UNEP

CHANGING TAIGA

CHALLENGES FOR MONGOLIA'S REINDEER HERDERS

CHANGING TAIGA

CHALLENGES FOR MONGOLIA'S REINDEER HERDERS

Johnsen, K.I., Alfthan, B., Tsogsaikhan, P. and Mathiesen, S.D. (eds). 2012. ***Changing Taiga: Challenges to Mongolian Reindeer Husbandry.*** Portraits of Transition No. 1. United Nations Environment Programme, GRID-Arendal.

ISBN: 978-82-7701-101-1

Printed by Birkeland Trykkeri AS, Norway

CONTENTS

A community meeting with the 14 families of Camp 1 takes place in the East Taiga, June 2011. Photo by Lawrence Hislop.

FOREWORD

The Indigenous Peoples of the taiga – who live in the fragile belt of coniferous forest of northern Mongolia – are in trouble. Reindeer herding, which since ancient times has provided a sustainable way of managing the environment and is the foundation of their unique cultures, is in real danger of disappearing.

Fewer than 1000 active reindeer herders remain in isolated pockets across the Mongolian, Russian and Chinese taiga regions. In some areas where reindeer herding used to be common, it has completely disappeared – such as the Soyot herds in the Republic of Buryatia (Russian Federation).

Following a direct request from Mongolia's Ministry of Nature, Environment and Tourism this report assesses the situation of the country's only reindeer herders. It is based on field investigations, interviews and discussions with the Dukha in the northern Mongolian province of Hovsgol, considered by many to be one of the oldest reindeer herding cultures in the world.

Only 200 Dukha reindeer herders remain, many of whom are struggling to ensure a future for reindeer herding in their taiga homeland – a hotspot for biodiversity and rich in natural resources. The herders and the taiga's biodiversity are increasingly affected by small-scale unregulated gold miners and loggers. The difficulties of integrating into a market economy, combined with new hunting regulations and increasing numbers of tourists visiting the taiga, are posing additional socio-economic challenges. Climate change is, in many cases, adding additional stress. This situation calls for urgent national and international attention and action to strengthen the traditional livelihood of reindeer herders and restore ecosystems.

Fortunately, there are steps that can be taken to secure the Dukha's unique culture, livelihoods and destiny if we act collectively, now. There is an urgent need to engage with the herders to record and promote their traditional knowledge, as well as to monitor biodiversity and the land use changes that are occurring in the taiga. Ongoing dialogue is also needed between herders, local governments, companies and others on land use and resources management.

Various international calls have reiterated the need to engage indigenous peoples and their traditional knowledge in the promotion of ecosystems and biodiversity – such as the Aichi 2020 Biodiversity Targets of the Convention of the Biological Diversity (CBD). In 2009, the Kautokeino Declaration, made at the 4th World Reindeer Herders' Congress, recognized the importance of paying attention to the forest and taiga reindeer husbandry in Russia and Asia, and expressed the need for initiatives to assess and strengthen taiga reindeer husbandry.

This UNEP report makes an important contribution to these efforts. It sounds an alarm that must be heeded not only for taiga reindeer herding in Mongolia, but also across the entire taiga region of Eurasia.

The report will be presented at the 11th Session of the United Nations Permanent Forum on Indigenous Issues in May 2012.

Achim Steiner
UN Under-Secretary General
and UNEP Executive Director

Altangerel Enkhbat
Director of Ecologically Clean
Technology and Science Division,
Ministry of Nature, Environment
and Tourism,
and GEF Operational Focal Point

Ganbat with lasso. Reindeer herders from all over the circumpolar region share the tradition of using the lasso to capture reindeer. Photo by Riccardo Pravettoni.

EXECUTIVE SUMMARY

Mongolia's reindeer herders and their taiga homeland are today facing unprecedented challenges from unregulated mining, forest logging, loss of access to natural resources, tourism, and climate change.

The Dukha herders and their ancestors have lived for centuries in this fragile transition region on the edge of the steppes, practising an ancient and unique form of reindeer husbandry and helping to conserve the region's unique biodiversity. Yet this system of reindeer husbandry, with its close relationship between man and reindeer, is under threat.

Living in the northwestern province of Hovsgol, the Dukha are Mongolia's smallest ethnic minority. Fewer than 200 herders still practise reindeer herding, using the animals mainly for transpo rtation and dairy products. The area in which they live is particularly vulnerable to competing interests and pressures on the land. The taiga is a hotspot for globally significant biodiversity. It is also rich in natural resources, and is one of the regions of Mongolia which will suffer the greatest impacts of climate change over the coming decades.

Of particular concern to the herders is the growth in unregulated, small-scale artisanal mining, which results in deforestation, forest fires, chemical contamination and poisoning of water sources. Reindeer herders have already abandoned some pastures in the western sections of their range because of damage caused by mining for gold, as well as green and white jade. There are concerns that similar damage may occur in the eastern sections of their range.

There are also concerns that measures to conserve biodiversity within the region, such as the creation of national parks or protected areas, will limit access to pastures. Current hunting laws are having a major impact on the food security of the Dukha. Hunting and trapping wild animals have been a traditional way of life for the Dukha. However laws limiting species and seasons for hunting have been imposed as a result of the difficult transition to a market economy during the 1990s.

Increasing herd sizes is the main priority for the Dukha reindeer herders. A modest increase in reindeer populations is seen as a way to strengthen both their livelihoods and their culture. It is also a way to ensure the recruitment of the next generation of herders. Larger herd sizes would also permit the slaughtering of reindeer for meat during times of food scarcity. However, herders are currently struggling to increase their reindeer numbers due to the emergence of diseases, such as anaplasmosis, over the last decade.

Tourism also offers both an opportunity and a threat to the Dukha. On the one hand, it provides much needed income and a way to participate in the market economy. On the other hand, it reduces herders' mobility, forcing reindeer to feed on pastures of poorer quality and limiting the ability of herders to increase their herd size.

The value of promoting the Dukha's way of life is clear. Taiga reindeer husbandry offers a viable and sustainable form of land use that has been practised for centuries in a fragile and vulnerable ecosystem. However, there are limits to the herders' capacity to adapt, and these are now being reached. The Dukha have little commercial or political influence. They have no community members in elected positions at any level of government, limited access to legal council, and no formal ownership of the taiga.

There is an urgent need to ensure that conditions are in place to maintain reindeer husbandry as a resilient and sustainable livelihood. This would allow the Dukha reindeer herders to maintain their cultural identity, to control their own destiny, to live close to nature and rely on their homeland for their livelihood and well-being.

RECOMMENDATIONS

RECORD AND PRESERVE REINDEER HERDERS' TRADITIONAL KNOWLEDGE

Provide training and capacity building for the Dukha to record their traditional language, herders' traditional terminology, husbandry and migration practices, as well as gender-specific knowledge about historical and current use of the land and its natural resources.

Document herders' traditional food culture to improve knowledge of the cultural basis for the sustainable use and conservation of biodiversity in the northwestern Hovsgol region.

Ensure that Dukha children are taught their native language, as language carries with it cultural identity and knowledge.

ESTABLISH COMMUNITY-BASED MONITORING AND MANAGEMENT

Monitor variations in reindeer numbers, changes in migration routes, land use changes, industrial development, local climate variability and other environmental, social and economic changes affecting the reindeer herding community and taiga ecosystem. Monitoring should be conducted using traditional knowledge combined with technology. The information gathered could provide input for herders' decision-making and management of reindeer husbandry, as well as for local, regional and national planning and decision-making.

Establish and/or revise community partnerships and collaborative management plans to support biodiversity and traditional livelihoods of the Dukha reindeer herders. Management regimes should be developed based on the Dukha's traditional knowledge about sustainable management of the ecosystem.

Evaluate current hunting regulations to identify how the laws affect reindeer herders' access to food and income.

INCREASE HERD SIZE AND IMPROVE REINDEER WELFARE

Establish a programme to increase herd and identifying national and international collaborating partners.

Develop a programme for prevention and treatment of reindeer diseases. This would also involve monitoring reindeer disease and welfare using both Western science and traditional knowledge.

CONDUCT A VULNERABILITY AND ADAPTATION ASSESSMENT

Conduct an impact assessment of climate, environmental, social and economic changes in the region. This should include developing scenarios for future land use change and loss of pastures, producing locally-scaled climate scenarios for Tsagaannuur, and developing local adaptation strategies based on herders' traditional knowledge.

INCREASE DIALOGUE BETWEEN STAKEHOLDERS

Organize community round-table discussions and field visits to promote mutual understanding and dialogue between herders, tourism operators, local government, and other stakeholders on land use and resources in reindeer herding areas. These discussions should aim to increase understanding of stakeholders' needs and increase transparency and opportunities for herders to engage in decision-shaping processes concerning the land and natural resource management. Dialogue could also enhance relevance and efficiency of policies and regulations for preserving taiga biodiversity and pastures.

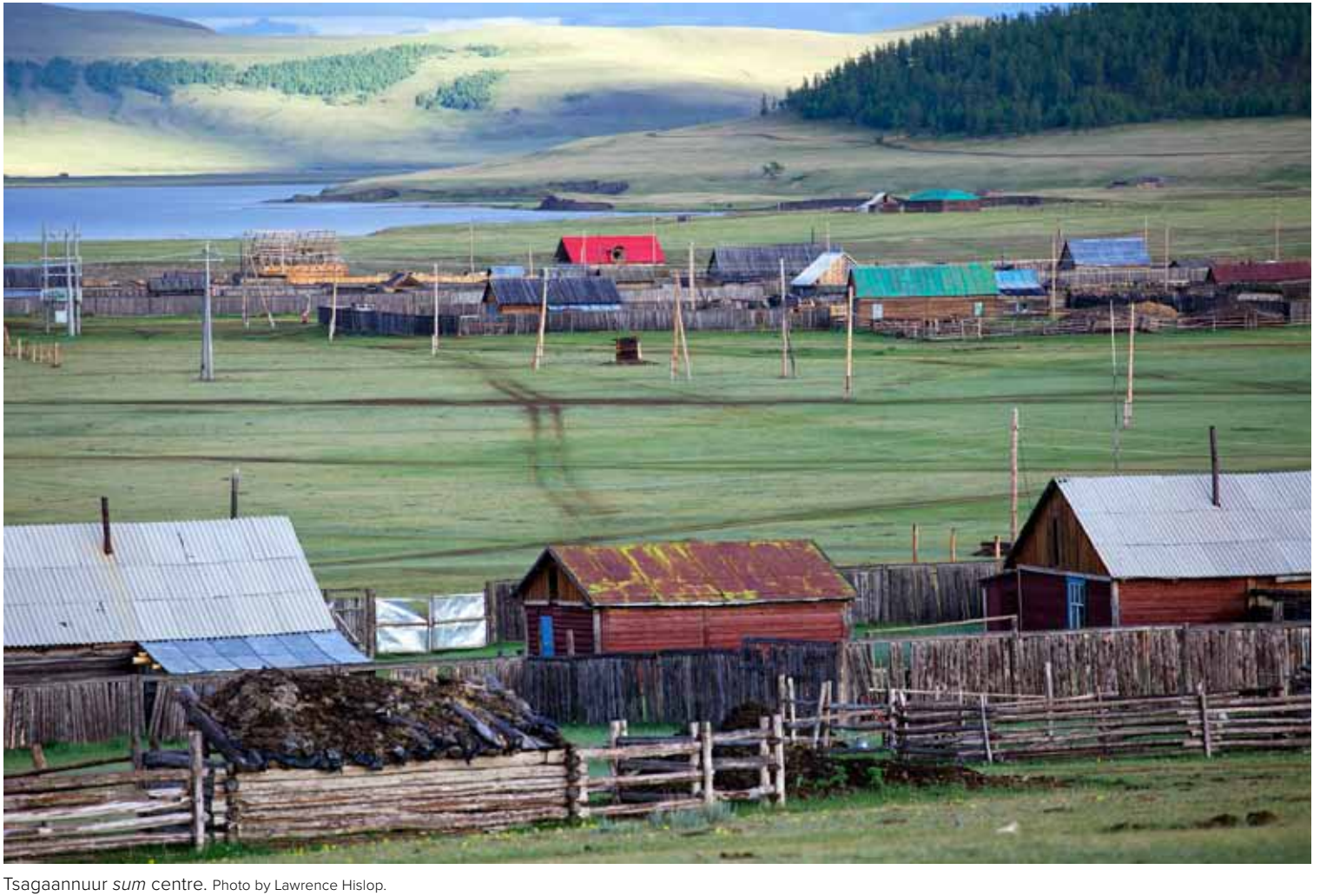
Undertake a tourism impact assessment and a value chain analysis including identifying all actors in the chain and the flow of revenues between them. This analysis would identify the impacts of tourism on reindeer herders' livelihood, community and economy, as well as opportunities for intervention to benefit reindeer herders.

BUILD LOCAL HERDERS' INSTITUTIONS

Provide technical and financial assistance and training to develop the reindeer herders' information and knowledge centre in Tsagaannuur. The centre could assist in educating youth in reindeer husbandry, facilitate dialogue between herders and others parties, coordinate data gathering and information management, facilitate student exchanges with reindeer herding communities across national borders, and develop and provide open access to data sets, maps, satellite images, and reports. The Centre could provide legal advice and linkages with similar information centres in other places in the world through the networks of the Association of World Reindeer Herders (WRH), the International Centre for Reindeer Husbandry (ICR) and the University of the Arctic. It could also be a partner in national and international research initiatives on reindeer husbandry.

Summer pastures in Camp 1 of the East Taiga, 2050 metres above sea level. Photo by Lawrence Hislop.

The human-nature coupled system of reindeer husbandry, with its close relationship between man and reindeer, is under threat. Photo by Lawrence Hislop.



Tsagaannuur *sum* centre. Photo by Lawrence Hislop.

During summer the herders use horses in addition to reindeer for riding. Many summer pastures are two hours by car and then six hours by horseback from Tsagaannuur *sum* centre. Photo by Lawrence Hislop.

GLOBAL NOMADIC PASTORALISM

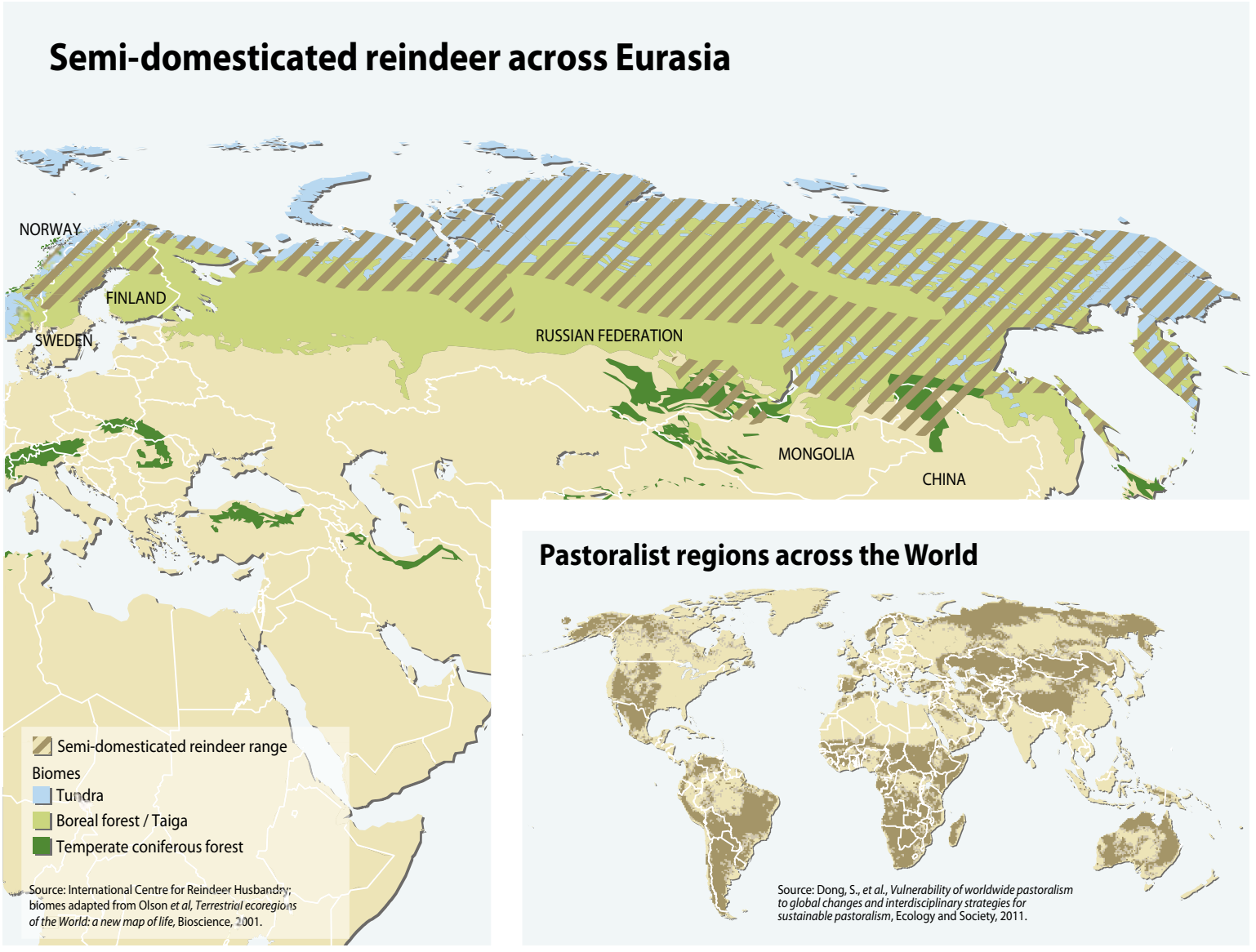
Pastoralism, or extensive grazing on rangelands for livestock production, is a key production system of the world's dryland areas. It provides a livelihood for between 100 and 200 million people (CBD Secretariat 2010), supplies 10% of the world's meat production through approximately one billion heads of livestock, and makes a significant economic contribution to some of the world's poorest regions (FAO 2001; WISP 2010).

In order to exploit meagre and seasonally variable resources in the dryland environment, many pastoralists are nomadic or semi-nomadic (FAO 2001). They have in-depth knowledge of conservation and sustainable use of resources, and are able to respond quickly to change (CBD Secretariat 2010). Migration is a key strategy to reduce risks of food shortages by moving to different grazing lands following a traditional seasonal pattern. It is also key to limiting ecological impact. Herding and seasonal migrations disperse the impacts of grazing over several pasture lands in a relatively large area and allow the recovery of seasonally-used pastures (Reid *et al.* 2008).

Increasing external pressures are constraining the capacity of pastoralists to adapt to the variability and uncertainty of their environment (Nori *et al.* 2005) – and undermining the viability and sustainability of pastoral livelihoods. Human population growth, economic development, land use changes and climate change increase the competition for land and put increasing pressures on pastoral communities (Dong *et al.* 2011).

In Mongolia, pastoralism has been the central feature of life from ancient times, and almost every aspect of society has been shaped by it (Neupert 1996). Today, about 35% of Mongolia's working population is dependent on herding for a substantial part of their livelihoods (MNET 2010). The distribution of rainfall across Mongolia is extremely variable, making nomadic livestock production an efficient means of exploiting these highly variable resources. The vast majority of the country's 32 million head of livestock graze in the grasslands of the steppe, which occupy about 70% of the country's area (Fernandez-Gimenez 1999; MNET 2010). Nomadic pastoralism also takes place in the desert and among the forested ranges and high mountain pastures – the home of the Dukha reindeer herders.

Pastoralism now faces many challenges. The transformation of Mongolia to a market economy in the 1990s combined with a decline in industrial employment, forced many Mongolians to take up pastoralism. Eight million livestock were added to Mongolia's pastures during the 1990s, significantly affecting traditional herding practises and the dynamics with the environment (Reinert 2004). Land degradation is a major problem for the country's grasslands, although other biomes are less affected (Sternberg 2007; MNET 2010). At the same time, Mongolia's climate is becoming warmer. Between 1940 and 2008 the annual mean air temperature has increased by 2.14°C. The frequency of extreme high temperatures has grown and drought has intensified in the country, especially since the 1990s (MNET 2010). Extreme events such as droughts and sand storms are at their highest frequency in living memory (Marin 2010). Seven out of the 10 most disastrous droughts and extreme winter events (*dzuds*) recorded since 1940 have occurred since 2000 (MNET 2010), resulting in widespread livestock deaths.



Map by Riccardo Pravettoni.

A herding family in Bodaibo district of Irkutsk crossing area destroyed by gold mining. Photo by Konstantin Klokov.

HERDING IN THE TAIGA

Taiga reindeer husbandry is a unique, ancient, and poorly understood form of reindeer husbandry that is still practiced today in parts of Russia, China and Mongolia. This form of husbandry is practised in the transition belt of subarctic evergreen forest and alpine tundra between the Arctic tundra and the drier Inner Asian steppes in what is referred to as the South Siberian-Mongolian reindeer-herding complex. It represents the southernmost extreme of reindeer husbandry in the world (Donahoe 2003).

In Russia, it is practiced by the Evenki, Even, Tofa, Soyot, Ul'ta (Orok), Todji-Tuva, Ket, Selkup, and Negidal peoples. In China, it is practiced by a fraction of the 30,000 Evenks in the Inner Mongolia Autonomous Region. In Mongolia, the Dukha are the country's only reindeer herders (Ragagnin 2006). The Dukha are closely related to the Todji-Tuvas and Soyots, neighboring peoples on the Russian side of the border.

Taiga reindeer herders, including the Dukhas, have been likened to hunter-gatherers, rather than true pastoralists (Donahoe 2003) because hunting wild meat has played as important a role in their livelihoods as herding. The focus of herding is rarely on the production of reindeer meat for consumption, as is commonly the case in the tundra. Instead, small herds of reindeer are raised mainly for transportation and the production of milk. Due to richer pastures and more abundant food, the reindeer are larger and tamer than their tundra cousins, making them ideal for riding and pack animals (Baskin 1986). Taiga herding is also characterized by short migration routes in forested or mountainous areas (ICR 2009). Typically, the whole family is engaged in husbandry activities in the traditional model of family-based reindeer husbandry common to all indigenous reindeer herding cultures in the taiga and tundra. In many ways this represents the foundation of reindeer herding.

The taiga reindeer herders of Russia, Mongolia and China face a number of common challenges and an uncertain future. One estimate puts the total number of people actively engaged in taiga reindeer husbandry at fewer than 1000 people (Donahoe 2003), located in isolated pockets with a few hundred reindeer each. In some areas where reindeer husbandry used to be common it has disappeared completely, for example among the Soyot herds of the Republic of Buryatia (Jernsletten and Klokov 2002).

The socio-economic changes associated with the transition from socialism to a market economy have been particularly challenging. In most taiga areas, hunting has become more difficult due to stricter regulations following widespread poaching. A growing need for cash and a desire to have access to health care and education has reduced mobility and resulted in increased exposure of reindeer to livestock diseases. In some areas, habitat fragmentation caused by mineral extraction, pipelines, forestry activities, and land privatization have limited access to and/or quality of pastures, migration routes, and hunting possibilities. As small minorities, these indigenous peoples also face assimilation into the dominant Russian, Mongolian and Chinese cultures, and risk losing their language and identity (Donahoe 2003).

Taiga reindeer husbandry is still poorly understood by the scientific community and policymakers, which has led to some well-intentioned but failed attempts to transplant the tundra model to a taiga setting (Baskin 1986). Renewed research and efforts to understand the unique system of taiga reindeer husbandry are critically needed to address the challenges of this unique livelihood in the Eurasian taiga.

THE DUKHA OF MONGOLIA

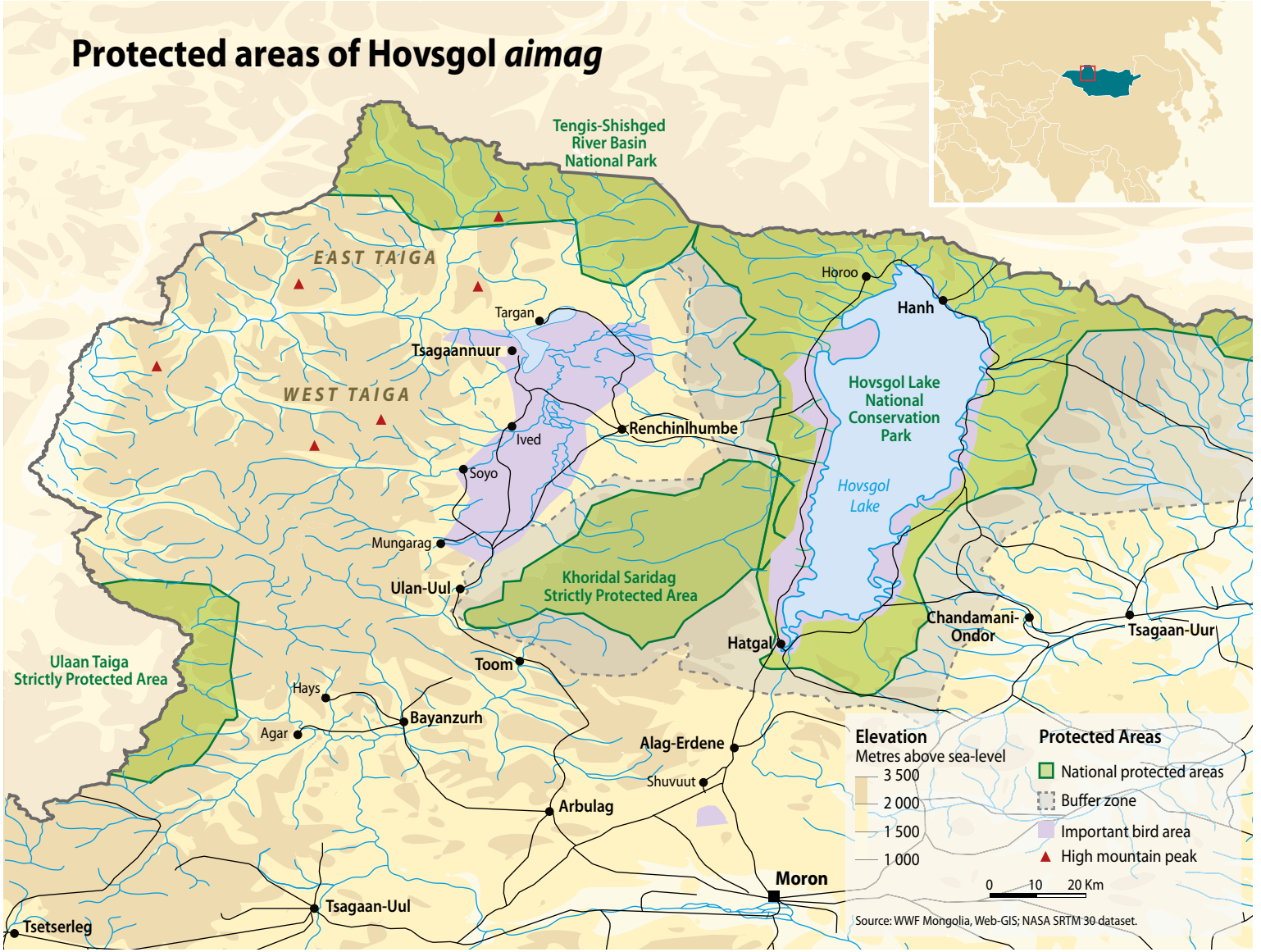
The Dukha people include about 200 nomadic reindeer herders (who call themselves the taiga people), and some 300 people that have adopted a more settled lifestyle in the *sum* (district) centre. About 40 reindeer herding families, divided in two communities, live in the forested region north of Tsagaannuur *sum*. About 1000 reindeer occupy the West Taiga, while there are only 300 in the East Taiga (Kristensen 2011). A herding family typically owns 20 to 150 reindeer, although some own as few as five animals.

Reindeer play a central role in the Dukha's social and spiritual traditions (Kristensen 2004; Keay 2008). The Dukha follow a unique and endangered shamanistic tradition (Kristensen 2004; Kristensen 2007; UNHCR 2010). Rarely is a reindeer slaughtered for consumption. Normally animals are only killed when they are too old to be used for breeding or transportation or in times of starvation. As in other taiga reindeer cultures, hunting is of primary importance for protein (Inamura 2005). Dairy products from reindeer, including milk and cheese, also form an important part of the herders' diet. The Dukha use male (castrated and intact) reindeer as pack and riding animals for hunting, collecting firewood, seasonal migrations, visiting relatives and friends, and travelling to the *sum* centre for shopping and trade (Inamura 2005). The skin and fur of reindeer are also used for making winter coats, bags, ritual paraphernalia, shoes and robes. Handicrafts are made from the antlers.

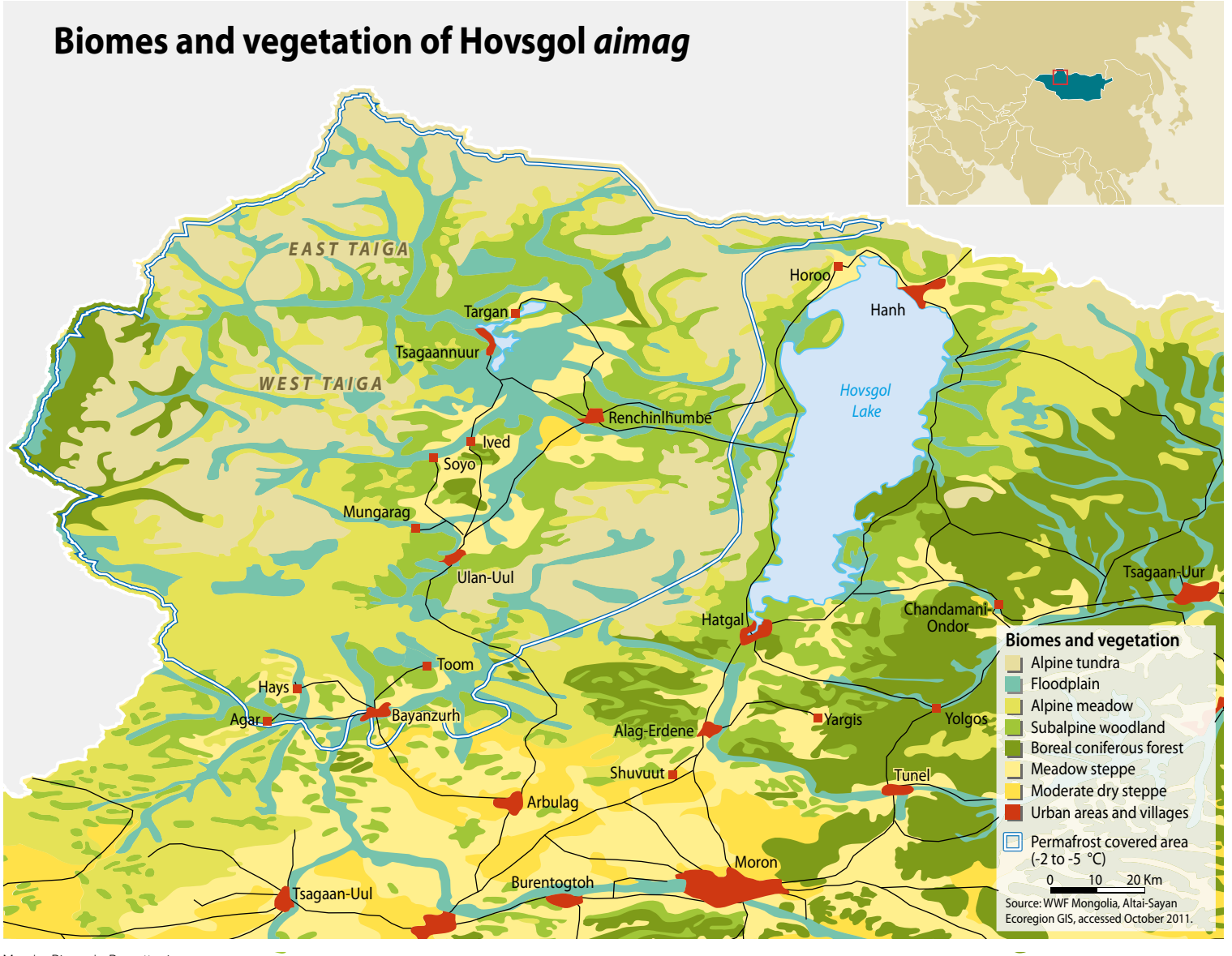
Reindeer herding represents a livelihood and lifestyle that is tightly coupled with the local ecosystem. The herding cycle is divided into four main seasons. The movement of the herds and herders ranges over an area of 20,000 km^2, and is determined by the seasonal availability of resources, weather and predation. Most camp locations lie between 1,850 and 2,100 metres above sea level (Haigh and Keay 2006). Reindeer calves are born in April and May in spring pastures that are sheltered from the harsh wind. Around mid-June, herding families move to summer camps at higher altitudes where there are open grasslands, fewer insects and cooler temperatures. In September, the families move to autumn pastures at lower altitudes, where young male reindeer, selected as riding or pack animals, are castrated before mating starts in late September/early October. During winter the bulls and female reindeer are let loose, while the castrates are kept in the camps. In winter, herders traditionally settle in the forest where the herd is sheltered from freezing winds, and reindeer feed on lichen, sedges, and other vegetation they dig from under the snow with their hooves. Herders prefer winters with deep snow (60-120 cm) and cold temperatures (minus 40-60°C), conditions that allow reindeer to move freely but reduce the risk of wolf attacks.

Dukha reindeer husbandry engages the whole family, ensuring that knowledge is passed from one generation to the next. Traditionally the men hunt and collect firewood. Women milk the female reindeer, prepare food, and take care of the herd while the men are away. Children help with different activities according to age. The herding families live in remote areas, far from the *sum* centre. Though some winter pastures are accessible by car, many summer pastures are two hours by car and then six hours by horseback from Tsagaannuur *sum* centre. Some places in the taiga have mobile phone coverage, and many camps have solar panels that power a television. Most camps have a short-wave radio for communicating with the *sum* centre in case of emergency or for daily exchange of news.

Reindeer herders live in canvas tents called *ortz*, though some families stay in permanent wooden houses in their winter pasture area. Over the last 50 years, Dukha children have been offered primary education in Tsagaannuur. During winter most families move into *gers* (round tents) in Tsagaannuur *sum* centre to take care of their school children, while families without children stay in the taiga to tend all the reindeer. In the East Taiga about 10 families spend the whole winter in the taiga.



Map by Riccardo Pravettoni.



Map by Riccardo Pravettoni.

PASTURES AND ECOSYSTEMS

The taiga, also known as the boreal forest, is the world's largest biome, forming an almost continuous cover of coniferous forests in subarctic North America and Eurasia.

Mongolia's taiga is located at the southern edge of the biome in Eurasia. It is also the most southerly location of reindeer husbandry in the world. Mongolian reindeer husbandry occurs within the Shishged River watershed of the Altai-Sayan, the largest mountain range in southern Siberia. Straddling the Republic of Tuva on the Russian/Mongolian border, it is recognized as an area of global importance for terrestrial biodiversity (Clark *et al.* 2006; Reading *et al.* 2006; Wingard and Zahler 2006; WWF 2010).

The sparsely populated watershed provides large areas of intact and continuous taiga and tundra habitat. It is dominated by three main vegetation zones – tundra rich in lichen and low shrubs, forest steppe and taiga dominated by tree species like the Siberian larch (*Larix sibirica*), Siberian pine (*Pinus sibirica*) and the nationally threatened Siberian fir (*Abies sibirica*). The watershed also provides a refuge for a number of rare and globally-endangered fauna, including the wild reindeer (*Rangifer tarandus valentinae*), a species protected as very rare in Mongolia, the globally endangered snow leopard (*Panthera uncia*), the globally vulnerable musk deer (*Moschus moschiferus*), as well as the brown bear (*Ursus arctos*), elk (*Cervus elaphus*), moose (*Alces alces*), wolverine (*Gulo gulo*), and forest sable (*Martes zibellina*) (WWF 2010). Bear, sable, elk, moose, wild reindeer and other species are traditionally hunted by the Dukha.

Mongolia has made a number of international commitments to protect its biodiversity, including ratifying all major international biodiversity conventions. As of 2009, protected areas covered 14% of Mongolia, and the country had set a target to protect 30% of the territory before 2015 (WWF 2010). However, according to an assessment by the World Wildlife Fund (WWF 2010), there appears to be little capacity to manage and enforce measures effectively in protected areas across Mongolia. The country's ecosystems and biodiversity, and thereby the livelihoods that depend directly upon these, are under considerable pressure from livestock land use practices, mining development, hunting, rapid urban expansion and climate change. In Hovsgol province, the most evident threats are illegal hunting, artisanal mining and logging.

In April 2011, the Mongolian Parliament designated the Tengis-Shishged River basin as a National Park (IUCN category II), covering parts of the Tsagaannuur, Renchinglkhumbe and Ulaan-Uul *sums* of Hovsgol *aimag* (WWF Mongolia 2011). These newly-designated areas include the traditional spring and autumn camps and important migration areas of the East Taiga reindeer herders.

Two community partnerships have been established within the reindeer herding area of the East Taiga. These community partnerships are voluntary associations of local residents for protecting biological diversity and preserving the land's ecological balance. According to the herders these partnerships are not active and their benefits are unclear.

The immediate impact of biodiversity conservation measures has been restrictions on hunting, which is of primary importance to the Dukha. However, the extent to which the newly designated national park will be beneficial or detrimental is unclear to the herders. As a culture tightly-coupled with the taiga environment, Dukha reindeer husbandry has played a significant role in shaping the environment and conserving the unique biodiversity surrounding them. It is important that any protected area regulations or community partnerships take full account of the Dukha's needs and rights to access to their traditional pasture grounds and migration routes.

Boys and girls learn to ride reindeer while they are very young. This six-year-old helps herd the reindeer into the camp in the afternoon. Photo by Lawrence Hislop.

During summer women milk the female reindeer twice a day. They use the milk in tea and biscuits, and to make cheese and yoghurt. Photo by Lawrence Hislop.

TRANSITIONS AND UPHEAVALS

Despite the changing political landscape of Mongolia over the last hundred years, the traditional reindeer herding system has been maintained. Nevertheless, recent political and economic transitions and upheavals have altered the Dukha community's way of life and relationship with their natural environment and the herders now face an uncertain future.

It is likely that the ancestors of the modern-day Dukha have been present in what is now the border region between Mongolia and Russia for several centuries, if not millennia (Battulga *et al.* 2003). Until the early to mid-20th century, reindeer herders moved freely between modern-day Mongolia and the Tuva Republic (Russian Federation). The Dukha and Todzhi of Tuva are closely related, reflecting their shared history (Ragagnin 2006). Free movement across the border was stopped when Tuva was annexed to the Soviet Union in 1944 (Inamura 2005).

The establishment of collective agricultural cooperatives (*negdel*) throughout Mongolia gained momentum in the 1950s (Inamura 2005), during which two *negdel* were created for reindeer husbandry in Hovsgol *aimag*. Under the *negdel*, herders could no longer trade reindeer and their products but received salaries as workers. Hunting was also tightly controlled. Each *negdel* had access to a *sum* centre with free public services such as veterinary care, health care and education – which generally improved living standards for the Dukha. Those families not working for the *negdel* settled in the *sum* centre where they were employed in logging or fishing enterprises and their children could attend school (Inamura 2005).

Under the *negdel*, the number of reindeer per herder family grew significantly. The purpose of reindeer husbandry shifted to the growing and harvesting of soft antlers (also called velvet antlers) for use in traditional Asian medicine (Kawtikwar *et al.* 2010). Reindeer numbers increased steadily until 1978, when the government made a decision that reindeer herding was economically unviable and slaughtered half the stock for food (Inamura 2005). During the 1980s, all reindeer husbandry in the newly established Tsagaannuur *sum* was merged into a national enterprise for "reindeer breeding and hunting" (Battulga and Tsogsaikhan 2002). By 1990 the number of reindeer had rebounded to 1000 animals (Inamura 2005).

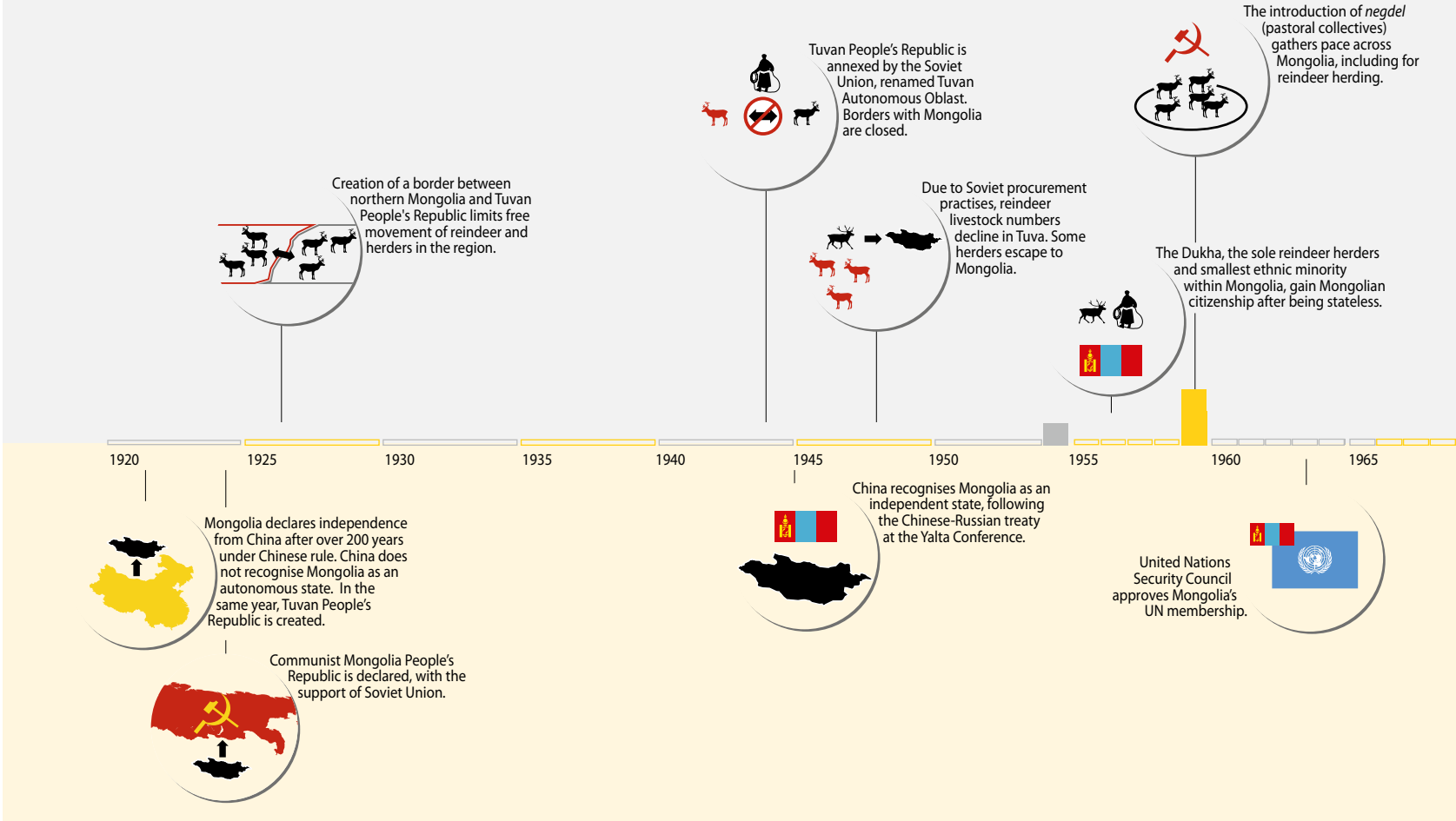
Following adoption of a market-based economy and democracy in 1990, pastoralism in Mongolia was gradually de-collectivized (Upton 2009) and went through a process of de-industrialization (Reinert 2004; Luvsanjamts and Söderberg 2005). As economic conditions in Mongolia worsened and unemployment rates rose in the early 1990s, the number of pastoralists across the country increased as those formerly employed in urban areas returned to herding. Herders were encouraged to increase their herd sizes, notably the number of cashmere goats, leading to rapid build up in herd sizes and increased pressure on pasture resources.

During this period, traditional hunting and fishing practises took on renewed importance for the Dukha. To secure income, the Dukha continued to collect velvet antlers and hunt wild animals for their pelts, with products now being sold on the illegal market. From the late 1990s tourism and sales of engraved reindeer antlers also became an important source of income for some taiga families.

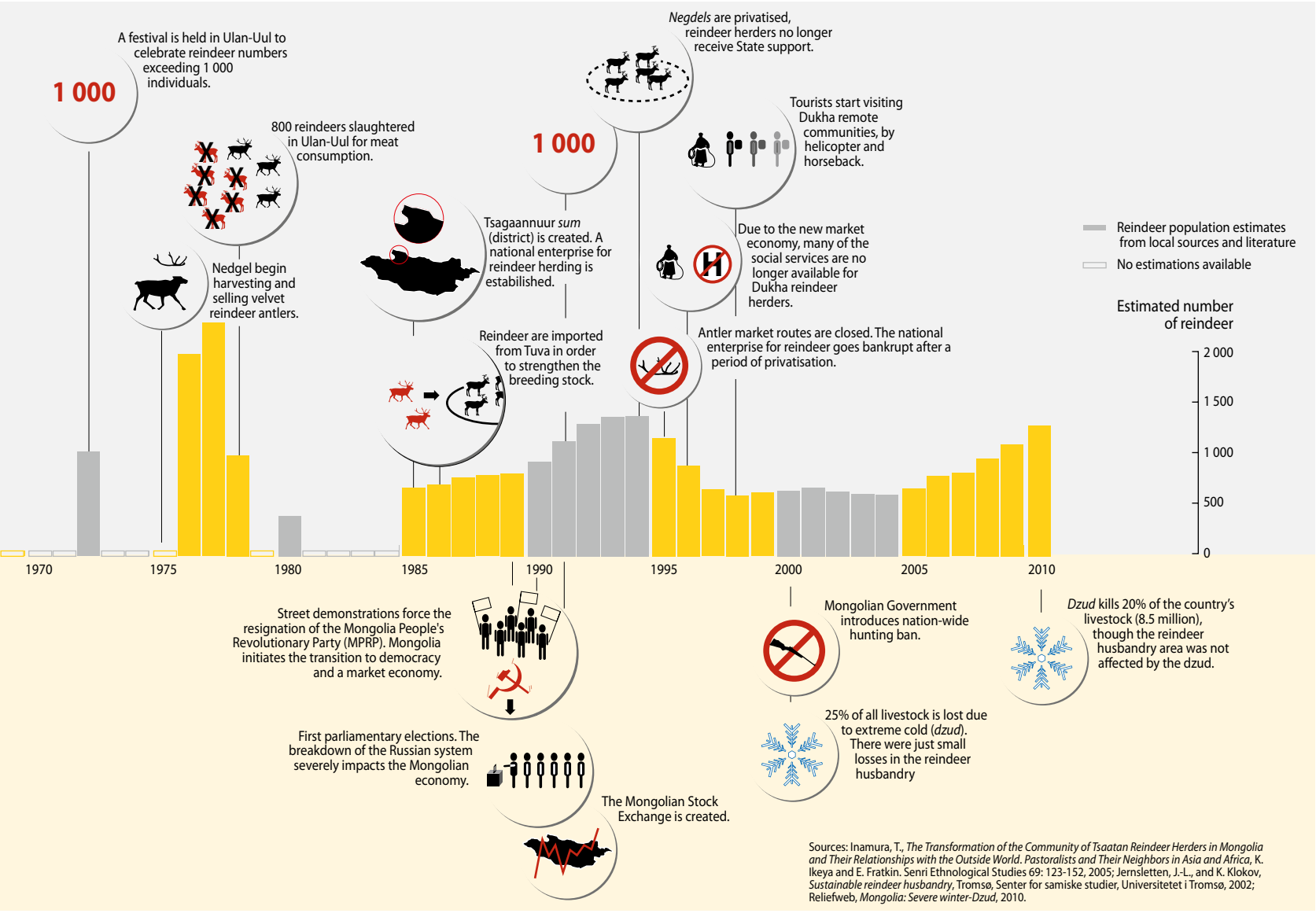
However, the traditional system of reindeer herding was maintained. Dukha herders that had worked for the *negdel* had continued to organize their camps according to traditional family and kinship ties. Even after 30 years of collectivization indigenous knowledge about seasonal migration, hunting and various methods of reindeer husbandry was maintained for the next generation of herders (Inamura 2005). Today, the Dukha reindeer herders in Mongolia face a difficult future, with many challenges related to their precarious socio-economic position as reindeer herders struggling to find a place in a market economy.

Many Dukha reindeer herders have a television and solar panels. Photo by Lawrence Hislop.

Reindeer husbandry and political changes in Mongolia - A short history



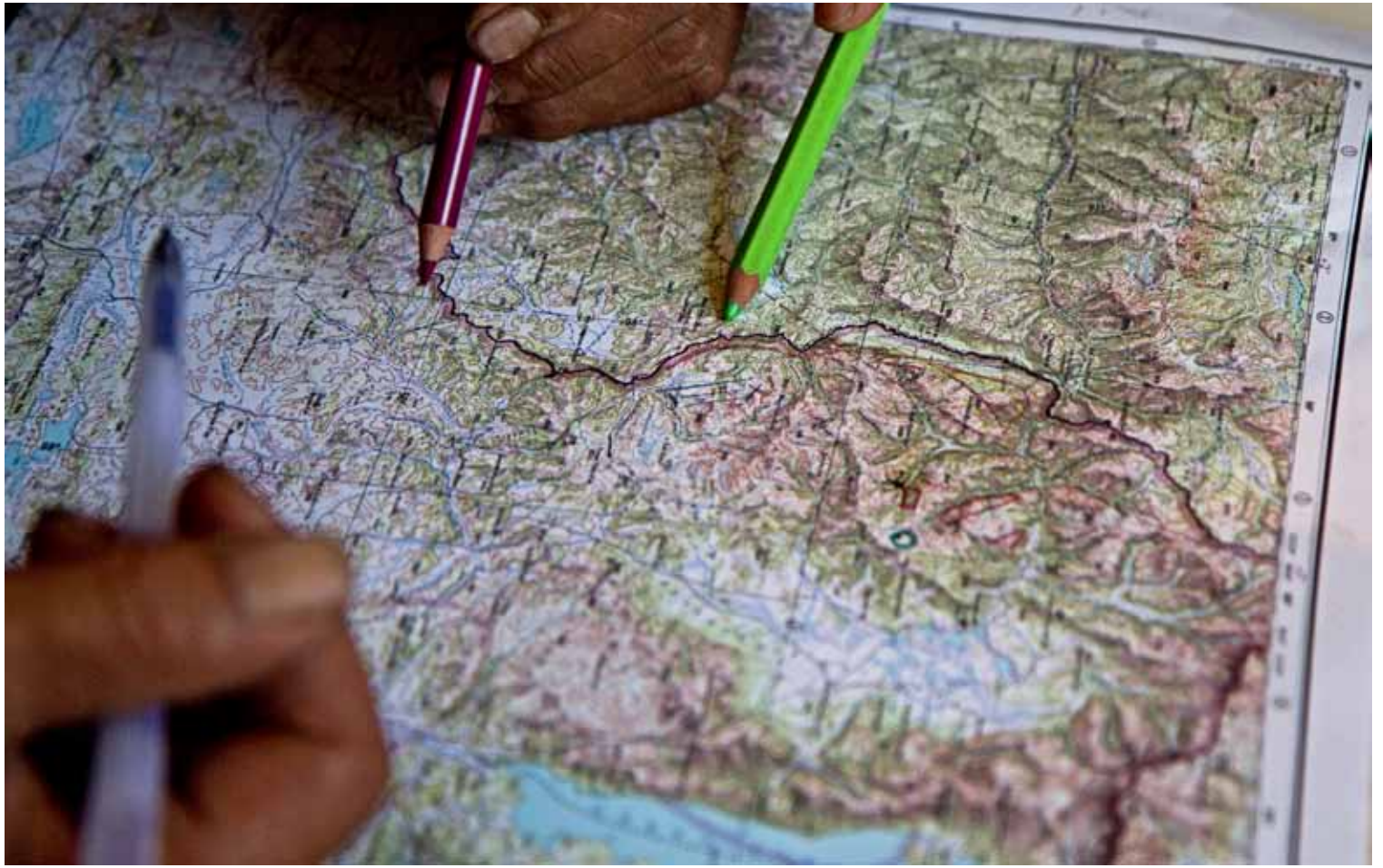
Map by Riccardo Pravettoni.



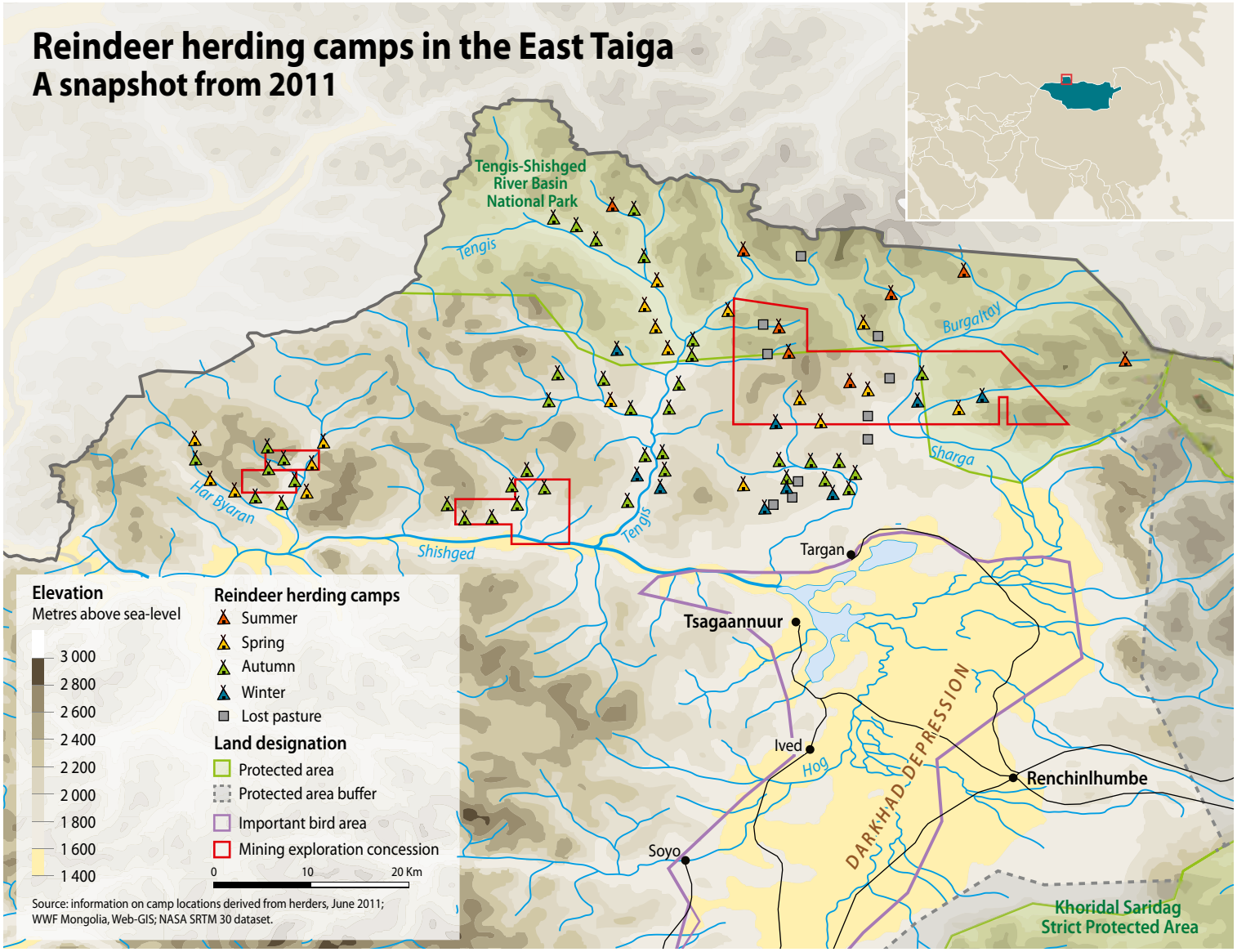
Sources: Inamura, T., *The Transformation of the Community of Tsaatan Reindeer Herders in Mongolia and Their Relationships with the Outside World. Pastoralists and Their Neighbors in Asia and Africa*, K. Ikeya and E. Fratkin. Senri Ethnological Studies 69: 123-152, 2005; Jernsletten, J.-L., and K. Klokov, *Sustainable reindeer husbandry*, Tromsø, Senter for samiske studier, Universitetet i Tromsø, 2002; Reliefweb, *Mongolia: Severe winter-Dzud*, 2010.

Tsagaannuur *sum* centre. Photo by Lawrence Hislop.

During winter most herding families stay in the *sum* centre so their children can attend school. Photo by Lawrence Hislop.



Mapping reindeer pastures and migration routes. Photo by Riccardo Pravettoni.



Map by Riccardo Pravettoni.

Discussing land use change in the reindeer herders homeland at the Tsaatan Community and Visitors Centre in Tsagaannuur *sum*. Photo by Lawrence Hislop.

TODAY'S CHALLENGES

As part of a field study in the taiga in June 2011, Dukha reindeer herders from both the East and the West Taiga were asked to identify current challenges for ensuring a sustainable future for reindeer husbandry. The challenges they identified are outlined below.

Herd size and structure: There is a common consensus that increasing the number of reindeer in their herds is vital for securing the future of reindeer husbandry in Mongolia. Current herd sizes are very small. Herders explain that with a herd of 50 reindeer per family, they would have enough pack animals to travel long distances and predation and extreme weather events would have a smaller impact. Larger numbers would allow them to slaughter sick animals and occasionally animals for meat in times of food scarcity. On the other hand, promoting larger herd sizes could potentially affect the Dukha traditional way of life.

However, herding families have adopted new migration patterns in order to stay closer to the *sum* centre due to their need for income and services. These migration patterns are not beneficial for larger herds, as the summer pastures are less nutritious and warmer than pastures found elsewhere, factors which have negatively affected reindeer health.

Reindeer health: In recent years, herders have observed more ticks and other parasites on their reindeer, horses, and dogs, as well as on themselves. Recently a disease that causes sudden death of reindeer and cases of fever, lethargy, and pale mucous membranes has been reported. Clinical results indicate a high prevalence of *Anaplasma ovis* in the herds and an association with a clinical disease that is likely to be anaplasmosis, which might be spread through ticks (Haigh *et al.* 2008). Anaplasmosis is a disease commonly associated with goats, sheep and cattle and causes extreme anemia and wasting.

In 2004, a study demonstrated an infection rate of 25% within reindeer herds of the bacterial disease caused by *Brucella* (a bacteria that causes fever and abortion in cattle and domestic livestock) (Itgel Foundation 2010). Calf mortality is high and remains a significant challenge for the sustainability of the Duhka reindeer herds. Herders believe that the increased prevalence of disease in their herds could be a result of climate change, altered mobility and migration patterns and/or the transfer of diseases from livestock encountered in the increased travel between taiga and steppe. Only sporadic medical and veterinary treatment is available in the taiga due to difficult access.

There are conflicting ideas among the herders about whether inbreeding is a problem in the current herds. Some are worried about health impacts of inbreeding given the small size of the herds, and their complete segregation from other reindeer in the wider region since the 1940s. There is also disagreement among scientists on the evidence for inbreeding and if this is a problem (Røed *et al.* 2006; National Geographic News 2010).

Taiga tourism: Guided tours to the reindeer herders are an established tourist attraction promoted by national and international tourism companies. In the West Taiga, tourists stay in tourist camps established beside the Shishged River, outside the summer pasture area. Herders from Camp 1 in the East Taiga prefer pastures close to the sum centre from May to September so that their camps are easily accessible to tourists. Apart from sporadic income from selling souvenirs of carved antlers, other handicrafts, or homemade bread, the herders are generally not part of the tourist value chain. Although staying in one pasture for a long period can negatively affect reindeer health, herders feel they have no choice as they are dependent on the income from tourists (see also FAO 2007). This way tourism provides both a threat and an opportunity for the taiga people.

With assistance from the Itgel Foundation, an American/Mongolian non-governmental organization created to protect Mongolian culture and environment, the reindeer herders have built the Tsaatan Community and Visitors Centre in the Tsagaannuur

sum centre. The Visitors Centre is owned and operated by the Dukha community and provides information, transportation and tour guide services to the taiga. It also sells Dukha handicrafts. The Centre has established a community fund, which receives 60% of the revenue generated from the sales (USAID Mongolia 2007). Though there is potential for the centre, it has not yet generated the expected levels of income for the herders' community. According to the herders, there have also been some managerial challenges. Instead of using the Visitors Centre, most tourists organize their trips through commercial companies in Tsagaannuur. Usually there is little or no coordination with the herders themselves.

Competition for land: Mining is both an opportunity for increased income and a threat for the people living in the taiga. Herders in the West Taiga are worried about illegal mining on their pastureland, and have stopped using certain pastures due to artisanal mining for gold, as well as green and white jade. The mines and extraction activities, which involve 35,000-40,000 people across Mongolia (Jargalsaikhan 2010), contaminate pastures with chemicals and disrupt migration patterns (FAO 2007). The "ninja" miners cut the forest for fuel to melt the permafrost, causing both deforestation and forest fires (World Bank 2006; Johnsen 2010). Because these are remote sites, accessible only by horseback, it is challenging for the authorities to regulate these activities.

Another form of land competition is the selling of exclusive rights to take tourists to specific sites. For example, herders in the East Taiga explained that the local government in Tsagaannuur had recently sold a tourist company exclusive fishing rights for a lake in their autumn pastures. The herders are worried that this will disturb their herds and limit their access to fish.

Hunting restrictions: Herders from both the East and the West Taiga explained that current hunting laws have had a significant negative impact on their food security and traditional way of living. Increasing national and international concerns about wildlife populations have led to the introduction of stricter hunting laws and expensive permits. The Mongolian Law on Hunting was adopted in 1995 (and updated in 2000 and 2010). It grants protection to certain species and regulates hunting of other species through permits, fees, closed seasons, and banned hunting methods (Batjargal 1996). By restricting, if not completely prohibiting, their traditional hunting practices (Minority Rights Group International 2007), these and other policies are jeopardizing an important source of income and the traditional Dukha game-based diet. It is argued however, that with larger reindeer herds the families would be less dependent on illegal hunting for income generation (Tsogsaikhan 2011).

Political and cultural recognition: The Dukha have no community members in elected positions at any level of government (Minority Rights Group International 6th July 2011). They have limited access to legal council and information about civil and human rights and have no formal ownership of the taiga – factors which make them vulnerable to exclusion and exploitation (Keay 2008). In 2011, the United Nations High Commissioner for Refugees reported that the Dukha people face widespread societal and institutional discrimination and human rights violations within Mongolian society (Minority Rights Group International 2011).

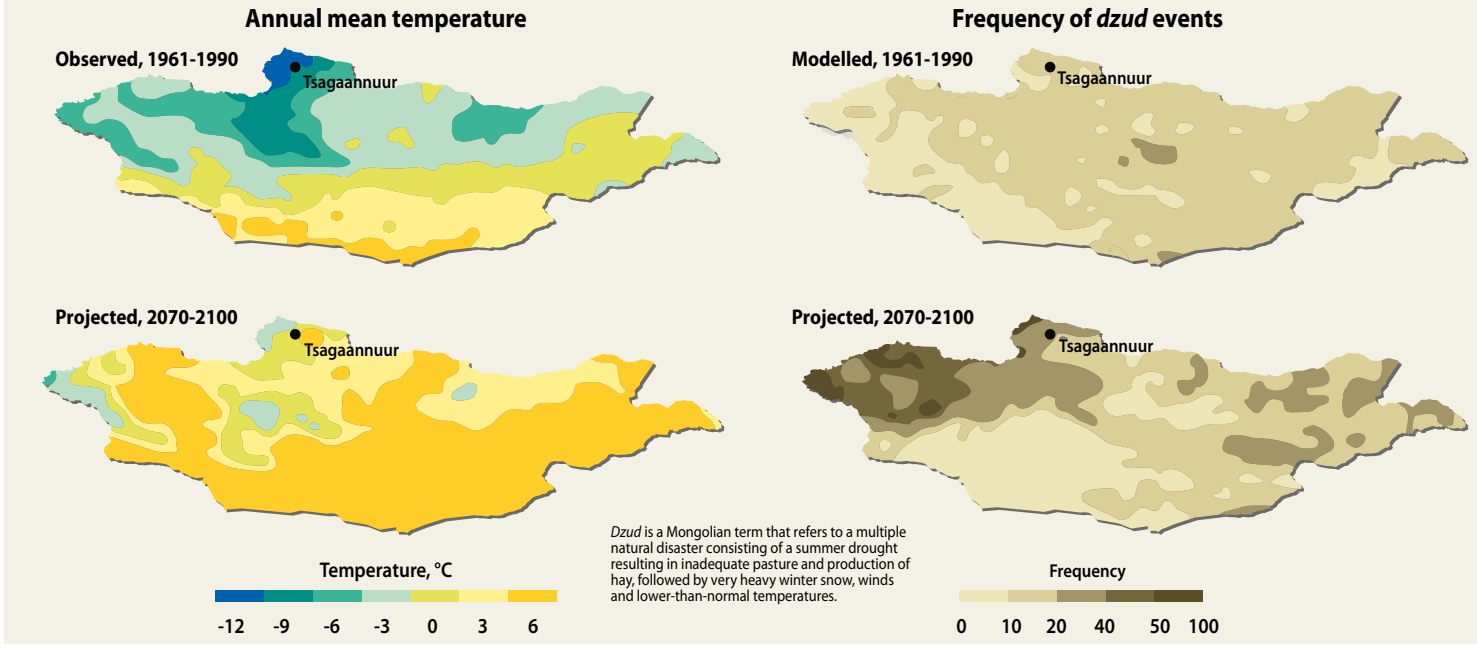
The UNESCO Red Book on Endangered Languages lists the "Mongolian Reindeer Tuvan" language as seriously threatened (UNESCO 1999). In 2005, the Mongolian government adopted a Tuva Language Study Programme aimed at supporting efforts to preserve the Dukha cultural heritage (Minority Rights Group International 2007). The administration in Tsagaannuur has also promised Tuvan language training for school children. However, as of 2011 Dukha children have not been offered any training in their native language. Reindeer herders interviewed argued that teaching their

children the Tuvan language is essential to preserving the traditional knowledge of the reindeer herding culture and ensuring the recruitment of the next generation of herders.

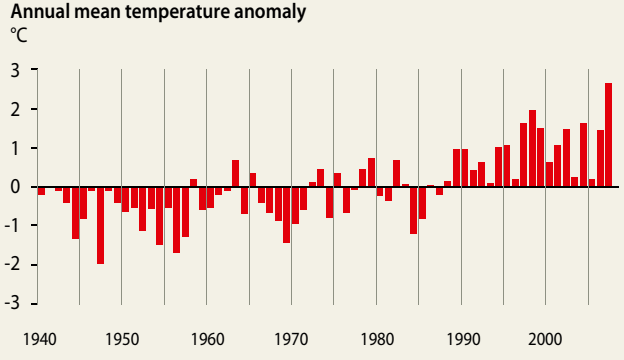
Environmental and climate change: Herders from both the East and the West Taiga are concerned about the environmental changes that are taking place in their homeland. They report that snow seems to take longer to melt during springtime. Summers seem shorter and hotter, making it more challenging for the reindeer that prefer cooler temperatures. Patches of snow and ice that used to last through summer are now disappearing in mid-July. The rivers have less water and the soil is dryer. There are fewer mushrooms and flies. This is supported by the Environmental Inspector in Tsagaannuur *sum*, who has also noticed decreasing water flow in the region's rivers.

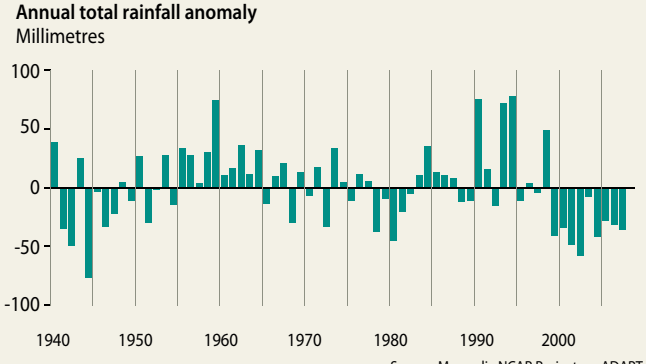
Herders note that autumn seems colder and longer. The winters are generally colder and have more snow, though 2011 had little snow compared to other years. Herders were not concerned about *dzuds*, or extreme winter weather conditions, as reindeer are well adapted to cold winds and deep snow. The herders sometimes experience frozen pastures (as in August 2009). While frozen pastures are a disaster to tundra reindeer husbandry, the taiga herders can find alternative pastures in forests sheltered by the surrounding mountains. However, predicted climate warming in Mongolia (Gomboluudev 2008) could mean more frequent icing of pastures, difficult years with reduced production, and more insects. When summers are hot and there are no snow patches, reindeer have nowhere to escape from insects, which can compromise the physical condition of animals (Hagemoen and Reimers 2002).

Climate change in Mongolia



Dzud is a Mongolian term that refers to a multiple natural disaster consisting of a summer drought resulting in inadequate pasture and production of hay, followed by very heavy winter snow, winds and lower-than-normal temperatures.

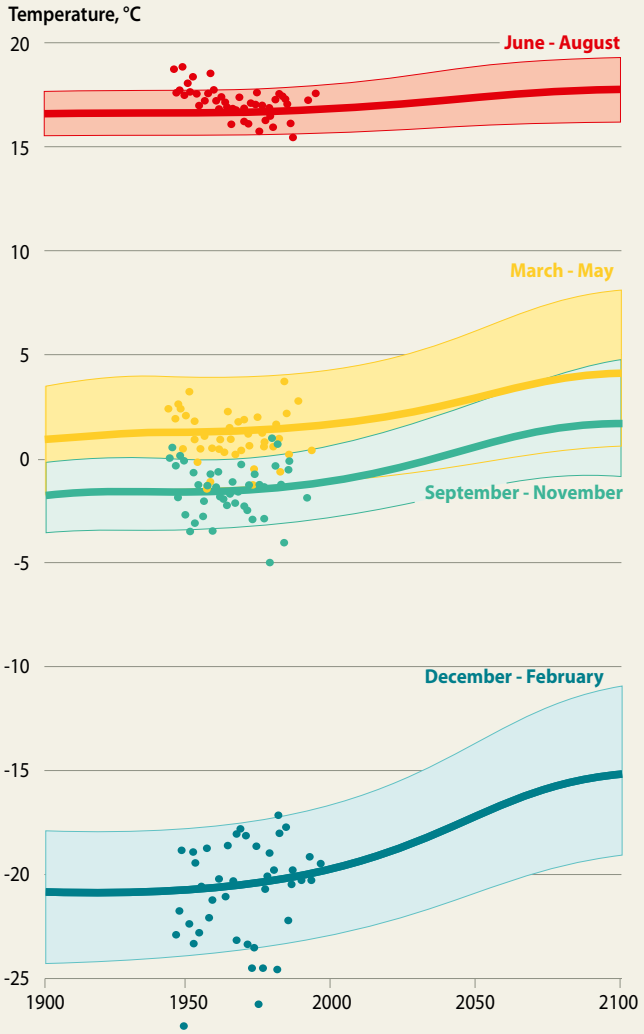




Source: Mongolia NCAP Project, weADAPT; World Bank.

Map by Riccardo Pravettoni.

Observed and predicted seasonal temperatures in northwest Mongolia



Modelled temperatures

Observed temperatures

The best available knowledge on local-level climate change scenarios up to year 2100 in Hovsgol province is derived from Moron, located 500 km south of Tsagaannuur *sum* centre. Using statistical downscaling, these figures show the observed (dot) and modelled (solid line) local temperatures for the period 1900-2100 across the four seasons.

In Moron the temperature is expected to rise approximately 5 - 7 °C during December - February up to 2100. During summer a 2 - 4 °C warming is expected. The range of uncertainty (shaded area) arises from differences between several global climate models, which each give different accounts of natural variations and have different

Source: Benestad, R. E., *A new global set of downscaled temperature scenarios*, Journal of Climate, American Meteorological Society, 2011.

Map by Riccardo Pravettoni.

The herders' main concern is growing the size of their herds to a minimum of 50 heads per family. Photo by Lawrence Hislop.

Calf mortality is high and remains a significant challenge for the sustainability of the Dukha reindeer herds. Photo by Lawrence Hislop.

Discussing reindeer husbandry and resource use in the East Taiga. Photo by Lawrence Hislop.

Mapping out the challenges and opportunities for reindeer husbandry in the West Taiga. Photo by Lawrence Hislop.

Selling carvings to tourists provides an important income for the reindeer herders. Photo by Ellen Bals.

Cheese and other dairy products from reindeer form an important part of the herders' diet. Photo by Ellen Bals.

The reindeer herders argue that teaching the Tuvan language to children is essential for preserving their traditional knowledge. Photo by Lawrence Hislop.

PORTRAITS

Gombo	//	HUNTING
Zaya and Ultsan	//	HEALTH
Tungalag and Ulzii	//	TOURISM

HUNTING

Gombo is a respected elder in the East Taiga. He was born in Tuva Republic in 1947 and moved to the East Taiga with his family as a baby. They gathered nuts, berries and other plants for food and medicine, and hunted game for meat and skins.

His parents had just a few reindeer for transportation and milk. When he turned 10, his father started teaching him how to hunt and respect the wild animals and their habitats. Hunting was an art performed by a few chosen men, and practiced with respect for wildlife. Gombo explains that he was not allowed to hunt until the elders had confidence in him.

Hunting and trapping were seasonal and involved rules embedded in shamanic tradition. No hunting took place in spring, when the animals were giving birth. During autumn, the men hunted for a supply of meat for the coming winter. They took the bigger and older animals, and never eradicated a herd. Animals with special colours, for example a white wild reindeer, would not be shot. If the hunt was successful, the meat and skins were distributed to families in the camp according to age hierarchy and family needs. In winter the men hunted for skins. Gombo recalls the taiga people traded with Mongolian people – exchanging extra skins for other goods.

"It was only in 1956 that the Dukha people were officially registered as Mongolian citizens," Gombo explains. With his citizenship, Gombo started going to school and learned to read and write the Mongolian language. At the same time, the reindeer were collectivized and owned by the Mongolian government and hunting restrictions were enforced. "The taiga people were instructed to increase the number of reindeer and reduce time spent on hunting," Gombo says. People were given salaries to buy the food that was no longer provided by hunting and there was an overall increase in wild animals in the region.

"With the end of the Mongolian Communist regime, reindeer were privatized and the state no longer supported the reindeer herders with salaries," Gombo explains. He recalls that 1994 to 2000 was a period of extreme scarcity for the taiga people. People went back to the traditional way of combining reindeer husbandry and hunting.

Hunting was again legal but the attitude towards nature and wild animals had changed. "For more than a generation hunting had not been part of the herders' livelihood and indigenous knowledge had not been transferred from the elders to the younger generation," Gombo explains. He says that numerous inexperienced hunters from the reindeer herder community, as well as other unemployed Mongolian people, started hunting to provide meat and income for their families. This had a dramatic effect on the abundance of wild animals.

In 2000, as a measure to preserve numerous endangered species, the Mongolian government adopted new national regulations that made most hunting illegal. Gombo recalls that the taiga people faced a new difficult period. The reindeer could not provide enough food and there were few ways for the herders to earn an income.

Gombo says that he is not against hunting laws but argues that the national ban on hunting does not take into account local differences in species abundance and people's needs. Some people are dependent on subsistence hunting, he says. It is not only that people need the food – hunting and game meat are part of the taiga people's livelihood and traditional culture. He claims that his generation still has traditional knowledge and a respect for nature and that it is possible to transfer this knowledge to the young herders to ensure sustainable hunting that will conserve wildlife. He says the taiga people have to teach their children how to protect their land and culture in these times of transition.

Photo by Riccardo Pravettoni

Gombo argues that the current hunting law does not take into account local differences in species abundance and people's needs.

HEALTH

Zaya and Ultsan are in their mid-20s. Zaya, originally from Ulan Bator, the capital of Mongolia, met Ultsan when she worked as a volunteer in Tsagaannuur *sum* for the Itgel Foundation three and a half years ago. They fell in love and married, and Zaya became a reindeer herder.

More than anything else, Zaya is worried about the health of the taiga people. She is worried that pregnant women do not receive regular medical check-ups, and that the taiga children are smaller than children born in other parts of Mongolia. She is also worried that they do not get enough protein and iron. "In the work of improving the livelihoods of the reindeer herders, this should not be forgotten," Zaya argues. She does not feel that projects targeting the reindeer herders' livelihood have been effective in meeting the taiga people's needs.

Zaya and Ultsan own a few reindeer that are herded with others from families in Camp 1. Some of their reindeer were limping in the summer of 2011, but Ultsan explains that compared to the previous year the reindeer are in better health. The reindeers' joints are troubled by the heat. Ultsan explains that ideally, they should have moved the herd to the summer pastures behind the next mountain where the temperature is cooler, away from the steppe wolves and where the land had not been grazed for the previous four years. But with few rideable reindeer they cannot travel far. They also depend on the income they get from selling carvings to visitors and so they stay where they are easily accessible to the tourists.

Ultsan says that with 50 reindeer they could move wherever they want. "If we could also hunt in the traditional way we would be less dependent on the tourists and life would be very good," he explains and smiles.

Normally a couple receives two male and two female reindeer when they marry to start their own herd. Ultsan explains that if the animals are healthy and the conditions are right, it is possible to increase the herd to 50 animals in six years. Good conditions mean being in the wild, far away from tourists and where there are fewer predators.

Still, Ultsan reckons that with six or seven strong reindeer and two or three horses they could still migrate quite far.

"In 1998 my family had 30 reindeer," Ultsan recalls. They used to slaughter reindeer for special occasions. There were no tourists visiting the taiga and the herders had camps in far places. The summer camps were right by the Russian border. Today the old camps can be recognized by looking for wooden poles from the *ortz* (tents), which the herders have left behind when moving on to a new camp. Taiga people will be able to plot the old camps on a map.

Ultsan explains that the reindeer herders do not have official ownership of the land but feel they have special rights because they are the only people living on the land. The Environmental Inspector in Tsagaannuur has explained how they can establish a community partnership with the *sum* authorities to ensure access to and use of the land and its resources. With a community partnership they could tax the tourists and exclude commercial companies. However, to be a member of a community partnership the herders need an official identity document such as a passport. Taiga people have applied for passports but the process of getting them is slow.

"When we were in town in spring to buy groceries," Zaya says, "we saw a note that the lake is being auctioned away to the highest bidder." She explains that this lake is within the autumn pastures and is an important fishing lake for the taiga people. "We have seen tourists being flown in by helicopter to fish for 30 minutes and then they leave," Zaya says, "and now the fish are declining."

Photo by Ellen Bals

Ultsan and Zaya explain that they have too few rideable reindeer to move to the best pastures.

TOURISM

Tungalag Tuya is in her mid-20s and her husband, Ulzii is in his mid-30s. They have three children – a six-year-old boy, a two-year-old girl and a three-month-old baby girl. Like the rest of the families in Camp 1 in the East Taiga, they are dependent on income generated from tourists that visit their camp from May to September. They explain that they do not interact much with the tourists who seem to be most interested in photographing the reindeer and observing the taiga people. Tungalag explains that most visitors buy carvings of reindeer antlers and behave well, but some show no respect. They photograph people even when they are asked not to.

Tungalag thinks that most tourists come from Asia. They usually come in groups of two to six people, but sometimes there are over 10 in a group. Every year 50–60 visitors come to their camp. Tungalag says that the taiga people have, with the help of the Itgel Foundation, established the Tsaatan Community and Visitors Centre in Tsagaannuur *sum* centre that assists tourists to visit the taiga and reindeer herders' camps. Trips that are organized through the Visitors Centre ensure an income for the taiga communities as they rent out their horses, act as guides, and give the visitors accommodation in vacant *ortz*.

However, few tourists use the services of the Visitors Centre. Most tourists organize their trips through companies located in the larger Mongolian centres, Ulan Bator, Moron and Hatgal, or abroad. In these cases the only money that goes to the taiga communities is what they can make from selling the carvings, Tungalag explains.

In order to accommodate tourists, the families in Camp 1 have altered their migration patterns. They stay longer on the pastures accessible to tourists, only a six- to eight-hour horseback ride from the nearest road.

Tungalag and Ulzii explain that the families in Camp 1 are all related and always migrate together. The families decide as a group when and where to move the camp and their reindeer. It is a priority for Tungalag and Ulzii to increase the size of their reindeer herd. With a bigger herd, they think they could be more independent from the income they earn from tourists. They would migrate further away from Tsagaannuur *sum* centre, to better pastures where there are fewer wolves and less chance of the reindeer contracting diseases.

Tungalag is optimistic about the future of reindeer husbandry. She thinks that as long as there are domesticated reindeer in the taiga, there will be younger taiga people interested in becoming herders.

Photo by Lawrence Hislop

Ulzii tells that in order to accommodate the tourists, herding families have altered their migration patterns.

Participants at a workshop in Tsagaannuur *sum* centre in June 2011 exchange information on reindeer husbandry in Mongolia, Russia and Fennoscandia. Photo by Lawrence Hislop.

Participants at a workshop in Tsagaannuur *sum* centre 22-23 June 2011.

ACKNOWLEDGEMENTS

This publication is based on information gathered during a field trip to the East Taiga and from three workshops in 2010 and 2011 which brought together reindeer herders, scientists, local and national authorities and other stakeholders to identify the environmental, legal, economic, social and political barriers and opportunities for nomadic livelihoods and land use.

Contributors
We would like to give a special thanks to the reindeer herders in Camps 1 and 2 of the East Taiga for hosting the research team in June 2011, for their participation in the community meeting, the time they gave for interviews and discussions, and for laughs and delicious reindeer cheese.

We are grateful to the participants of the community-based workshop in Tsagaannuur *sum* centre (22-23 June 2011) for sharing their knowledge and mapping out the challenges and opportunities for Dukha reindeer husbandry. The participants included Duhka reindeer herders; Ms Myagmarjav, the *sum* Governor; the Tsagaannuur Environmental Inspector (Director of Land Utilization); the Director for the Centre of Reindeer Herding; the Director of the higher meeting of Tsagaannuur *sum*; and Ms Nansalmaa, reindeer disease researcher from the State Veterinarian and Sanitation Laboratory.

We thank Mr Enkhbat, Division Director for Ecologically Clean Technology and Science and the Global Environment Facility (GEF) Focal Point at the Mongolian Ministry of Nature, Environment and Tourism, for supporting our work and hosting a workshop in Ulan Bator in December 2010, where Dukha reindeer herders, reindeer herders from Russia and Norway, Mongolian national and local authorities, scientists and students discussed possibilities for joint work to support the Dukha herders.

We also wish to thank representatives of indigenous pastoralists from around the world and other international participants in the seminar held at the UN Permanent Forum on Indigenous Issues (UNPFII) in New York in May 2011. The seminar gave international perspectives to the challenges and needs of pastoralists to adapt to industrial development and environmental change. Special thanks go to Anna Naikanchina, Member of the UNPFII.

A special thanks to our key partners Tsogtsaikhan Purev and Battulga Solnoi from the Mongolian Ministry of Nature, Environment and Tourism and the Taiga Nature Society for their dedication, advice and logistical support.

Editorial team
Kathrine Ivsett Johnsen, editor in chief, UNEP/GRID-Arendal
Björn Alfthan, UNEP/GRID-Arendal
Tsogtsaikhan Purev, Mongolian Ministry of Nature, Environment and Tourism/Taiga Nature Society
Svein D. Mathiesen, UArctic EALAT Institute at International Centre for Reindeer Husbandry/ Norwegian School of Veterinary Science

Research team and contributing authors
Anders Oskal, International Centre for Reindeer Husbandry
Bair Baldanov, governor of Okinsky district of Buryatia Republic
Björn Alfthan, UNEP/GRID-Arendal
Ellen Bals, BA student at the University of Tromsø/ Sami University College
Ellen Oddveig Hætta, BA student at the Sami University College
Elena Walkeapää, BA student at the University of Nordland
Galina Ivanovna Ignatieva, Advisor for the Deputy of the Parliament of Buryatia Republic
Kathrine Ivsett Johnsen, UNEP/GRID-Arendal
Jamsa Sanzhievich Angarkhaev, herder of Okinsky region, Buryatia
Janet Fernandez Skaalvik, UNEP/GRID-Arendal
Johan Mathis Isaksen Turi, Association of World Reindeer Herders
Lawrence Hislop, UNEP/GRID-Arendal
Mikhail Pogodaev, Association of World Reindeer Herders
Riccardo Pravettoni, UNEP/GRID-Arendal
Svein D. Mathiesen, UArctic EALAT Institute at International Centre for Reindeer Husbandry/ Norwegian School of Veterinary Science
Tina Schoolmeester, UNEP/GRID-Arendal
Vyacheslav Sanzhievich Angarkhaev, yak herder of Okinsky district, Buryatia Republic

Cartographics
Riccardo Pravettoni, UNEP/GRID-Arendal

Copy editing
Leslie Cole, Ottawa, Canada

Photo credits
Lawrence Hislop, UNEP/GRID-Arendal
Riccardo Pravettoni, UNEP/GRID-Arendal
Ellen Bals, International Centre for Reindeer Husbandry
Konstantin Klokov, University of St. Petersburg

List of advisors and reviewers
Benedikte Møller Kristensen, University of Copenhagen
Eva Wiklund, National Union of the Swedish Sami People
Jennifer Gebelein, Florida International University
Jerry Haigh, University of Saskatchewan
Mauri Nieminen, Finnish Game and Fisheries Research Institute
Morgan Keay, Itgel Foundation
Zaya, reindeer herder of the East Taiga, Mongolia

GLOSSARY

Aimag – an administrative sub-division of the Mongolian national territory similar to a province. Mongolia is divided into 21 *aimags*. Each *aimag* is divided into *sums*.

Artisanal mining – a term used to describe activities undertaken by small-scale miners who mine or pan for gold and other minerals. Artisanal miners work independently and are not directly employed by mining companies. According to the worldwide Communities and Small-scale Mining Initiative (CASM), there are 13–20 million men, women and children across 50 developing countries engaged in this activity. In Mongolia, artisanal mining for gold is often referred to as ninja mining.

Brucellosis – a highly contagious disease of cattle, goats, swine, and reindeer. It is caused by the bacteria of the genus *Brucella*.

Collectivization – the process of forming collectives, where property and resources are owned by the community, not individuals.

Dukha – the smallest ethnic minority in Mongolia, living in the northern *aimag* of Hovsgol. They are the only reindeer herders in Mongolia. Herding is an activity which is pursued by about 40% of the Dukha population.

Dzud – a natural disaster resulting from summer drought, combined with heavy, winter snow, which prevents livestock from getting to pastures or from receiving any stored hay. *Dzud* events in the past have resulted in huge losses of livestock.

East Taiga – the reindeer herding area found north and east of the Shishged River within Hovsgol *aimag*.

Forest steppe – a temperate vegetation zone characterized by grasslands interspersed with areas of woodland or forest.

Ger – a circular, domed, portable tent used by pastoralists across Mongolia. It is similar in design to the yurt, used by nomadic peoples across central Asia. *Ger* means home in Mongolian.

Negdel – agricultural cooperatives established in Mongolia under socialist rule in the 1950s.

Ninja miners – term referring to someone who digs small, unauthorized mines or pans for gold in Mongolia.

Oblast – an administrative territorial division in Russia and the former Soviet Union.

Ortz – the traditional canvas tent of the Dukha reindeer herders. The *ortz* design is similar to the *lavvo*, *chum* and *tipi*.

Pastoralism – the practice of raising livestock, mainly in marginal areas where cultivation is not possible and human populations are relatively low.

Reindeer husbandry – the practice of herding and raising semi-domesticated reindeer for their meat, hides, antlers, and milk and for transportation. It is practiced by many different Indigenous Peoples across the Arctic.

Shamanism – a range of beliefs and practices defined by communication with the spiritual world. Shamanistic traditions have existed throughout the world since prehistoric times.

Soyot – Indigenous People of Russia, who live in the Oka region of Buryatia.

Steppe – a vegetation zone characterized by grassland plains without trees.

Sum – an administrative sub-division of Mongolia. The country's 21 *aimags* are divided into 329 *sums*.

Taiga – a subarctic, coniferous forest which forms an almost continuous belt across subarctic North America and Eurasia (also called boreal forest).

Taiga people – the term used by interviewees in this study to describe themselves and to differentiate between Dukha reindeer herders living in the taiga and Dukha people with alternative livelihoods living in *sum* centre or the steppes.

Todji-Tuva – also Tochi or Todzhi. One of the main tribes of the Tuvan people.

Tsaatan – (reindeer people) – a term commonly used by other Mongolians when referring to Dukha reindeer herders.

Tundra – treeless area found in the Arctic, alpine areas and in Antarctica. Tree growth in the tundra is hindered by low temperatures and short growing seasons.

West Taiga – the reindeer herding area south and west of the Shishged River within Hovsgol *aimag*.

Calves are tied during the day and the female reindeer are tied at night, keeping the herd close to the camp and safer from predators. Photo by Riccardo Pravettoni.

REFERENCES

Baskin, L. M. (1986). "Differences in the ecology and behaviour of reindeer populations in the USSR." Rangifer (Special Issue #1): 333-340.

Batjargal, Z. (1996). Biodiversity Conservation Action Plan for Mongolia, Ministry for Nature and the Environment.

Battulga, S. and P. Tsogsaikhan. (2002). Current state of reindeer of Mongolia and their future conservation and breeding management. The 2nd World Reindeer Herders' Congress - Anár 2001. S. Kankaanpää, E. Sara, A. Rybkinet al, Association of World Reindeer Herders.

Battulga, S. *et al.* (2003). "Following the White Stag: The Dukha and Their Struggle for Survival." Cultural Survival Quarterly 23(1).

CBD Secretariat (2010). Pastoralism, Nature Conservation and Development: A Good Practice Guide. Secretariat of the Convention on Biological Diversity. Montreal: 40 + iii pages.

Clark, E. L. *et al.*, Eds. (2006). Summary Conservation Action Plans for Mongolian Mammals. Regional Red List Series Vol. 2. London, Zoological Society of London.

Donahoe, B. (2003). "The Troubled Taiga: Survival on the Move for the Last Nomadic Reindeer Herders of South Siberia, Mongolia, and China." Cultural Survival Quarterly 27(1): 12-22.

Dong, S. *et al.* (2011). "Vulnerability of worldwide pastoralism to global changes and interdisciplinary strategies for sustainable pastoralism." Ecology and Society 16(2): 10.

FAO (2001). Pastoralism in the New Millenium. FAO Animal Production and Health Paper 150. Rome, Italy, Food and Agriculture Organisation.

FAO (2007). The state of the wolrd's animal genetic resources for food and agriculture. Rome, Italy, Food and Agriculture Organisation.

Fernandez-Gimenez, M. E. (1999). "Sustaining the Steppes: A Geographical History of Pastoral Land Use in Mongolia." The Geographical Review 89(3): 315-342.

Gomboluudev, P. (2008). Vulnerability of Rural People to Extreme Climate Events in Mongolia. The Netherlands Climate Assistance Programme (NCAP), Netherlands Climate Institution.

Hagemoen, R. I. V. and E. Reimers (2002). "Reindeer summer activity pattern in relation to weather and insect harassment." Journal of Animal Ecology 71: 883-892.

Haigh, J. and M. G. Keay (2006). The Tsaatan Culture And The Management Of Mongolian Reindeer. Proceedings of the 4th World Deer Conference.

Haigh, J. C. *et al.* (2008). "A novel clinical syndrome and detection of Anaplasma ovis in Mongolian reindeer (*Rangifer tarandus*)." Journal of Wildlife Diseases 44(3): 569-577.

ICR (2009). "About reindeer husbandry." Retrieved 6th October, 2011, from http://icr.arcticportal.org/index.php?option=com_content&view=article&id=687&Itemid=124&lang=en&showall=1.

Inamura, T. (2005). The Transformation of the Community of Tsaatan Reindeer Herders in Mongolia and Their Relationships with the Outside World. Pastoralists and Their Neighbors in Asia and Africa. K. Ikeya and E. Fratkin. Senri Ethnological Studies 69: 123-152.

Itgel Foundation (2010). "The Reindeer Life Project." Retrieved 24 November 2011, from http://itgel.org/reindeer.htm.

Jargalsaikhan, D. (2010). "Social Cancer." UB Post. Retrieved 3rd March, 2011, from http://ubpost.mongolnews.mn/index.php?option=com_content&task=view&id=4953&Itemid=41.

Jernsletten, J.-L. and K. Klokov (2002). Sustainable reindeer husbandry. Tromsø, Senter for samiske studier, Universitetet i Tromsø.

Johnsen, K. I. (2010). Draft workshop summary: Impacts of land-use change and climate change on nomadic herders. Nomadic Herders Workshop, Ulan Bator.

Kawtikwar, P. S. *et al.* (2010). "Deer antlers: Traditional use and future perspectives." Indian Journal of Traditional Knowledge 9(2): 245-251.

Keay, M. G. (2008). Tsaatan Community Development: A report of findings from a community-based participatory rural appraisal (PRA) conference, Tsagaan Nuur soum, Hovsgol *aimag*, Mongolia, January 25-26, 2008, Itgel.

Kristensen, B. M. (2004). The Living Landscape of Knowledge: An analysis of shamanism among the Duha Tuvinians of Northern Mongolia. Department of Anthropology, University of Copenhagen. Specialeafhandling til Kandidateksamen, Specialerække nr. 317.

Kristensen, B. M. (2007). Med åndernes øjne: Shamanisme og slægtskab i det mongolske landskab. Scener for samvær: Ritualer, Performance og socialitet. I. Sjørslev, Aarhus Universitetsforlag: 73-93.

Kristensen, B. M. (2011). Personal communication, December 2011.

Luvsanjamts, L. and M. Söderberg (2005). Mongolia - Heaven for foreign consultants. Working Paper 215, June 2005. European Institute of Japanese Studies.

Marin, A. (2010). Chasing the Rains: Mongolian pastoralists' vulnerability and adaptation to climate change in 'the age of the market'. Institute of Geography, University of Bergen. Philosophiae Doctor (PhD).

Minority Rights Group International (2011). "Minority Rights Group International, State of the World's Minorities and Indigenous Peoples 2011 - Mongolia." Retrieved 14th October, 2011, from http://www.unhcr.org/refworld/docid/4e16d36711.html.

Minority Rights Group International (2007). "World Directory of Minorities and Indigenous Peoples - Mongolia: Overview." Retrieved 14th October, 2011, from http://www.unhcr.org/refworld/docid/4954ce4bc.html.

MNET (2010). Mongolia's Second National Communication under the United Nations Framework Convention on Climate Change. D. Dagvadorj. Ulaanbaatar, Mongolia, Ministry of Nature, Environment and Tourism (MNET).

National Geographic News (2010). "*Reindeer People* resort to eating their herds." Retrieved 25 November 2011, from http://news.nationalgeographic.com/news/2004/11/1104_041104_reindeer_people_2.html.

Neupert, R. F. (1996). "Population and the Pastoral Economy in Mongolia." Asia-Pacific Population Journal 11(4): 27-46.

Nori, M. *et al.* (2005). Herding on the brink: Towards a global survey of pastoral communities and conflict, IUCN Commission on Environmental, Economic and Social Policy.

Ragagnin, E. (2006). The position of Dukhan among the Tuvan dialects. Exploring the Eastern Frontiers of Turkic. M. Erdal and I. Nevskaya. Wisebaden, Germany, Hubert & Co. Gottingen: 153-192.

Reading, R. P. *et al.* (2006). Conserving biodiversity on Mongolian rangelands: implications for protected area development and pastoral uses. USDA Forest Service Proceedings, RMRS-P-39.

Reid, R. S. *et al.* (2008). "Global significance of extensive grazing lands and pastoral societies: an introduction." Fragmentation in semi-arid and arid landscapes: 1-24.

Reinert, E. S. (2004). Globalization in the periphery as a Morgenthau Plan: the underdevelopment of Mongolia in the 1990s. Globalization, economic development and inequality: an alternative perspective. E. S. Reinert, Edward Elgar Publishing: 157-214.

Røed, K. *et al.* (2006). "Genetic distinctiveness of isolated and threatened Tsaatan reindeer herds in Mongolia." Advances in Deer Biology: 86.

Sternberg, T. (2007). "Environmental challenges in Mongolia's dryland pastoral landscape." Journal of Arid Environments 72(7): 1294-1304.

Tsogsaikhan, P. (2011). Personal communication, December 2011.

UNESCO (1999). "UNESCO Red Book on Endangered Languages: Northeast Asia." Retrieved 24 November 2011, from http://www.helsinki.fi/~tasalmin/nasia_report.html - Tuvan.

UNHCR (2010). "State of the World's Minorities and Indigenous Peoples 2010 - Mongolia." Retrieved 6th October, 2011, from http://www.unhcr.org/cgi-bin/texis/vtx/refworld/rwmain?page=search&docid=4c33310e3c&skip=0&query=tsaatan&searchin=title&display=10&sort=date.

Upton, C. (2009). ""Custom" and Contestation: Land Reform in Post-Socialist Mongolia." World Development 37(8): 1400-1410.

USAID Mongolia (2007). The Mongolia Monitor. No. 73, August 2007.

Wingard, J. R. and P. Zahler (2006). Silent Steppe: The Illegal Wildlife Trade Crisis in Mongolia. Mongolia Discussion Papers. East Asia and Pacific Environment and Social Development Department. Washington D.C., World Bank.

WISP (2010). "Pastoralist Portal." Retrieved 15 November 2011, from http://www.iucn.org/wisp/pastoralist_portal/.

World Bank (2006). Mongolia - A Review of Environmental and Social Impacts in the Mining Sector. Discussion Papers.

WWF (2010). Filling the Gaps to Protect the Biodiversity of Mongolia, WWF Mongolia Programme Office: 134 pp.

WWF Mongolia (2011). "Resolution on designation of new PAs and upgrading the status of some existing PAs." Retrieved 25th November, 2011, from http://wwf.panda.org/who_we_are/wwf_offices/mongolia/?200113/---------

Map by Riccardo Pravettoni.

The Indigenous Peoples of the taiga – who live in the fragile belt of coniferous forest in northern Mongolia – are in trouble. Reindeer herding, which provides the foundation of the unique culture of pastoralists, is in real danger of disappearing.

This publication addresses the current state of reindeer husbandry of northern Mongolia and presents recommendations from the Dukha reindeer herders for improving the sustainability of reindeer herding and the management of pastures and their homeland.

www.unep.org

United Nations Environment Programme
P.O. Box 30552 - 00100 Nairobi, Kenya
Tel.: +254 20 762 1234
Fax: +254 20 762 3927
e-mail: uneppub@unep.org
www.unep.org

UNEP