



DISTRIBUTION AND CURRENT TRENDS IN THE POPULATION OF KASHMIR MARKHOR IN CHITRAL GOL NATIONAL PARK DISTRICT CHITRAL, KHYBER PAKHTUNKHWA

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ABSTRACT

Chitral Gol National park (N 33°34'0.12" and E 73°29'59.99") is known to support the world highest population of Markhor. The Markhor move to lower areas in the Park during winters to protect themselves from harsh climatic condition, easy access to food resources and for mating. The Markhors were monitored in Chitral Gol National Park in November and December 2017. As they reached to lower snow uncovered elevations, a complete survey was done within a single day on 21 December 2017 within the study area to record the population trend and distribution of Kashmir Markhor in the study area. A total of 2,057 Markhor distributed in 39 small ridges, clusters and narrow gorges were enlisted from 8 vantage points. The sex and age analysis showed that 39% were fawns/lambs, females comprised of 26%, while young males and trophy size males were 24% and 11%, respectively. Potential threats included disturbance due to dry fuel wood collection during breeding season and climate change. Future plans have been suggested for the conservation and protection of the Kashmir Markhor and other key fauna of the National Park.

Keywords: Caprinae, Markhor, population distribution, threats.

INTRODUCTION

Pakistan has seven Caprinae species, and these are divided into as many as 12 subspecies (Roberts, 1977; Hess *et al.*, 1997). Based on body characteristics and horn shape, Schaller and Khan (1975), recognized two subspecies of Markhor in Pakistan: 1) flare-horned markhor having horns with a diverging spiral which includes the Kashmir markhor (*Capra falconeri cashmiriensis*) and Astor markhor (*Capra falconeri falconeri*) and 2) Straight-horned markhor with cock screw horns which includes the Kabul markhor (*Capra falconeri megaceros*) and Suleiman markhor (*Capra falconeri jerdoni*). The straight-horned markhor is smaller in size than Flare-horned markhor and have comparatively smaller horns (Robert, 1969; Ali, 2008).

Khyber-Pakhtunkhwa province of Pakistan has rich biodiversity resources compared to other provinces of the country. Some of the most beautiful and endangered species of mammals and birds are found in the unique geographical zones of this province. Among the 26 National Parks of Pakistan, Chitral Gol National Park (N 33°34'0.12" and E 73°29'59.99") (Fig. 1) has its own significance for providing shelter to the world's largest population of Markhor (*Capra falconeri cashmiriensis*) (Fig. 2, 3), currently status is Near-threatened (Michel and Michel, 2015). This park also provides ground for the national treasures of Pakistan such as Chukor partridge, jasmine flower and the national tree deodar. This park is also famous for its eye-catching scenery, snow blanket mountain tops and pristine environment (Khan, 2010).

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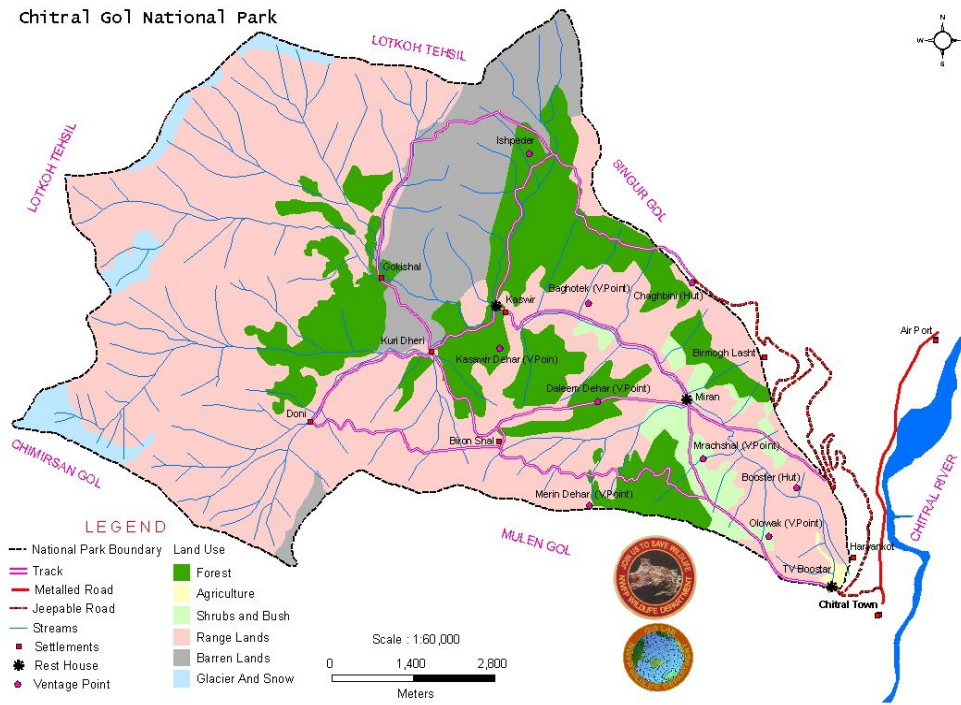


Fig. 1. Map of Chitral Gol National Park. (Courtesy by Ali, 2008).

The park is stretched about 7,750 hectares and is about 4,900 meters above the sea level (Masood, 2011). The main stream, Chitral Gol stream, divides the park into two opposite banks that includes sharp ridges, deep valleys and gorge areas. On December 23rd, 1971, it was declared as Wildlife Sanctuary and later in 1984 it was given the

status of National park (Chaudhry, 2006). Being in high altitude the park receives plenty of rainfall and most of the area remains snow covered during winter season. Hence the fauna has been observed to migrate to the lower elevations.

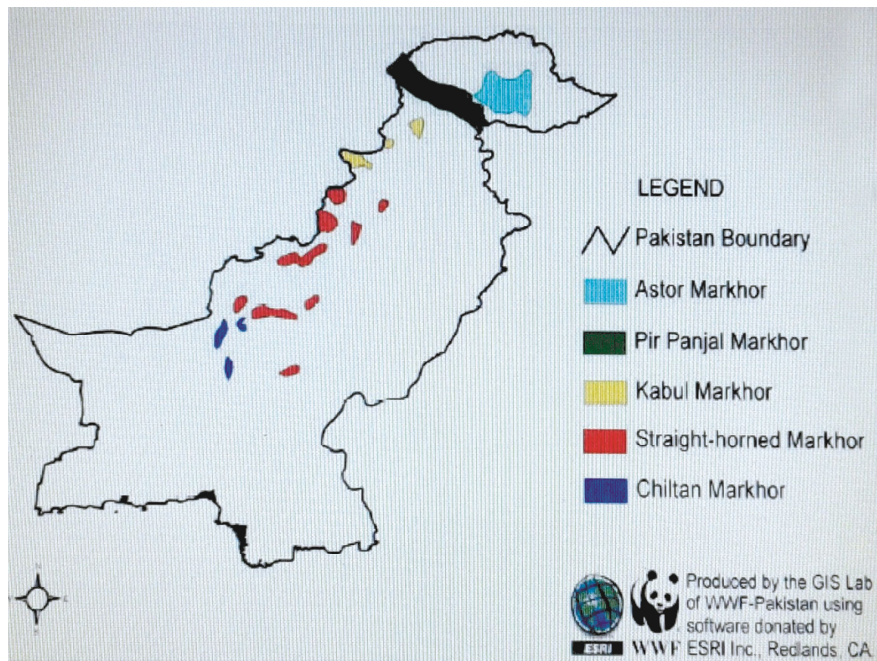


Fig. 2. Distribution of Markhor in Pakistan. (Courtesy by Ali, 2008).



Fig. 3. Kashmir Markhor (*Capra falconeri cashmiriensis*) in Chitral Gol National Park.

From late November till end of January the breeding seasons of Markhor continues in the park with peak in December every year. The official annual rut season survey of Markhor has been done during the month of December as most of the areas in the park are covered with snow and the Markhors were confined to a very small area (Ahmed, 2009). The previous rut season surveys recorded 487 in the year 2003, 687 in 2004, 613 in 2005, 753 in 2006, 759 in 2007, 1033 in 2008, 1146 in 2009, 1072 in 2010, 1160 in 2011 and 1364 in 2012 (Official record no 496/ WL-CGNP) and in 2014, the grand total was 1379 Markhor individuals (Altaf, 2014). In 2015, Markhor population reached to 1744 (Altaf, 2015) and in the rut season survey of 2016, a total of 1944 Markhor individuals were documented in the core area of Chitral Gol National Park (Irshad, 2016). During the month of November 2017, Markhor were observed on a weekly basis, their presence was monitored in the areas of lower elevations. The survey was done during December as the Markhors are more confined to small areas for rutting and thus their population status and distribution could be done correctly (Arshad *et al.*, 2013).

The present study was done on 21th December 2017 to estimate the population status, distribution and population trend of Markhor in the core zone of Chitral Gol national

park. Also, to highlight the potentials threats to its flora and fauna especially Markhor and its food sources.

MATERIALS AND METHODS

The park area is stretched into many slopes and sharp ridges. The data collection for the population status, trends and distribution of Markhor was made from 8 different vantage points. Data was collected from 39 small different clusters of ridges, slopes and small steps, with the help of field staffs, wildlife watchers, community watchers and other experts. Most of the vantage points were selected on one bank of the main stream and the clusters were taken on the opposite bank, so the data compilation could be easily taken into account. The direct and indirect methods of field surveys were also carried out.

Lower altitude areas of the park where the Markhor were present for rutting was divided into small clusters so that the data collection from the vantage points could be done easily. Observation time for each count of each site was noted carefully to avoid repetition of any individuals. By the end of the survey, the data taken from each clusters of each area under that specific vantage point and the time of count were compared. Thus Markhors counted twice were eliminated from the list.

The vantage points included Akherzaman (35°52'28.68"N, 71°44'34.29"), Bakhtanshalotek (35°54'6.75"N, 71°43'9.17"E), Daleemodehar (35°53'28.72"N, 71°44'32.12"E), Malosh (35°52'31.94"N, 71°45'11.33"E), Marindehar (35°52'50.47"N,

71°44'53.18"E), Olowak(35°51'46.77"N, 71°46'1.14"), Shadahar(35°52'15.53"N, 71°46'9.54"E) and Tonghohdehar (35°54'26.61"N, 71°43'46.69"E), respectively (Fig. 4).

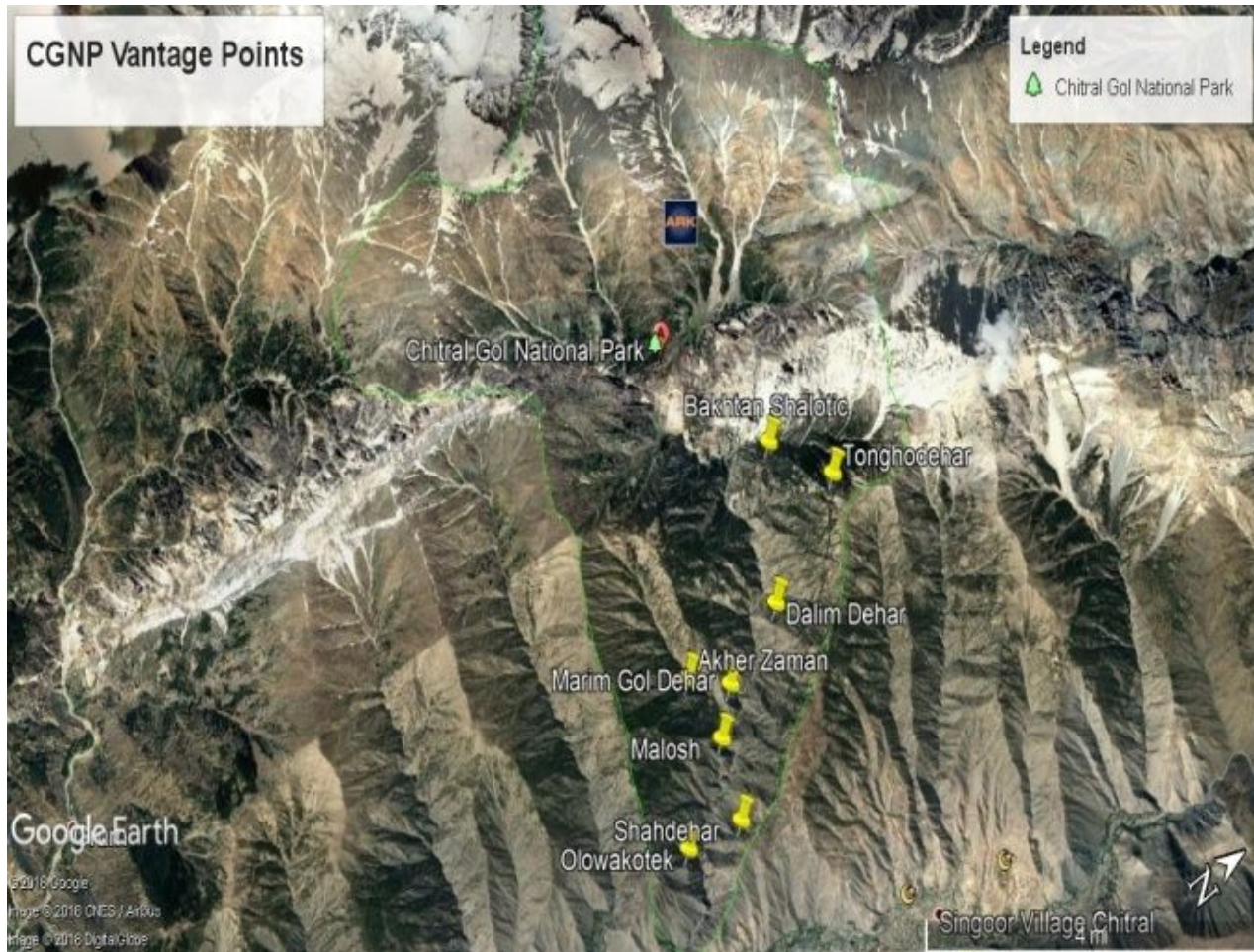


Fig. 4. Map of the Chitral Gol National Park vantage points. (Courtesy by Google Earth).

In this study, the observation population census, population trends and distribution of the Markhor were simply made by binoculars (10x42mm) Spotting scope, fields guide books and help of the expert field staff.

RESULTS AND DISCUSSION

The data collected from 8 vantage points (point observation) showed that the total number of about 2,057 Markhor of different age groups were distributed within 39 different sites of Chitral Gol National Park. Among them the highest number of 453 individuals comprising of 22% of net population were sighted from Merindehar

vantage point. Second highest rank of about 18% population of about 378 Markhors were distributed in Malosh vantage point. Shadehar vantage point showed Markhor population of 309 individuals contributing to 15% of population. Daleemodehar vantage point showed 14% of population with 281 number of Markhor.

About 274, 193 and 123 numbers of Markhors were distributed in Olowak, Bakhtanshalotek and Akherzaman vantage points showing 13%, 9% and 6% of Markhor Population, respectively. Whereas, the lowest population of just 2%, only 46 animals were distributed in Tonghohdehar vantage point (Fig. 5).

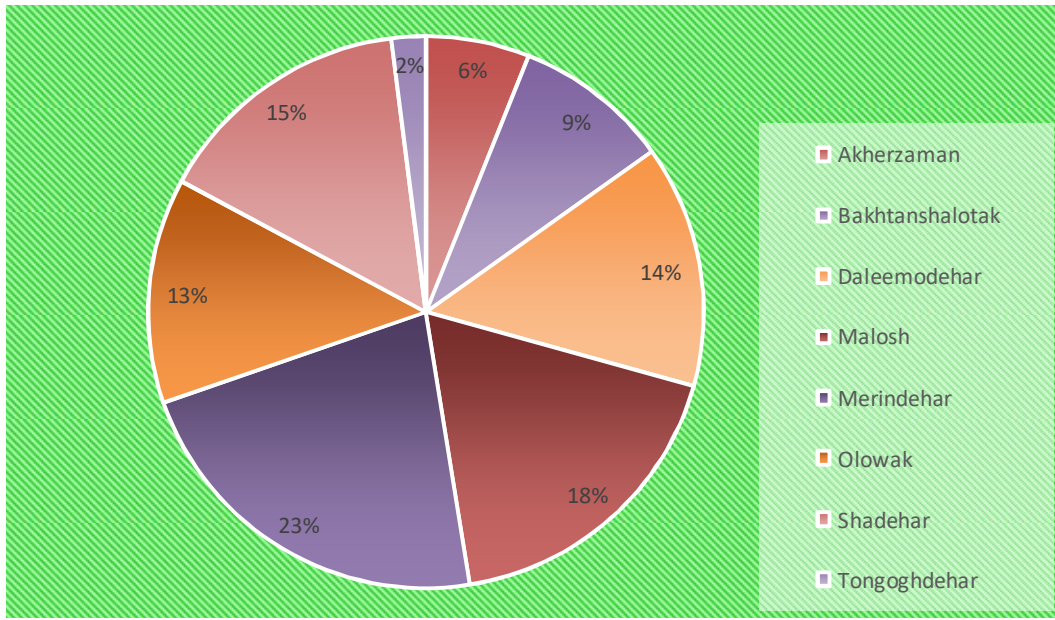


Fig. 5. Percentage distribution of Markhor in different vantage points.

The population trends showed that among the total population, the fawn/lamb (birth up to 1 year) were dominated as being 39%, followed by females at 26%.

While young males (from 1 year up to 8 year) and trophy size males (8 years and above) constituted 24% and 11% of the grand total, respectively (Fig. 6).

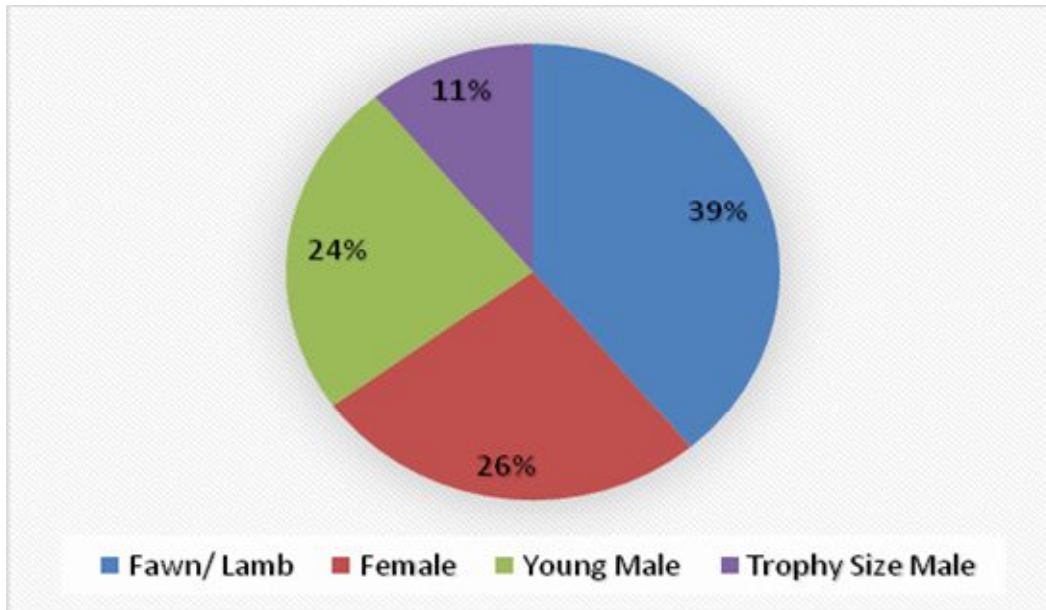


Fig. 6. Sex and Age wise analysis of Markhor in Chitral Gol National Park.

CONCLUSION

During the present study a total of 2,057 Markhors were documented, they were distributed in different sites of the study area. The highest population was seen to be inhabited in dry temperate conifer forest where the areas are either slightly or not covered by snow. The dominant

vegetation were *Cedrous deodar*, *Quercus Ilex* and *Pinus gerardiana*. Daleemodehar and Merindehar vantage points except tongoghdehar being snow covered showed the lowest population. The areas of Malosh, Olowak and Shaddehar, where scrub forests, mainly *Quercus Ilex* as principal vegetation, were thickly populated as well. It showed that maximum Markhors were inhabited to the

less snow-covered areas as compared to more snow-covered areas where they have easy access to their counterparts for mating and food sources. Most of the park areas were inaccessible due to extremely high snow blanket thus 47% of the data were collected from conifer zone, 43% from scrub zone and 10% were collected from sub alpine zones.

During the month of December, the Markhor breeding is at peak. Thus they move to lower elevation snow uncovered areas. But during this time the local communities collect dry fuel wood and this disturbs the breeding herds. Other problems include climate change that affects the flora and fauna of the national Park.

It is suggested that community based conservation programs and strategies should be designed by the government for better future of the park and to protect its wild flora and fauna. Ecotourism in park could be developed. The number of trophy size males present in park should be monitored daily.

To overcome the impact of local community, awareness campaign should be started in villages. Villages conservation communities, the watch and ward authorities should be made active for proper and long-lasting conservation of the Park.

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