

SNOW LEOPARD FOUNDATION

## PRE TROPHY HUNTING QUOTA ALLOCATION SURVEY OF HIMALAYAN IBEX IN CHIPURSAN VALLEY, DISTRICT HUNZA, GILGIT-BALTISTAN

### RUT SEASON SURVEY REPORT

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# 1. INTRODUCTION

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Gilgit-Baltistan is famous for its unique geographical position and rich diversity of wild fauna. Many threatened large mammals both carnivores and herbivores are thriving in the mountains of Himalaya, Karakorum, Pamir and Hindu Kush. The iconic large carnivore species of the region include snow leopard (*Panthera uncia*), Himalayan brown bear (*Ursus arctos isabellinus*), black bear (*Ursus thibetanus*), grey wolf (*Canis lupus*) and Himalayan lynx (*Lynx lynx isabellinus*). Besides, good population of six species of wild sheep and goat including Astor Markhor (*Capra falconeri falconeri*), Blue sheep (*Pseudios nayaur*), Ladakh urial (*Ovis vignei*), Marco polo sheep (*Ovis ammon polii*), Musk deer (*Moschus chrysogaster*) and Himalayan ibex (*Capra sibirica*) is also reported from the region, while the presence of Kashmir Markhor is also reported from some parts but not confirmed on scientific lines (Roberts, 1999; Rasheed, 2007; Schaller 2007; Khan et al., 2014; Hussain et al., 2014). Trophy hunting is one of the conservation tools in wildlife management, where the selected old male animals are harvested to generate revenue. Trophy hunting of Markhor, Ibex and Blue sheep in several valleys has been initiated by Parks and wildlife Department of Gilgit-Baltistan since 1991 to promote community based conservation of the trophy species. Eighty percent of the revenue generated through trophy hunting goes to the communities who spent this money in conservation related projects. It has been admired at both national as well as international level.

Robust and long-term studies of population dynamics are important for better understanding of population ecology, wildlife management and conservation (Zhang *et al.*, 2012). It is prerequisite to carry out scientific survey to estimate numerous parameters

of population in order to maintain the minimum viable population, proper monitoring, population performance and long term management of entire population and habitat from illegal hunting and poaching, reserve population of large, healthy and strong male for the transmission of strong gene to the next generation (Ewens et al., 1987; Akcakaya et al., 1999).

The current study was aimed to assess these parameters in systematic way for the conservation of Ibex in the valley and was conducted jointly by the Parks and Wildlife Department of Gilgit-Baltistan and Snow Leopard Foundation (SLF) in a newly designated Community Control Hunting Area (CCHA) of Chipursan Valley from 15<sup>th</sup> January to 22<sup>nd</sup> January 2016.

## **1.1 OBJECTIVES OF THE SURVEY**

The current study objectives were to;

- 1) Estimate the population of Siberian ibex using double observer method in Chipursan Valley.
- 2) Recommend quota for Trophy hunting of Himalayan ibex
- 3) Collect scat of carnivores for genetic analysis which result in population estimates of the selected carnivore species

## 2. DESCRIPTION OF THE HIMALAYAN IBEX

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Himalayan ibex is the member of the Caprinae and most common in the Northern region of the Pakistan (Schaller, 1977; Anonymous, 1997; Hess et al., 1997). It has closely resemblance with wild goat, inhabits the mountains of high altitude (Khan, et al., 2008). Himalayan Ibex is declared as least concern globally (IUCN, 2016) as well as in Pakistan (Sheikh and Molur, 2004).

In Pakistan, Himalayan Ibex is found in relatively dry mountains of the inner Himalayas, Karakoram, Pamir and Hindu Kush. It's habitat spreads from rugged terrain of alpine region in Gilgit-Baltistan including Gilgit, Ghizer and Baltistan districts , some parts of Khyber-Pakhtunkhwa comprising Chitral, Dir, Swat, Kohistan and Mansehra districts and in Azad Jammu and Kashmir (Roberts, 1997; Ali et al., 2007; Anwar 2011). Its local name is 'Kel' in Shina, Tonishu in Khowar, 'Sakeen' in Balti while 'Halden' in Buroshaski language (Rasool, 1990). Despite poaching pressure and competition with livestock, the distribution of Himalayan ibex in Pakistan is wide ranged and status is satisfactory (Nawaz, 2009).

### 3. MATERIAL AND METHOD

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#### 3.1 STUDY AREA

The study was conducted in Chipursan Valley of the Hunza District. This valley borders with Afghanistan, China and Russia. The entire study area was calculated to be 1103 km<sup>2</sup>, while almost 15% of the area is covered by the permanent glaciers. It has total 12 villages, 400 households with a population of 3000 people (Wazir et al., 2008)

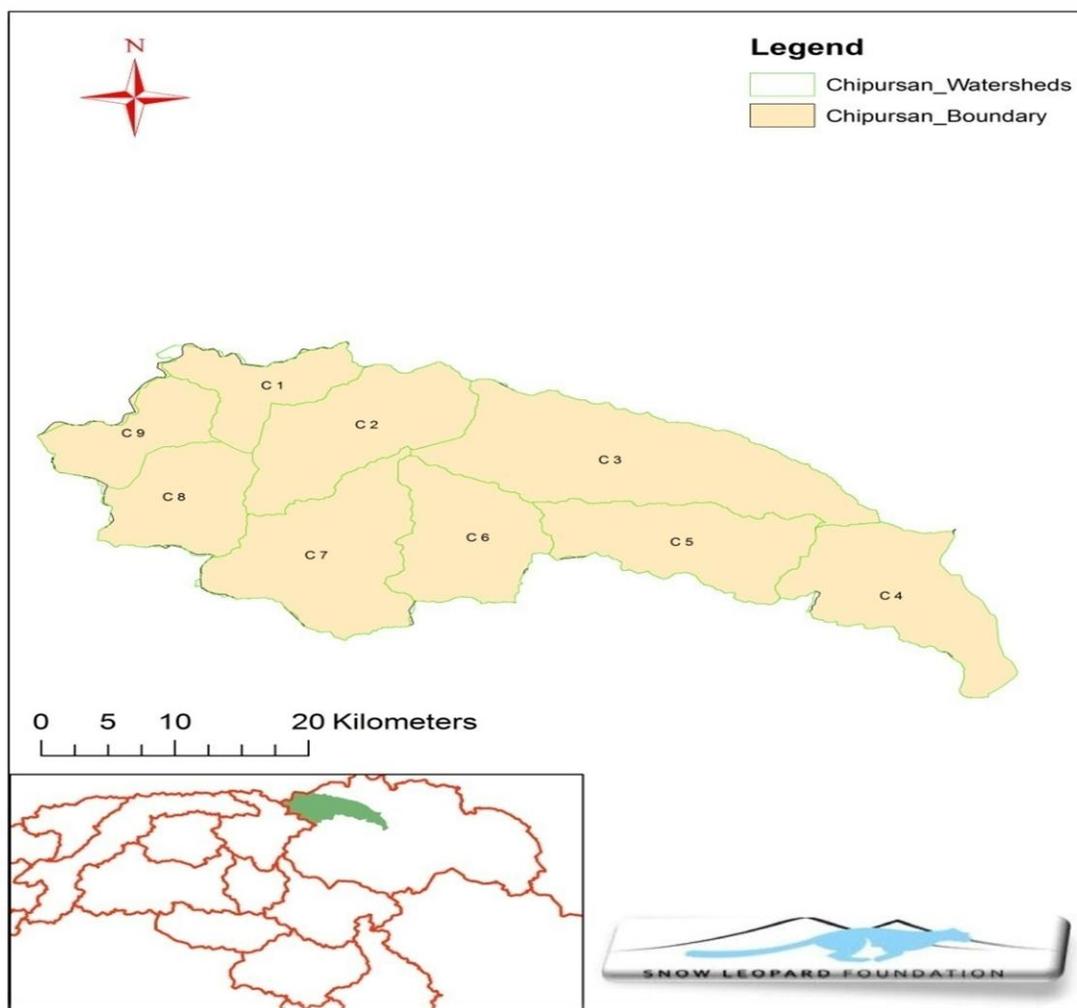


Figure 1: Map of the Chipursan Valley, District Hunza showing the study units (Watersheds)

### 3.2 METHODOLOGY

This study was conducted from 15<sup>th</sup> January to 22<sup>nd</sup> January 2016. The Double observer method was used which is one of the reliable technique in use worldwide for studying ungulate populations (Kulbhushansingh et al., 2012). We divided the whole area in to small blocks for efficient census and the tough rugged terrain and high ridges were demarcated as boundaries with less possibility of crossing to next block for daily movement. We divided the team in to two groups (observer A and observer B). They were asked to maintain the temporal distance throughout the survey without giving cue each other and 15 minutes of temporal separation was ensured between the observers. Both observers used the binocular after covering the distance of the 100m to scan the whole area thoroughly, moving through the predetermined trails without indication for each other. During the survey if observer “B” found the observer “A”, he paused until the observer “A” disappeared. We used the GPS (Garmin 62S) for the coordinates of the herd’s location and binoculars (10×50) Pentax (XCF) along spotting scope (20×60 Swarovski) for observation of herd. At the end of the day, both observers compared their data either they observed the same herds or different herds to avoid double counting. For further analysis of the data “Capture Mark Re-Capture” method was used to find out demographic characteristics of the herd, size of the herd, location of the herd, habitat and slope face or angel used by the herd.

## 4. RESULTS

A total of 285 ibex were observed in 22 different herds. The population estimate was recorded  $301 \pm 81.83$  (95% CI) animals using CMR method. Male were (33.68%), female (30.87%), young (29%) and yearling (15.43%). The total numbers of ibex sighted in various herd sizes in different watersheds is shown in Table 1.

We observed (98.94%) herds of mixed type and with lowest number of male herd (1.05%). The density estimate was found 0.26 animal/km<sup>2</sup>. Sex composition of ibex population is shown in Figure 2 while total numbers male with different age classes is given in Figure 3.

**Table 1: No of watersheds surveyed, herds observed and number of ibex counted**

Watershed #	Total number of herd	Total number of ibex
C-01	02	20
C-02	06	45
C-03	07	40
C-04	0	0
C-05	02	50
C-06	0	0
C-07	0	0
C-08	02	25
C-09	03	105
<b>Total</b>	<b>22</b>	<b>285</b>

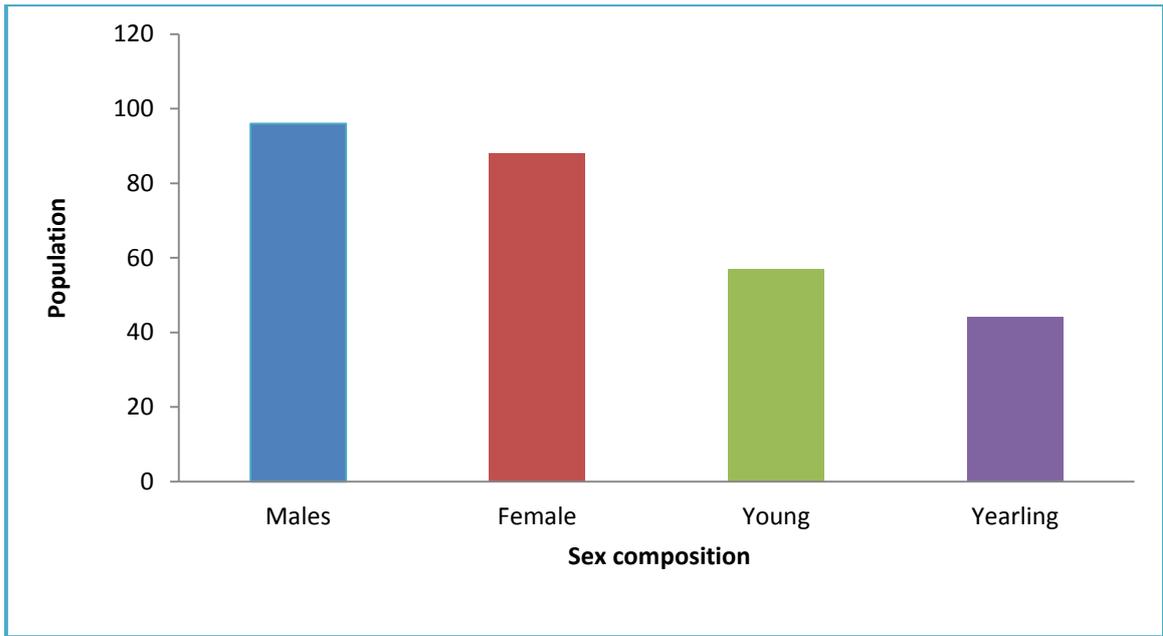


Figure 2: Population structure of ibex reckoned in Chipursan valley

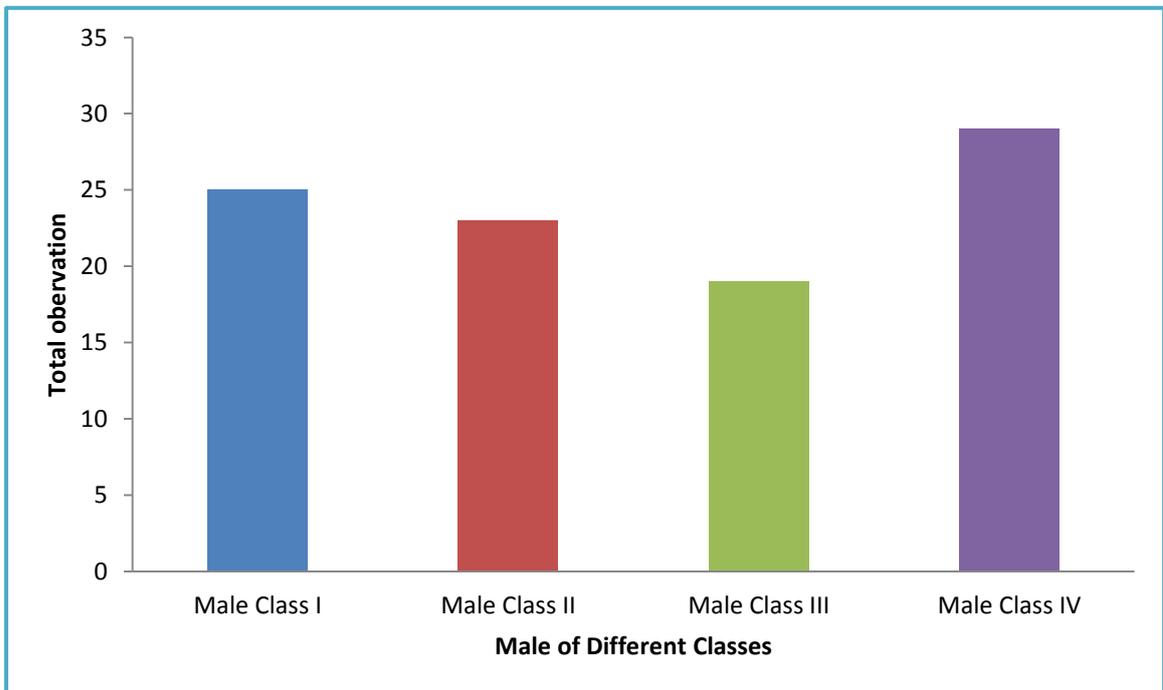


Figure 3: Male classes of ibex in Chipursan valley

## 5. DISCUSSION

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The foothills and highlands of Gilgit-Baltistan are home Himalayan ibex but very little information is available from Chipursan valley on the abundance of this species due to inaccessibility and lack of proper scientific observation. Monitoring of wild ungulates is essential to document change in population dynamics over time, develop conservation strategies and measure impact of conservation measures (Singh, 2011). The long-term monitoring becomes more pivotal in areas where there is more dependence of human on natural resources (Mishra et al. 2004). Trophy hunting of wild ungulates is being accomplished in Gilgit-Baltistan, since 1991 (Jingfors, 2000) but only few studies have been carried out on scientific basis apart from Khan et al. (2015), Arshad et al. (2002), Frisina et al. (1998) and Virk (1999) focusing on ibex and markhor. The current study was one of such endeavor to get information on the status of ibex in Chipursan valley.

Many methods have been used for population estimation in various areas, but these were not efficient for rugged terrain (Singh and Gulland, 2011). Jakson and Hunter (1996) formulated vantage count method to be used for ungulate surveys in rugged terrain but it was expensive and required more man power. Suryawanshi et al. (2012) established a new robust method of double observer count to address the discrepancies in monitoring of ungulates in rugged mountains and to reduce the chance of missing animals during count.

The present survey revealed population of 285 ibex in the valley with overall density of 0.26 animals/km<sup>2</sup>. In other study by Shahid (2015) estimated 1567 ibex with a density of 1.6 animals/km<sup>2</sup> in Gojal, 856 ibex count in Socterabad conservancy with density of 1.32 animal/km<sup>2</sup>, 473 animals in Khunjerab National Park with density of 0.4

animal/km<sup>2</sup> and 49 ibex with density of 0.07 animal/km<sup>2</sup> was estimated from Gojal. In other studies conducted, Hess (1990) assessed density of 0.1-0.3 animal/km<sup>2</sup> Shanghai (Gilgit) while population density of 0.65 ibex was reported from Nagar valley by Hussain (2011). Khan et al. (2012) calculated density of 0.4-0.7 animal/km<sup>2</sup> in Khunjerab and Taxkorgan. In Central Karakoram National Park, density was estimated 1.2 animal/km<sup>2</sup> (Khan et al.; 2014). The densities recorded in earlier studies were higher because they were conducted over a large areas and secondly most studies were conducted in community controlled hunting areas and KNP which are well protected from poaching while this valley is newly established CCHA.

Most of the herds sighted were mixed followed by female and male herds. Hussain (2011) reported that 97.69 percent of Ibex population was found in mix herds, 1.67 percent in female herds and 0.62 percent in male herds. Khan et al. (2014) stated that maximum number of animals was observed in mixed herds in CKNP. Shahid (2015) also reported that most sightings of ibex were in mixed herds succeeded by female and male herds respectively.

This study was conducted in rut period, which starts from early December and ends in late January. Sexual segregation is common in ibex, round the year, thus male and female live in the separate herd (Pedrotti 1995., Grignolio et al. 2007) but during rut season adult male return to the female herd and both sexes again prefer to live in the same sex of herd (Peracino et al. 1989., Gauthier et al, 1992;). Rut season is considered as the most suitable period to observe the ibex (Schaller, 1977; Roberts, 1997; Namgail, 2006).

According to differential allocation hypothesis (DAH), male with large size of horns and stronger physical appearance are attracted more by female for mating (Sheldon and West 2004) and larger male should not be targeted for trophy hunting all the time as healthy male with larger and strong size are the responsible for the transmission of stronger gene to the next generation (Festa-Bianchet, 2003). The population revealed in this study was male biased in contrast to studies conducted in other areas (Fox et al., 1992, Hussain 2011, Shahid., 2015) and the factors like harsh climatic conditions; less available home range and low foraging are responsible for birth of more male off springs (Hoef and Nowlan, 1994). The male population constitutes 29 trophy size animals and can support up to 4 trophy hunts in order to reduce mating competition and balance the population.

## **5.1 RECOMMENDATIONS**

- The current study was conducted in the winter season. An urgent need of another scientific survey in the summer season to observe the birth rate is highly suggestive.
- Overall the population is in the favor of male ibex, which can support the at least 4 hunts
- Improving surveillance system is prerequisite to control anti conservation activities directly effecting the population of ibex in the valley.

## **5.2 ACKNOWLEDGMENTS**

SLF team is highly indebted to the management of the Parks and Wildlife Department for their trust and continued support in making the surveys a success. The field staff of the department who participated in the surveys are highly acknowledged for their support, affords and patience. We acknowledge the local community for extending all possible assistance to conduct the survey in Chipursan Valley.

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Figure 4: Some members of the survey team



Figure 5: Surveyor is scanning the area for ibex



Figure 6: ibex sighted in Chipursan valley



Figure 7: Male ibex on cliff