



## Keep on moving

### How to facilitate nomadic pastoralism in Mongolia in the light of current societal transformation processes

#### English summary

The Eastern Steppe of Mongolia is one of the world's largest mostly intact grassland ecosystems and is characterised by a close coupling of societal and natural processes. In this ecosystem, mobility is one of the key characteristics of wildlife and human societies alike. The current economic development of Mongolia is accompanied by extensive societal transformation and changes in nomadic' lifestyles, which potentially affects the unique steppe ecosystem and its biodiversity. The changing lifestyles are mainly characterised by rural-urban migration, resulting in reduced mobility of herders and their livestock, and presumably affecting wildlife. The question is how mobility can be fostered under these transformation processes. Time is pressing as a new generation is born which is growing up in urban environments and with new skill sets but a potential loss of the tight connection to nature and the nomadic lifestyle.

#### Mongolian summary

Монгол орны тал хээрийн экосистем нь дэлхийн хэмжээнд унаган төрхөө хадгалан буй цөөн тооны хуурай хээрийн экосистемуудын нэг бөгөөд нийгэм болон байгаль хоорондын нягт уялдаа бүхий үйл явцуудаар тодорхойлогддог. Монгол орны өнөөгийн эдийн засгийн хөгжлийг даган өөрчлөгдөж буй нийгмийн их шилжилт, мөн нүүдлийн амьдралын хэв маяг гарч буй өөрчлөлтүүд энэхүү тал хээрийн экосистем, түүний биологийн олон янз байдалд нөлөөлөх бүрэн боломжтой. Нүүдлийн амьдралын хэв маягийн өөрчлөлт нь ихэнхдээ хөдөөнөөс хот суурин газарт шилжин суурьшах хүмүүсийн шилжилт хөдөлгөөн бөгөөд энэ нь улмаар малчид, тэдний мал мөн зэрлэг амьтдын нүүдэл багасахад хүргэж байна. Тиймээс малчид, мал, зэрлэг амьтдын нүүдлийг нийгмийн эдгээр шилжилтийн үйл явцад хэрхэн дэмжиж болох вэ гэдэг нь гол асуулт юм. Хойч үеийн үр хүүхдүүд хот, суурин газар төрж өсөн, хүмүүжихийн зэрэгцээ тэдний байгаль болон нүүдлийн соёл иргэншилтэй харьцах нягт хэлхээ холбоо алдагдаж болзошгүй билээ.

## Findings and recommendations

- ▶ Current societal transformation processes in Mongolia pose a risk to the Eastern Steppe and its biodiversity. Changes in nomadic pastoralism<sup>1</sup> are resulting in sedentarisation. Economic development and associated infrastructure programmes are leading to fragmentation of the steppe landscape. As a consequence of climate change, extreme events such as droughts and Dzuds<sup>2</sup> are expected to increase, with a negative effect on local livelihoods. Land use management has to cope with these highly variable conditions, and facilitating the mobility of pastoralists, their herds and wildlife is obviously key to sustaining the steppe ecosystem.
- ▶ The societal transformation processes go hand in hand with substantial urbanisation, i.e. rural-urban migration and changing lifestyles. The number of herders has decreased since the 1990s, while herd sizes have increased. Since the values and image of the traditional nomadic way of life continue to be important at a personal, societal and cultural level, additional government and administrative support for herders is needed to realise a viable lifestyle.
- ▶ The rural-urban migration often follows a step-wise process from the open steppe to sum<sup>3</sup> centres, to aimag<sup>4</sup> centres

and finally to the capital, with distinct social, economic, and environmental push- and pull-factors at the different stages of migration. Strategies to foster nomadic pastoralism in the countryside should take account of the different motives for migration along the rural-urban gradient. Thus, a multi-level governance approach that addresses all levels (sum – aimag – national) is recommended, as this would facilitate sustainable development strategies and increase the attractiveness of nomadic pastoralism.

- ▶ Further research is needed on the underlying social-ecological conditions for the transformation processes, the interlinkages between societal and ecological processes in Mongolia, and the impacts thereof. Such research will be conducted in the MORE STEP research programme (see Project description: MORE STEP below).

1 We refer to nomadic pastoralism as an umbrella term for the different forms of semi-nomadic to nomadic pastoralism practiced in Mongolia.

2 Dzud is a Mongolian term for a severe winter with massive livestock mortality.

3 A sum (district) is the second level of administrative subdivision of Mongolia.

4 An aimag (province) is the first level of administrative subdivision of Mongolia.

## Global significance of the Eastern Steppe of Mongolia

Biodiversity loss is a key challenge of our time and critically affects drylands, which cover about 40% of the terrestrial surface. These ecosystems are of major importance for the conservation of global biodiversity; they store vast amounts of carbon in their soils and are home to a unique form of pastoral nomadism. Extreme and unpredictable climatic conditions demand high flexibility on the part of both humans and wildlife, yet this is threatened by processes of sedentarisation and fragmentation. The Eastern Steppe of Mongolia is one of the largest mostly intact temperate grasslands worldwide and is characterised by a close coupling of societal and natural processes. This social-ecological system has experienced thousands of years of apparently sustainable land use by nomadic pastoralists. At the same time, it is also known for its distinctive communities of wild herbivores and, in particular, the long-distance migrations of some of the largest populations of wild ungulates in the world. Around one million Mongolian gazelles (*Procapra gutturosa*) and one of the largest populations of goitered gazelle (*Gazella subgutturosa*) move hundreds, if not thousands, of kilometres across this dryland each year.

In this ecosystem, mobility is one of the key characteristics of wildlife and human societies alike. Distinctive herbivore communities track changing resources, while pastoral societies move herds in search of fresh pasture and water (Fig. 1). Nomadic pastoralism constitutes an important form of sustainable land use of such ecosystems.

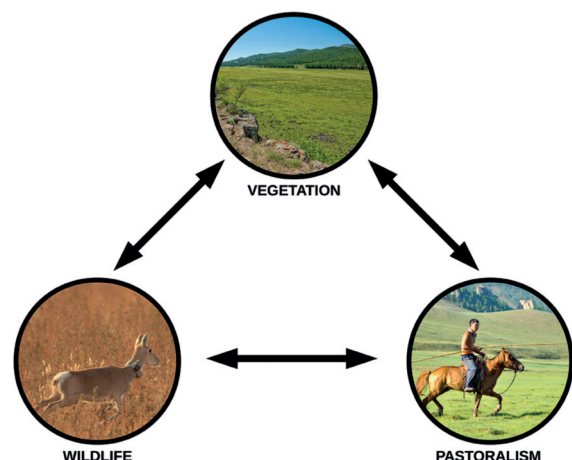


Figure 1: Interrelation of vegetation, wildlife and pastoralism (own illustration)

**Vegetation**

The steppe vegetation has to cope with low overall precipitation and yet relatively intense grazing pressure. Moreover, Mongolian steppes are among the most seasonal environments on earth, with cold, dry winters coupled with short, warm and moist summers. Conditions have been highly unpredictable for many years: droughts or extreme winters occur frequently and may hit one region, while others remain unaffected. An individual plant may experience a decent forest climate one year, while conditions the next year are more akin to those found in semi-deserts. Thus, a given level of grazing pressure may be too low to utilise available biomass in most years, yet could result in overgrazing in a year with poorer plant growth. Flexible grazing and herbivore mobility is key to buffering against this enormous spatio-temporal variability.

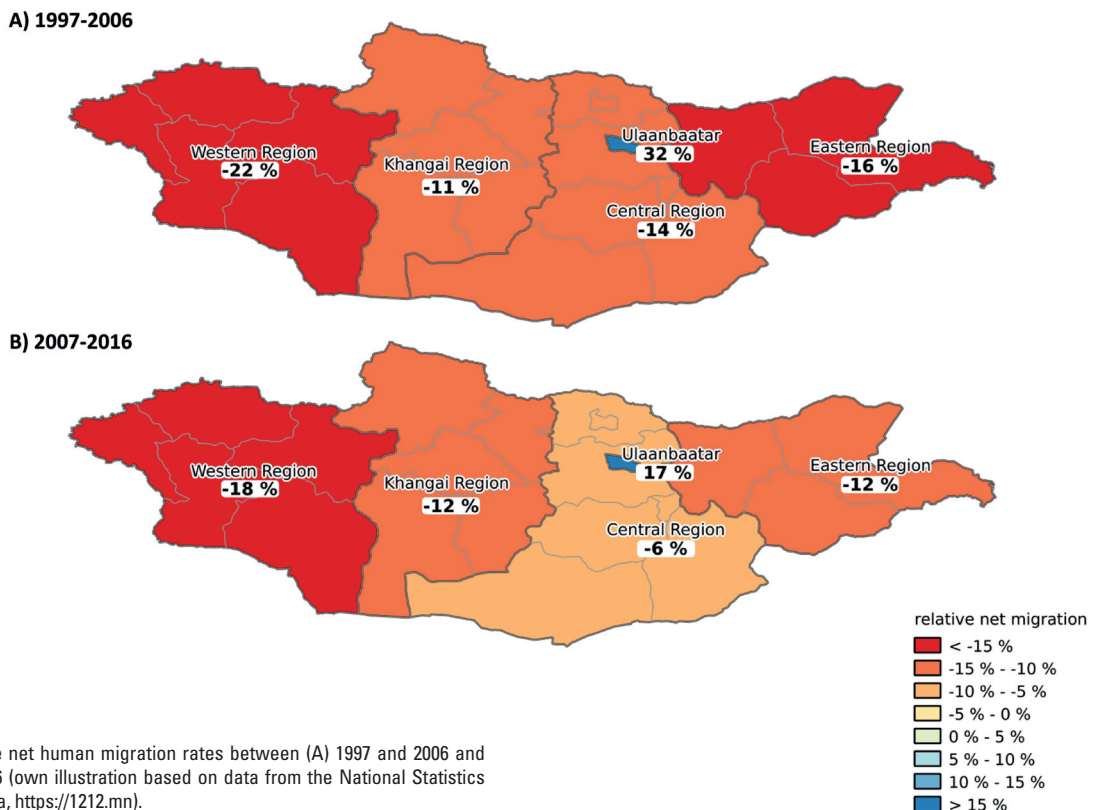
**Wildlife**

The steppe is characterised by unique long-distance movements of wild ungulates. Unlike in classic migration, where animals move regularly and predictably from and to seasonal ranges, movements of Mongolian gazelles in the Eastern Steppe are truly nomadic. That means animals move across the steppe unpredictably and independently from each other, over hundreds and thousands of kilometres, and it seems impossible to predict where animals are at any given time. These no-

madic movements are probably driven by unpredictable rainfall events that determine foraging conditions or the escape from harsh environmental conditions such as winter storms. Such conditions are especially problematic for conservation strategies, which often hinge on location-based approaches: gazelle movements are simply too far ranging and unpredictable to be limited to protected areas, and restrictions of their mobility will result in population declines. It is therefore critical to avoid any fragmentation of the landscapes and maintain landscape permeability across the entire steppe in order to protect this globally unique phenomenon.

**Nomadic pastoralism**

With a history stretching back at least 5000 years, pastoralism is deeply rooted in Mongolian society. The present-day form of nomadic pastoralism emerged about 2000 to 3000 years ago. In marginal environments with low and highly variable precipitation, different soil qualities and fluctuating temperatures, nomadic pastoralism is often the key to sustaining people’s livelihoods. Since pastoralism is still the dominant form of land use in Mongolia, pastoralists and their livestock also interact with wildlife. Human presence is mainly a deterrent to wildlife, while livestock potentially competes with wildlife for forage, especially in times of scarcity (during or after Dzuds or droughts).



**Figure 2:** Relative net human migration rates between (A) 1997 and 2006 and (B) 2007 and 2016 (own illustration based on data from the National Statistics Office of Mongolia, <https://1212.mn>).

### Consequences of societal transformation

Like many drylands worldwide, the Eastern Steppe of Mongolia is currently undergoing a societal transformation process. This affects mobility of both wildlife and pastoralists, leading to increased vulnerability and ultimately to losses in ecosystem functioning and biodiversity.

Urbanisation and rapid economic growth have led to major societal and economic changes. Although these changes have often resulted in higher living standards, they have also impacted traditional land use practices and the local knowledge associated with these practices. While many Mongolians are moving to the capital Ulaanbaatar and surrounding regions, out-migration rates from the three Eastern aimags that cover large parts of the Eastern Steppe have been consistently high over the past 20 years (Fig. 2). This is of particular importance, as migration towards urban areas may weaken society’s connection to nature and lead to a further shift in the political discourse towards aspirations of an urban society.

In addition, in the course of the political transition in 1990, herds were privatised, which had several implications for nomadic livelihoods and thus the steppe ecosystem:

- ▶ Over the last decades, the total number of herders decreased, while the amount of livestock increased, resulting in higher livestock density (Fig. 3). Mobility decreased compared to the traditional herding regime, and livestock became more concentrated, especially in the central parts of Mongolia. Thus, overgrazing occurred in these regions, causing biodiversity loss, soil degradation, vegetation change and reduced overall productivity.
- ▶ Families migrated to the capital while keeping their livestock as an economic basis for their livelihood.

Many of them hired herders who often had limited experience of nomadic pastoralism and little local traditional knowledge of herding practices. This is often referred to as absentee herding and has increased in prevalence over the past decades. It has also become a source of income for urban families who were not herders before.

- ▶ Vast infrastructure projects will threaten to fragment the steppe and thereby limit wildlife movements.

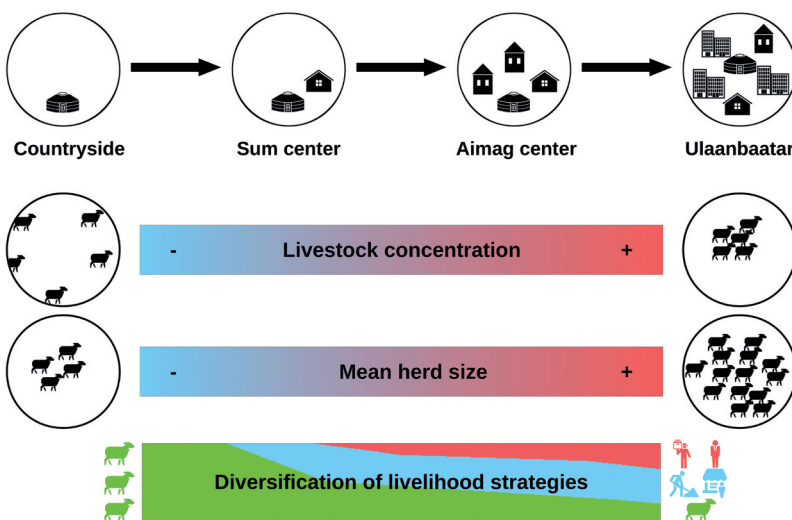
In short, the question is how these transformation processes can be shaped in such a way as to enable both economic development and nomadic pastoralism to sustain the ecosystem of the Eastern Steppe.

### Step-wise rural to urban migration

The most influential societal process in recent years is the ongoing rural to urban migration, which has led to an ever-growing population in the capital. Ulaanbaatar now accounts for a population of 1.5 million inhabitants out of a national total of 3.2 million.

First evidence from the MORE STEP research project (see Project description: MORE STEP below) indicates that people often follow a step-wise rural to urban migration from the countryside to sum centres, from sum centres to aimag centres, and from the aimag centres to the capital (Fig. 3). Consequently, the decision to migrate is influenced not only by conditions in the region of origin and the final destination of the capital, but also by triggers operating at intermediate destinations such as sum and aimag centres.

The results of our project also highlight that the motivation for migration depends on complex social, economic, and environmental push- and pull-factors. While environmental push factors such as Dzuds or droughts accompanied by a massive loss of livestock are especially important at early stages of migration



**Figure 3:** The step-wise rural-urban migration process and development of livestock concentration, herd size and livelihood strategies along the rural-urban gradient. Along the rural-urban gradient, the livestock concentration and herd sizes in the vicinity of the agglomerations increase. Simultaneously, households diversify their livelihood strategies, so they no longer rely on livestock herding alone (own illustration).

when leaving the countryside, social pull factors seem to be relevant at each step along the way. In search of a good education for the children, parents (mostly women) accompany their children to sum centres, aimag centres, or the capital. In fact, school enrolment is often the first trigger for a family or family member(s) to move. Surprisingly, our results revealed economic pull factors such as better access to the market or job opportunities to be most relevant only close to the capital.

### Strategies and measures to facilitate nomadic pastoralism

The fostering of nomadic pastoralism needs to take account of current economic developments as well as societal transformation processes. Efforts should be made to identify the relevant aspects of and provide support for a modern nomadic lifestyle. Three possible starting points were identified in our research:

- ▶ *Considering different migration motives along the rural-urban gradient:* people often follow a step-wise migration process from the countryside to the capital, influenced by different push- and pull-factors. Thus, a multi-level governance approach is recommended, which addresses these distinct motives (social, economic, and environmental) at the different stages of migration. In addition, existing and new policies need to be harmonised to avoid conflicting goals and effects, and to reflect the distinct migration motives instead.
- ▶ *Increasing the attractiveness of the countryside:* in general, the nomadic lifestyle still enjoys a high social reputation, while living in the countryside is becoming more and more unattractive. It is therefore important to ensure that people in the countryside have low-threshold access to facilities such as education, health care, and leisure. In particular, measures should be taken to find solutions to satisfy needs that are reflected in the migration motives, for example, how to compensate livestock loss after extreme events (e.g. via insurance policies), flexible possibilities for distance education, and technical and/or so-

cial innovation to facilitate market access rather than focussing only on building new infrastructure.

- ▶ *Developing an integrated long-term strategy and vision:* a broadly shared long-term vision for development would foster discourse and joint work on an implementation strategy to promote sustainable development of the Eastern Steppe. Such a vision should include the aspirations of all people, an adequate provision of ecosystem services, and the needs of biodiversity. In order to realise the ideas that emerge from such a vision, a new governmental agency for integrated land management could be established, which translates the vision into a strategy. A possible starting point could, for example, be to designate areas as IUCN category V-Protected Landscapes.<sup>5</sup>

#### Project description: MORE STEP

This policy brief was developed as part of the “MORE STEP – Mobility at risk: Sustaining the Mongolian Steppe Ecosystem” research project. MORE STEP is a collaborative and interdisciplinary research project by Mongolian and German partners funded by the German Federal Ministry for Education and Research (BMBF). The central aim of the main phase forthcoming in 2019–2022 will be to bring social and ecological sciences together to identify societal drivers that can lead to ecological tipping points in the Mongolian steppe ecosystem. The objectives are the early identification of possible critical consequences for nature and society, and the development of adapted strategies for a sustainable transformation process. Land degradation, urbanisation and changes to the nomadic livelihoods are central themes addressed by the project. The project places strong emphasis on the importance of mobility for both wildlife and livestock and seeks to contribute to the sustainable development of the Mongolian steppe ecosystem.

Project webpage: <https://www.morestep.org>

<sup>5</sup> International Union for Conservation of Nature (IUCN): <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-v-protected-landscapesescape>



Figure 4: Animals and roads: Interferences occur regularly



Figure 5: Old and new: Modern architecture overshadows traditional buildings

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### References

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