

**Estimating seasonal density of blue sheep  
(*Psyudosis nayaur*) using distance sampling and  
double observer point sampling method in Api  
Nampa Conservation Area, Nepal**



**Submitted to**

Api Nampa Conservation Area, Darchula

**Submitted by**

.....

## **Abstract**

Blue sheep *Pseudois nayur*, which is locally known as Naur is the major prey species for snow leopard. In this study, we counted population status of blue sheep using vantage point method and assessed its population dynamics. This study counted a total of 686 blue sheep animal in several groups. The population density of the blue sheep in ANCA is 0.36 individual per square kilometer. The overall recruitment rate was found to be 0.93 young per adult or 93 young per 100 adults. This rate indicates stable population productivity. We found an unbalanced sex ratio (female: male=1: 1.9). This study recommends active law enforcement to curtail snow leopard and blue sheep poaching if any. We also recommend conducting a more thorough survey using more reliable abundance estimate techniques (e.g., double observer method) to accurately estimate population size of blue sheep. Camera trapping study to develop baseline information on actual population status of snow leopard could be an important step towards evidence-based conservation in this protected area. The study recorded reasonable number of adult male. This number is not adequate but the limited and controlled hunting is possible. Therefore this study recommends hunting 3-5 blue sheep per year as legal hunting in ANCA to minimize the illegal hunting and to get benefit from the ANCA.

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# 1. INTRODUCTION

Blue sheep (*Pseudois nayur*) which is locally known as Naur is the major prey species of Himalayan carnivore (Aryal et al., 2015b, 2014). The blue sheep is distributed in Bhutan, China, India, Nepal and Pakistan (**Figure 1**). Although Dhorpatn Hunting Reserve is most popular protected area for blue sheep hunting, This species is also distributed in some other protected areas of Nepal: Api Nampa Conservation Area (ANCA), Shey-pholshundo National Parks (SPNP), Annapurna Conservation Area (ACA), Manaslu Conservation Area (MCA), Gaurishankar Conservation Area (GCA), Kanchanjungha Conservation Area (KCA), and some parts of Himalayan region outside the conservation area (Aryal et al., 2015a; DNPWC, 2017) (**Figure 2**). Due to climate change the habitat of blue sheep is reducig day by day (Aryal et al., 2016). Blue sheep is herbivorous grass grazing wildlife of Himalaya. Every year government of Nepal is earning the huge amount of money from blue sheep hunting (Aryal et al., 2015a; DNPWC, 2016, 2015, 2013, 2012, 2011, 2010). In spite of presence of suitable habitat of for blue sheep, the presence of this in Sagarmatha National Park is not recorded (Aryal et al., 2013). They feel more safer in open habitat and taking a front head direction provided them with the highest vigilance (Jiang et al., 2013).

This study was designed to identify the population status of blue sheep in ANCA. This information will be very much useful for government of Nepal and conservation partners to prepare and implement the plans and policies for long term conservation of blue sheep and overall biodiversity of the region. In DHR, male blue sheep are hunted for trophy every year. Such selective harvesting of trophy males has affected the sex ratio of the population with disproportionately more females than males. A skewed sex ratio may create long-term problems for maintenance of genetic diversity and a healthy population of blue sheep. Such hunting has sometimes been implicated in species declines and possible extirpations. For

trophy hunting to be ecologically sustainable, regular monitoring of population dynamics should be used to set scientifically-defensible reasonable harvest quotas that will not affect sex ratios or trophy quality. Snow leopard *Panthera uncia* is one of most endangered carnivores in the world. While a habitat suitability model for snow leopard shows that the Api Nampa Conservation Area (ANCA) is a potential habitat for snow leopard, there is a lack of information on population status and distribution of its prey base.

### Fact sheet of blue sheep

**Nepali Name:** *Naur*

**English Name:** *Blue Sheep*

**Scientific Name:** *Pseudois nayaur*

**Body Length:** 115– 165 cm (3.8-5.5 ft)

**Shoulder Height:** 75-90 cm (2.5-3 ft)

**Tail Length:** 10-20 cm (4-8 in.)

**Weight:** 35-75 kg (77-165 lb.)

**Horn Size:** 20cm (8 in.) - 80 cm (32 in.)

**Gestation Period:** 160 days

**Young per Birth:** 1

**Weaning:** After 6 Months

**Sexual maturity:** At 1.5 Years

**Life Span:** 12-15 Years

**Matting:** October – January

**Family Group:** Solitary – Small Groups

**Diet:** Grasses, Lichens, Mosses

**Main Predators:** Snow Leopard, Wild Dog, Eagle

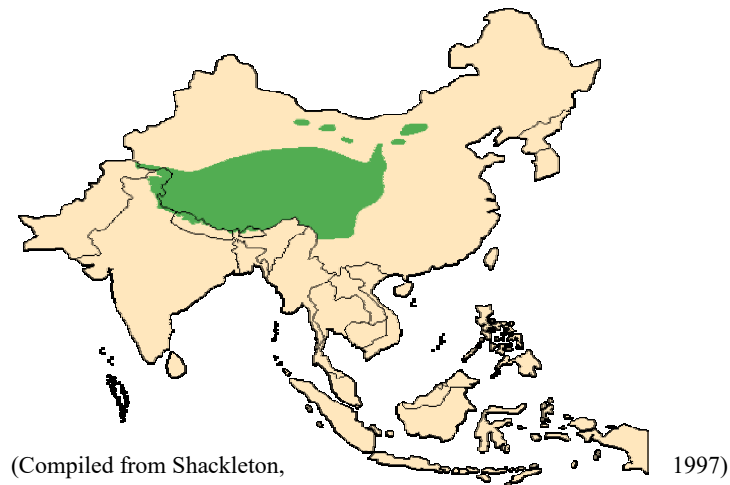
**Density:** 0.9-2.7/km<sup>2</sup> (Nepal)

**General Characteristics:** *Pseudes* (Greek) false; *ois* (Greek) a sheep: referring to the absence of facial glands and the character of the tail which makes it look more like a goat than a sheep. *Nayaur* is a native name for this wild sheep, probably from the Nepali word **nahur**.

"Blue sheep" is a reference to the bluish sheen in the coat. Its short dense coat is slate grey in color, sometimes with a bluish sheen. The under parts and backs of the legs are white, while the chest and fronts of the legs are black. The ears are small, and the bridge of the nose is dark. The horns are found in both sexes. In males, they grow upwards, then turn sideways and curve backwards.

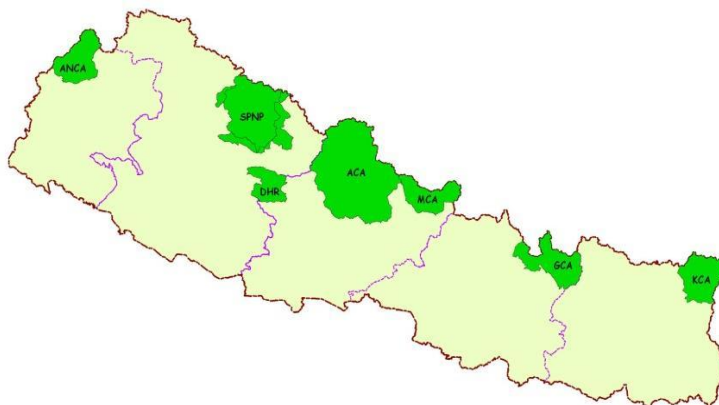
**Ecology and behavior:** Active throughout the day, alternating between feeding and resting on the grassy mountain slopes. Due to their excellent camouflage and the absence of cover in their environment, blue sheep remain motionless when approached.

**Status (IUCN 1996):** low risk & near threatened.



**Figure 1: Global distribution of blue sheep**

**Nepal:** SPNP, KCA, GCA, ACA, MCA & DHR.



**Figure 2: Distribution of blue sheep in Nepal**

In this study, we counted population of blue sheep using vantage point method and assessed its distributional preference with respect to different habitat parameters like elevation, slope, and aspect and habitat type.

## **1.2 Objectives**

The overall objective of this study is to understand population status of blue sheep. Specific objectives of the study are as follows:

- To predict the population density of blue sheep in ANCA
- To record the quantitative scientific evidence of blue sheep within the study area
- To analyze the population dynamics of blue sheep within the study area
- To recommend the management authority conservation and possibility of harvesting/hunting of this animal

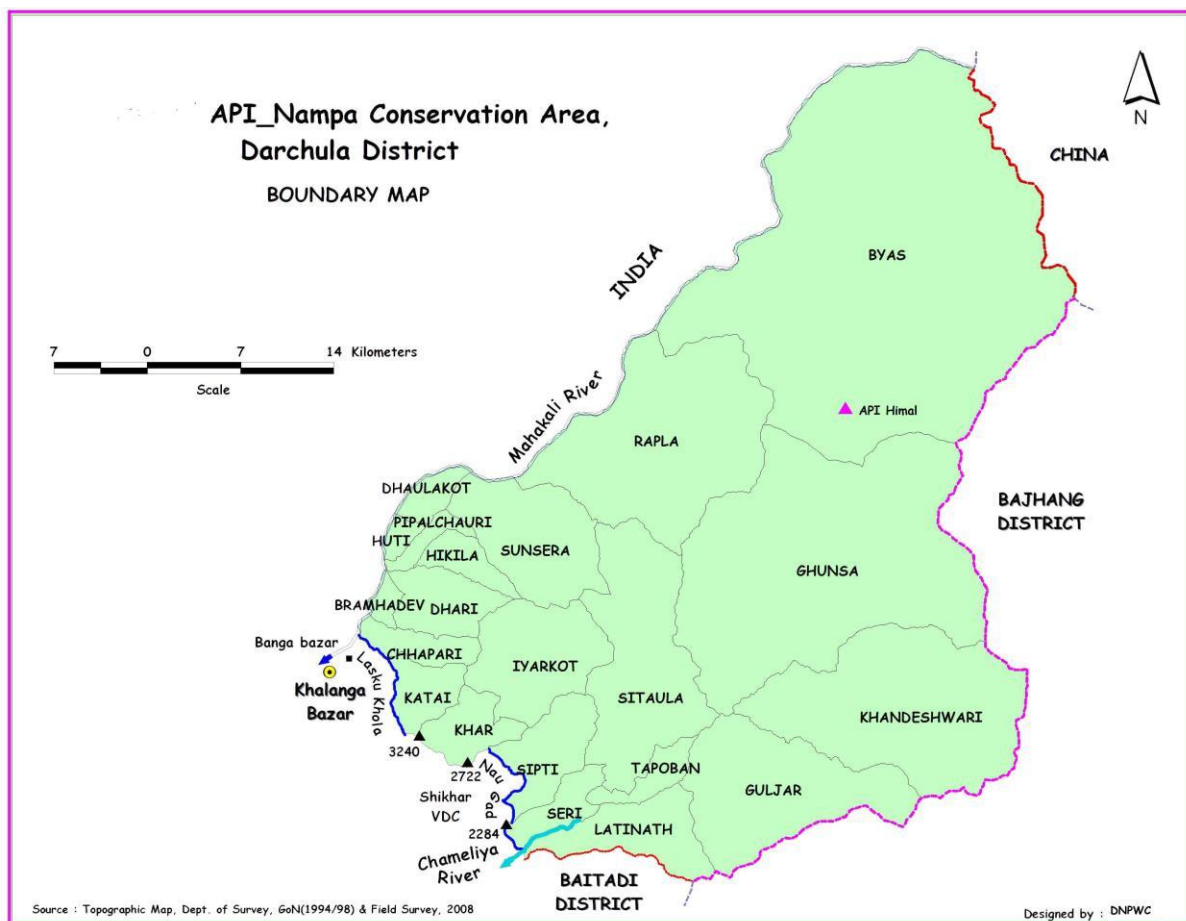
## **1.3 Limitation of study**

Due to time, technical manpower, and resources such as money and licensed software the study couldn't explore multiple information related to blue sheep. The study couldn't analyze the multi-season population dynamics. This study also couldn't conduct the ensemble modeling due the lack of technical expertise.

## 2. METHODS AND MATERIALS

### 2.1 Study area

Api Nampa Conservation Area (ANCA) was established in 2010 (**Figure 3**). The protected area ranges from 518 - 7,132 m from sea level and is characterized by steep undulating topography in higher elevations. It occupies an area of 1,903 km<sup>2</sup> and encompasses 21 out of 36 village development communities (smallest administrative units of former decentralization system of Nepal) of the Darchula district. This area also included in the one of trans-national landscape project: Kailash Sacred Landscape Conservation & Development Initiative (KSLCDI) that spans 31,000 km<sup>2</sup> in Nepal, India & China (DNPWC, 2017; Uddin et al., 2015).



**Figure 3: Study area map**

## **2.2 Counting**

To explore the population status of the blue sheep in ANCA, direct count method from different appropriate vantage points (fixed-point count) was adapted. Field work was conducted during March to June, 2019. First of all the local people and herders were interviewed to identify the probable habitat of the blue sheep. Then observers visited these identified and possible habitats of blue sheep throughout the ANCA. The study team recorded total herds seen along with classification of their habitat feature, sex composition and age classes. Sightings location and time were noted along with classification of their habitat feature group size, sex composition and age classes and other behavioral pattern if any. Observations were made in the morning (06.00-10 AM) and late afternoon (02.00-05.30 PM) by using binoculars. Blue sheep age categories were classified as follows: female (identified female); teens (lamb)-less than a year old; yearling (1-2 years old); young male (2-4 years old); sub-adult male (4-7 years old); adult male (above age 7 years) and unidentified.

## **2.3 Data analysis**

Data were entered and analyzed in Microsoft excel. Map of study area distribution were prepared by the help of ArcGIS 10.5. Tables, pie charts and bar graph are used to visualize the results.

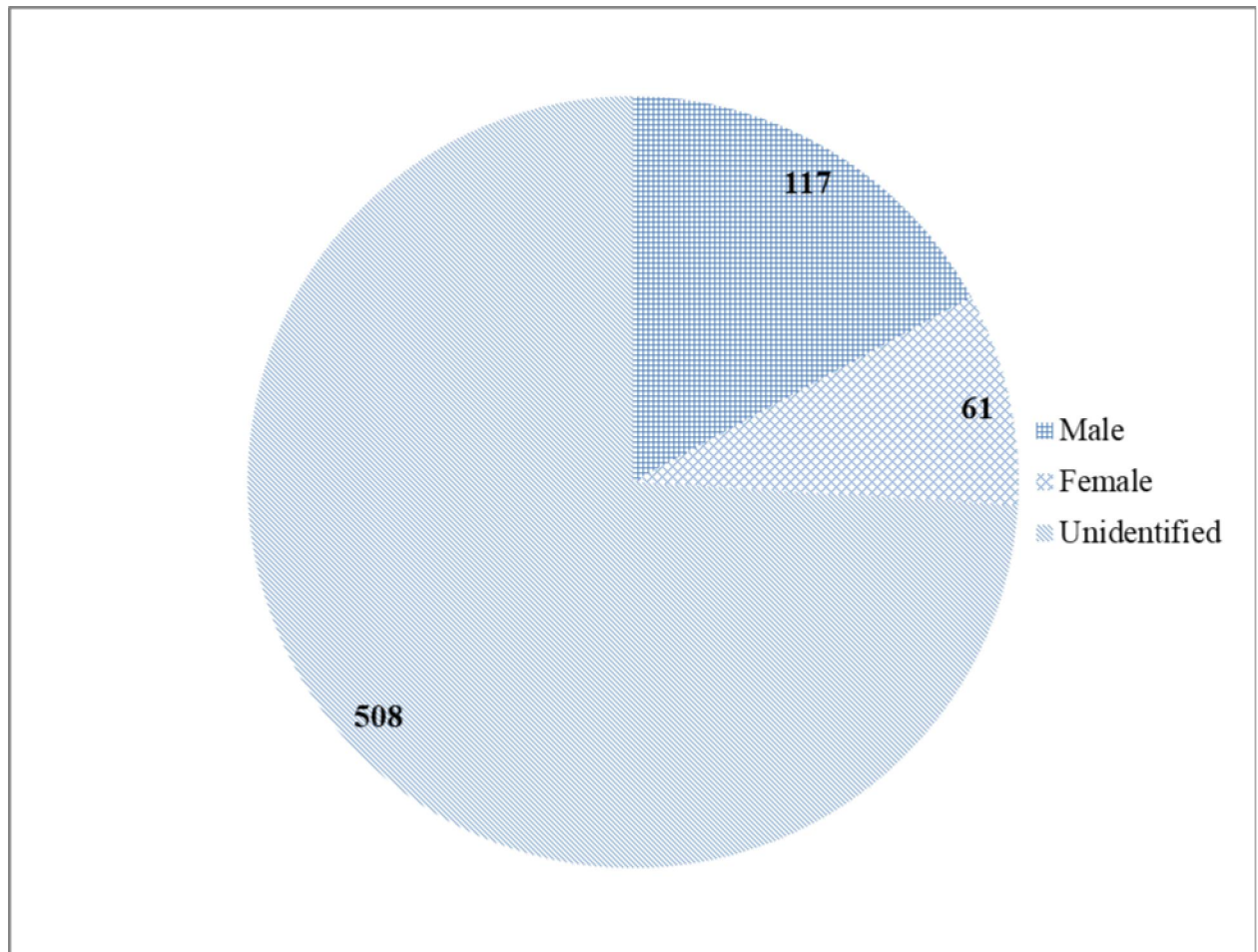
### **3. RESULTS AND DISCUSSION**

#### **3.1 Total number of blue sheep**

The study identified total 686 blue sheep throughout the Api Nampa Conservation Area, Darchula. The population density of the blue sheep in ANCA is 0.36 individual per square kilometer. The heard sizes are ranges from 2 to 85. All data, all data obtained from the field survey were presented in appendix section of this report.

#### **3.2 Sex structure**

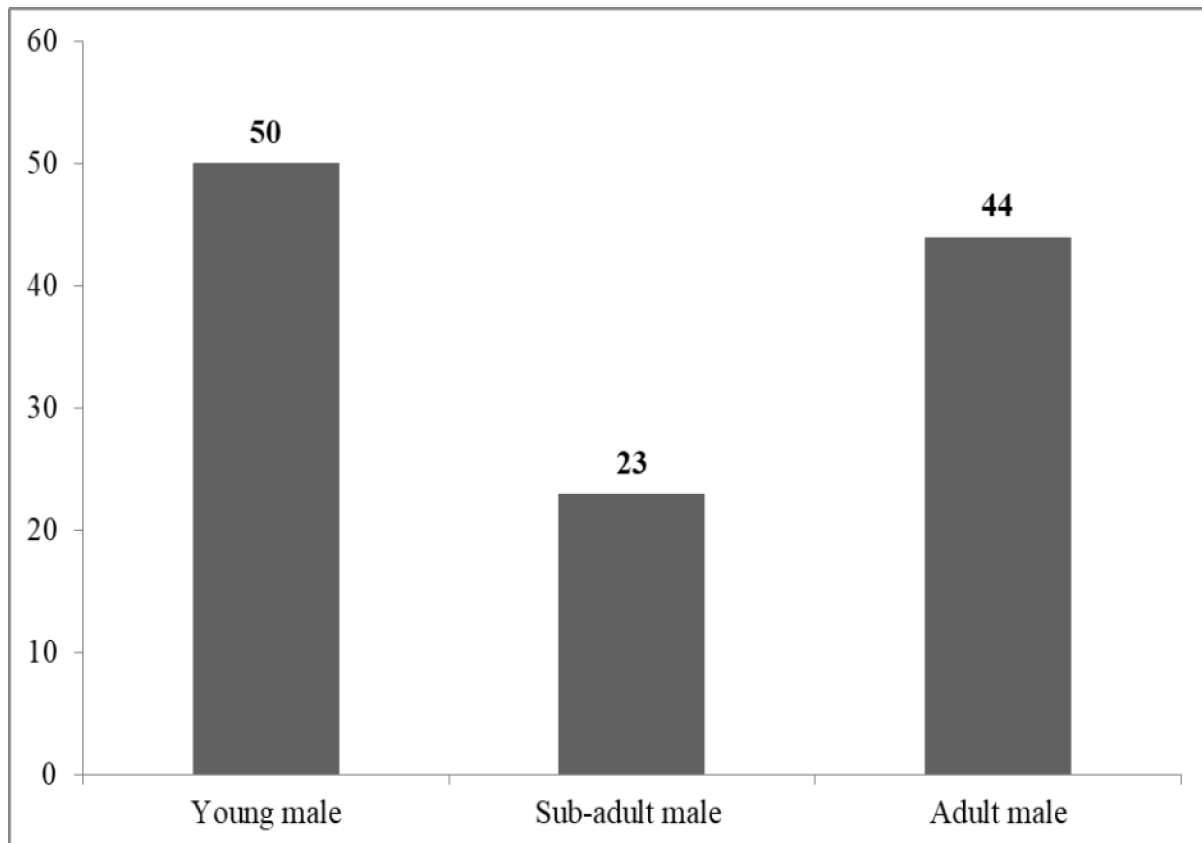
The study identified 1.9 male female ratio of blue sheep in the study area. During the field data collection, 117 male and 61 female were identified. Large number of blue sheep (n=508) were unidentified due to small age of the blue sheep and far from the field observers (**Figure 4**).



**Figure 4: Sex structure of blue sheep**

### **3.3 Age structure of male**

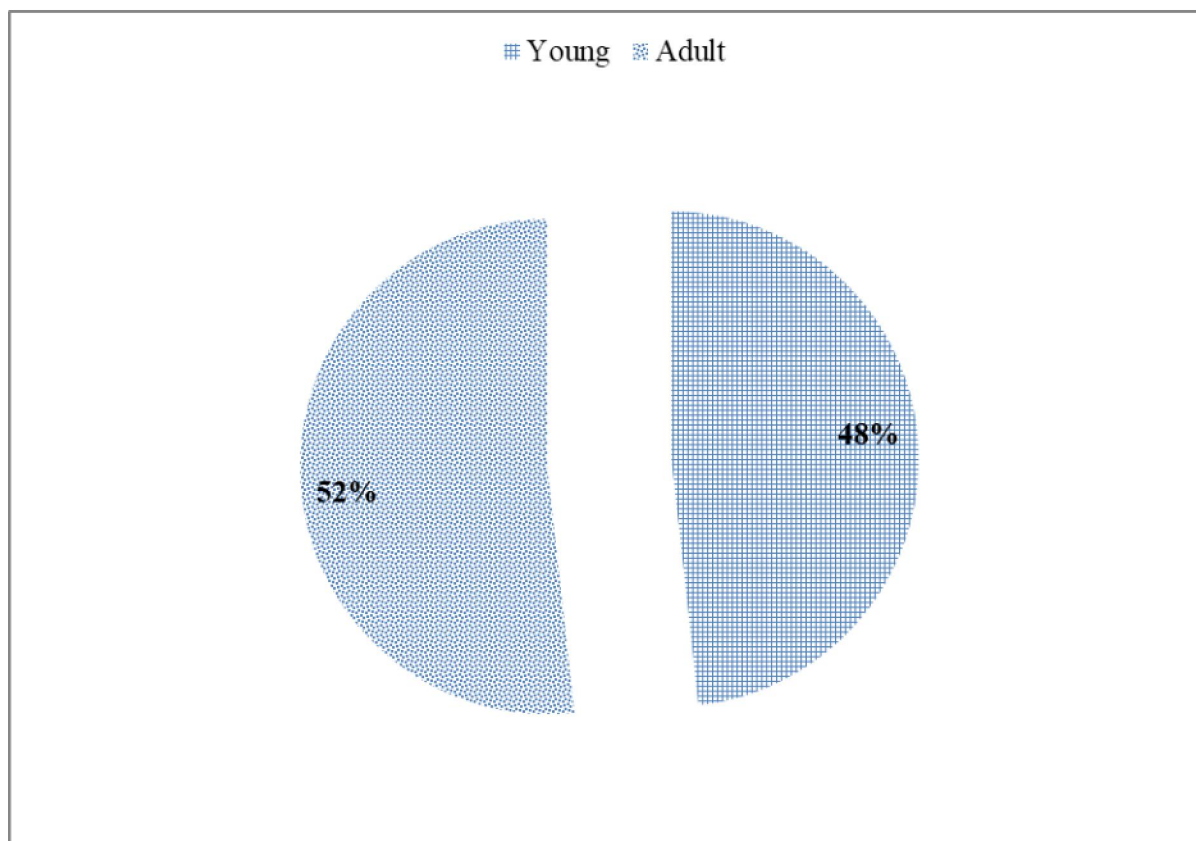
Age of male is meaningful because adult male can be harvested as hunting and small aged male can't be harvested. Out of 117 male blue sheep 50 individuals are young male, 23 individuals are sub-adult male and 44 individuals are adult male (**Figure 3**). These 44 adult males are identified as harvestable male of the study area.



**Figure 5: Age structure of males blue sheep**

### **3.4 Adult child ratio**

This study recorded the 178 adult and 166 young/child blue sheep (**Figure 6**). Rests of the blue sheep were not identified whether they are young or adult. The adult young ratio of the blue sheep in ANCA is 1.07. This ratio explains the healthy population of the blue sheep in ANCA because the growing aged child are more in number than old.



**Figure 6: Adult child ratio of blue sheep**

## **4. CONCLUSIONS AND RECOMMENDATIONS**

### **4.1 Conclusions**

In ANCA, the population of blue sheep is viable. This study counted a total of 686 blue sheep animal in several groups. The population density of the blue sheep in ANCA is 0.36 individual per square kilometer. The overall recruitment rate was found to be 0.93 young per adult or 93 young per 100 adults. This rate indicates stable population productivity. On another other hand, we found an unbalanced sex ratio (female: male=1: 1.9) of this species in study area.

### **4.2 Recommendations**

The study recorded reasonable number of adult male. This number is not plenty but this number can support the limited and controlled hunting. Therefore this study recommends respective authority can issue hunting license for 3-5 blue sheep per year as legal hunting in ANCA to minimize the illegal hunting and to get the benefit from ANCA. This study recommends active law enforcement to curtail blue sheep poaching if any. This study also recommend conducting a more thorough survey using more reliable abundance estimate techniques (e.g., double observer method) to accurately estimate population size of blue sheep. Camera trapping study to develop baseline information on actual population status of snow leopard could be an important step towards evidence-based conservation in this protected area.

## Reference

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## APPENDICES

Data collected from the field

### Api Nampa conservation Area Blue Sheep (*Psudosis nayaur*) Survey

1

Name of Surveyor: - Mohan Lal Dhami

Start time: - 5:15 o'clock in the evening

Latitude:- 481049

Longitude :-

3328393

Height: - 2380 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep				5	6	8		19	south	50 m.	Pola

Teens : - 1 to 2 years old

Tarun Bhali (Young Male): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Male): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area

## Blue Sheep (*Psyudosis nayaur*) Survey

2

Name of Surveyor: - Mohan Lal Dhami

Start time: - 6 o'clock in the evening

Latitude:- 481323

Longitude :-  
3328731

Height: - 2398 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-oreSpear s	BeyondSpear s	Unmarke d	TotalNumbe r	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	15	15	11					41	North	100 m.	More

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

## Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

3

Name of Surveyor: - Mohan Lal Dhami

Start time: - 6:45 o'clock in the evening

Latitude :- 481960

Longitude :-  
3329053

Height: - 2521 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep			27					27	North	300 m.	Girgise

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

4

Name of Surveyor: - Mohan Lal Dhami

Start time: - 5:30 o'clock in the morning

Latitude :- 482932

Longitude :-  
3329622

Height: - 2622 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	3	3						6	south	100 m.	Budi

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

5

Name of Surveyor: - Mohan Lal Dhami

Start time: - 7:30 o'clock in the morning

Latitude :- 484099

Longitude :-

3329390

Height: - 2800 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	1	2						3	south	100 m.	Kuntishaau

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age  
 Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years  
 Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

6

Name of Surveyor: - Mohan Lal Dhami  
 Start time: - 9 o'clock in the morning  
 Latitude :- 484531  
 Longitude :-  
 3329293

Height: - 2933 m.

F/Y:-  
 075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	21	21						42	south	300 m.	Apikhola

Teens (Yarling): - 1 to 2 years old  
 Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age  
 Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years  
 Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**

## Blue Sheep (*Psyudosis nayaur*) Survey

7

Name of Surveyor: - Mohan Lal Dhami

Start time: - 7:15 o'clock in the morning

Latitude :- 485721

Longitude :-

3330590

Height: - 3071 m.

F/Y:-

075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep			56					56	East	300 m.	Bhupu

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

## Api Nampa conservation Area

## Blue Sheep (*Psyudosis nayaur*) Survey

8

Name of Surveyor: - Mohan Lal Dhami

Start time: - 4 o'clock in the Evening

Latitude :- 485621

Longitude :-  
3330659

Height: - 3125 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep			4					4	North	300 m.	Ghamamupar i

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psudosis nayaur*) Survey

9

Name of Surveyor: - Mohan Lal Dhami

Start time: - 5:30 o'clock in the Evening

Latitude :- 491765

Longitude :-  
3333201

Height: - 3245 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep			4					4	West	300 m.	Labhang

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psudosis nayaur*) Survey

10

Name of Surveyor: - Mohan Lal Dhami

Start time: - 6:30 o'clock in the Evening

Latitude :- 493073

Longitude :-

3333038

Height: - 3308 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep				24	9	13		46	North	300 m.	Rankang

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age  
 Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years  
 Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

11

Name of Surveyor: - Mohan Lal Dhami  
 Start time: - 7 o'clock in the morning  
 Latitude :- 478166  
 Longitude :-  
 3319731

Height: - 3476 m.

F/Y:-  
 075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	17	17						34	North	300 m.	Malalo kotheri

Teens (Yarling): - 1 to 2 years old  
 Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age  
 Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years  
 Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

12

Name of Surveyor: - Mohan Lal Dhami

Start time: - 9 o'clock in the morning

Latitude :- 478435

Longitude :-  
3319609

Height: - 3596 m.

F/Y:-  
075/076

S.N	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep		16						16	North	100 m.	Humdumti

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

13

Name of Surveyor: - Mohan Lal Dhami

Start time: - 5 o'clock in the Evening

Latitude :- 478616

Longitude :-

3319501

Height: - 3681 m.

F/Y:-

075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep				21				21	North	100 m.	Humdumti Khola

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

14

Name of Surveyor: - Mohan Lal Dhami

Start time: - 7:30 o'clock in the morning

Latitude :- 482615

Longitude :-

3316026

Height: - 3848 m.

F/Y:-

075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep							18	18	West	300 m.	Budi ban dera mathi

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

15

Name of Surveyor: - Mohan Lal Dhami

Start time: - 8:30 o'clock in the morning

Latitude :- 482682

Longitude :-

3314411

Height: - 4166 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
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1	Blue Sheep					2			2	South	300 m.	Mama Khola

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

16

Name of Surveyor: - Mohan Lal Dhami

Start time: - 4o'clock in the evening

Latitude :- 479520

Longitude :-

3319021

Height: - 3918 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep						23		23	South	300 m.	Humdumti Binayek

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

17

Name of Surveyor: - Mohan Lal Dhami

Start time: - 6 o'clock in the Morning

Latitude :- 481444

Longitude :-

3313998

Height: - 4582 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep	4	4						8	South	300 m.	Mama khola binayek

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

18

Name of Surveyor: - Mohan Lal Dhami

Start time: - 8 o'clock in the Morning

Latitude :- 481117

Longitude :-

3314001

Height: - 4849 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep			7				4	11	West	300 m.	Mama khola pari dudiban

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

19

Name of Surveyor: - Mohan Lal Dhami

Start time: - 8 o'clock in the Morning

Latitude :- 482839

Longitude :-  
3314823

Height: - 4844 m.

F/Y:-  
075/076

S.N .	Species	Femal e	Chil d	Teenage r	Tarun Spear s	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Aspec t	Distance from the mountains	Remaks
1	Blue Sheep					6			6	West	300 m.	Nitigunda

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

1

Name of Surveyor: - Pan Singh Dadaal

Start time: - 5 o'clock in the evening

Latitude 494223

Longitude :- 3315211

Height: - 3861 m.

F/Y:-  
075/076

S.N.	Species	Femal e	Chil d	Teenage r	Tarun Spears	Semi-ore Spears	Beyond Spears	Unmarke d	Total Number	Residences Location Type	Aspect	Distance from the mountains
1	Blue Sheep								85		East	200 m.

Teens (Yarling): - 1 to 2 years  
old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

2

Name of Surveyor: - Pan Singh Dadaal

Start time: - 5:30 o'clock in the Morning

Latitude 491987

Longitude :- 3316228

Height: - 4230 m.

F/Y:-  
075/076

S.N.	Species	Female	Child	Teenager	Tarun Spears	Semi- oreSpears	BeyondSpears	Unmarked	TotalNumber	Residences LocationType	Aspect	Distance from the mountains
1	Blue Sheep								55	Standing	East	150 m.

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

**Api Nampa conservation Area**  
**Blue Sheep (*Psyudosis nayaur*) Survey**

3

Name of Surveyor: - Naresh Prashad Bhatt

Start time: - 4 o'clock in the evening

Latitude:- 494889

Longitude :- 3314660

Height: - 4220 m.

F/Y:-

S.N.	Species	Female	Child	Teenager	Tarun Spears	Semi-ore Spears	Beyond Spears	Unmarked	Total Number	Residences Location Type	Aspect	Distance from the mountains
1	Blue Sheep								75	Rested Situation	East	50 m.

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

4

Name of Surveyor: - Naresh Prashad Bhatt

Start time: - 5:30 o'clock in the evening

Latitude:- 500544

Longitude :- 3305913

Height: - 4057 m.

F/Y:-  
075/076

S.N.	Species	Female	Child	Teenager	Tarun Spears	Semi-ore Spears	Beyond Spears	Unmarked	Total Number	Residences Location Type	Aspect	Distance from the mountains

1	Blue Sheep								40	The state of the mountain	East	200 m.

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age

Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years

Adult bears: - Above the age of 7 years

### Api Nampa conservation Area Blue Sheep (*Psyudosis nayaur*) Survey

5

Name of Surveyor: - Pan Singh Dadaal

Start time: - 5:30 o'clock in the Morning

Latitude 494988

Longitude :- 3308217

Height: - 4005 m.

F/Y:-  
075/076

S.N.	Species	Female	Child	Teenager	Tarun Spears	Semi-oreSpears	BeyondSpears	Unmarked	TotalNumber	Residences LocationType	Aspect	Distance from the mountains
1	Blue Sheep								65	Grazing	East	40 m.

Teens (Yarling): - 1 to 2 years old

Tarun Bhali (Young Mail): - Over 2 years and under 4 years of age  
Semi Adult Spear (Sub Adult Mail): - Over 4 years and less than 7 years  
Adult bears: - Above the age of 7 years