

Anser indicus : A Relegated Goose Species

The status of Anser indicus continues to cause concern. Since the beginning of Asian Mid-winter Waterfowl Count, data covering a substantial range of its wintering population, are now available. The number of sites covered during the count has been increasing since 1987 but the number of geese counted has been only 6000 at the maximum as will be seen from the following table

Year	Bangla Desh	India	Nepal	Pakistan	China	Total
1987	--	3545	188	--	--	3733
1988	73	3306	117	8	1666	5170
1989	129	5787	75	2	145	6138

(Source: Relevant reports of the Asian Waterfowl Count)

Obviously in the latest report sites in China have been inadequately covered while no counts have been coming forth from Burma where probably this goose has become extremely rare.

In the winter of 1990 I got an opportunity to explore wetlands in east India where sizeable flocks were seen in the Brahmaputra valley. It appears that in winter A. indicus in India concentrates in two regions, viz. the lakes of west Rajasthan in west-central India and to the east, the Brahmaputra valley. It is possible that two separate populations are involved: one overflying Kashmir and Pakistan and the other flying over the main Himalayan range and crossing Nepal on the way to land in east & south India. It is possible that some double counting is involved as at least some of the geese counted in Pakistan and Nepal must be on passage.

My estimate is that the wintering population of A. indicus in the Indian sub-continent does not exceed 8000. It may be divided among the following countries:

Name of the Country	Estimated wintering numbers
Bangla Desh	150
* India (Western population) (Eastern & Southern popu.)	3000 4500
Nepal	100
Pakistan	250

The wintering sites so far known from the respective countries are shown in the accompanying map.

Counts and reports from various countries lead me to believe that

the total world population of *A. indicus* may be in the range of 10,000 to 12000 birds which make this species one of the rarest goose species in the world. Even then it is as yet not recognised as an endangered species at the international level. It has therefore, the dubious status of a relegated species.

#### Research

A research project to study the food habits of *A. indicus* in different parts of its wintering range was prepared jointly with Dr Beth Middleton but our efforts to raise funds for this research have so far been unsuccessful. My efforts are therefore, concentrated mainly in the direction of covering as many wintering sites as possible during the mid-winter count.

As very little information is forthcoming from Burma, China and Mongolia, I would very much like to develop contacts with scientists and observers in these countries and possibly visit them to secure their cooperation. Funds are being sought for such a venture.

#### The Group

The corresponding members of the group are:

India: Dr Rehmani, Bharat Singh, Anwaruddin Chaudhury, Dr P. C. Bhattacharjee, Prasant Saikiya, Dr J. C. Uttangi, V. Shantaram and S. N. Varu.

Pakistan: Ashiq Ahmad.

Bangla Desh: Dr Reza Khan, A. Karim.

Netherlands: drs J. A. van der Ven.

USA: Dr Beth Middleton, Dr Mary Anne Bishop, Jeb Barzen.

USSR: Dr Sergei Smirenski.

#### Recent Publications

Gole P. 1989: Conservation of Migrant Birds: 2 case studies: paper presented to India-Pakistan Conference on Environment, Lahore, December 1989.

Middleton Beth & Valk van der A. G. 1987: The food habits of Greylag and Barheaded geese in the Keoladeo National Park in India, *Wildfowl* 38 pp. 94-102.

Middleton Beth 1988: Food habits of geese in northern India, *Journal of Ecological Society*, Vol 1, pp 37-45.

Zhu P. R. 1988: Estimating the abundance of Barheaded Goose populations in Tibet, paper published by Institute of Wildlife of Heilongjiang province, China.

Population Status and Conservation of the Barheaded Goose  
(Anser indicus)

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Barheaded Geese have declined dramatically in recent years in India. Once the subcontinent's most numerous goose, less than 4,000 Barheaded Geese were counted in India in the 1987 Asian Waterfowl Count. Possible reasons for the decline of Barheaded Geese include the destruction of wetlands for urban and agricultural development, desertification, egg gathering, and indiscriminate hunting. While Barheaded Geese are viewed as agricultural pests, I found that less than half of the diet of the Barheaded Goose in the Keoladeo National Park, Bharatpur, Rajasthan came from agricultural sources in Winter 1986 based on microhistological examination of goose droppings.

Wetland preservation would be a positive step in Barheaded Goose conservation. To develop a program to offset its dramatic decline, an understanding of the overwintering and breeding biology of the Barheaded Goose is required.

Vet cursief 6 DTS Kap = Nieuwe segeel

2x spatie

Status of Bar-headed Goose in India

In January 1983 I visited several wintering areas of Bar-headed Goose *Anser indicus* in northern India. At the Bharatpur Bird Sanctuary, Rajasthan, I counted 600 birds, at the Kaziranga Reserve, Assam, 600-1000 and at the Sultanpur Jheel, Haryana, 250. These numbers are considerably higher than those published by Gole (1982). He gave for the aforementioned areas the following totals: 250, 50 and 100.

The Bar-headed Goose is a little known species. It breeds in high central Asia, from the Tien Shan and Karakoram Range eastward through Tibet and Mongolia to the Hu-lun Ch'ih area (Ali & Ripley 1978, Cheng 1976, Ogilvie 1978). The main wintering areas are situated in central Pakistan, northern India, Bangladesh and Burma (Ali & Ripley, Ogilvie). Great declines are reported to have taken place in the last 30 to 50 years but it has not been possible to quantify these (Ogilvie). The total population may now comprise less than 10,000 individuals (Gole).

references

- Ali, S & Ripley, S D 1978 *Handbook of the birds of India and Pakistan* 1. Second edition. Delhi, London & New York.
- Cheng, T-h 1976 [*Distributional list of Chinese birds*]. Second edition. Beijing.
- Gole, P 1982 Status of *Anser indicus* in Asia with special reference to India, *Aquila* 89: 141-149.
- Ogilvie, M A 1978 *Wild geese*. Berkhamsted.
- Gerard L Ouwens, *Wijster* 17, 3299 BT Maasdam

uitvalen

## Distribution of Bar-headed Goose (*Anser indicus*) in China

Bar-headed Goose (*Anser indicus*) is breeding in west part of China, mainly in Qinhai-Tibet Plateau area, and wintered in south-west part of China, and occasionally appeared in middle and lower course of Yantze River. It is estimated that about 10,000 pairs breeding in China each year.

### Main wintering areas:

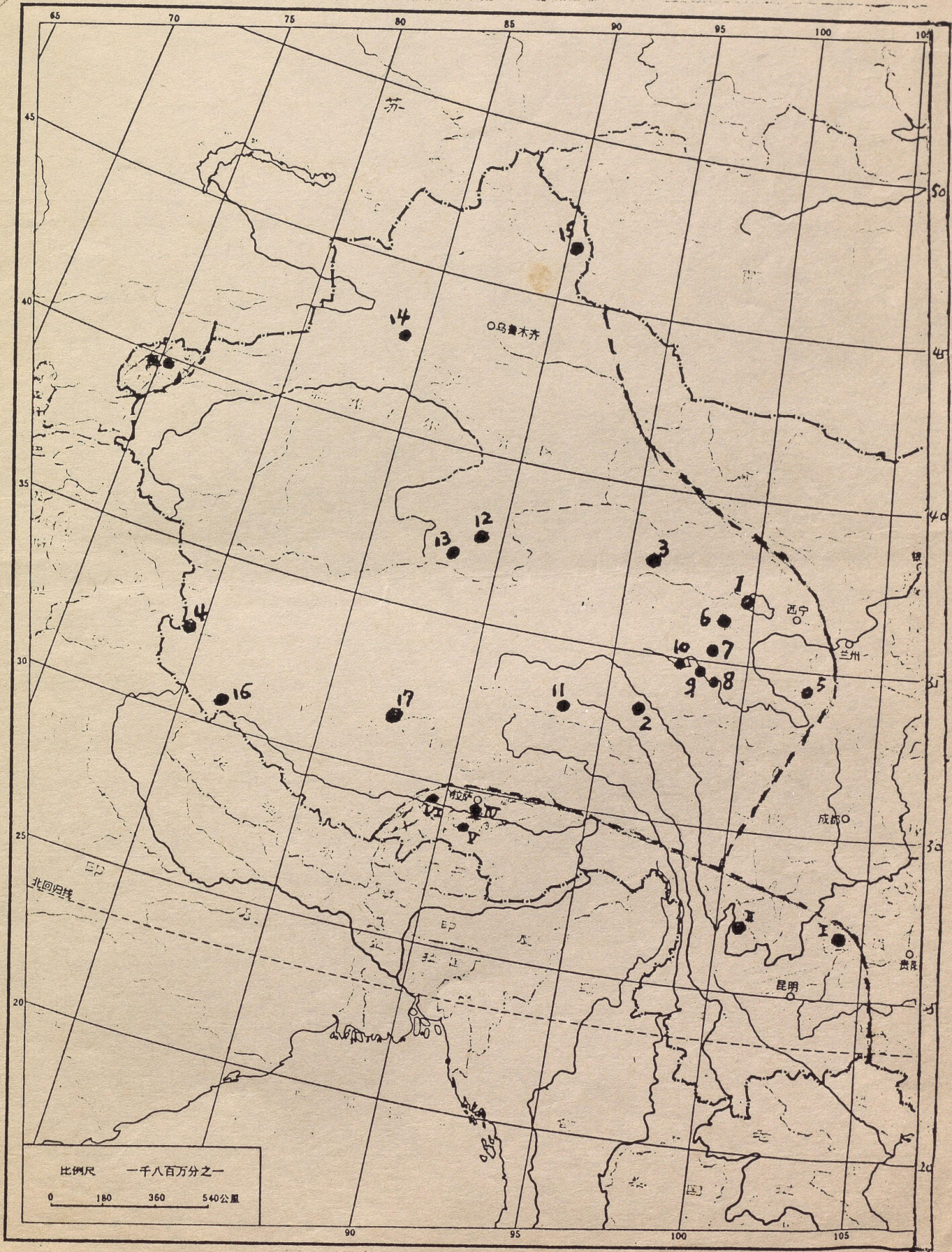
- I: Caohai NR ( $24^{\circ}30' - 25^{\circ}00'N$ ,  $102^{\circ}58' - 103^{\circ}02'E$ ) W  
In the winter of 1988/89, 1660 individuals were counted, and  
in the winter of 1990/91, 2066 individuals were counted.
- II: Napahai NR ( $27^{\circ}49' - 27^{\circ}55'N$ ,  $99^{\circ}37' - 99^{\circ}40'E$ ) W  
In the winter of 1985/86, about 800 individuals were counted.
- III: Artetao ( $39^{\circ}05'N$ ,  $75^{\circ}50'E$ ) W  
In the winter of 1990/91, about 400 individuals were counted.
- IV: Lasa He ( $29^{\circ}38'N$ ,  $91^{\circ}05'E$ ) W  
In the winter of 1985/86, 110 individuals were counted, and  
in the winter of 1987/88, 380 individuals were counted.
- V: Yangcaoyong Cuo ( $29^{\circ}00'N$ ,  $90^{\circ}45'E$ ) W  
In the winter of 1987/88, 678 individuals were counted.
- VI: Dazuoka ( $29^{\circ}20'N$ ,  $89^{\circ}35'E$ ) W  
In the winter of 1985/86, 478 individuals were counted, and  
in the winter of 1987/88, 788 individuals were counted.

### Main breeding sites:

- 1: Qinghai Hu NR ( $36^{\circ}28' - 38^{\circ}25'N$ ,  $97^{\circ}53' - 101^{\circ}13'E$ ) 1  
In the breeding season of 1988, 5520 individuals were counted.
- 2: Longbaotaotan NR ( $33^{\circ}09' - 33^{\circ}17'N$ ,  $96^{\circ}24' - 96^{\circ}37'E$ ) 2  
In the breeding season of 1988, about 2000 nests were counted.
- 3: Tuosu Hu ( $37^{\circ}10' - 37^{\circ}20'N$ ,  $96^{\circ}49' - 97^{\circ}30'E$ ) 3  
In the breeding season of 1987, 555 adults and 142 young birds  
were counted. Biology of this species was studied.
- 4: Pangong Hu ( $33^{\circ}30'N$ ,  $79^{\circ}53'E$ ) 4  
In the breeding season of 1985, 127 adults were counted.
- 5: Ga Hai NR ( $34^{\circ}12'N$ ,  $102^{\circ}20'E$ ), no counted number.
- 6: Chaka Yanhu ( $36^{\circ}18' - 36^{\circ}45'N$ ,  $99^{\circ}02' - 99^{\circ}12'E$ ), no counted number.
- 7: Songgeicuona Hu ( $35^{\circ}17'N$ ,  $98^{\circ}35'E$ ), no counted number.
- 8: Mado Hu ( $34^{\circ}50'N$ ,  $98^{\circ}10'E$ ), no counted number.
- 9: Eling Hu ( $34^{\circ}55'N$ ,  $97^{\circ}43'E$ ), no counted number.
- 10: Zhaling Hu ( $34^{\circ}55'N$ ,  $97^{\circ}15'E$ ), no counted number.
- 11: Yilan Cuo ( $33^{\circ}05'N$ ,  $93^{\circ}15'E$ ), no counted number.
- 12: Ayakekum Hu ( $37^{\circ}30'N$ ,  $89^{\circ}30'E$ ), no counted number.
- 13: Aqikekule Hu ( $37^{\circ}05'N$ ,  $88^{\circ}25'E$ ), no counted number.
- 14: Bayinbuluke NR ( $43^{\circ}25' - 43^{\circ}28'N$ ,  $83^{\circ}02' - 86^{\circ}00'E$ ), no counted number.
- 15: Southeastern Altai Mountain ( $46^{\circ}50'N$ ,  $90^{\circ}52'E$ ), no counted number.
- 16: Mafangyong Cuo ( $30^{\circ}34'N$ ,  $81^{\circ}05'E$ ), no counted number.
- 17: Qiangtang Lakes ( $30^{\circ}00' - 36^{\circ}30'N$ ,  $79^{\circ}00' - 95^{\circ}00'E$ ), no counted number.

From breeding season of 1983 to 1985, 802 (1983:304, 1984:417, 1985:81; 665 young, 137 adults) Bar-headed Goose were banded in Qinghai Lake (1). By now, 22 bands were recovered (2 from India, 1 from Bangladesh, and the rest from China).

(Cited from "Present status and conservation of geese in China" by Jianjian Lu, in "Magadan Conference Proceedings" Magadan, USSR. 1990.)



DISTRIBUTION OF BAR-HEADED GOOSE (*Anser indicus*) IN CHINA

Xiamen, Ruergai  
NW Sichuan.

Xhuzhuan

By line transect method  
Estimating the abundance of Bar-headed  
Goose's Populations in Tibet

Piao Ren Zhu  
(Institute Wildlife of Heilongjiang Province)

Abstract

The data of 47 number of transect line 7280 km total length of the transect lines far 1987 taken in Tibet on Bar-headed Goose are examined, and the density & number of Bar-headed Goose's Population are calculated in every counties of North-Tibet from line transect sampling. In this paper, author introduced the new method of line transect sampling based on perpendicular distance & applying its theory to practice briefly. Considering of this method is not common utilized in China, The author adopted the Half-normal density function as detection function calculated the density & the number of Bar-headed Goose's population in every counties of North-Tibet. The total number of breeding individuals of Tibets population is about  $4546 \pm 1685$  indiv., In the final, the author discussed a few biological problems of the results.

16613 - India - 1993  
107 - Bangladesh  
142 - Nepal  
13 - Pakistan  
533 - Myanmar  
1200 - China

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18608  
3350

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21958

Alan Kitson  
1977

By line transect method  
Estimating the abundance of Bar-headed  
Goose's Populations in Tibet

Piao Ren Zhu  
(Institute Wildlife of Heilongjiang Province)

PREFACE

The Bar-headed Goose (*Anser indicus*) is a bird of plateau, mainly distributes in area of high elevation, even rarely in elevation of 7500-8500m. The area of wings to the weight of the Bar-headed Goose is more bigger than other goose's, may be because of the bird suits to plateau living & flying over the high mountains in migration.

The Bar-headed Goose is breeding in plateau lakes of QingHai province (Qing Hai Lake, ELing Lake d Zhaling Lake & so on), in Tibet & in XinJiang province, also in plantAs lakes & water systems of Inner Mongolia of China, as well as in USSR (Tadjik. Kirghiz. Tuwa), Mongolia(Artai) & Kashmir. The Goose is wintering in plain of India. Nepal, South-China (Tibet.YunNan. GuiZhou province) & North-Burma.

The Bar-headed Goose is recovded & described in avifauna of provinces of China above-mentioned. Recertly. several ringings of Bar-headed Goose have recovered in difference place of China & abroad for it's migration study (Zhang fu yun 1987). And then, the author Zhang has estimated the number of the Goose in Qing Hai, Which is about 4 thousands of breeding nests. In addition to, Xian Yao hua (1960) investigated 750 d 172 nests of this Goose in Qing Hai Lake & ZhaLing Lake,separately. But the survey has net been yet in progress in Inner Mongolia & Xinjiang province.

Since the 1920's. a lot of scientists from many countries of the world has come in Tibet & met that the Bar-headed Goose is distributing & breeding in Tibet. But nobody related to the populations number of this Goose. In this case, the author & coleagues has surveied the population of this Goose in whole North Tibet for 1987. And under this data obtained the author has calculated the abundance of this Groose with line transert method.

SURVEY AREA AND NATURAL CONDITION

The survey area ranges from KunLun Monntains and Nian Qing Tang Gu la Moun. of north to GangDishi & Tang Gula moun. of south, from Naqu of east to Ali of west. It's geographical coordinates is about 29-35°N of latitude & 79-92° in longitude. It's very big area of about 720 thousands km<sup>2</sup>. In the zoogeography. this area belongs to Qiang Tang plateau of Qingzhang in palaeartic. The elevation of this area is between 4200-5100m, but the relative altitude is only 200-500 m, varely is more 1000 m. This area is hilly lands & mountain vallirs & basins everywhere. In this place, it is deficient in plant & only grows *Stipa purpurea*, *Arenaria muscfoymis* & *Carex moorcroftii*, *Ceratoides compacta*, which forms mountain-wilderness. Only in the area, tending toward to east it is appeared mountain grassy marshland. In the vast plateau. the climate is a arid. cold & more wind. The average annual temperature of north plateau is -10°C & 20-50 mm of annual rainfall. But in south parts is 0-3°C & less than 300mm. Here it is many snow mountains,rivers & lakes. which nearby

regions is growed sand beach & some plants. There is good habitat of a great number of water fowls. The period of this survey is continued for 125 days. the number of lines transect is 47. & the total length of the lines is 7280km. which is covered 720 thousand Km<sup>2</sup> of area.

### THE LINE TRANSECT METHOD

In this survey, the author applied the line transect sampling & its method. Introduced briefly to this method is as follows. The line transect sampling has been used to estimate density of biological population. by Gross in 1906 & the results have been reported in 1921 by Forbes & Gross. As everyone knows. line transect sampling is not appropriated for all biological population., however, it is widely applicable to many animals & environments, for example, snail, colony of ants, grouse, quail, deer, duck nests, ungulates, nongame birds, rabbit, whales and soon. In last decade, some Chinese scientists have used this method to estimate density of Giant panda (*Ailuropoda melanoleuca*) Snow leopard (*Panthera uncia*) & Thorold's deer (*Cervus albirostris*), Red deer & Fox. Basing on line transect sampling, a new method-inverse line transect sampling has been proposed by Chen Hur How for 1987, which method is to estimate density of Red deer with indirect index-quantity of droppings.

The process of line transect sampling with perpendicular distance is as follows. In an area of known boundary & size A. at least 1 line L traverses (e.g. walked, flown, ridden on horseback ) across a tract & records detected object, n of target one. with every perpendicular distance from the line to a detected object  $x_1, x_2, \dots, x_n$ , So any estimator of the density D of object is expressible as:

$$\hat{D} = n / 2 L a$$

In particular, a is often referred to as one half of the effective strip width of the transect & its value is estimated from follow formula:

$$a = \int_0^w g(x) dx$$

In this equation. W is the transect width i.e. the maximum perpendicular distance at which observations are made. The detection function  $g(x)$  is the conditional probability of observing an object given that the object is at perpendicular distance  $x$  from the line. Obviously,  $g(0)=1$ . & the detection probability decreases as perpendicular distance increases i.e.  $g(x)$  is a monotonically decreasing function of  $x$  (distance from transect line).

Let  $f(x)$  denote the probability density function of perpendicular distance data as:

$$f(x) = \frac{1}{a} g(x)$$

$$\int_0^w f(x) dx = \frac{1}{a} \int_0^w g(x) dx = 1$$

In particular:  $f(0) = \frac{1}{a} g(0) = \frac{1}{a} \quad \because g(0) = 1$

Therefore:  $\hat{D} = n \hat{f}(0) / 2 L$

In this equation, the detected object  $n$  can be used the number of detected object obtained from once travel.

According as Burnham (1980), the estimate of density for the half normal distribution has

$$\hat{f}(0) = (\pi / 2 \sum x_i^2 / n)^{\frac{1}{2}} \cdot \frac{n-0.8}{n}$$

$$a \quad \hat{D} = n \hat{f}(0) / 2L$$

$$\hat{D} = \frac{\sum L_i \hat{D}_i}{\sum L_i}$$

$$\text{var } \hat{D} = \frac{\sum L_i (D_i - \hat{D})^2}{(\sum L_i)(R-1)}$$

$$d \quad D = \underline{D} \pm t \sqrt{\text{var } D}$$

## RESULT

Table 1 & 2 presents the ungrouped perpendicular distance data of sampling survey on Bar-headed Goose in North Tibet for 1987 & the density has been calculated by line transect method with Half normal distribution. From this tables, the total breeding number of the Goose in Tibet is  $4546 \pm 1685$  indivi. under  $\alpha=0.2$ , 80% reliability. The Bar-headed Goose concentrates in Lubu, DareBu, Xia Xian, Mujiu lakes & as well as in Namn, Dong lakes. i.e. the breeding area of the Bar headed Goose bounds on south by HeiAa road, but tending to east. the breeding area stretches to more southern part by Mujin & Namn lakes.

## DISCUSSION

As above mentioned. the line transect method is not appropriated for all populations, however, the author used this method on Bar-headed Goose's population. and the calculated results approximated to actual situation of the field. But some problems of biological have need to discuss as follows

1. Bar-headed Goose distributes in the field as groups about lake & water systems. i.e. looks like nonuniform distribution, but the lakes & rivers are number of several thousands & well-distributed everywhere of North-Tibet as like poisson distribution by macroscopical view. This is just reason to adopted Line transect sampling with the distribution of Bar-headed Goose as random spatial distribution.

2. When the number of the Goose's population has been calculated. the area of Goose's habitat is only examined narrow districts (2-5 km) about lakesides & banks of rivers with the marsh valleys.

3. In the detection function, the perpendicular distance is very important variate & influence seriously its precision, so should be exactly to measure the distance from the object to the line in the field. But we have examined the distances only by naked-eye, it is maybe

the reason to reduce the precision of our results.

4. With the exception of perpendicular distance from the line. it is also influenced upon the detection function, for example observer's training level. investigations date.time of day. the dimate, specially the dimate, specially the light ( with or against ) background, the size & sex of target object & so on. but unfortunately, it is cant's avoid them in the wide field survey. It is other factor to reduce the precision of results.

5. The Bar-headed Goose distributes evidently in fresh water, saltwater lake & salt lake with different proportion, but it is met yet studied.

6. A bout the vertical distribution of breeding nests. it is not investigated exactly., But the author could estimate roughly between 4100-4800m. it is very rary exceed more 5000m, if you found it. maybe is not breeding one.

7.Except the habitats above diterminated, We also censused the area of Lhasa, Duilongdeging, Mozhugingka, Linzhou, Dang Xiong & Pulan counties, but we have not found any breeing individual, so the number calculated in this paper can indicate total breeding number in Tibet.

# Daru

Bar-headed geese: summary of status in Kyrgyzstan and other areas.

Joost van der Ven

*L in the wild*

People in Europe do not have to travel to Asia if they want to see Bar-headed geese. After they were kept in many private collections, they escaped and settled on many places in Europe. In my Dutch garden there are regularly two till eight "wild" birds. One is laying eggs every year but without any result. On the coast of Schleswig-Holstein (Germany) one can find flocks of these geese among the real local wintering geese: Greylag, *Anser anser*; Barnacle, *Branta leucopsis*; Brent, *Branta bernicla* and even Canada Goose, *Branta canadensis*). The last one settled really in Northern Europe from the beginning of this century after escapes and introductions in Sweden. The Bar-headed goose seems to breed only successfully in Norway/Sweden where a small population exists. In autumn they are migrating to Germany and The Netherlands.

But the "real" *Anser indicus* can only be found in Asia itself. Wintering in China and India or breeding in the remote areas of Central Asia. The Asian Midwinter Counts gave updated information about the population size. People in (former) USSR believed there were only 1-2000 birds left, which was the result of their isolated information and lack of international contacts. The figure given by Madge and Burn (*Wildfowl* 1988) of 10.000 birds as the whole population should be regarded as a big underestimate of the reality. After some years of counts, the Indian figure mentioned for many years seems more realistic. The estimation by the Goose Working Group of IWRB (Prakash Gole) of 25.000 birds is more probable. The figure mentioned in the report of the Asian Waterfowl Census (1987-1991) of 50.000 birds seems to be an overestimation. As total counts in Asia in winter reached 27.000 birds, most areas in India and Burma were covered. Though more information about China is included, still our knowledge is rather limited. One year of counts will not give the type of information necessary for population-estimates. 35.000 birds as a total population seems the best realistic figure. Anyhow, a goose-population of such a size has to be regarded as vulnerable and special protection measures are absolutely necessary. In most areas hunting is not a real threat as in most areas this bird is respected and on the Red Lists of most countries. On

some migration routes

some migration routes some illegal hunting might take place. Egg-collecting takes place in several breeding areas though it is illegal. It is not related to starving people but free-available eggs are cheaper than those in a shop. It is more related to greediness of people than anything else and partly related to tradition: collection nice things from springtime.

*Anser indicus* was more numerous in the beginning of this century as indicated by Indian sources which are reliable. But it has never been an abundant goose due to its restricted breeding areas high in the mountains. Just as the Black-necked crane it has its own remote environment and it was and never will be abundant. We are more and more convinced that the crucial protection-problems for this goose are situated in its breeding-areas. To ensure save breeding areas and more control over the breeding success should be given first priority in all activities related to this goose.

The breeding areas of the Bar-headed goose are scattered all over Central Asia but still it is difficult to imagine where all these birds will nest. The total number of breeding pairs in Kyrghyzstan, Uzbekistan and Tadzhikistan will not be more than 150-200 pairs. In Kazakhstan no breeding areas are known. In the Altai and Tuva (both Russian Federation, RF) the real figure is unknown but might be roughly the same as in the Central Asian republics. However, some unknown breeding-areas might exist. The real breeding areas are therefor in Mongolia and China where at least 10.000 nests should be found.

In this article we will deal with three different breeding areas: Kyrghyzstan, Song-Kul. Second: Tuva and a third source: China with recent information from C A von Treuenfels with his book "Unter Pandas und Pinguinen", Hamburg 1995.

## 1. Kyrghyzstan

Bar-headed geese are not only breeding in remote areas, they apparently also preferred areas closed for ornithologists. All mentioned areas in USSR, Mongolia and China were closed till about five years ago. In 1993 I visited Kyrghyzstan for the first time and found Bar-heads in the larger lakes. In 1997 Prakash Gole and I visited one small breeding site in Kyrghyzstan after I visited the same area in 1996 too. The Song-Kul in Central Kyrghyzstan is laying on 3000 meter above sea-level and surrounded by mountains of 4-4500 meters. The water-surface is nearly 300 km<sup>2</sup>, 30 km long and 16 wide. In total there is 125 km coastline. The depth of the lake in average is nine meter; the deepest point is 22 meters. In July the water level reaches its top when all the snow of the surrounding mountains is melted. This lake proves once more that Bar-heads

do not look for easy sites. With an average annual temperature of  $-3,5^{\circ}\text{C}$ , only in July the water reaches  $13^{\circ}\text{C}$ . The lake freezes completely in October and only in the beginning of June the lake is without ice, only four months in total. However in May the shallow coast-waters are already melting. The ice is one meter thick at the end of the winter. After September one will not find any birds except a desperate eagle or crow. Around the lake there are large steppes grazed by herds of Yak, sheep, horses and cows. Only the yak stay the whole winter as they know areas without snow during the winter, high up in the mountains. There are no villages and no sheperds or fishermen from September till June. However people from southern villages are reaching the lake in early spring. They are illegally hunting and collect eggs from ducks, geese, gulls, terns and grebes.

Only in ~~the~~ <sup>the</sup> Eastern and Western parts of the lake are some marshes and islands. In 1996 the geese were breeding on one high island but in 1997 they preferred three other, lower situated islands. In total we found on three islands ten nests. Two of these nests were partly destroyed, the eggs cold and apparently not used by the geese. The nests were surrounded by many nests of gulls, terns and ducks. Grebes were breeding around the islands. On one island we found six nests with resp. 6, 2, 4, 4, 4 eggs (and one with four eggs not occupied). The other four nests were on two nearby islands with 2, 7 and 4 eggs (and one with four eggs not occupied). As the weather was extremely bad we only spent a very short time on the islands to avoid any further disturbance.

The next days we controlled all islands of the lake by boat. No other Bar-heads were found. One nest of Greylag, and many nests of all duck-species, Blackheaded gull, Common tern, Coot, Redshank and Grebe-species were found. The limited factor in Song-Kul seems to be lack of safe breeding areas. Egg-collecting people and foxes are among the real predators. In 1996 a project was supposed to enlarge and stabilize some islands but it was rejected by the management of the reserve. The melting ice made in the last ten years a large, narrow peninsula. It should be interesting to cut this off from the maincoast to make it a real island. If one takes care that no foxes will stay there after the winter, it will give excellent breeding possibilities for geese and ducks. As the whole lake is a nature-reserve, better reinforcement of the rules should be carried out. Better management, more control against illegal egg-collection and illegal hunting. Only showing such power against serious ornithologists is not very efficient.

Next to the breeding birds there was a group of over 50 summering, non-breeding Bar-heads. Feeding grounds seem to be unlimited.

8 There is one more lake in Kyrghyzstan known to have a colony of Bar-headed geese. It is Tsjatur-Kul near the Chinese boarder in the south of the country. As there are no islands, Bar-heads are breeding on floating islands of old plant-materials and also near the waterline. There is no information about the breeding success but it is supposed to be very low. The total number of pairs is not more than 20-30 according latest information. There is no real protection of this site though this lake is also a nature-reserve.

## 2. Tuva

2 Tuva, one of the RF republics, is situated north of Mongolia and SW of Baikal lake. I visited Tuva several times in 1993, 1995 and 1997. An interesting chapter about the Bar-headed geese one will find in Baranov's book: Birds of Tuva (in Russian). As Tuva has rivers and trees but hardly any islands in the lakes, Anser indicus is breeding here in old Black Kite's nests high in trees. Any old nest or bunch of branches will do. The birds are concentrated in the South-western part of the country where they also breed on rock cliffs in the mountains. The total breeding propulation however will not be much over 100 pairs, though the number of non-breeders again is relatively high. Up to 500 birds are summering in the region. Immediately after the breeding they move to the rivers and lakes, mainly in Mongolia. In September 1997 I found only three adult birds in the lake near Erzin on the Mongolian boarder. 2 h/

## 3. China

2 e/ Last year C A von Treuenfels (WWF Germany) published his book "Unter Pandas und Pinguinen" (With Panda's and Pinguins). Mr Von Treuenfels assisted in all European crane meetings and is well informed about modern nature-conservation problems. He describes (in German) his visit to Qinghai Lake Nature Reserve, former~~l~~ called Bird Island. It is situated in Qinghai Province, north of Tibet. The island is no longer an island but a peninsular but the Bar-heads kept it as their breeding site. Lack of trees (Tuva) and lack of islands (Kyrghyzstan) enforced the geese to stay here. The altitude of the lake is over 3000 meter and therefore excellent for these high altitude geese. It is mentioned by Von Treuenfels that years ago when the island was still an island 3000 pair of geese were breeding here; the total population now is 2000 pair. Only such a large colony of geese (in this case together with Black-headed Gulls) can survive on a peninsular. And still they must be very lucky as foxes and other predators will find such a colony on an easy accessible peninsular, a very easy target. As far as we know it is the first 2 h/ 8 5/ 8 8

# Daru

about the falcons to Kyrgyzstan.

We received information that during the first days of May 100 falcons from Pakistan were received in Kyrgyzstan as a gift from WWF-Pakistan as a special gesture to Kyrgyzstan as so many falcons were "stolen" from the wild for Arab countries.

Is this roughly true?

What kind of WWF programme is this?

Who financed it?

What falcons?

Where did these falcons come from? Wild captures from Pakistan? From Arab countries?

Who is guiding the programme in Kyrgyzstan? Are the birds released or in cages? Is something done on radio-transmitting?

description of such a large colony and proves again that the main breeding area for these geese is in China/Tibet. However, from the point of view of birdpreservation, breeding areas in the boarder of a population are worth to fight for. Central Asia, Tuva, Altai, Mongolia: if we are unable to keep these breeding areas alright, the future of the entire population is in danger. u

It should be very helpful if Mongolian ornithologists would give some information about breeding and resting areas for *Anser indicus* from their country. To develop a reliable plan for the surviving of these geese, such information is absolutely necessary. Now information from the Central Asian republics from former USSR will become available rather quick and with more information from China, it is possible to get a good picture of the breeding results. Continuous Midwinter counts in India, Burma and China will give information about fluctuations in the population size. all/

To enjoy Bar-headed geese one has to suffer together with them. Only in the wintering areas one will recognize the combination of nice temperatures and presence of geese.