

# Przewalski horses, wolves and khulans in Mongolia

Report July 2002, by Petra Kaczensky and Chris Walzer



## 1 The Przewalski horse population

### Status of the free-roaming population

In October 2001 25 Przewalski horses in three different herds were roaming free in the Gobi B strictly protected area: *Tulai*<sup>1</sup>, *Pas* and *Hubsgul*. All groups survived the winter in fat (*Pas*, *Hubsgul*) or good (*Tulai*) condition (score 3-4, Rudman and Keiper 1991; Fig. 1). Only one mare from the *Hubsgul* group (YUL) showed up in very poor condition near the enclosures, was captured and nursed back to health in the enclosure. She was joined by three two-year-old mares that had been expelled by the stallion of the captive breeding group.

The four mares were released into the wild beginning of May and pushed by horse and motorbike within eyesight of the *Hubsgul* group. However, subsequent fighting among the stallions of the *Hubsgul* group resulted in the change of the harem stallion. MUNDOL took over this harem group and expelled the stallions HUBSGUL and TAYAN. The four new mares left the group as well and after being associated with HUBSGUL for a short period, they were finally taken over by TULAI. HUBSGUL was joined by TAYAN and together with two young stallions expelled from the *Pas* group now form a new *bachelor* group.

Reproductive success of free-ranging adult mares (>3 years) was 80% this year. In the *Pas* group all six adult mares, in the *Mundol* group four out of five adult mares and in the *Tulai* group two out of four adult mares produced foals. Mortality rate over all ages and sex classes for the first half of 2002 was 10% (3 foals, 1 adult; 4/39). In the *Tulai* group one adult mare and her foal died during foaling, while in *Pas* and *Mundol* group one foal each disappeared. At present there is a total of 36 takhis in four groups roaming free in Takhin Tal (Table 1).



*Fig. 1: Due to the relatively mild winter and the good pasture condition almost all takhi scored high in body condition (Tulai group, end of April 2002).*

<sup>1</sup> group names in italics, individual names in capitals

Table 1: Most recent group composition, fate and reproductive success of the free roaming horses in the Gobi B strictly protected area (29. July 2002).

<b>name</b>	<b>stud-</b>	<b>Sex</b>	<b>age</b>	<b>comments</b>
<b><i>Pas group</i></b>				
CHOUWTSCH	1818	stallion	13	
SCHAGAI	2141	mare	11	GPS/ARGOS collar – still transmitting
SHAGAIS foal	-	mare	0	
TSCHANDAGA	2130	mare	11	
TSCHANDAGAS foal	-	mare	0	
UUGAN	2398	mare	10	
UUGANS foal	-	stallion	0	
BULGA	2787	mare	7	
BULGAS foal	-	mare	0	
MITSCHID	2921	mare	6	
MITSCHIDS foal	-	?	0	disappeared
TOOT	3072	mare	5	
TOOTS foal	-	mare	0	
ANGIRT	T200	mare	2	
<b><i>Mundol group</i></b>				
MUNDOL	3069	stallion	5	took over harem group from HUBSGUL, GPS/ARGOS collar – ARGOS failed mid April 2002 GPS module possibly still functioning
TOODOG	3035	mare	8	GPS/ARGOS collar – ARGOS failed at deployment GPS module possibly still functioning
TODOOKS foal	-	stallion	0	
IMSH	2748	mare	8	
ZAGAADAJ	2940	mare	6	
ZAGAADAJS foal	-	mare	0	
MISCHEEL	3084	mare	5	
MISCHEELS foal	-	stallion	0	
SOIR	3045	mare	5	
SOIRS foal	-	?	0	disappeared
DOROTHEE	3230	mare	3	
MYANGAN	T204	stallion	2	
<b><i>Tuulai group</i></b>				
TUULAI	2911	stallion	6	
YUL	2712	mare	8	brought back to enclosure in winter due to poor condition,
YULS foal	-			
KHOKHOO	2984	mare	5	
SHAAZGAI	3097	mare	5	GPS/ARGOS collar - died during foaling begin May 2002
SHAAZGAIS foal	-	mare	0	died during birth
TAGTAA	3143	mare	4	
ORCHON	T212	mare	2	expelled from captive group, released in spring
MARAL	T202	mare	2	expelled from captive group, released in spring
KHERLEN	T203	mare	2	expelled from captive group, released in spring
<b><i>Bachlor group</i></b>				
HUBSUGUL	3233	stallion	5	lost leadership of harem group to MUNDOL
TAYAN	3066	stallion	5	expelled from <i>Mundol</i> group, ARGOS collar
ZANDAN	3166	stallion	4	expelled from <i>Pas</i> group
MAIGA	T201	stallion	2	expelled from <i>Pas</i> group
<b><i>foals born</i></b>			<b>12</b>	
<b><i>foals alive</i></b>			<b>9</b>	
<b><i>adult fatalities</i></b>			<b>1</b>	
<b><i>total free-roaming takhis alive</i></b>			<b>36</b>	

## Monitoring of the free-roaming groups with GPS/ARGOS transmitters

In October/November 2001 we had marked one adult female each in the three harem groups, plus the second strongest stallion in *Hubsgul* group with GPS / ARGOS radio collars (North Star<sup>®</sup>, USA) (see Kaczensky 2001). While the collar of the mare TODDOG failed from the very beginning, the other three collars produced a steady stream of locational data - between November 2001 and July 2002 the horses were located a total of 1,520 times (Table 2). During this time *Pas* group covered an area of 501 km<sup>2</sup>, *Hubsgul/Mundol* group of 460 km<sup>2</sup> and *Tulai* group of 152 km<sup>2</sup>. Although range use of the different takhi groups showed clear differences, range use is not exclusive, but shows seasonal differences (Fig. 2).

Table 2: Locational data from the GPS/ARGOS collars 30. October 2001 until 17. July 2002.

horse	monitoring period	number of GPS locations	mean number of GPS locations per day
MUNDOL ( <i>Hubsgul/Mundol</i> group)	01.11.01-13.04.02	284	1.8
SHAGAI ( <i>Pas</i> group)	04.11.01-ongoing	883	3.7
SHAZGAI ( <i>Tulai</i> group)	30.10.01-02.05.02	349	1.9
TODOOK ( <i>Hubsgul/Mundol</i> group)	ARGOS failed	4	-
TAYAN ( <i>bachlor</i> group) <sup>1</sup>	24.06.02-ongoing	20	-
<b>total</b>		<b>1,520</b>	

<sup>1</sup> This horse received an ARGOS collar without GPS unit and location accuracy is much lower - between !150 to !1000m

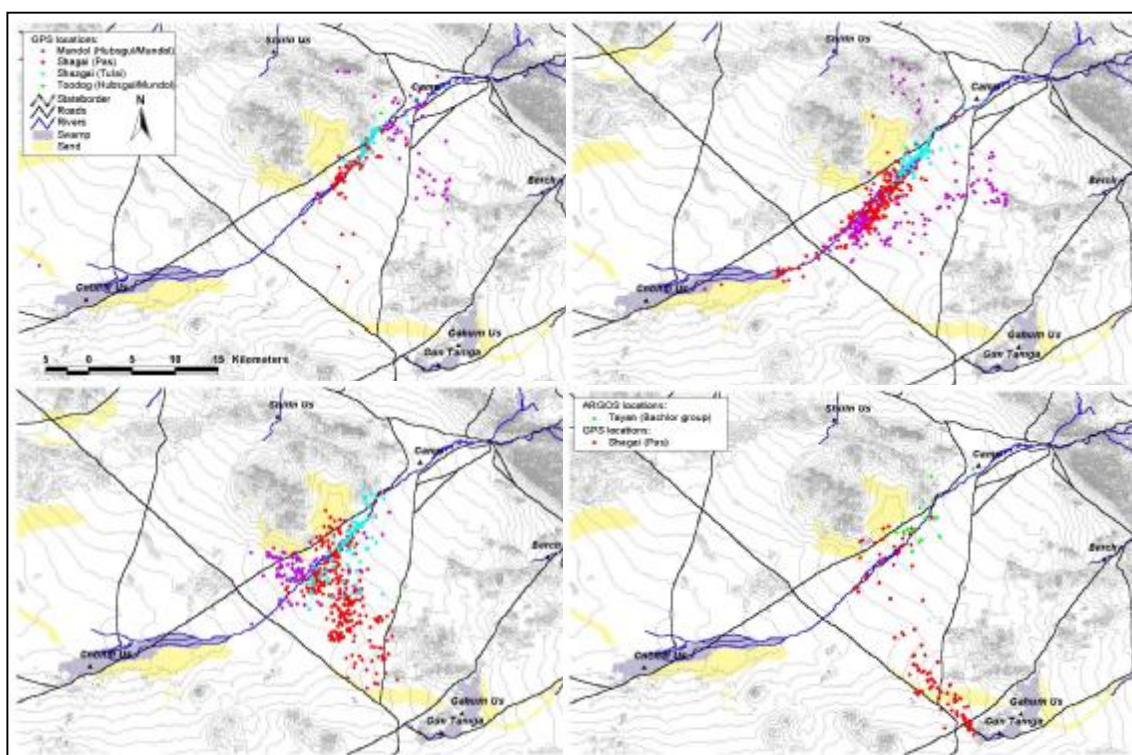


Fig. 2: Seasonal range use of the different takhi groups in Takhin Tal, Gobi B National Park from 30. October 2001 until 17. July 2002.

Unfortunately, on 13. April 2002 MUNDOLS collar suddenly stopped transmitting and on 2. May 2002 the collared mare SHAZGAI was found dead, subsequent to giving birth. From 14-

28. June 2002 intensive attempts to collar other horse in the *Tulai* and *Mundol* groups failed due to technical problems (dart malfunction), windy weather conditions and an increased flight distance of free-roaming horses (120 – 3,000 m). However, the stallion TAYAN in the *bachelor* group was equipped with an ARGOS collar (North Star<sup>®</sup>, USA). Re-collaring of *Tulai* and *Mundol* group has been postponed until October 2002. Meanwhile takhi group locations are monitored every other day by Ganbataar and the local rangers.

### Captive takhi population

One harem group (*Jiguur* group) is kept in captivity for breeding and educational purposes. Foals produced by this group are released into the wild at age 2-4, depending on the level of intraspecific aggression. In 2002 reproductive output of this group was poor, most likely due to a bottleneck in the provision with high quality supplementary food in wintertime. This year supplementary food will be bought in excess in August and stored in a newly built storage facility.

On 14. June 2002 14 new takhis were transported to Takhin Tal from various Zoos in Europe (Fig. 3). All takhis arrived in good condition and were housed separately by gender in two groups. On 20. July 2002 one stallion (KHANGAI) died acutely. Initial necropsy data makes an infection with piroplasmosis likely. Further histological and molecular biological examinations are pending. Takhis will remain in the enclosures until early spring 2002 to allow veterinary treatment, especially in respect to piroplasmosis (see Walzer et al. 2000).

In the past takhis showed a strong attachment to their release site. Therefore the two new groups will be reloaded in the transportation boxes and transported by truck to a new release site about 50 km to the SW of the previous one. The new release site is located at the largest water point, Choni Us, in the centre of the Gobi B National Park. Before final release these horses will stay in a provisional enclosures secured by electric fence for about 1-2 month. With this new release strategy we hope to enlarge the area used by the takhis, while still guaranteeing the contact between the different free-roaming takhi groups.

At present the captive population in the Takhin Tal enclosures (covering a total of 5 km<sup>2</sup>) numbers 20 horses in three groups (Table 3).



*Fig. 3: Takhis released into the holding facilities in Takhin Tal on 14. June 2002.*

Table 3: Captive population in the Takhin Tal enclosures at the NE edge of the Gobi B National Park (July 2002).

name	stud-book #	Sex	age	comments
<b>Jiguur group</b>				this group remains in captivity for breeding and educational purpose.
JIGUUR	2363	stallion	10	
CHALIUNA	1669	mare	14	
COGOO	2586	mare	9	foal expected end of July/begin of August
OD	2645	mare	8	abortion in winter
CHONGOROO	3038	mare	7	
GURGUUL	2786	mare	7	
ZUUN	T214	stallion	1	
<b>mare group</b>				
ERDENE	3040	mare	4	
MONDOR	3194	mare	4	
TSAKIR	3298	mare	3	
OODON	3332	mare	3	
MONGON	3273	mare	3	
ZOGII	-	mare	2	
ZORGOL	-	mare	2	
SONJA	-	mare	2	
<b>stallion group</b>				
KHANGAI	M697	stallion	4	died, most likely due to piroplasmosis
MOOGI	3342	stallion	3	
ERKHIM	3294	stallion	3	
KHUCHIT	3320	stallion	3	
MAGNAI	T154	stallion	2	
SELENGE	T160	stallion	2	

## 2 Wolf population status and feeding ecology

### Wolf trapping

The original plan was to collar four wolves in spring 2002 with ARGOS collars (North Star<sup>®</sup>, USA) to monitor home range size and feeding ecology of wolf packs in the study area. Traps were set at scent stations - baited with wolf urine, wolf scats or wolf lure - in respect to observed and reported wolf activity and topographic features. Additional traps were set at fresh wolf kills (< 1 week old) and at water points. We mainly used #7 McBride leg hold traps (Ranchers Supply, Texas, USA), but later in the season also tried Belise- (Belise Enterprise, Quebec, Canada) and Freymont (courtesy: International Snow Leopard Trust, Gobi A, Mongolia) foot snares (Fig. 4).

Unfortunately the use of #7 McBride leg hold traps (Ranchers Supply, Texas, USA) proved to be a failure for wolf trapping in the treeless steppe habitat of the Gobi B National Park. In April and May 2002 142 trap nights (126 McBride, 12 Freymont, 4 Belise,) resulted in the capture of one Pallas cat (*Felis manul*), one black tailed gazelle (*Gazella subgutturosa*), one raven (*Corvus corax*) and one black vulture (*Aegypius monachus*). The black vulture was caught at an old wolf kill with a Freymont foot snare, the raven at a fresh wolf kill with a McBride trap and the Pallas cat and the gazelle at scent stations with McBride traps. The black vulture and the Pallas cat could be released uninjured, whereas the raven and the gazelle

suffered severe bruises to the captured leg. Due to continuous visual monitoring of the McBride traps at the fresh wolf kill, the raven could be released alive after 30 min in the trap. The gazelle, however, was found dead in the morning – it most probably died due to the stress of being restrained.

Careful monitoring of animal signs at and around the trap sites suggested that black tailed gazelles are attracted to wolf scent, as their tracks were frequently found at our trap sites. At several trap sites we also found the tracks of domestic horses, domestic camels and khulans (*Equus hemionus*). The size of the hoofs of domestic horses, khulans and domestic camels foals are small enough to be caught by the McBride traps. Furthermore, even though we always set traps off the trail and close to rocks or larger bushes, ungulate tracks could be found virtually everywhere. It is quite impressive to see that these species are able to travel and forage in such rugged and steep terrain. Unfortunately it is this ability that makes it almost impossible to set traps for wolves in such a way that ungulates do not step into them. At kills, on the other hand, it is ravens and vultures that are at risk of being caught or triggering the traps which renders them useless to catch wolves.

Finally we decided to only use McBride traps if continuous visual or telemetric monitoring from some distant point was possible – a very time intensive method. At kills we switched to foot snares (Belise, Freymont), which greatly reduce the risk of injury to non-target species, but are more difficult to set. Repeated interviews with local herders revealed, that most are using Russian leg hold traps to trap wolves. When asked what they do to avoid non-target animals, herders hesitatingly admitted that gazelles, vultures and ravens are a problem. Due to the above problems we pulled all McBride traps and restricted all trapping efforts to the use of foot snares at recent wolf kills.

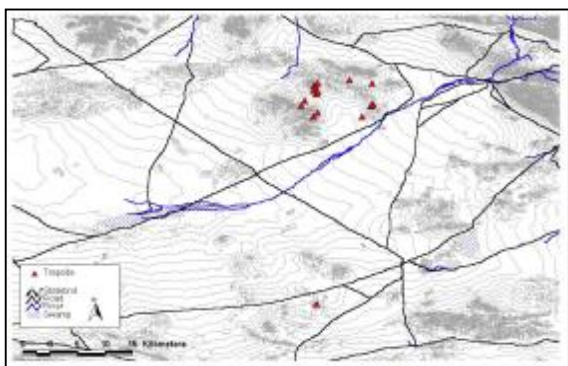


Fig. 4: Trap sites for wolves between April and June 2002.

We also approached an active wolf den discovered at the end of April on three occasions (approx. 40 m) in order to immobilize an adult pack member by dart gun. During the first attempt strong and unpredictable wind gusts did not allow for a safe shot at the adult female, during the second attempt only the puppies were present and no adult returned within six hours and during the third attempt the wolf family had finally moved.

### **Wolf presence and feeding ecology**

In May 2002 we systematically sampled most larger mountain ranges of the 2,400 km<sup>2</sup> large western part of the Gobi B National Park to estimate the intensity of wolf use and to collect

evidence of wolf feeding ecology. The sampling area included the complete takhi distribution area. We additionally documented all wolf kills reported to us between April and June 2002.

During 104 man-hours of systematic sampling we covered an area of at least 100 km<sup>2</sup> and found 216 wolf scats (Fig. 5). An additional 17 scats were found during other activities or at reported kills. The highest density of scats was found in Khundlen, a mountain range where we also found an active den. Further signs of reproduction came from a geological survey crew, that had seen a female with puppies in the Shiree Mountains at the SE most corner our sampling area. Our estimate is that 2-3 different wolf packs live, at least partly, within the takhi distribution area. We plan to conduct wolf howling surveys in the fall 2002 to confirm this estimate.

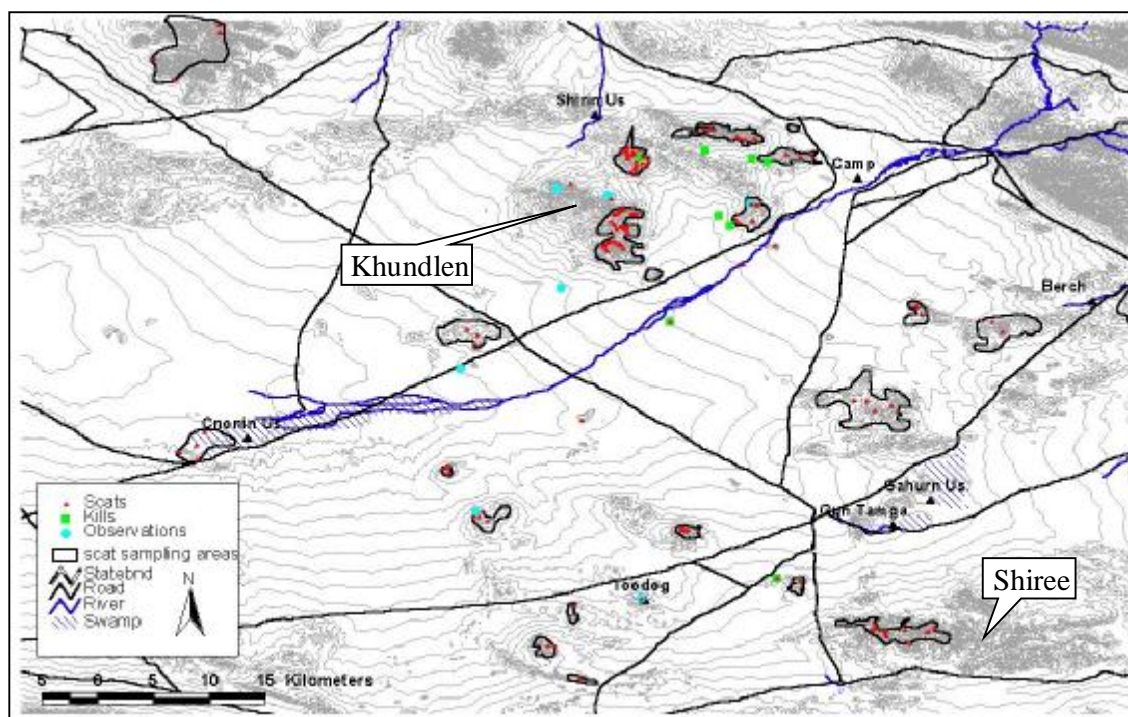


Fig. 5: Wolf survey area with locations of scats, kills and direct observations within the SE part of the Gobi B National Park.

Between April and June we saw wolves 11 times. Except for one time, when we saw two wolves travelling together, we only saw single adult wolves. Observations by herders during the winter time reported pack sizes of 10-11 wolves in the Khundlen area (Saikhanaa 2002). This suggests that wolf packs in our study area, like in many other areas, separate during the summer time and re-join in late fall.

Analysis of the collected scats is planned for the winter 2002/3 and will reveal information on prey species composition. We were not able to document wolf predation on wild ungulates, but inspected 9 livestock kills: six camels, two horses and one sheep.



### 3 Khulan movements and habitat use

Asiatic wild ass or khulan, is the other wild equid species that lives in the desert steppe of the Gobi B National Park. Monitoring and herder interviews suggest that the population is at least stable or may be increasing (Reading et al. 2001, Saikhanaa 2002). In contrast to takhi, khulan do not live in distinct harem groups, but live in large herds of changing composition. The only stable social unit is the mare with her foal. Stallions occupy small temporary territories, especially near water holes, where they wait for mating opportunities with females in oestrus passing through. In the Gobi B khulan are known to be migratory. Large herds of more than 1,000 heads are regularly seen throughout the summer, but leave the area in late fall. The migratory route is largely unknown, but it is suspected that khulan move SE, possibly into China.

Competition of khulan with livestock, and in the Gobi B with takhi, is an important topic in Mongolia. Despite the fact that long term monitoring has not been established and there is few data available on movement patterns, habitat use and feeding ecology of free-ranging khulan, there is increasing pressure on the Mongolian government by herders to allow for a reduction in khulan numbers. Poaching of khulan for meat and to reduce competition with livestock is becoming an increasing problem in Mongolia (Ganbataar pers. comm, Hans Hoffmann pers. comm.). In our study area we documented one case of khulan poaching in June 2002.

A novel incentive to study khulan movement is raised by the fact that it is unknown whether in the past takhis remained within the limits of the Gobi B National Park in wintertime. Both other native ungulate species that live in the steppe habitat of the Gobi B, the khulan and the black tailed gazelle, leave the park in wintertime. Nomadic herders also just pass through the park in spring and fall during their migration from and to winter respectively summer camps. In the winter months climatic conditions are too harsh for their livestock. Knowing khulan winter range might help us to find a more suitable winter ranges for takhi and might enable us to teach them to migrate to these areas. However, in a first step we have to establish where the khulans go. Because we were not able to catch wolves as expected and had to pay ARGOS operations costs for 2002 in advance - to take profit of the limited use service (LUS; ARGOS 2002) - we decided to deploy three of the four wolf collars on khulan (Fig. 6) and one on a takhi in the newly formed *bachlor* group (Table 2).



Fig. 6: We captured khulan with a CO<sub>2</sub> dart gun (Daninject, Danmark) from a blind set up at the Toodog water point. Three animals, two young mares and one young stallion, were shot at distances between 63 and 75m.

During the first month of monitoring we obtained 331 ARGOS locations of which 97 (35%) were in the three highest accuracy classes (Table 4).

animal	sex	LC 1+2+3 <sup>1</sup>	% LC 1+2+3 of total
ZAR	female	35	0.35
ATOS	male	44	0.45
DSCHINGIS	female	18	0.35
<b>all</b>		<b>97</b>	<b>0.35</b>

Table 4: Number of high accuracy ARGOS locations per animal from 24.June – 21. July 2002.

<sup>1</sup>LC1 = ± 1000m, LC2 = ± 350m, LC3 = ± 150m

During this short period the three khulan had already covered an area of 2,368 km<sup>2</sup>: ZAR 1,145 km<sup>2</sup>, ATOS 1,351 km<sup>2</sup> and DSCHINGIS 52 km<sup>2</sup>. While the male DSCHINGIS stayed in the vicinity of the water hole Toodog, the two females made use of all important water holes in the eastern part of the park: Toodog, Chonin Us, Shirin Us and Gun Tamag/Gashurn Us (Fig. 7)

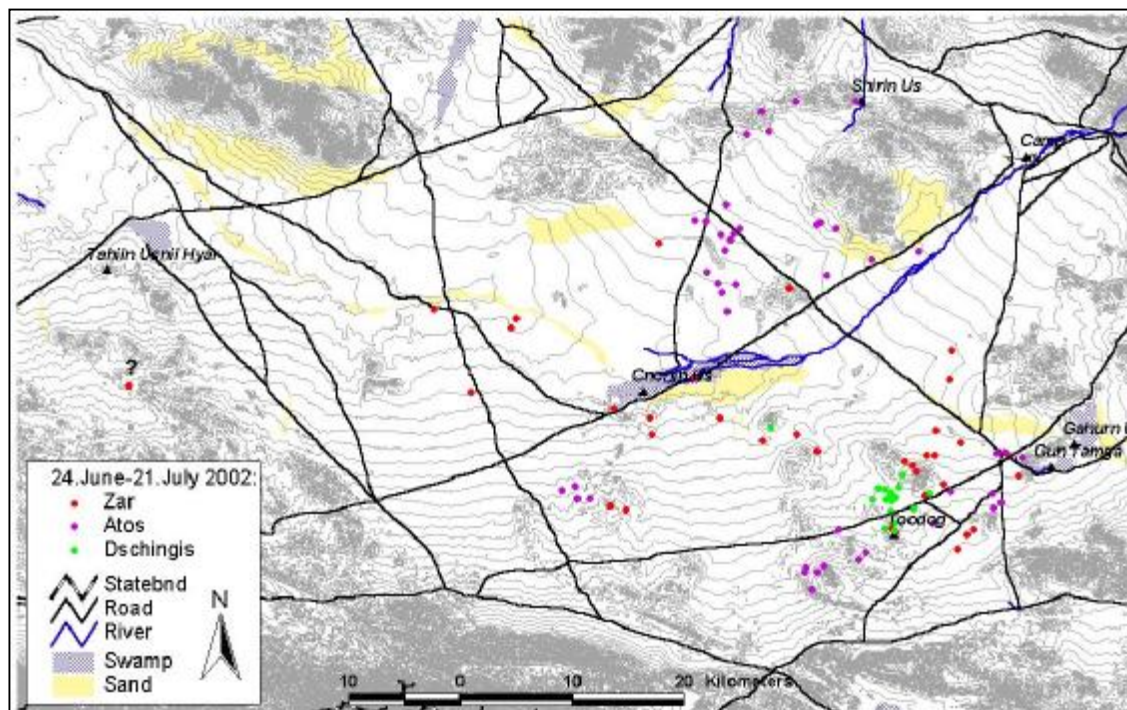


Fig. 7: ARGOS locations of three khulan in the Gobi B National Park, 24. June to 21. July 2002.

## 4 Other activities

### Small mammal survey

In June 2002 a new Mongolian research student, D. Lkhogvasuren (Shagi) from the University of Ulaan Baatar, started working on small mammals (Fig. 8). For a first species inventory Shagi set a total of 80 Sherman-, 30 snap- and six conus traps in the main plant community zones of the study area. Sherman traps were set at 12 different sites (16 traps at each side in a 4 by 4 trapping grid, each trap spaced 5 m apart). Although traps were checked two times a day (at 7:00 and 19:00) capture success was slim. Our overall impression, from all fieldwork combined, was that small mammals numbers are low this year. Despite low numbers, small mammal work will be intensified in August, when an Austrian veterinarian – Jochen Lenger - will join Shagi. Besides looking at species composition and density, an additional focus will be on the importance of small mammals as disease vectors.



Fig. 8: The Mongolian research crew heading for field work. From left to right: Saikhanaa (wolves), Lkhogvasuren (small mammals) and Ganbataar (takhis).

### 10 year celebration in Takhin Tal – Nadam in Bij

To celebrate the tenth anniversary of the takhi re-introduction project a traditional Mongolian Nadam was organized at the village of Bij. Representatives of the surrounding sum centres as well as several hundred visitors from the surrounding countryside visited and made it a spectacular event. The festivities included a wrestling contest, several horse races and the distribution of information material about the takhis and the National Park (Fig. 9).



Fig. 9: Nadam celebration in Takhi Tal, June 2002.

## Media coverage

The arrival and release of the new takhis was accompanied by two Austrian TV crews (Helmut Pechlaner and the UNIVERSUM-Team of director Heinz Leger <http://www.zoovienna.at/universum.html> and Ulli Wolf und her team from ORF Salzburg) and two reporter teams (Guardian, Great Britain and a free lance). All teams got unique footage and enjoyed the Mongolian hospitality and landscape. In addition, Johann Weyringer <Http://Www.Salzburg.Com/Kultur/Weyringer/>, an artist, sculptor and architect from Austria, painted his personal impression of the takhis and their arrival (Fig. 10).



Fig. 10: ORF Salzburg team interviewing cranes, Johann Weyringer exhibit at the research camp.

## 5 Acknowledgements and Funding

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