

STATUS OF LARGE MAMMALS IN PROPOSED BIG PAMIR WILDLIFE RESERVE, WAKHAN, AFGHANISTAN

ANNUAL REPORT 01

BY

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Marco Polo (1254 – 1324)
From 'The Travels – The Road to Cathay'

“When the traveler leaves Badakhshan, he goes twelve days journey east –north-east up a river valley belonging to the brother of lord of Badakhshan, where there are towns and homesteads in plenty, peopled by a warlike race of Moslems. After these twelve days he reaches a country called Wakhan of no great size, for it is three days journey across in every way. The people, who are Moslems, speak a language of their own and are doughty warriors. They have no ruler, except one, whom they call ‘nona’ that is ‘count’ in our language, and are subject to the lord of Badakhshan. They have wild beasts in plenty and game of all sorts for the chase.

When the traveler leaves this place, he goes three days journey towards the north-east, through mountains all the time, climbing so high that this is said to be the highest place in the world. And when he is in this high place, he finds a plain between the mountains, with a lake from which flows a very fine river. Here is the best pasturage in the world; for a lean beast grows fat in ten days. With game of every sort abounds. There are great quantities of wild sheep of huge size. Their horns grow as much as six palms in length and are never less than three or four. From these horns the shepherds make bowls from which they feed, and also fences to keep in their flocks. There are innumerable wolves, which devour many of the wild rams. The horns and bones of the sheep are found in such numbers that men build cairns of them beside the tracks to serve as landmarks to travelers in the snowy season.”

EXECUTIVE SUMMARY

During the first phase of survey mammal team surveyed the Proposed Big Pamir Wildlife Reserve encompassing an area of 679.38 km². The mammal team reported the presence of 8 large mammalian species out of the 9 mammalian species as reported earlier by Petocz (1978). Out of the 8 species found in the area, Snow Leopard (*Uncia uncia*) and Marco Polo Sheep (*Ovis ammon polii*) are globally threatened. Overall mammal team reported the presence of 10 mammalian species from the area. Altai Weasel (*Mustela altaica*) is new addition to the species checklist of the Afghanistan reported during the present survey from the Wakhan valley.

During the survey mammal team surveyed 11 valleys and confirmed the presence of snow leopard from the 10 valleys. Information about the presence/absence and abundance estimation of the snow leopard was collected from the 15 sign transects in all the 11 valleys surveyed during the survey period. We estimated the presence of 1 - 2 snow leopards per square kilometer which gives an estimate of 6.78 - 13.56 cats for the Proposed Big Pamir Wildlife Reserve. This may be an underestimate because the survey time was late as almost all the herders had already moved deep inside resulting in destruction of signs.

The team reported the presence of Marco Polo Sheep from the 3 valleys out of the 11 valleys surveyed. Record of the presence of the Marco Polo sheep from the Nakhrishitk valley is an addition to the previous records. Marco Polo has been reported first time from this valley during the present survey. Based on time series analysis we expect presence of 211 animals in the Proposed Big Pamir Wildlife Reserve. The present Marco Polo habitat is highly grazed and this needs to be immediately stopped.

Based on the measurement of 59 horns from the Proposed Big Pamir Wildlife Reserve, the animals are usually dead by the time they reach to an age of 4 - 7 years, an age when most animals have not achieved the notable horn length - the ideal trophy.

Presence of Long Tailed Marmot (*Marmota caudata*) in all the valleys surveyed is good sign to reduce the conflict by the predators during summer months. Regression equation was developed to estimate the number of marmots based on the number of holes counted in any area. The equation is $Y \text{ (population Size)} = 0.70 (\pm 0.02) \text{ Total Number of Marmot Holes} + 0.20 (\pm 0.01)$. The equation explained 97% of the variation.

Other species reported during the survey are Wolf (*Canis lupus*), Brown Bear (*Ursus arctos*), Siberian Ibex (*Capra ibex siberica*), Himalayan stoat or Ermine (*Mustela erminea*), Red Fox (*Vulpes vulpes*) and Cape Hare (*Lepus capensis*).

During the survey mammal team also collected 100 scats of wolves, 32 scats of snow leopard and 15 scats of red fox. The scats have been stored and will be analyzed only after collecting more scats from the field to achieve statistically significant sample size.

We also interviewed 20 families from the Proposed Big Pamir Wildlife Reserve to access their dependence on the resources; same will be analyzed after we interview all the families from the area.

At the end, the Proposed Big Pamir Wildlife Reserve is worth to be considered as one of the finest reserves of the world based on the uniqueness of fauna and flora it holds.

INTRODUCTION

Wakhan is a strategic strip in the north-east of Afghanistan. Its length comes to 300 km while its breadth ranges from 20 – 60 kms. The area links Afghanistan with Pakistan in the south, Tajikistan in the north and China in the east. Historically Wakhan is a part of Badakhshan which was an independent state until 1883, when Amir Abdul Rehman Khan had it merged with the Kingdom of Afghanistan under the 1873 treaty of Czarist Russia and British India (Anon, 1987: P – 13). In 1895, the Afghan panhandle was given the status of buffer zone and its administration was entrusted to the Afghan Amir, for which he received an annual subsidy of 5,000 pounds sterling from British India (Khalid, 1989)

The reason for creating the buffer zone between the borders of Russia and India was the well known Russio-phobia of the British who then ruled the sub-continent. The idea was shared and equally supported by the Russians, because they were also interested in having safe borders to their south. The people of the Wakhan and the Afghan Pamirs had to suffer in the best interest of their great neighbors who had been termed “the bear” and “the wolf” by Amir Abdur Rehman Khan (Faizi, 1996).

Wakhan Corridor

The Hindu Kush/Himalayan mountain system of south asia includes several mountain ranges, including the Great Himalaya, the Karakoram, the Hindu Kush, and the Pamirs, which extend over 3,500 km and across nine countries (from Afghanistan in the west to Myanmar in the east). These four great mountain ranges meet on the borders of Pakistan and Afghanistan. The formation of this relatively young mountain system during the Tertiary age created new habitats and dispersal routes for flora and fauna. Consequently, life in these mountains became influenced by elements from five biogeographical subregions, the Mediterranean and the Siberian (of the Palaearctic region), west Chinese, Indochinese and Indian (Oriental) (Mani, 1974; Schaller, 1977). The fauna of this mountain system is largely Oriental towards the east, while it gets mixed with Palaearctic elements in the west. Among the large mammals in the high mountains, large carnivores such as the snow leopard, the wolf, and the brown bear are Palaearctic, and so are their main prey, the wild goats and wild sheep. Among the species of mountain ungulates are the markhor (*Capra falconeri*), the ibex, the argali and the urial, each of which reaches west into Afghanistan.

The western limit of this mountain system is defined by the Hind Kush range, which on its eastern side is contiguous with the Karakoram. Straddled between the Hindu Kush in the south and the Alai in the north is the Pamir range, spread over Tajikistan, Western China and the Wakhan Corridor in the Eastern Afghanistan. The Wakhan Corridor, and in particular its eastern end in the Pamir Knot, has always been one of the most remote and least accessible corners of Afghanistan. (Figure 1).



Figure 1: Map of Afghanistan showing Wakhan Corridor and Propose Protected Area. Inset shows Wakhan corridor and its proposed protected areas

The Wakhan and the Pamir Knot

The Wakhan Corridor is located between $36^{\circ} 59' N$ to $70^{\circ} 29' N$ and $72^{\circ} 45' E$ to $73^{\circ} 30' E$. Approximately 210 km east to west and between 20 km and 60 km north to south between the frontiers with Tajikistan and Pakistan encompassing an area of 10,300 square kilometers.

The historical and political background of the Wakhan Corridor seems to fit awkwardly into the great knot of mountains where the Hindu Kush, the Pamirs and the Karakoram ranges meet.

This strange panhandle of land jutting out of the northeast corner of the Afghanistan came into being as an integral part of Afghan territory only as the result of frontier wrangling between imperial Russia and Imperial Britain in the 1880s and 1890s, a period during which Czarist Russian forces consolidated their control over the Central Asian Khanates and Emirates. Imperial Britain, in response moved up from the Indian plains into the mountain principalities now incorporated in Chitral and the northern areas of Pakistan.

Geographic Description of the Wakhan Corridor

Population

The total population of the Wakhan/Pamir area, with approx 1335 households, is thought to be 10, 590 people (UNEP, 2003). Of these the majority are Wakhi farmers and herders inhabiting the main Wakhan strip between Ishkeshem and the Qala Panja and thereon up the Wakhan valley as far as Sarhad-e-Broghil. These include herding families who use the western valleys of

the Big Pamir and the Little Pamir. The number also includes between 210 and 240 (depending on the source) households of yurt- (domed felt tent) dwelling Kyrghyz herders, or an estimated total population of about 1100-1300. Of these, possibly as many as $140 \pm$ households live in the northeastern valleys of the Big Pamir, and approximately $100 \pm$ households live in the little Pamir.

Frontiers

The northern boundary of the 'corridor' with Tajikistan is formed by the Amu Darya river, which is known along this stretch as the Panj, at least as far upstream as where it is joined by the Wakhan River at the western end of the Pamir Knot. From this point upstream it is known as the Pamir, as far as its headwaters and source in Zor Kol Lake, which lays claim to being the main source of the Amu Darya or Oxus River.

The southern frontier with Pakistan runs along the ridge and watershed of the mountains, which make the easternmost spurs of the Hindu Kush range until they merge in a jumble of high mountains and glaciers where the Pamir and the Karakoram ranges meet on the borders of China, Afghanistan and Pakistan.

The Three Divisions of Wakhan

The Wakhan Corridor, Big Pamir and Little Pamir

The Wakhan Corridor can be roughly divided into three parts. The main Wakhan strip lies between the district centre and the border station of Ishkeshem at the western end and the village of Qala Panja at the eastern end, which is situated at the confluence of the Wakhan and Pamir headstreams. East of the confluence of the rivers lies the Pamir Knot, with the Big Pamir comprising the westernmost and highest block of the mountains in the knot, separated from the Tajikistan Pamir by the deeply incised valley of the Pamir River. The southern and easternmost block of the mountains in the knot is the Little Pamir, which is defined by the upper valley and headwaters of the Wakhan River. (Figure 2).

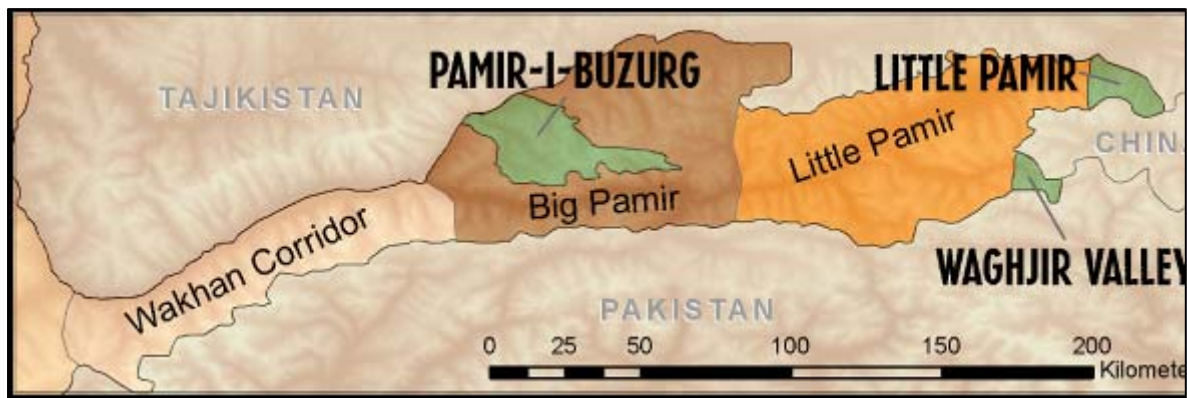


Figure 2: Map showing three divisions of Wakhan

OTHER MAMMALIAN SPECIES

In the present survey mammal team reported the presence of 9 species in the Big Pamir Wildlife Reserve. The account below gives the details of all the mammal species except Snow Leopard and Marco Polo Sheep from the Big Pamir Wildlife Reserve.

Long Tailed Marmot (*Marmota caudata*)

Marmots are the largest rodents. Belonging to the Sciuridae family, like squirrels they are heavy set with a flat head, a prominent sagittal crest and a long tail.

The marmot is the gregarious species living in large colonies. It excavates a system of burrows in which several animals may live. There are several entrances to the burrow system. They are diurnal and come out of their burrows to bask in the sun and feed on nearby vegetation. They are herbivores feeding on a variety of grasses, flowers, bulbs and shrubs such as *Artemisia* (Ognev, 1940). The long-tailed marmot spends long



Credit: Bilal Habib, International Snow Leopard Trust

Long Tailed Marmot from Nakhrishitk valley

hours feeding the spring and summer months as a result of which they build up sub-cutaneous fat reserves. With the onset of the cold weather they go into hibernation. When they sense danger a member of the colony gives a warning signal by whistling sharply. This alerts others to the danger. They flee when the source of the danger gets close. When resting they sit on their haunches to get better view of their surroundings. Despite their apparent bulkiness they are swift and can scamper over rocks without difficulty.

They are widespread throughout the montane biotopes of Afghanistan. Both Schaller (2004) and Fitzherbert *et al.*, (2003) were unable to record the number of animals in the Big Pamir as the animals were in the phase of hibernation during their survey. But reported the abundance of the animals based on signs. They are key summer prey species of the major predators (Wolf, Bear and probably other predators) (Schaller, 2004). Their abundance is one of the important factors for minimizing the conflict and effective management of the Big Pamir Biosphere Reserve. They are not harvested by the local people except for few hunts by the dogs of the villagers. This resource if abundant in the Pamirs will reduce the conflict with the local communities during the summer months.

During the first phase of survey mammal team had sightings of Marmots from all the valleys surveyed (Table 9). The frequency of sighting decreased as the survey progressed because of the arrival of the hibernations period. However during the first phase mammal team collected intensive data on the number of the marmots in four valleys namely Nakhrishitk, Ali Su, Aba Khan and Shikargah. The details with number of colonies in these valleys are given in Table 10. We actually counted number of holes in the main four valleys of the Proposed Big Pamir Wildlife Reserve and actually counted number of individuals in the stretch where we counted number of holes.

Table 9: Details of Marmot sightings during first phase of survey

S. No.	Name of Valley	No. of Colonies	No. of Individuals
1.	Wagji Valley	02	08
2	Nakchrishitk	09	81
3	Ali Su	07	59
4	Aba Khan	09	77
5	Shikargah	07	52
6	Wuzed	06	28
7	Kund-a-Thur	05	19
8	Asan Katich Left	02	12
9	Asan Katich Right	03	16
10	Kusk Valley	02	09
11	Kali Uoos Valley	01	03
Total		53	364

Table 10: Details of Marmots from four valleys from BPWR Wakhan, Afghanistan

Valley	Number of Colonies	Number of Individuals in each Colony	No. of Holes Counted
Nakchrishitk	01	06	07
	02	12	14
	03	09	11
	04	14	16
	05	08	09
	06	09	10
	07	06	06
	08	08	11
	09	09	12
Ali Su	01	07	07
	02	08	10
	03	09	12
	04	12	13
	05	06	09
	06	09	11
	07	08	10
Aba Khan	01	06	09
	02	09	12
	03	08	12
	04	12	20
	05	08	14
	06	06	11
	07	09	17
	08	10	18
	09	09	17
Shikargah	01	06	09
	02	07	11
	03	08	10
	04	05	07
	05	09	13
	06	09	12
	07	08	11
Valleys 4	Colonies 32	Individuals 269	Holes 371

The basic idea for counting the number of marmot holes and individuals is to develop the regression equation for the same. The development of the regression equation will help to estimate the number of the animals even if the surveyor does not have any direct sightings of the animals.

Relationship between Marmot Numbers with Number of Marmot Holes

Regression equation explained 97% of the variation in the observations of number of marmot holes and number of individuals counted. The best fit line could be theoretically applied to any number of marmot holes to predict the number of individuals (Figure 6). The relationship is defined by the equation:

$$Y (\text{Population Size}) = 0.70 (\pm 0.02) \text{ Total Number of Marmot Holes} + 0.20 (\pm 0.01)$$

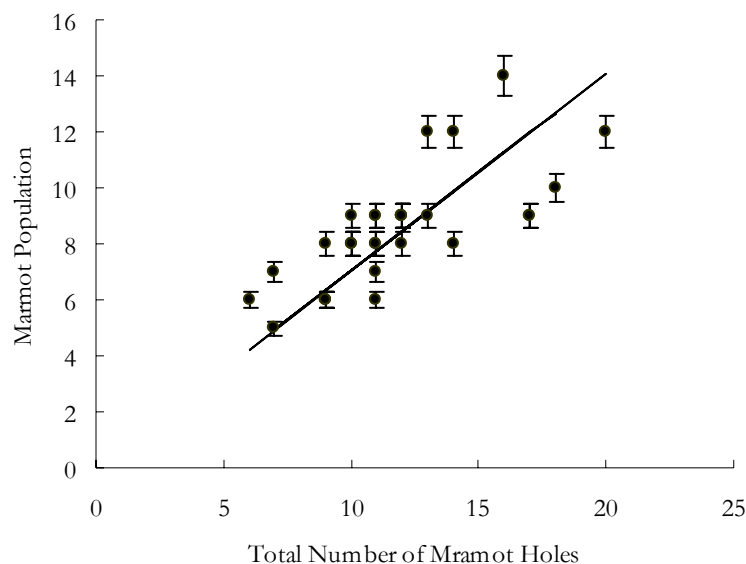
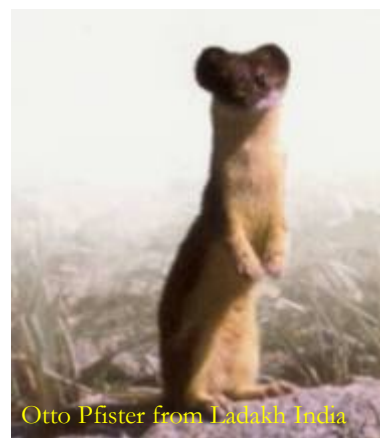


Figure 6: Regression between the mean marmot population and the total number of marmot holes ($R^2 = 0.9667$). The error bars are the standard 95% Confidence Limits

Of course the equation derived by the regression equation proves to be 96% accurate, but the equation can be modified in the coming seasons by adding more data and standardization of the equation for the future research.

Himalayan Stoat (Ermine) *Mustela erminea*

The ermine has a long cylindrical body with short limbs which are armed with sharp claws. It has a blunt muzzle, rounded ears and dark black eyes. Body colour is chestnut brown. The chin, throat and undersides are creamy white with slender tail having conspicuous black tip.



Himalayan Stoat (Ermine) *Mustela erminea*

Table 12: Details of Red Fox presence during first phase of survey

S. No.	Name of Valley	Direct Sightings	Evidences
1	Ali Su	01	Scats
2	Shikargah	03	Tracks
3	Wuzed	-	Scats
4	Asan Katich Left	01	Tracks
Total		05	

Brown Bear (*Ursus arctos*)

The brown bear has a reddish brown colour. It has massive head with small rounded ears. The limbs have long claws, whitish or pale brown in colour. Brown bears are solitary and each individual occupies a territory of its own. It is an omnivorous animal feeding on a variety of foods including fruits, bulbs, and roots of plants, insects, fish, rodents and small crustaceans (Roberts, 1997).

Brown bears leave conspicuous signs of their presence especially when they excavate marmot burrows. During the survey period we had very good record of very fresh signs

of the bear from the Proposed Big Wildlife Reserve especially from Ali Su and Aba Khan Valleys. Schaller (2004) was unable to evaluate the status of the bear from the Big Pamir except seeing fresh tracks on snow in the Shikargah valley. As per the Fitzherbert *et al.* (2003), Pamirs has the healthy population of the bears. They saw the droppings of adult and young at a summer camp in the Big Pamir. The species is not in direct conflict with the local communities in the Wakhan area.

During the first phase of survey we recorded the presence of fresh signs from 4 valleys out of the 11 valleys surveyed. Very fresh signs such as scats, digging of the marmot holes, tracks from the three out of the 4 valleys in which presence was confirmed. In the Kund-a-Thur valley we saw the carcass of the dead bear. As per the villager the bear was found dead inside in side the *Ilock* in the previous winter. They were unable to assign any cause to the death of the bear.



Fresh Brown Bear Scat from Ali Su Valley



Brown Bear Carcass from Kund-a-Thur Valley