



Review and present observations on the Sighting of Black-Necked Crane, *Grus nigricollis* Przheylsky from Ladakh (Jammu and Kashmir, India)

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INTRODUCTION

Ladakh is the highest altitude plateau in India, situated in the state of Jammu and Kashmir between 75°50' E to 80° E and 32° 30' N to 37° N with geographical area of 100000 sq km (Pfister, 2004). Bounded by the two of the world's mightiest mountain ranges, the Karakoram in the north and the Great Himalaya in the south, Ladakh is traversed by two other parallel chains, the Ladakh Range and the Zaskar Range. Ladakh range and Zasker range running in the east and the west side respectively through Ladakh, divides it into three main valleys i.e. Zasker valley, Indus valley and Nubra valley. The Zasker valley lies west to Zasker range, the Indus valley sandwiched between Zasker and Ladakh ranges. Nubra valley on the east side of Ladakh range crossing the Khardungla pass. Ladakh borders Tibet to the east, the Lahaul and spiti to the south, the Vale of Kashmir, Jammu and Baltistan regions to the west, and the trans-Kunlun territory of East Turkistan in Central Asia on the other side of the Karakoram Pass in the far north. It is a land of High Passes. The geographical location of Ladakh ranges from 2,750m high at Kargil to 7,672m high at Saser Kangri in the Karakoram Range. Due to high altitude of Ladakh, the climate is very cold; the air is very thin and makes the heat of the sun very severe. This Trans-Himalayan region has some very large brackish water natural lakes e.g. Pangong Tso, Tso Morari, and Tso Kar in the Changthang area of Ladakh which is of freshwater origin. The Ladakh has also some important marshes in the Chang Thang region named as Hanle, Chusul, Chumur and Shey. Apart from these lakes and marshes, it has some major river systems; Shyok and Nubra rivers along the Karakoram ranges in the north, Indus river systems passing through east to west in entire Ladakh, and three smaller river systems such as Zaskar, Suru and Dras with large number of tributaries in the Zaskar ranges towards the south.

Black-necked crane also known as Tibetan Crane (*Grus nigricollis*) is the only high altitude species among the 15 species of crane in the world. It was first discovered by a

Russian naturalist, Count Prazewalski near Lake Koko North-eastern Tibet in 1876. This species is generally found in the range between altitudes of 3500m to 5500m ASL. The estimated population of the Black-necked Crane is between 8800 and 11000 individuals. The largest populations are in China and Tibet with smaller numbers extending into Vietnam, Bhutan and India (Collar *et al.* 2001). These birds are legally protected in China, India and Bhutan. However habitat modification, drying of lakes and agriculture are threats to the populations.

In Indian Himalayas it breeds only in Ladakh (Jammu and Kashmir). It is known as "State bird of the Kashmir". It was first recorded in Ladakh by the naturalist, F. Ludlow at Tsokar Lake during 1919 (Ludlow, 1920). A wintering population of 27 birds has been reported from Apatani valley of Arunachal-Pradesh in India (Beetis, 1954). There are the reports of the presence of Black-necked crane towards the north and west of Apatani valley. Further, at present there are no records of the species in the valley as it is densely inhabited (Choudhury, 2002). In north Bengal, the species was recorded at the Moinabari Forest Beat near Bhutanghat and on the fringe of the Buxa Tiger Reserve (ibid). In Himalayan region of north-west India Black necked cranes has a very small population as well as breeding ground in cold desert area of Ladakh in Jammu and Kashmir. The wetlands of Changthang are the only known nesting sites of the Black-necked crane in India. During the present surveys the populations as well as distribution of Black necked crane is estimated in Ladakh (Changthang region).

OBSERVATION

During the survey from 16.07.08 to 30.08.08, the various areas of Indus valley in cold desert Ladakh were surveyed to make observations on the present status of black necked crane (Table 1). In the Changthang area the black-necked crane is sighted between altitudes of 3209-4675m ASL. The maximum number of cranes was sighted along the Indus River in small marshy patches. As per present observations, the area between Nyoma to Chishul has been found to be

quite rich in crane populations. The brackish water Lake i.e. Tsokar, the freshwater lake Tsigul Tso and the area between Nyoma to Sumdho represents a population of black necked crane. The area of Leh to Nyoma and Tsomoriri to Leh also contains a small population of crane. A total of

53 birds were observed in the present survey (Table-1 & 2). Locality wise in detail sightings has been documented in (Table 2). The review of the sightings of the bird has been documented in the following table.

Table 1: Review of the sightings and of Black-necked Crane *Grus nigricollis* in Ladakh.

| Reference | Month/Year | No. of wetlands covered | Total Sightings | Breeding pairs | No. of chicks fledged |
|------------------------------|-------------------|-------------------------|-----------------|----------------|-----------------------|
| Ludlow (1920) | June 1919 | 2 | 3 | 1 | - |
| Osmaston (1925) | June 1924 | 7 | 11 | 4 | - |
| Meinertzhagen (1927) | May-June 1926 | 8 | 10 | 5 | - |
| Hussain (1976) | June 1976 | 4 | 5 | 2 | - |
| Gole (1981) | July 1978 | 10 | 12 | 1 | - |
| Gole (1983) | May-June 1980 | 10 | 14 | 3 | - |
| Nurbu (1983) | June 1982 | 9 | 13 | 3 | - |
| Hussain (1985) | June 1983 | 6 | 7 | 2 | - |
| Narayan <i>et al.</i> (1987) | August-Oct. 1986 | 8 | 16 | 2 | - |
| Akhtar (1989) | July-Nov. 1987 | 5 | 9 | 1 | - |
| Chacko (1992) | Sep.-Oct. 1992 | 14 | 17 | 4 | - |
| Chacko (1995) | May-Sep. 1995 | 18 | 22 | 5 | 6 |
| Chacko (1996) | May-August 1996 | 18 | 25 | 12 | 9 |
| Pfister (1998) | June-Sept. 1997 | 18 | 38 | 12 | 9 |
| Pankaj <i>et al.</i> (2006) | April-Dec. 2002 | 22 | 59 | 15 | 10 |
| Pankaj <i>et al.</i> (2006) | April-Nov. 2003 | 22 | 60 | 16 | 10 |
| Present study | July- August 2008 | 12 | 53 | 13 | - |

Table 2: Details of Sightings of the Black Neck Crane *Grus nigricollis* in Chumathang Ladakh, Jammu and Kashmir during present study.

| Date | Area Surveyed | Location | Altitude (m asl) | Distance traveled | No. of sighting | SD |
|--------------------|------------------------|--|------------------|----------------------|-----------------|----------|
| 18.07.2008 | Guptak Wetland | N 34°08' 13.2" E077°30' 26.4" | 3209 | 7 Km from Leh | 0 | 0 ± 0.00 |
| 19.07.2008 | Leh to Nyoma | N 33°12' 10.1" E 078°39' 00.2" (Nyoma) | 4146 | 185 Km | 2 | 2 ± 1.00 |
| 22.07.2008 | Nyoma-Loma | N 33°09' 30.9" E 078°48' 32.4" (Loma) | 4164 | 23Km | 1 | 1 ± 0.00 |
| 21.07.2008 | Tsokar | N 33°19' 05.5" E 078°02' 36.7" | 4551 | 45 Km from Tsomoriri | 5 | 5 ± 2.00 |
| 26.07.2008 | Nyoma-Sumdo | - | - | 45 Km | 5 | 5 ± 0.20 |
| 20.07.2008 | Nyoma-Chishul | N33°35' 55.0" E 078°38' 44.6" (Chisul) | 4398 | 68Km | 31 | 31 ± 4.5 |
| 24.07.2008 | Tsigul Tso | N33°34' 30.3" E 078°37' 14.4" | 4402 | 5 Km from Chisul | 2 | 2 ± 1.00 |
| 24.07.2008 | Pangong Tso | N 33°45' 22.0" E 078°38' 01.4" | 4660 | 22 Km from Chisul | 0 | 0 ± 0.00 |
| 26.07.2008 | Nyoma-Tsomoriri | N 33°00' 47.6" E 078°15' 53.3" (Tsomoriri) | 4582 | 78 Km | 1 | 1 ± 0.00 |
| 26.07.2008 | Khyagar Lake | N33o04' 47.9" E 078o16' 36.5" | 4675 | 18 Km from Tsomoriri | 0 | 0 ± 0.00 |
| 26.07.2008 | Tsomoriri- Mahi Bridge | N 33o13' 05.5" E 078o34' 01.5" (Mahi) | 3950 | 54 Km | 1 | 1 ± 0.00 |
| 24.08.2008 | Hanle Marsh | 32.80N & 79.00 E | 4340 | | 4 | |
| 24.08.2008 | Lal Pahari | 33.00N & 78.80 E | 4280 | | 1 | |
| Total birds | | | | | 53 | |

(Sites covered during the present study)

Systematic Account:

| | |
|----------|--|
| Kingdom: | Animalia |
| Phylum: | Chordata |
| Class: | Aves |
| Order: | Gruiformes |
| Family: | Gruidae |
| Genus: | Grus |
| Species: | <i>Grus nigricollis</i> Przevalsky, 1876 |

It is distinguished as whitish-grey colour body with white on the under parts. It has red crown patch with black head. Its legs and upper part of the neck is black in colour. Both sexes have almost same size. The black-necked cranes engage in harmony calling which is a complex and extended series of coordinated calls. Black-necked cranes build nest in high altitude freshwater wetlands. Nests are made on small pre-existing grassy islands or in water along the River or Fresh water or brackish water lake basin. The nests are made up of mud, grass, sedges and other aquatic plants. Breeding took place during May to June Females usually lay two eggs and the incubation period lasts 30-33 day. The chicks are become of the same size as adults in 3-4 months. They migrate during October-November with their parents. (Pfister, 2004).

The common species of the flora near the wetland in marshes are *Equisteum ramossimum*, *Lepidium apetalum*, *Pedicularis longiflora*, *Utricularia minor*, *Polygonum nummularifolium* and *Potentilla anserine* (Chandan *et. al.* 2000-2005). The banding/ringing of blacknecked crane in India was only done by Chacko in 1995 (Chacko, 1995) to know the migration route of breeding population.

The Black-necked Crane is omnivorous and forage on plant roots and tubers, insects, fish, frogs and lizards. The observations were made feeding the Black neck crane on the locust of the grasshoppers at Loma. The foster behavior of Black necked- crane was recorded, as the Bar headed eggs were being incubated by the black neck crane in Chisul marshes.

Therefore, it is concluded that the Nyoma to Chisul along the Indus River is the breeding ground and the maximum population of this bird also recorded here.

Threats:

1. The main threat observed in the area was the feral dogs, which causes direct damage to the eggs and chicks of the birds. The dogs were observed preying upon the black-necked crane in Chisul marshes and Tsugal Tso marshes (Personal Observation).

2. The tourism in the Ladakh has the direct impact on the loss of habitat especially near the wetland in the pasture wetland. Tourist tents and vehicles land at the shores of the River and wetland basin is threat to the bird.



Fig. 1. Black Necked-Crane at Chishul



Fig. 2. Habitat of Black Necked-crane near Nyoma.

3. Grazing of domestic animals i.e. horses, Yaks, sheep and goats around the wetland loosing the habitat of the bird. As per the Chandan *et.al.* (2000-2005), there are 41 nomadic settlements with a population of around 9500. There are about 1,40,000 domestic livestock, 90% represented by sheep and goat and remaining 10% by domestic yak, ponies and zoo. These animals extensively graze around these lakes and particularly along the marshes and wet meadows and directly competing with wild ungulates. It is recommended traditional ecological practices for the pasture management, in which in Tsokar Wetland basin nomads do not use the pasture in the summer months and use these pastures only during the winter months. Likewise, in other wetland also this practice should be adopted (*ibid*).

4. Construction of road and buildings in the entire Ladakh.

5. As per the religion of the local people (Budhist) in Ladakh the fishing is prohibited but the labourers illegally catch the fishes, which is threat to the bird.

CONSERVATION STATUS

The Black-necked crane is included in Schedule I Part III of Indian Wild life (Protection) Act. It is evaluated as vulnerable under criteria A1b, c, d A 2c 1. on the IUCN Red List of Threatened Species. It is listed on Appendix I and II of CITES. Seven of the world's fifteen species are listed in the international council for Bird Preservation's (ICBP, Birdlife international) checklist of threatened birds (Collor and Andrew, 1988). Chinese authorities have offered the bird the highest class of protection, listing it as endangered, in class 'A' (Pfister, 1998).

Loss and degradation of habitats are the main threats to Black-necked Crane. In Ladakh (India) the black-necked crane has quite rare and restricted distribution. The Chumathang area of Ladakh which is rich in black-necked crane population, need to be conserved on primary basis. Due to development of tourism in Ladakh, these spots are being disturbed by tourists. Though in these areas Black-necked Cranes are quite tolerant to local people and regularly feed near human settlements and domestic livestock. Therefore, it is suggested that in order to conserve this species the tourist influx, grazing by the domestic animals in the marshes and near the wetland in the habitat of the bird, cultivation on the basin of the wetlands need to be checked.

The present study can be the base line for making the comparison of the status of Black-necked crane after the natural calamities (Cloud burst) which took place recently in Ladakh during 6th August, 2010.

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REFERENCES

- Bettis, F.N. (1954). Occurrence of the black-necked crane in Indian Limits. *J. Bombay Nat. Hist. Soc.* **52**: 605-606.
- Chacko, R.T. (1995). A summer 95 Study of the Black-necked Cranes Breeding in Some Remote High Altitude Areas of Ladakh, India. (Unpublished Report).
- Chandan, P.A. Chatterjee, P. Gautam, C.M. Seth, J. Takpa, S. Haq, P. Tashi and S. Vidya (2000-2004). Black-necked Crane-Status, Breeding Productivity and Conservation in Ladakh, India WWF- India and Department of Wildlife Protection. Government of Jammu and Kashmir.
- Choudhury, A. (2002). Status and conservation of Cranes in Northeast India. In: Birds of Wetlands and Grasslands: *Proceedings of Salim Ali Centenary Seminar on Conservation of Avifauna of Wetlands and Grasslands*. Eds: Rahmani, A.R. and G. Ugra. Bombay Natural History Society, Mumbai : 41.
- Collar, N. J., Andreev, A.V., Chan S., Crosby, M.J., Subramanya S. and Tobias, J.A. (2001). Threatened Birds of Asia. *Bird Life International*. pp. 1198-1225.
- Ludlow, F. (1920). Notes on the Nidification of certain birds in Ladakh. *J. Bombay Nat. Hist. Soc.*, **27**: 141-146.
- Pfister, O. (1998). The Breeding Ecology and Conservation of the Black-necked Crane (*Grus nigricollis*) in Ladakh India. Unpublished Thesis. University of Hull, Hull.
- Pfister, O. (2004). Birds and Mammals of Ladakh. Oxford University Press, New Delhi: xxxvii + 361pp.