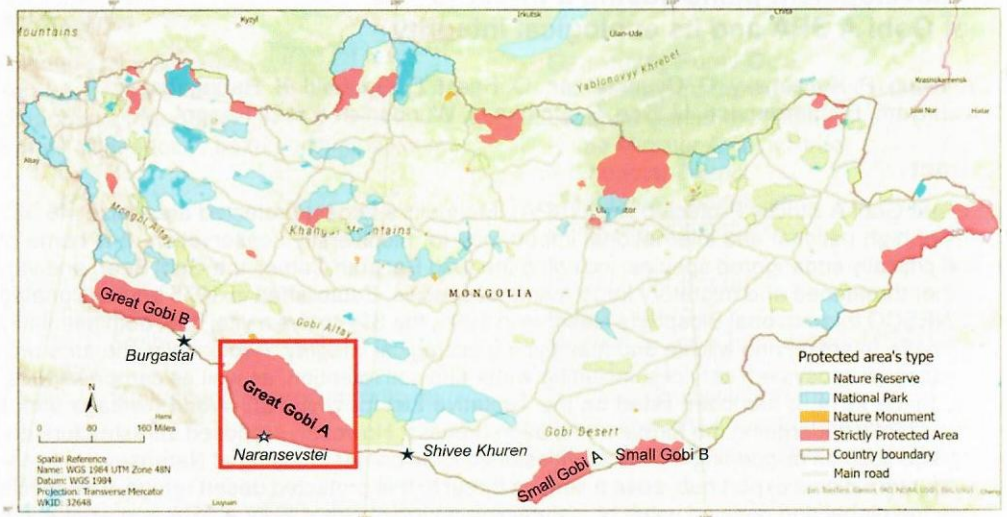


Fig. 1: The Great Gobi A Strictly Protected Area (SPA) is the largest protected area in Mongolia, serving as a vital refuge for wildlife in Asia. Map baseline data: UNEP-WCMC (2024). Protected Area Profile for Mongolia from the World Database on Protected Areas, November 2024. Available at: www.protectedplanet.net; Black stars = existing and white star = planned border crossings in the neighbourhood of Great Gobi A.



Fig. 2: Great Gobi is home to 100 % of Mongolia's Wild Bactrian Camels and approximately 40 % of the global population (photo: P. KACZENSKY).

The Gobi Bear (fig. 3), the only brown bear population adapted to living in an extreme desert environment, is also classified as 'Critically Endangered'. Its distribution has greatly decreased since the 1970s and it is now mainly confined to the remote southern part of Great Gobi A, with an estimated annual population of only 30 to 40 individuals (TUMENDEMBEREL et al. 2015, TUMENDEMBEREL et al. 2021). Some transboundary movements have been detected – the most spectacular one by a young male bear travelling to the Tian Shan mountains in summer 2015 and returning to Great Gobi A in spring 2016 (CHADWICK 2017, ZEDROSSER pers. comm. 2023). Recognized as the rarest bear subspecies in the world, the Gobi Bear symbolizes Mongolia's rich natural heritage and commitment to conservation. Any additional human pressures could threaten the Gobi Bear towards extinction. The Mongolian government has prioritized its protection, and Mongolia has seen significant investments in Gobi Bear conservation over the last 30 years. Always a symbolic animal in Mongolia (LUVSAMJAMBA et al. 2016), the Gobi bear was declared "Mongolian National Pride Animal" in 2023 by Mongolian president U. Khurelsukh.



Fig. 3: Great Gobi SPA is the last remaining habitat for the Gobi Bear (photo: Great Gobi B SPA camera trap image).

Great Gobi A also functions as a crucial wildlife corridor for migratory ungulates such as the Mongolian Wild Ass (*Equus hemionus hemionus*) and other iconic mammalian species such as the snow leopard (*Panthera uncia*) (BAYANDONOI et al. 2021, KACZENSKY et al. 2011, KACZENSKY et al. 2022). The wider Great Gobi SPA supports a diverse array of life, including 49 mammal species, 15 reptile and amphibian species, and over 150 bird species (MCCARTHY et al. 2022). More than 50 oases, critical water sources for desert biodiversity, have been documented within the SPA, which harbour nearly 410 plant species, including critically endangered flora such as desert poplar (*Populus diversifolia*) and desert broomrape (*Cistanche deserticola*), and a high proportion of endemic species (MCCARTHY et al. 2022, von WEHRDEN et al. 2006).



Fig. 4: Great Gobi A SPA is a critical corridor for threatened species such as the Mongolian Wild Ass and the snow leopard (photo: P. Kaczensky).

Global recognition and outstanding value of Great Gobi A

In 1991, the two Great Gobi SPAs were designated as an UNESCO International Biosphere Reserve, making it to one of the largest biosphere reserves in the world (MCCARTHY et al. 2022). Since 2014, the Desert Landscapes of the Mongolian Great Gobi has been on UNESCO's tentative list for consideration as World Heritage due to its anticipated Outstanding Universal Value (OUV) under criteria viii (outstanding examples representing major stages of earth's history), ix (outstanding examples representing significant on-going ecological and biological processes), and x (most important and significant natural habitats for in-situ conservation of biological diversity; for details see: <https://whc.unesco.org/en/criteria/>). The Mongolian Gobi features a stunning desert landscape are characterized by diverse habitats, including rugged plains, rocky outcrops, and ancient river systems, all contributing to its exceptional aesthetic and ecological value (fig. 4).

In 2023, the nomination process for the Mongolian Gobi was revisited and is currently undergoing a formal nomination process. The current proposal foresees six serial components for subscription of the Mongolian Gobi into the UNESCO World Natural Heritage List. The sites include the two Great Gobi SPAs (and two closely associated protected areas: Alag Khaurchen Nature Reserve and Eej Khaurchen National Monument) and the two Small Gobi SPAs (fig. 1). A key aspect of the OUV is the large size, the integrity, and low human footprint of the Mongolian Gobi and for this the Great Gobi A SPA plays a central role (MCCARTHY et al. 2022). The Great Gobi as a national SPA stands as bold example for the importance of preserving unique ecosystems that hold both scientific and cultural significance at the national and global scale. The integrity of the Great Gobi A SPA is supported by several key laws and national goals in Mongolia (table1).

Recently proposed development plans with consequences for Great Gobi A

In August 2024 the Mongolian Parliament approved the 2024–2028 Government Action Program (Parliament Resolution No. 21 of 2024), which included Action No. 3.3.2.8. “Restore and open the port of Naransevstei” (<https://legalinfo.mn/mn/detail?lawId=17141368141311>; under attached details) at the previously closed Naransevstei-Mazunshant border crossing with China. Naransevstei is located at the southern edge of Great Gobi A SPA and the current development under consideration by national authorities foresees the construction of a new mining road, which in its southern part will run over 200 km inside Great Gobi A SPA along the international border with China. This will reduce the size of the SPA and introduce human disturbance and infrastructure into one of the most remote parts of Great Gobi A, and will directly impact several important water points west and south of Atas bogd (fig. 5). Naransevstei border crossing was established in 1992 and open to local transboundary traffic four times before it was permanently closed in 1993 due to disturbance and pollution caused by the uncontrollable influx of vehicles and people (B. MIJIDORJ, pers. comm. 2023).

Table 1: Key Policies, Agreements and frameworks supporting the Integrity of the Great Gobi A SPA

Framework, Policies and Agreements	Overview
Mongolian Law on Special Protected Areas (1995)	Establishes strict protections for designated areas, prohibiting harmful activities such as mining and road construction. Human activities are restricted, allowing only non-intrusive research and protective measures.
Mongolia-China state border regulation agreement	Explicitly states support for wildlife migration efforts. It states that the Parties shall not intentionally interfere with the transboundary migration of wildlife. If the border structure affects the migration of wild animals, the Parties will discuss and resolve it.
MoU between the Border Defence Agency with the Ministry of Environment and Climate Change	The Border Defence Agency and Ministry signed a MoU for 2024-2026 outlining their commitment to safeguarding wildlife movements and conservation. This MoU outlines each party's commitment and roles to maintaining wildlife corridors for migratory species (Section 3.2.3).
Mongolia's Vision 2050	A long-term development policy aimed at transforming Mongolia into a leading regional power while prioritizing sustainable development and environmental protection, including goals related to green growth and ecological balance.
Biosphere Reserve Designation (1991)	Great Gobi A SPA designated as a UNESCO International Biosphere Reserve, emphasizes sustainable management practices that prioritize ecological integrity.
Convention on Migratory Species (CMS)	Aims to conserve migratory species and their habitats across national boundaries. Mongolia has been a signatory since 1993, with the Great Gobi A SPA serving as a crucial habitat for migratory species like the Gobi Bear and Wild Bactrian Camel.
Convention on Biological Diversity (CBD)	Obligates signatory countries to protect ecosystems and habitats critical to wildlife survival. Mongolia aims to protect 30% of its territory by 2030 as part of the "30 by 30" initiative, with the Great Gobi A SPA contributing to many Aichi Biodiversity Targets.
United Nations Sustainable Development Goals (SDGs)	Supports 10 out of 17 SDGs, significantly advancing SDG 15 (Life on Land) by promoting sustainable ecosystem management and halting biodiversity loss, while also aligning with SDG 13 (Climate Action) to enhance ecosystem resilience.

Re-opening the Naransevstei border port and developing the associated transport infrastructure aim to connect Gobi-Altai Province with Gansu Province in China, with anticipated economic gains in trade and investment. However, this must be considered alongside the clear environmental risks associated with the road and the Naransevstei border crossing, which have yet to be fully assessed. In the absence of a comprehensive evaluation or an environmental impact assessment, the environmental threats can be outlined as follows:

- **Collapse of critically endangered species populations:** The Gobi Bear and Wild Bactrian camel are already highly vulnerable to climate change. With so few Gobi Bears remaining, any disruption of their current ecosystems could lead to the abrupt disappearance of this

unique desert adapted bear. The presence of a road - even if not directly within core habitats - can lead to rapid ecological changes, including water scarcity, pollution, and increased human presence resulting in disturbance and direct or indirect mortality (BENÍTEZ-LÓPEZ et al. 2010, BENNETT 2017). This would have irreversible implications for Mongolia's biodiversity and cultural heritage. Allowing extinction of such an iconic species would represent a major blow to the national goals for conservation of the environment and the safekeeping of Mongolia's National Pride Animal - the Gobi Bear. Although Wild Bactrian Camel populations are larger, the species is extremely sensitive to disturbance and may not withstand the substantial habitat degradation.

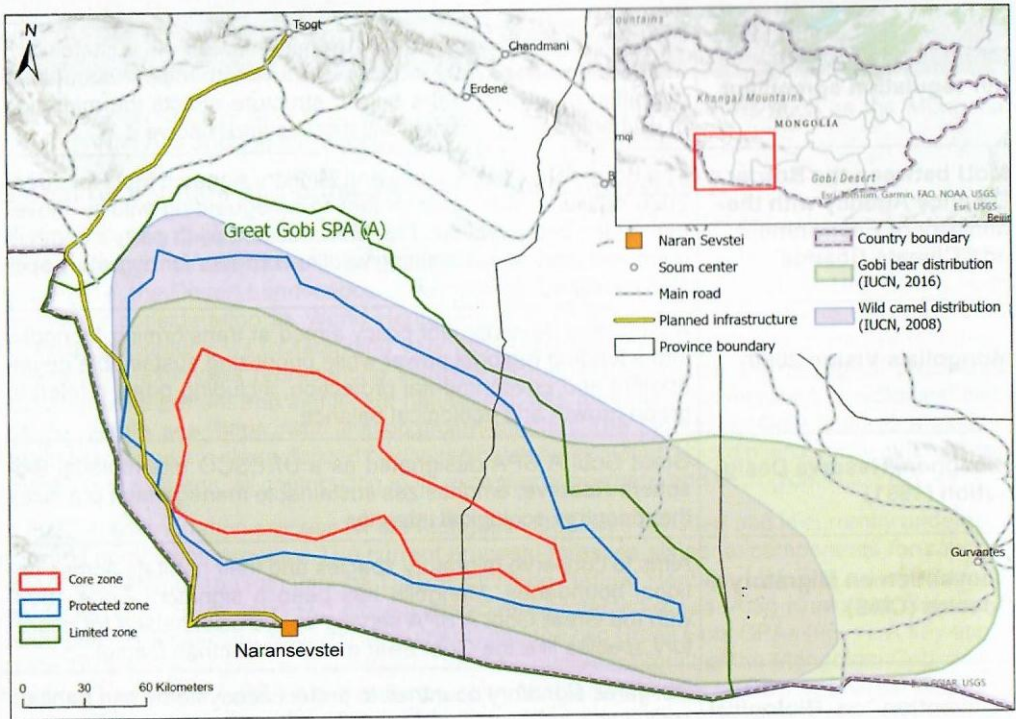


Fig. 5: Zonation of the Great Gobi A Strictly Protected Area (SPA) and the proposed road to Naransevtei, along with the IUCN distribution range of the Gobi Bear and Wild Bactrian Camel (<https://www.iucnredlist.org/species/41688/121229971> and <https://www.iucnredlist.org/species/63543/12689285>).

- Reduced resilience to climate shocks:** Roads contribute to habitat fragmentation, disrupting animal movement and limiting access to essential resources (BENÍTEZ-LÓPEZ et al. 2010, BENNETT 2017). Historical data indicate that road construction in China has led to declines in Wild Bactrian Camel populations, which are already IUCN critically endangered (XUE et al. 2021). A new road along the border of Great Gobi A SPA may render habitats to the west nearly impassable for species across their ecological ranges into China. During extreme climatic events - such as dzud (harsh winter conditions) or drought - facilitating animal movement is crucial for survival. This poses heightened risks for species such as the Wild Bactrian Camel, Khulan (*Equus hemionus hemionus*), Snow Leopard (*Panthera uncia*), and Gobi Bear.

- Economic loss from ecosystem service degradation:** Desert ecosystems provide critical ecosystem services, including provisioning, regulating, and cultural services (CHEN & COSTANZA 2024). The road will impact all these services. While determining the economic values can be complex, studies have provided per-area value estimates for ecosystem services in desert ecosystems (CHEN & COSTANZA 2024). Based on such estimates, the total loss of ecosystem services from a potential 200 km road and its buffer area could cause losses in the magnitude of millions of USD per year, calculated solely on three services: carbon sequestration, water retention and soil retention. However, considering the full range of ecosystem services that desert ecosystems provide - including additional services such as flood regulation and water purification - this estimate is likely to be significantly higher. Research over the past two decades has demonstrated an increasing value of ecosystem services in the Gobi region, underscoring that investment in these natural assets can yield high returns (CHENG et al. 2020). This potentially is much higher and more long-term than expected GDP increase potentially occurring through another transport corridor. The degradation of these services threatens not only ecological balance but also undermines long-term economic benefits by increasing vulnerability to environmental shocks.
- Increased risk of illegal hunting, mining and trade:** The proposed road construction will enhance access to remote areas, significantly increasing the risks of illegal hunting, trade and mining (CLEMENTS et al. 2014). With more people moving through the region, the likelihood of illegal hunting for wildlife trade escalates, as animals become more accessible near border crossings where increased trade is expected. Research shows that proximity to roads correlates with heightened hunting activities, threatening vulnerable species.
- Habitat degradation from increased human activity:** The proposed road construction will lead to significant habitat degradation of the fragile Gobi ecosystem, as increased human access brings pollution, waste, and additional infrastructure. The cumulative effects of these disturbances can result in soil erosion, loss of vegetation, and diminished water quality, ultimately compromising the ecological integrity of this unique environment.

It is important to emphasize that there is no such thing as a 'nature-based road.' Any road construction inherently disrupts ecosystems and alters landscapes, making it almost impossible to fully mitigate adverse effects. Even roads designed with environmental considerations fragment habitats and facilitate human intrusion into previously undisturbed areas.

What needs to be done?

While the potential economic benefits of the proposed new road corridor need to be acknowledged, the potential risks to the conservation of Mongolia's threatened species are immense and irreversible.

The scientific community strongly advocates to withdraw from the planned re-opening and development of the Naransevstei port and associated transport infrastructure. We strongly encourage the Mongolian government to consider alternative solutions which allow for development and increased trade volume, without jeopardizing Mongolia's national wild heritage and ambitious environmental goal and without violating national and international environmental legislation and conventions. Alternative solutions include upgrading the operational border crossing ports Burgastai and Shivee Khuren which are some about 320 and 350 kilometres straight line distance to the west and east of Naransevstei, respectively.

An environmental and social impact assessment (ESIA) is required by Article 7.4 of the 2012 Law on Animals, before the construction of roads and railways within the habitat of critically endangered species. It is important to consider that the geographic ranges of these species may extend well beyond the boundaries of the Great Gobi A SPA and its external buffer zones. The assessment should include a comprehensive baseline study to evaluate the potential environmental and social impacts of the project, followed by a thorough analysis of the magnitude and significance of these impacts. Lessons from similar assessments across Asia emphasize the importance of

public consultation, stakeholder participation, and ensuring adequate time and scientific rigor for initial data collection and analysis, particularly for infrastructure projects with potentially major impacts.

It is crucial to recognize the immense value of the long-term ecosystem services that the Great Gobi A SPA provides to Mongolia and the region. These services contribute substantially to human well-being and economic health.

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