

Table 1. Morphometric Data of albino and normal *Anabas testudineus* (Bloch)

	Albino (Male) in cm	% SL	Normal (Male) in cm	% SL
Total length	8.76		8.73	
Standard length	7.36		7.3	
Body depth at dorsal origin	2.4	32.61	2.21	30.27
Body width at anal origin	0.57	7.74	0.49	6.71
Head depth	1.64	22.28	1.6	21.92
Head length	2.59	35.19	2.39	32.74
Head width	1.9	25.82	1.9	26.03
Eye diameter	0.52	7.07	0.52	7.12
Snout length	0.53	7.20	0.53	7.26
Predorsal length	2.83	38.45	2.82	38.63
Post dorsal length	0.65	8.83	0.63	8.63
Pre pelvic distance	2.98	40.49	2.91	39.86
Length of dorsal fin spine	0.85	11.55	0.85	11.64
Length of base of soft dorsal fin	0.58	7.88	0.49	6.71
Length of base of anal fin	2.9	39.40	2.72	37.26
Length of pectoral fin	1.4	19.02	1.4	19.18
Length of pelvic spine	0.75	10.19	0.75	10.27
Depth of Caudal peduncle	1.11	15.08	1.1	15.07
Length of Caudal Peduncle	0.47	6.39	0.43	5.89
Length of longest finray	1.45	19.70	1.45	19.86
Width of gap of mouth	0.74	10.05	0.74	10.14
Pre dorsal scales	5		5	
Lateral series scales	28		28	
Dorsal fin to lateral line scales	4		4	
Lateral line to Pelvic base scales	9		9	
Circum peduncular scales	14		14	

present. Caudal fin rounded.

REFERENCES

- Jayaram, K.C. (1999). *The Fresh Water Fishes of the Indian Region*. Narendra Publishing House, New Delhi 110006, India, 551pp.
- Talwar, P.K. and A.G. Jhingran (1991). *Inland Fishes of India and Adjacent Countries*. Vol (2). Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi, 1158pp.



HUNTING PRESSURE AND IMPACT OF AGHAN REFUGEES ON MIGRATORY CRANES IN PAKISTAN

Mohammad Nawaz^{1,2}, Yasmin Nawaz¹, Muhammad Faheem Malik³ and Shahabuddin¹

¹ Department of Zoology, University of Balochistan, Quetta, Pakistan
³ Agriculture Training Institute, Sariab, Quetta, Balochistan, Pakistan
 Email: ² nawazzzoologist@yahoo.com

Two provinces of Pakistan, i.e., the North West Frontier Province (NWFP) and Balochistan are well known for crane hunting (Robert, 1977; Robert & Land Fried, unpublished). The Banuchi, Wazir and Marwat Pathan tribesman hunt migratory cranes by special means of trapping devices called *seya* (in Pashtoo language). It is a long string, as long as 80m, having a ball, the size of a golf ball. This string is specially designed for hunting and is strong enough to hold down 10kg for hours. It needs special training and technique to through a *seya*. An inexperienced trapper could easily hit either himself or his partners instead of birds. An experienced person can trap the birds by using the *seya* without damaging and wounding them.

When the cries of the approaching migratory cranes are heard overhead, the hunter whistles to the caged, tamed cranes to elicit a loud response. As the curious cranes fly towards the trap, some time as low as 3m from the ground, the *seya* is thrown at them. Some times, as many as 20 *seyas* are thrown at a time when a big trapping group is involved. Skilled throwers can cast a *seya* up to 10m high. The *seya* strikes the crane, spins around its neck, body or wings about half dozen of times, pinning it helpless.

The trapping of wild cranes is possible only at night. Tame cranes in cages are used as decoys to lure them to fly lower. Rainy and dark nights are when most crane trapping is done, though some attempts are made on moony nights too. The hunters usually avoid nights with thunder and lightning as this frightens the cranes away.

Since the 1940s the hunting sites in these provinces in Pakistan are Kurrum Valleys, North and South Waziristan and Zhob District. The species hunted include the Common Crane *Grus grus lilfordii*, Demoiselle crane *Anthropoides virgo* and the Siberian crane *Grus leucogeranus* (Nawaz, 1984). Published reports and evidences speculate that Common and Demoiselle cranes migrate through or over Pakistan in large numbers. The Siberian cranes has not been seen or caught by crane hunters in Pakistan during the past 40 years. Extensive surveys and interviews with hunters in Bannu district indicate no evidence of the Siberian Crane's existence in captivity or visit in the past 40 years. The hunters are very familiar with the morphology of Siberian Cranes which were caught extensively before 1960 and eaten in the field. According to the hunters this bird is unfit as

call-birds due to their short trachea or windpipe (Khan, pers. comm., 1986).

However, due to very small number i.e. from 30-40 birds migrating from USSR to India, nothing is known about the consistency of sites by this species in Pakistan. Probably these birds may be shot or trapped in Afghanistan by the tribal people there. In Pakistan the total yearly take for the other two species is estimated from 4,000 to 5,000 birds (divided almost equally between the Common and Demoiselle cranes). More than half of this number is eaten in the field and the remaining are kept or sold as call-birds. More than 1,000 hunters are present only in Bannu with innumerable cranes kept in wooden cages either singly or in pairs as call-birds fetching from Pakistani Rupees 10-80 thousand per pair (Javed, pers. comm., 1986). Numerous cranes (both *Grus grus lilfordii* and *Anthropoides virgo*) can also be seen freely wandering along the roads and in agriculture lands almost in all villages of Bannu and adjacent tribal areas.

More than 70 pairs of cranes are breeding in captivity in Bannu. Out of them more than half are Demoiselles and about 20 pairs are Common Cranes. Until now more than 500 birds have been bred in captivity by many villagers. However, the mortality rate is very high during hatching, probably due to parasitic diseases, which needs investigation. Nawaz (In press) reports that every year more than 50 young birds fly away after attaining primary feathers. The egg laying season in Bannu is from first week of April to first week of June. Most of the eggs are destroyed by the aggressive behaviour of the birds; eggs are often laid in fields or in the corner of houses or in graveyards in the villages.

Present problem of conservation

A survey was conducted in 2002-2004 to find out the present status of migratory cranes in Pakistan. More than 500 experienced hunters were interviewed. According to my own observations most of the hunters are well aware of the status of cranes in the wild. After catching the crane in the spring and fall season a few birds are kept as pet or call-birds or as 'watch-dogs' in villages, while the rest are distributed among friends and relatives who ultimately let some of the birds free after a few months. This has been supported by the recent report of an experienced person in Bannu. According to him and many others more than 50 birds were seen in Baran Dam (a wetland in Bannu) in the summer of 2002. These birds seem to be those that escaped from captivity (Khan, pers. comm., 1986).

Secondly, most of the hunters have keen interest in captive crane breeding; releasing many birds in the wild every year. Thirdly, crane hunting among these people is for fun or as a hobby without any economic interest. There is an understanding between all crane-catcher not to shoot cranes with fire-arms at night. They trap the birds only with *seya*, one bird in one try, very rarely two birds.

Unfortunately, the problems of crane conservation in Pakistan has become a very critical since 1979. More than 40,00,000 Afghan refugees are residing in camps in different areas particularly in the tribal belts of the two provinces of Pakistan. Most of the refugee camps are situated near water bodies or

wetlands. They have also brought with them livestock, destroying wild habitats and also disturbing the crane-visiting sites. These people also possess highly sophisticated firearms and vehicles which have contributed towards crane decimation in the last 25 years in Pakistan. Some reasons are:

- Distribution of firearms to the general public at very low prices, particularly in tribal areas, which are openly used during crane visiting season. Here it must be noted that tribal areas are exempted from Government Wildlife Acts and Ordinances. The first author has observed unscrupulous shooting in Zhob (Balochistan) even during daytime in the crane-visiting season every year and it must also be noted that Zhob receive more cranes than Bannu and Kurram Valley, perhaps this may be due to great disturbance by accommodating large number of Afghan Refugees in the North West Frontier Province;
- The free movement and the increasing inflow of Afghan refugees in Pakistan has affected the situation. New camps are settled near water bodies in tribal areas. Due to this cranes are unable to find suitable habitats in Pakistan;
- The number of migratory cranes is also noted to be drastically decreasing since 1980. It seems probable that shooting has increased in Afghanistan also.
- It is also observed that cranes have changed their migratory routes over Pakistan due to disturbed environmental condition in Afghanistan.

Suggested conservation measures

- The solution of the problems is to minimize these impacts either directly or indirectly. At present it is very difficult and impossible to control crane-shooting in Pakistan. It may be possible through United Nation High Commissioner for Refugees (UNHCR) to minimize these impacts, which are affecting the whole of the ecosystems and wildlife of the country.
- The wetlands must be protected in the crane-visiting areas, which are traditional migratory routes of cranes.
- Wildlife Acts and Ordinances must be enforced gradually in all tribal areas.
- Captive breeding must be encouraged and should be started on scientific basis with financial assistance. National and international organizations must be encouraged to provide breeders captive breeding training techniques.
- Cranes conservation programmes should be started in Afghanistan soon with special references to environmental education and wildlife management.
- The Afghanistan problem should be settled as soon as possible. This can settle the conservation problem and all game animals can be saved from extinction.
- Studies on crane migration and seasonal passage should be conducted in all crane-visited countries, namely, Afghanistan, Iran, China, India and Pakistan.

REFERENCES

- Nawaz, M. (1984). Migratory Cranes in Pakistan. *Tiger Paper* XI(4): 7-20.
- Nawaz, M. (In press). Crane Breeding in Bannu, North West Frontier Province, Pakistan. *Tiger Paper* (FAO) Thailand.
- Robert, T.J. (1977). Crane catchers of Kurram Valley, London.
- Robert, T.J. and S.E. Land Fried (Unpublished). Hunting Pressure on Cranes migration through Pakistan.

