# MONITORING OF THE CHEER PHEASANT Catreus wallichii IN LOWER KALIGADAKI VALLEY, MUSTANG, NEPAL



**Report Submitted By** 

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### Abstract

The first systematic study of Cheer Pheasant *Catreus wallichii* in Kaligandaki valley was done in 2004 by allocating seven calling points. Out of seven, five were located randomly with the help of multistage sampling and rest of two were located purposely. This Monitoring programme was succeeding part of protocol design for the Cheer Pheasant in the same area of Kaligandaki valley. This monitoring programme was done to check the status of Cheer Pheasant by comparing with the status of 2004. Monitoring programme was carried out from 12<sup>th</sup> May to 2<sup>nd</sup> June of 2006.

Maximum of 11 calls (calling sites) were heard in the study area. Altogether 7 birds were directly observed in Pudhar Kharka only. Total mean call of the study area was found 7 birds, using the factor derived by Young *et al.* (1987), the total number of breeding population (pairs) was estimated to be 5.25 in the study area. Potential area for the Cheer Pheasant in the study site is about 22.16 km<sup>2</sup>, if we extrapolate; it gives the 59 breeding birds. Altogether 59 breeding population of Cheer Pheasant found within the total potential area of three Village Development committees.

Based on the descriptive analysis, the mean population density of the species in the study area was estimated to be 2.65 breeding birds/ km<sup>2</sup> and the mean population density at 95% confidence limit ranges between 0.92 to 4.39 breeding bird/ km<sup>2</sup> (by applying the correction factor). With the help of potential habitat, we extrapolated the total population size of the species in the valley (covers three village development committees of Kaligandaki valley) to be 20 to 97 breeding birds (pairs) by applying correction factor. Two surveys (2004 and 2006) though showed a marginal decline, is statistically insignificant (Wilcoxcon Signed Rank Test, Z = 0.5416, N = 13, W= 16,  $\sigma_w$ = ±28.62,  $\mu_w$ =0 at 95% confidence limit), suggesting that Cheer population continue to survive in good status in this area.

Surveys covering all Cheer habitats, regular population and ecological monitoring, study on grazing and burning impact, and raising conservation awareness among stakeholders are recommended.

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# 1.0 BACKGROUND AND JUSTIFICATION

Altogether 187 bird species have been recorded in Ghansa (Baral and Inskipp 2005) Area of Kaligandaki valley within the Annapurna Conservation Area (ACA). The lower Kaligandaki valley divides the eastern and western parts of Nepal and so it represents both type of flora and fauna. This is the only known area in Nepal where all six Himalayan Pheasant species (CHEER PHEASANT *Catreus wallichii*, SATYR TRAGOPAN *Tragopan satyra*, BLOOD PHEASANT *Ithaginis cruentus*, KOKLASS PHEASANT *Pucrasia macrolopha*, HIMALAYAN MONAL *Lophophorus impejanus* and KALIJ PHEASANT *Lophura leucomelanos*) reside in the country are found (Inskipp and Inskipp 2003).

The total population size of the Cheer Pheasant in the valley (covering three village development committees of the Kaligandaki watershed) was estimated to be 85 to 111 birds (Acharya, 2004).. This population figure represents baseline information and it is not known whether it is increasing or decreasing. The potential habitat of the Kaligandaki valley and the Dhorpatan Hunting Reserve, the latter study carried out by Subedi (2003) is almost equal but population is less (by more than 50%) in the Kaligandaki valley. It is therefore considered vital to monitor Cheer Pheasant within the Kaligandaki valley in a regular basis, so that this programme is design.

# 2.0 STUDY AREA

The study area is located in the Lower Kaligandaki watershed, which lies in Mustang district of Dhaulagiri zone. This valley spreads from Latitude 28° 40' 00 N to Longitude 83° 37' 00 E. It includes temperate zone – Ghansa (2010 m) to Nival eco-zone. Rivers and streams in the area drained into Kaligandaki river system. The survey was made in 7 sites of three VDCs (Kobhang, Kunjo and Lete). These areas extend from 2300 m to 3200 m above sea level.

There are temperate and sub-alpine forests, sometimes with an extensive bamboo understorey and often on steep slopes. These comprise mixed broadleaves and conifers (mainly pines), conifers and rhododendrons, and conifers with birch *Betula utilis* at higher altitudes. Grassland grows on some steep slopes and bamboo in gullies (Inskipp and Inskipp 2003).

This area provides habitat for several mammal species such as Goral (*Naemorhedus goral*), Himalayan Tahr (*Hemitragus jemlahicus*), Black Bear (*Ursus thibetanus*), Barking Deer (*Muntiacus muntjak*), Common Leopard (*Panthera pardus*), Musk Deer (*Moschus chrystogaster*) etc.

All the settlements lie below the study area and are inhabited mainly by Thakali and disadvantaged groups. Their main occupations are related with tourism, animal husbandry and agriculture. Seasonal livestock (Yak, Cow, Sheep and Goat) are still remaining within the study area.



## Source: KMTNC/ACAP/GIS section

## **3.0 STUDY SPECIES**

Cheer Pheasant is a relict and monotypic represented by single species in the genera *catreus* (Del Hoyo *et al.* 1994) .It is a medium sized bird among the Pheasants. It is a protected bird of Nepal under the National Park and Wildlife Protection Act 1973 (HMG 1973) and is listed among the vulnerable species in IUCN Red Data Book (Fuller and Garson 2000, Birdlife International 2001). Cheer has been observed in Rara National Park, Dhorpatan Hunting Reserve, Annapurna Conservation Area (ACA) and Jumla district. Cheer Pheasant is popular for its local name **Cheer** in

all places within the study area of Kaligandaki valley. It is vulnerable and endemic to Indian subcontinents.

It has long, broadly barred tail, pronounced crest and red facial skin. Male is cleanlier and strongly marked than female with pronounced barring on mantle, unmarked neck and broader barring across tail (Grimmett *et al.* 2000).

The male is 90-118 cm and female is 61-76 cm in length. Typical views are flying downhill, when buff, grey and brown coloration and long broadly banded tail are diagnostic. Both sex are brown, have brown crest (longer on male) and red facial skin (Subedi 2003). Juvenile is like female but lacks crest and is less heavily marked (Grimmett *et al.* 1998).

Species is patchily distributed, shy and having soundless flight. Flight seems like the variegated laughing thrush (*Garrulax variegatus*) whenever short and bullet gliding towards the downhill whenever long span.

#### 4.0 OBJECTIVES

Objectives of the study program were,

- > To find out the status of Cheer Pheasant.
- > To Compare the population of Cheer Pheasant with 2004

#### **5.0 METHODOLOGY**

A detailed study was made of population using the dawn call count census method at all seven call point of permanent blocks established by the ACAP (Acharya, 2004). Call counts were carried out on three consecutive mornings at each point. Counts were not made in heavy rainfall. The Cheer Pheasant call count sheet developed by Gaston (1980) and Subedi (2003) with some modification was used to record data.

At each point, measurements was taken on physical parameters, habitat types, levels of human impact (hunting and snaring, trails, firewood and fodder collection, Non-Timber Forest Product (NTFP) collection, grazing, and fire) with the help of habitat analysis form. Some ordinal divisions (none, some, and much) were made to note down the level of human disturbance.

Group discussions were carried out in most of the village and informal discussion with shepherds and hunters were made to get information about the habitat and species.

#### **6.0 DATA ANALYSIS**

#### 6.1 Breeding Population Estimation (BPE)

The survey was being conducted during May and June (prior to monsoon). Multiplying the number of calling sites detected before sunrise by a factors of 0.75 probably produces the best available estimate of the breeding population (pairs) within the survey area (Young *et al.* 1987).

BPE=
$$\sum \bar{x} \times 0.75$$
  
Where  $\sum \bar{x}$ = Total Mean of the study area

### 6.2 Descriptive Statistics

The descriptive analysis was done to represent the collected data for the further interpretation. Since the sampling plot were repeated so that pooled mean, standard deviation and the variance were prefered to represent the overall status of the species in the area.

$$\overline{x} = \frac{n_1 \overline{x}_1 + n_2 \overline{x}_2 \dots n_7 \overline{x}_7}{n_1 + n_2 \dots -7}$$

$$\sigma = \sqrt{\frac{(x - \overline{x})^2}{N}}$$

$$\sigma^2 = \frac{(n_1 - 1)\sigma_1^2 + (n_2 - 1)\sigma_2^2 \dots (n_7 - 1)\sigma_2^2}{n_1 + n_2 \dots -7}$$

 $\overline{x}$  = Mean of the mean or pooled mean

 $\overline{x}$  = Mean of the each plot

 $\sigma$  = Standard deviation

 $\sigma^2 = Variance$ 

n = Number of repeated measure in each station

## 6.3 Mean population density

The mean population density was estimated based on pooled mean (mean of mean) divided by the total area covered in each station, which has been calculated based on 300 meter radius. Population density could be calculated whether for the station or for the entire station. This estimate was then extrapolated for the entire population assuming that the sex ratio of species 1:1(Subedi, 2003).

Mean population density = –

A (Entire area of station)

 $\sum_{x}^{=}$ 

## 7.0 RESULT AND DISCUSSION

Altogether 21 days were spent in the field and 7 (five were selected using stratified random and two were selected purposively) call points were surveyed. Calls were absent in Bunga call points. Local guide and porter were hired for the survey. The status and distribution of Cheer Pheasant were analysed. During the call count, a maximum of 11 calling sites were found in the study area. Minimum call was found in Sekung, Titi and Bunga area where as the maximum calls were heard in the Sarkhu of Jhipradeurali (Kunjo VDC). During the survey period 7 Cheer were seen in Pudhar area.

Date	Place	Programme
12 <sup>th</sup> May-14 <sup>th</sup> May	Pokhara to Jomsom	On the way
14 <sup>th</sup> May	Reached to site,	Acclimatization
	Sekung	
15 <sup>th</sup> May	Sekung	Call count
16 <sup>th</sup> May	Sekung	Call count
17 <sup>th</sup> May	Sekung to Titi	Call count and move to Titi area
18 <sup>th</sup> May	Titi	Call count
19 <sup>th</sup> May	Titi	Call count
20 <sup>th</sup> May	Titi to Pangmo	Call count and Move to Pangmu
21 <sup>st</sup> May	Pangmu	Call count
22 <sup>nd</sup> May	Pangmu	Call count
23 <sup>rd</sup> May	Pangmu to Sarkhu	Call count and move to Sarkhu
24 <sup>th</sup> May	Sarkhu and Pudhar	Call count
25 <sup>th</sup> May	Sarkhu and Pudhar	Call count
26 <sup>th</sup> May	Pudhar to Bunga	Call count and move to Bunga
27 <sup>th</sup> May	Bunga	Call count
28 <sup>th</sup> May	Bunga	Cal count
29 <sup>th</sup> May	Bunga to Tangje	Call count and move to Tangje
30 <sup>th</sup> May	Tangje	Call count
31 <sup>st</sup> May	Tangje	Call count
1 <sup>st</sup> June	Tangje to Jomsom	Call count and move to Jomsom, End of
		the study
2 <sup>nd</sup> June	Jomsom to Pokhara	-

## Field schedule for Cheer monitoring Programme

## 7.1 Breeding population based on Young et al. 1987

Total mean call of the study area was found 7 birds, using the factor derived by Young *et al.* (1987), the total number of breeding population was estimated to be 5.25 in the study area. The total area of

the seven plots is 197.89 ha. which is equivalent to 1.98 square kilometres. So the bird density becomes 2.65 birds  $/\text{km}^2$  (5.25birds/1.98 square kilometre). Potential area for the Cheer Pheasant in the study site is about 22.16 km<sup>2</sup>, if we extrapolate; it gives the 59 breeding birds. Altogether 59 breeding population of Cheer Pheasant found within the total potential area of three VDC.

## 7.2 Descriptive analysis

#### 7.2.1 Density and population estimation

Based on the pooled mean and radius of 300 meter, the mean population density of the species in the study area was estimated to be 2.65 breeding birds/  $\text{km}^2$  and the mean population density at 95% confidence limit ranged between 0.92 to 4.39 breeding bird/  $\text{km}^2$  (by applying the correction factor). With the help of potential habitat, we extrapolated the total population size of the species in the valley (covers three village development committee of Kaligandaki watershed) to be 20 to 97 breeding birds with applying correction factor.

Name of		Max call	Mean	Seen
the			Number	
	count			
station	mornings	point	of call	
Sekung	3	1	0.33	
Titi	3	1	0.67	
Pangmu	3	0	0.00	
Sarkho	3	3	2.67	
Pudhar	3	2	1.33	7
Bunga	3	1	0.67	
Tangje	3	3	1.33	

Table-5.1	Description	of variables

## 7.3 Nest description

The study team was unable to find out the nest of Cheer where team had recorded in 2004. Renesting process was not found in that area so an abandoned nest was recorded.

### 7.4 Sightings of Cheer Pheasants

Altogether 7 Cheer Pheasant were seen in Pudhar Kharka. Out of them one male was seen just 15 meters away from the camp site at 5.30 PM later it flew 300 meter far from the observed site. Six Cheers were seen in the evening period.

	Call and Direct observation of Cheer Pheasant																		
Location May-June 2006																			
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	Seen
Sekung	1	1	0																
Titi				0	1	1													

Pangmbu			0	0	0										
Sarkho						2	3	3							
Pudhar						1	2	1							7
Bunga									1	0	1				
Tangje												1	0	3	

#### 7.5 Vegetation survey

Areas 200 meter around from the call points were observed and major tree species were recorded. Most of the habitats are dominated by the *Pinus wallichiana*, *Aesculus indicus*, *Cupressus torulosa*, *Taxxus baccata*, *Desmodium elegaus etc*. *Detail name are given below* 

Species	Pojho Kharka of Sekung	Lharkyu of Titi	Pangmu kharka of Kunjo	Tangtung, Sarkho	Pudhar	Bunga	Tangje					
Vegetation												
Pinus wallichina						$\checkmark$	$\checkmark$					
Aesculus indicus			-	$\checkmark$								
Ghekar		-	-	-	-	-	-					
Quercus	$\checkmark$	-	-	-	-	-	-					
semicordata												
Gunyali		-	-	-			-					
Bachaino	V	-	-			-	-					
Hippophae		-	-	-		-	-					
salicifolia												
Taxxus baccata	-	1	-		-	-	-					
Cupressus torulosa	-	1	-	-	-	-	1					
Halko	-	1	-	-	-	-	-					
Kisin	-	-	1	-	-	-	-					
Tsuga spp	-	-	√				-					
Abies pindro				√	-	-	-					
Desmodium	-	-	-	$\checkmark$	-	$\checkmark$	-					
elegaus												
Rhododendron spp	-	-	-		-	$\checkmark$	-					
Juglans regia	-	-	-	-	$\checkmark$	-	-					
Betula alnoides	-	-	-	-	-	1	-					
Bhakimlo	-	-	-	-			-					
Goban	-	-	-	-	-		-					
Lokar	-	-	-	-	-		-					

## 7.6 Comparison of observation

Call sites were found fewer than previous (2004) study period. Bird density and total population in the study area were found to be decreased by 40%. Variation in the population range is quite higher, obviously due to insufficient sample size. The area where team had recorded highest calling site in

previous study period (2004) were found fewer calling site in this period (2006). Surprisingly intensity of forest fire was also low. Concurrently no livestock herd were recorded in this period.

Description (In breeding pairs)	Survey in 2004	Survey in 2006	Change in Percentage
(in breeding pairs)			
Pooled mean	1.25	0.75	-40.00
Bird Density ( square km)	4.42	2.653	-39.98
Bird Density range at 95%			
confidence limit			
Lower range	0.06	0.92	1433.33
Upper range	8.78	4.386	-50.05
Total population in study area	97.98	58.79	-40.00
Population range at 95%			
confidence limit			
Lower range	1.32	20.38	1443.94
Upper range	194.6	97.2	-50.05

The difference in the abundance estimate of the species between these two surveys though showed a marginal decline, is statistically insignificant (Wilcoxon Signed Rank Test, Z = 0.5416, N = 13, W = 16,  $\sigma_w = \pm 28.62$ ,  $\mu_w = 0$  at 95% confidence limit ), suggesting that Cheer population continue to survive in good status in this area.

# 7.7 Habitat assessment

Surprisingly sites were not affected by the grazing and blazing however was recorded as affected in previous year. The time and season were the same. Averagely the weather was partial cloudy and fire intensity was none in most of the sites. The calling sites (position of cheer from where they produced call) within the call points were found differ than study done in 2004. Excluding the Tangje area Cheer calling were far in all sites than as recorded in 2004. Detail of habitat assessment is given below:

Site	Weather	Air velocity	Fire	Fire intensity	Average distance from active and passive agricultural field
Sekung	Partial cloudy	Low	None	None	1 km
Titi	Cloudy	Low	None	None	0 km
Pangmbu	Partial cloudy	Low	None	None	4 km
Sarkho	Partial cloudy	Low	None	None	1.5 km
Pudhar	Cloudy	Low	This year	Some	0.3 km
Bunga	Partial cloudy	Low	This year	Some	0.1 km
Tangje	Partial cloudy	Low	None	None	0 km

#### **8.0 RECOMMENDATIONS**

## 8.1 Regular monitoring

Regular monitoring is needed to confirm the presence and absence of Cheer Pheasant in the lower Mustang. However, more intensive study is needed to get the exact knowledge of its abundance within the area. Some sites were even not surveyed such as Hwang Kharka near to Kokhetahnti, Thulomela of Ghansa (very sensitive for security), Ratomate of Ghasna (sensitive), and above Tukuche. Renowned bird watcher of Ghansa Nabin Nepal's father has told us that he has heard Cheer from the Marpha and Dhumba tal (nearby Jomsom). Call points identified during the study period and additional sites should be survey in the future. Sample size should be increased to avoid the error in population range. At least 15 calling points should be allocated in different sites.

#### 8.2 Demarcation of potential Cheers habitat

Cheers are patchily distributed in the area and most of them are affected by the livestock grazing and forest fire. Whether the livestock pressure and forest fire affects the species or not, will be answered only when two sites can be demarcated physically. This can be possible through the ACAP with the support from CAMC and local people. Such plot should be surveyed at least two times in a year (April/May and November/ December). The research result in the blazed and grazing area with comparing without these physical and anthropogenic parameter, will help in long term management of Cheer Peasant in the study area.

#### 8.3 Promotion of bird tourism

Most of visitors stay in Ghansa for Cheer observation but now it has becomes more sensitive to move to the habitat of the Cheer. The site, east of Ghansa are very safe and easy to reach. ACAP should prepare brochure related to birds for Kunjo and Khanti area. The website of King Mahendra Trust for Nature Conservation should be rearranged and should place bird information. Informative sign posting should be placed on potential habitat of the Cheer. Similarly, extension materials should be published to aware local as well as outsider. At the same time people's involvement during the monitoring of Cheer Pheasant would be an additional achievement for the conservation of this species.

#### 8.4 Impact study of Cheer and Crane Conservation Committees

ACAP and Friends of Nature have already formed Cheer and Crane Conservation committee however their performance have never been assessed. A monitoring system should be prepared and continuity of committee ensuring by the ACAP is recommended.

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# Cheer monitoring programme in snaps

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Cheer monitoring study team : right from Raju Acharya, Neta, Pushpa, Yadav Ghimirey, Gopal and Suresh Thapa



Scanning of Cheers habitat at Pudhar Kharka



Interest of local people in bird watching

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