

International Association for Bear Research & Management

BEAR RESEARCH GRANT

“Status of declining brown bear
populations in Northern Mongolia”.

Project final report

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I was privileged to receive an IBA Bear Research Grant in 2007-2008 to determine the current status of the brown bears in Northern Mongolia. After 1990s, when Mongolian economy has changed from socialist and centralized to a free market economy, and the political system from one party socialist regime to a democratic multi-party system, the wildlife have faced a serious pressure from human side: illegal hunting, over-hunting, smuggling the wildlife parts and products, forest logging and fires, occupation of all possible water sources in arid zones, competition on pasture resources etc.

The brown bear in Northern Mongolia was not an exception. The species also faced severe illegal hunting for its skin, meat, paws, gall-bladder and other body parts. The situation is more acute and serious, if the only and last population assessment was done in 1985, when about 500 brown bears to be said existed in Mongolia. Thus, this grant from IBA is very crucial to start conservation activities for brown bears in Northern Mongolia and to know the real situation and status of the species in a country.

Project name: “Status of declining brown bear populations in Northern Mongolia”.

Project type: Research

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The funds from the IBA were requested for and used to make trips to the brown bear distributed areas to interview local rangers, herdsmen, inspectors and officials on current state of the brown bears, to make horse-pack and hiking trips to the places (impossible by car access) where the brown bears and/or signs were recently recorded, to collect information on threats and to assess the habitat conditions.

Project site: Mongolia (northern Mongolia, see route map); Central Asia.

Introduction

Mongolian wild mammals have unique species composition ranging from tiny shrews of northern taiga to magnificent wild camels in Gobi deserts. Adoption of new political and economical systems in the beginning of 1990s brought considerable changes to Mongolians, however, it also originated significant problems to the wildlife welfare and conservation. Illegal and uncontrolled hunting and trade in wildlife parts from one side, and the environmental and climate changes from the other side, have led to sharp reduction of population sizes and ranges of many mammalian species.

The brown bear (*Ursus arctos jeniseensis* 1758) in Northern Mongolia was under major attention for hunters and traders for the centuries. In Mongolia brown bears (*Ursus arctos*) occur in 4 separate populations in Hovsgol, western Altai, Hentei Mountains, and in the upper Onon and Uldz valleys. Mongolian brown bear is listed in Appendix II, CITES. Recently published “Mongolian Red List of Mammals” (2006) categorized the brown bear as Data deficient due to “inadequate information on distribution, population size and trends, or the impact of threats”. No any other conservation measurements have been taken for the brown bear in Mongolia.

The species is not common anywhere in the country and recent regional extinctions are known (Bold, 1967; Mallon, 1985; CITES reference-book, 2001). According to the Institute of Biology, Mongolian Academy of Sciences, report from 1986, there were about 500 brown bears in Mongolia inhabiting 50,000 square km in 4 provinces. Since then no population assessments have been performed for brown bear in Mongolia. However, circumstantial evidence suggests that the number of brown bear and

area of distribution in Mongolia has declined sharply since the early 1990s. Most likely, this is primarily due to illegal hunting and increased demand for bear body parts in the medicinal trade (Zahler et al., 2004).

Brown bears in Mongolia have almost no any natural threats except occasional natural starvations which occurred for example in 1962, 1971 and 1988 (Bold, 1967; Dulamtseren et al., 2000). Brown bears occasionally hunted for foreign hunters. Reindeer people and Buryats in Mongolia hunt them for meat and fur. From 1990s, when border trading was opened between China and Mongolia, many people killed the bears for its gall bladder, skin, internal fat and meat to sell to Chinese traders. In black-markets of Mongolia one bear gall bladder costs about 500\$, skin 800\$, 4 paws about 100\$ each and meat and internal fat about 3\$ per kg. In an October 2004 *UB Post* newspaper reported that three Vietnamese nationals were captured attempting to smuggle 80 bear gall bladders out of Mongolia. Even if this were the only smuggling effort involving brown bear parts, it is still likely a sizeable fraction of the brown bears left in Mongolia (Zahler et al., 2004).

Despite the existence of broad plains and plateaus, Mongolia's topographic structure is highly mountainous, with an average altitude of 1,130 m. Brown bear is the largest carnivore in Mongolia. Mongolia has several species of large carnivores that are ecologically, economically, and scientifically important in addition to the brown bear, including gray wolf (*Canis lupus*), Eurasian lynx (*Lynx lynx*), and wolverine (*Gulo gulo*). The large herbivore species such as a red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), musk deer (*Moschus moschiferus*), and wild boar (*Sus scrofa*) are provide as prey for large carnivores. Information is lacking on populations and the exact distribution for the majority of brown bear in Mongolia. Mongolia is not even mentioned in recent compilations or action plans for brown bears worldwide, except the last world-wide bear mapping workshop report.

Methods

We developed a questionnaire and filled it with local officials, herders, rangers and hunters in province centers, *sums* (counties) of visited areas. The questionnaire

requested information on bear status, especially on distribution, threats and trade. Also we made three horse-pack trips and one hiking trip to remote forests of Khuvsgel, Khentii and Selenge provinces, where, according to local rangers' and hunters' observations, the bears and/or fresh signs (tracks, dens, droppings etc.) of bears were recorded for the last 3 years.

During the horse-pack trip in Khuvsgel mountains in August-September 2007, we visited rein-deer people to ask the situation with brown bear in a region, while for the trip in Eastern Khentii mountain forests in October 2008, we have chosen 4 sampling areas with possible transects (see fig 1), and tried to follow the routes where possible, recording the signs of bears and other wildlife species.

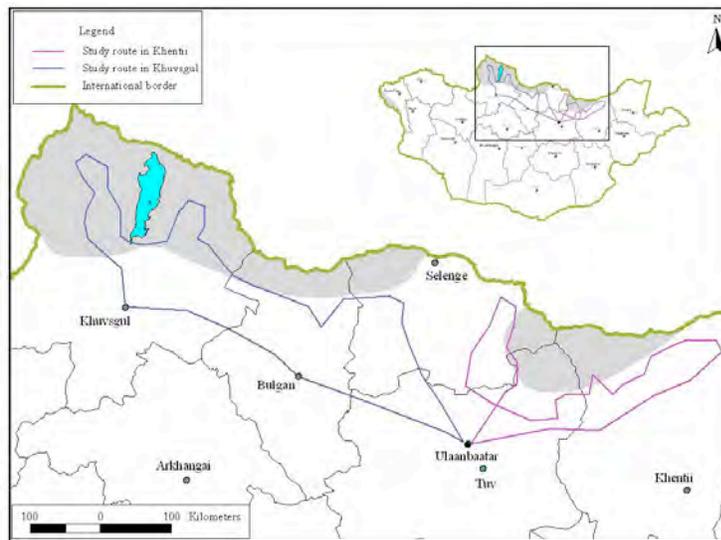
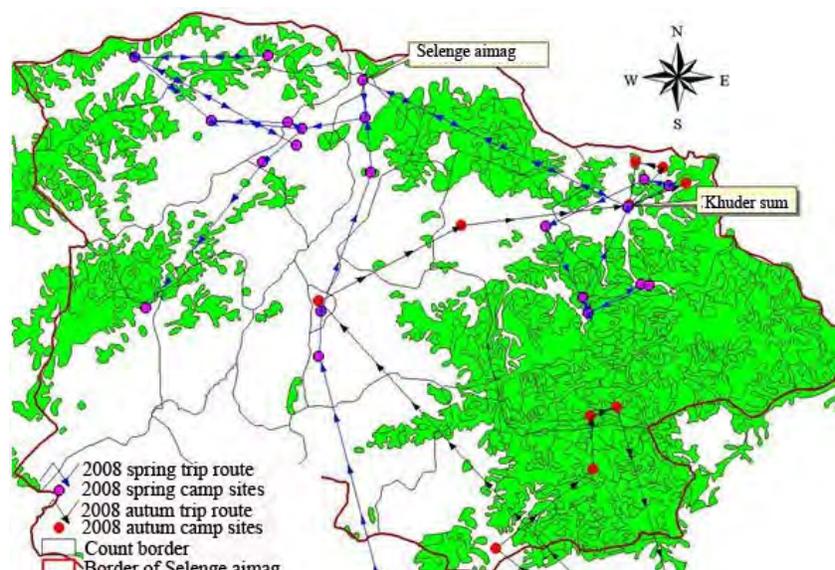


Fig.1. Trip routes 2007.



Trip routes 2008.

In the year of 2007, the first field trip was done from April 12 to May 15, and the second field trip was done from August 29 to September 29. In 2008 we made the first trip from May 05 to June 10, and the second and third trips from October 05 to November 25.

In two years we drove by car more than 11000 kilometers, and by horses about 650 km, while we hiked about 78 kilometers.

To develop the data processing and analyzing, we used Excell, ArcView and GIS programs. In all possible occasions we have used 8 automatic cameras (2 digital and 6 ordinary), however no bear pictures were taken. Because of similar results with 2007 obtained, we did not include the interview results from 2008.

Discussion and Results

First year activities (2007):

Many conservation research studies around the world deal with population assessments. However, social issues of the people who live in a study area are being almost forgotten (Knight et al., 2006). As Cowling et al. (2007) described, "...a thorough assessment of the social context in a study area should be undertaken prior to the biological assessment. It provides a description of the current interactions between the human society and its natural habitat as well as an estimate of future developments. ... Social assessments have several advantages. Firstly, they invariably involve the inputs of local experts whose participation can contribute substantially to support for the project. Secondly, an understanding of how human interact with and value their natural environments enables the identification of those behaviors that need to be reinforced or changed to safeguard biodiversity. ... Just as systematic biological assessments represent

a defensible approach for identifying strategic conservation priorities..., social assessments provide the kinds of insights required to do conservation ...” (Cowling et al., 2007).

Bearing in mind these approaches, during our two field trips, we paid our most attention to interview central and local stakeholders, local inspectors and rangers, hunters and herders. Additionally, we have traveled by horse in a remote, not accessible by car, areas with local hunters and inspectors in hope to find out any signs of bears and question the rein-deer people. Unfortunately, due to the time constrains or unluckiness, we did not find any signs of bear presence in both areas, although we were assured that we will see even the bears.

We interviewed in total 56 people (21 rangers/inspectors, 9 hunters, 26 herders, Fig.2) in 25 soums (counties) in 5 provinces and the median age of respondents was 46 (range=30-64).

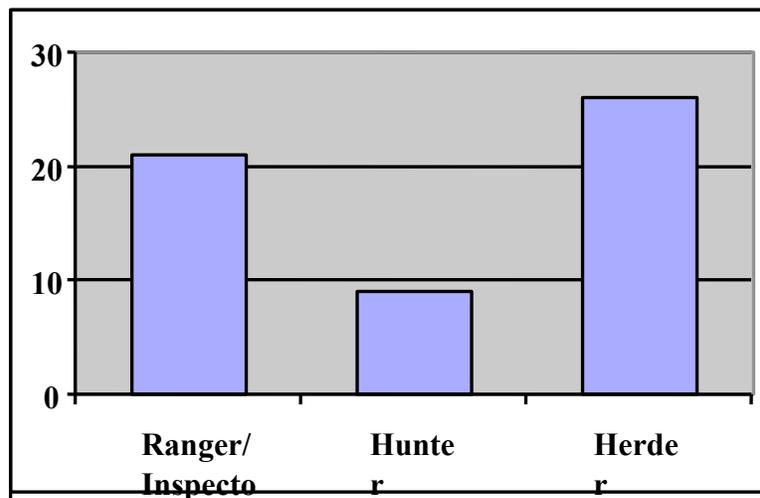


Fig 2. Employment status of interviewees

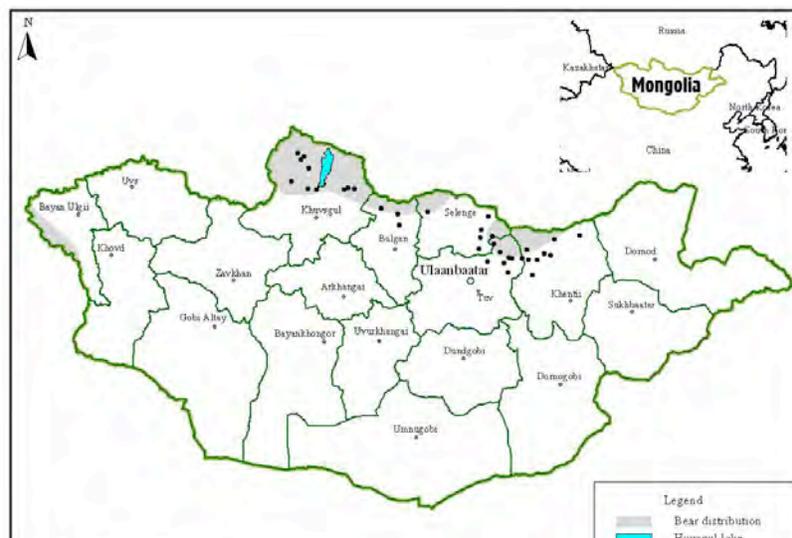


Fig. 3 Interview locations

According to the interview results, the brown bear is mainly distributed in pine (*Pinus sylvestris*) and larch (*Larix sibirica*) forests of Onon, Kherlen, Tuul, Kharaa, Yeree rivers' headwaters near the state border with Russia.

Forests constitute approximately 16 million ha in Mongolia (8% of the country). Mongolian northern forests – excluding saxaul and other shrubs and brush in the south – extend over 11.5 million ha, of which 10.4 million ha are considered to be fairly intact (>30% crown closure), and 1.1 million ha are considered depleted (Crisp et al., 2004).

Habitat type and quality are presumably key factors influencing brown bear distribution. Important habitat for brown bears is provided by broad-leaf deciduous and conifer forests such as pine (*Pinus sylvestris*) and larch (*Larix sibirica*), birch (*Betula*), cedar (*Pinus sibirica*), and very small number of Siberian fir (*Pinus* sp.) in both regions.

Major threats

Brown bears in Mongolia are threatened by habitat loss and degradation, and persecution by humans because of damage to beehives and livestock. Brown bear populations in Mongolia are most likely negatively affected by large-scale logging and forest fire that has occurred during the last decade (Fig. 4).



It is clear that the poaching for brown bear and its products is the main human-related threat. According to our survey results, the poaching comprises 51.7%, habitat loss (forest fires, logging) 30.3%, human disturbance (nut collectors and other) 17.8% of all threats to the brown bear population decline (Fig.5).

Increased number of pine nut harvesters (people who collect the pine nuts and sell in a market) in Khentii and Khuvsgel region is not only disturbing the bears, but also they affect on bear's food scarceness and destroy important trees such as pines and larches. As a result, the bears cannot get enough fat for hibernation, and enforced to become vagrant and even to be killed by locals accidentally.

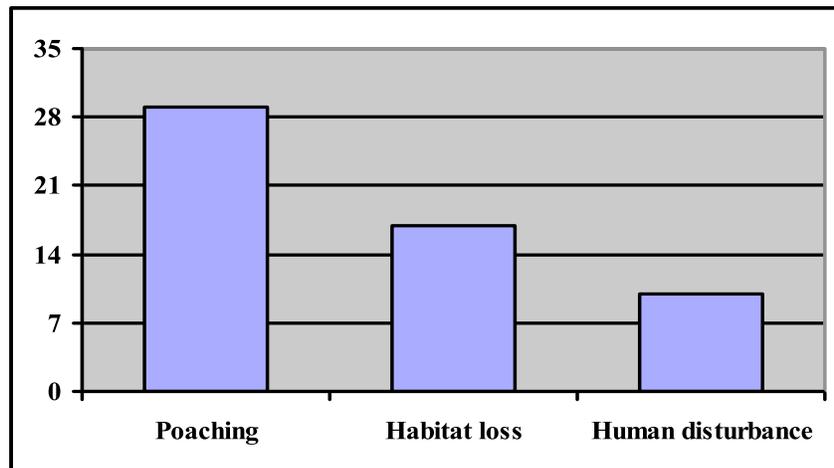


Fig. 5. Main causes for decline of brown bear

Although survey respondents did not report poaching is the only reason of population decline, interviews with local people suggested that brown bears in Khentii and Khuvsgul mountain ranges are poached for bear meat, skin, paws and gall bladder (fig. 6), which has the medicinal value in TCM. The illegal kill rate of brown bears is unknown, but it is reported that poaching exists in the both regions.



Fig. 6. Confiscated brown bear gull-bladder.

Hunting for wild boar with dogs is the most frequent type of hunting, and bears are killed occasionally during those hunts. However, such kills are hidden in the villages because the animal is under protection. Illegal killing may also occur unintentionally when bears are killed by snares set for wolves, red deer, and roe deer, or by poisoned baits set for wolves and lynx. It clearly shows how big is the rate of poaching in northern forests of Mongolia not only for brown bears, but for other wildlife species as well. Although, the red and roe deer, wild boar, moose and even some small rodents like squirrels and chipmunks are an important food sources for brown bears, their populations also face a heavy poaching pressure from human side. Again, all the products from these animals tend to be sold to Chinese traders for very cheap prices.

Second year activities 2008.

During the hiking trip in 2008 spring in Khuder *soum* (county) of Selenge province, we encountered only once the brown bear (Fig. 7), which was about 3-4 years old young animal.

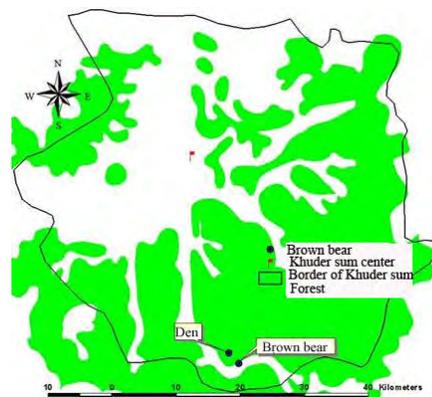


Fig. 7

The keeper of the “Khaltinii” gold mining in Shorgoolj mountain of Khuder county Mr.B.Gankhuyag showed us an old den, which was used by bears in 2006 (Fig. 8-9).



Fig. 8



Fig. 9

The den was located in the northern slope of very steep mountain forest with dense fallen trees, and it was really difficult to find. With a frozen water inside, it was obvious that this year the den was not used. The entrance length was 85 cm, width – 63cm, and height is 54 cm.

Local rangers and the keeper told us that in May 2006 one of two hunters from Khuder county was attacked and killed by wounded from gunshot bear in Shorgoolj mountain.



Fig.

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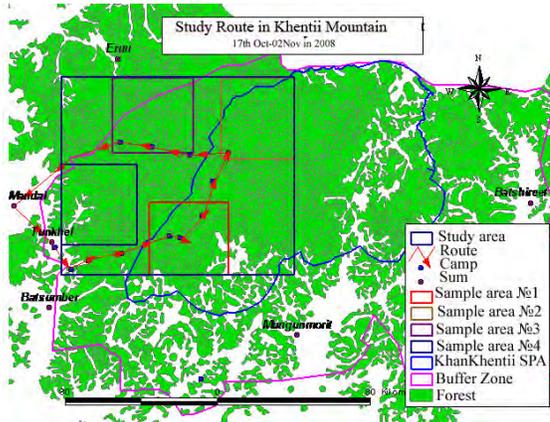
Fig.

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Fig. 12

We saw also foot prints of the bears (Fig. 10-12) in three places of this area, and these cases and our findings confirm that the Shorgoolj mountain is one of habitats where the

brown bear is still exist. It is difficult to confirm how many bears exist in Khuder county of Selenge province, because we saw just one alive bear and three old foot prints, however, according to the size of the seen bear and confirmed prints, we can assume that the alive one was about 3 years old, and 3 others were adult ones



Later, in November of 2008, we saw 4 times very fresh prints of bears (Fig. 13) in Tsagaan Chuluut, Uver Matak and Minj pass of Khan Khentii Protected Area during the horse-pack trip.

The fresh and old prints on the snow in Khentii protected area can be

Fig.

13. Horse-pack trip study route (October-November 2008)

assumed as 1 adult female with a cub, 1 adult male and 2 young (presumably 2-3 years old) bears with unknown sex. Two bears prints from Khan Khentii protected area are occurred in the core zone, and the other two prints are registered in the buffer zone.

We have tried to estimate the density, number, and the distribution area of bears in Khan Khentii protected area's western part according to our observations (Tab. 1).

Tab. 1

Brown bear density, number and distribution area estimation

¹	Area name	Prints confirmed	Sampled area / km^2 /	Distributed area / km^2 /	Number/size	Density /1000 ha/
1	Yestiin hot spring	2	241,24	1433,05	12	0,1
2	Minj	2	222,08	1452,8	13	0,1
	Total	4	463.32	2885,85	25 \pm 1	0,1

Prey species status in observed areas.

Here we present the results of our observations of brown bear prey species occurrence during this year trips (Tab. 2). We observed 5 species of wild ungulates in the forests of Selenge province in spring and fall.

Tab. 2

Number of prey ungulates

Family	Species name	Scientific name	Spring (May)	Fall (by car and hiking)	Fall (by horse)
Cervidae	Red deer	<i>Cervus elaphus</i>	13	18	30
	Moose	<i>Alces alces</i>	4	-	17
	Musk deer	<i>Moschus moschiferus</i>	1	7	12
	Roe deer	<i>Capreolus capriolus</i>	54	38	53
Suidae	Wild boar	<i>Sus scrofa</i>	11	2	116
Total			83	65	228

The following table shows the density, number and distribution size of Khan Khentii protected area western part wild ungulates (Tab. 3).

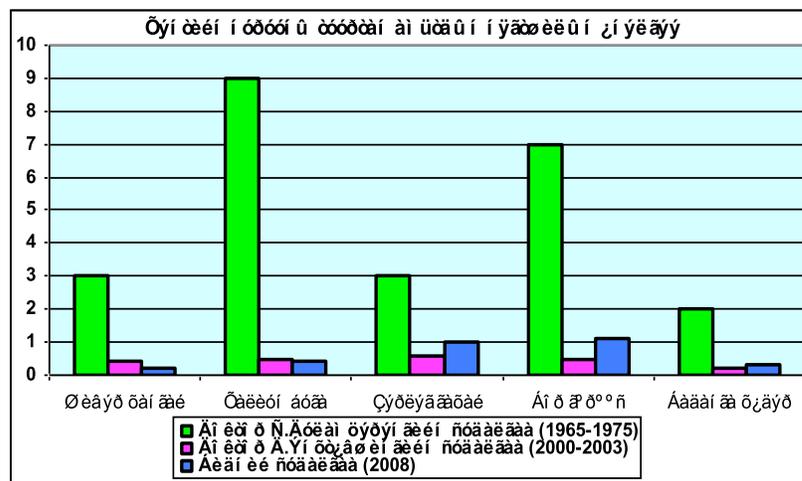
Tab. 3

¹	Species name	Distributed area	Number	Density
1	<i>Alces alces</i>	5921,7	122±6	0,2
2	<i>Cervus elaphus</i>	2953,52	114±6	0,4
3	<i>Sus scrofa</i>	5921,7	582±29	1,0
4	<i>Capreolus capriolus</i>	4468,9	504±25	1,1
5	<i>Moschus moschiferus</i>	2953,52	92±5	0,3

In previous years, the population assessment of Khentii mountain range ungulates was done by Dr. S.Dulamtsere (from 1965 to 1975) and by Dr. Enkhtuvshin from 2000 to 2001, and we compared the findings of our study with the results of their studies

Diagramm 1.

Khan Khentii mountain range ungulates density (1000ha)



Legend: green – by Dr.Dulamtsere (1977), pink – by Dr.Enkhtuvshin (2000-2003), blue – our study (2008). First column-moose, second-red deer, third-wild boar, fourth-roe deer, fifth-musk deer.

We can see that comparing to 1970s the density of ungulates in Khan Khentii region decreased from 3 to 18 times. It clearly shows that the bear prey species are also facing a serious decline in their numbers, which in turn affects the bear density as well.

The major threats for brown bears were discussed in 2007 activities, however, during 2008 trips in Khentii mountains, we saw huge areas affected by logging (Fig. ...).

The forests of Tunkhel and Bugant counties of Selenge province were cut down by logging in the 1980s and many old piles of unused woods scattered throughout the forests (Fig. 14-15).



Fig. 14



Fig. 15

15

Nevertheless, after 1998 when the high taxes for commercial logging were introduced, the populations of ungulates started to increase slowly. However, there are still many wood cutting small enterprises in villages which are cutting trees for personal purposes even from protected areas. These people, according to reports from local rangers, are the potential poacher for forest ungulates and even bears.

As it was said before, the forest fires are the major threat to all wildlife in the area. During our trips in 2008 we have witnessed existing fires in Bugant, Baruunburen and Khuder counties of Selenge province, and we traveled through the huge massif of burnt forest in Khan Khentii protected area.



According to data from Khan Khentii Protected area administration (2005), more than 70% of the protected area is burnt and in 99% cases the human activities were responsible for these fires. The report from

Forest Agency of Mongolia (2000) says that 386 cases of fire registered in 1996, 158 cases registered in 1997 in Mongolia.

Conclusions.

1. The results of our study confirmed that about 25 brown bears are inhabiting the western part of Khan Khentii protected area (2885,85 sq.km) with a density of 0.1 animals per 1000ha.
2. The prey species (5 ungulate species) sharp population decline is observed with 3 to 18 times decrease in numbers comparing to 1980s in Khentii mountain ranges.
3. The main threats for brown bears are the forest fires, logging and uncontrolled illegal hunting. Also the lack of knowledge, experience and willingness among local people on all level of community, and most importantly, the lack of budget for conservation and research institutions and organizations, is deepening the situation of the brown bear in northern forests of Mongolia.

Recommendations.

1. We highly recommend to start wide ecological research activities for bears of northern Mongolia which will show us the current real status of the animal. Detailed studies of population size and ecology, distribution patterns, food chains etc. are essential for establishment of conservation programs and activities.
2. To know and understand the habitat requirements and movement patterns within and between the bear populations, to collect scientifically approved data for future protected areas for the bears, it is urgently required to start studies on their movement and migrations, if they exist, using satellite telemetry
3. Detailed investigations and monitoring of the status of prey species for brown bears are also urgently needed with followed conservation programs and activities for them.
4. The existing threats for brown bears are needed to be prioritized and classified.

5. Tremendous efforts on advertisement, training and capacity building activities should be spent among the local people and decision makers to improve the current status of brown bear and other forest wildlife in Mongolia.
6. We really hope that IBA will support these initiatives in the future again.

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Acknowledgments

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After all, the participation and patience of many many local people who shared their knowledge and experience, who allowed us to spend nights in their *gers* and share the food, must be acknowledged and appreciated.

Trip moments



Trips in Khan Khentii protected area



Inspector Enkhtuya and I

Typical habitat of brown bear



Shorgoolj mountain

From left: me, Tsogtjargal, inspector Batbayar and ranger Batchuluun



Sukhchuluun is interviewing the local herdsmen



Tsogtjargal is setting up camera

Trip to rein-deer people