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Some Recent Observations on Captive Breeding of the Great Indian Bustard in Jodhpur Zoo

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The Great Indian Bustard, *Choriotis nigriceps* (Vigors) is a non-perching resident bird of India grouped together with Button quails, Cranes, Coots, Rails, and other bustards under one order Gruiformes, of course under separate family of bustards-*Otididae*; of class Aves.

This heavy ostrich-like ground bird popularly known as 'Godawan' in Rajasthan was some time ago distributed throughout India. It is now restricted to the States of Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Karnataka and Andhra Pradesh due to persecution by man, transformation of its habitat into crop field and low egg-laying rate of the bird (I. Prakash 1980). However due to comparatively low human population pressure, the major population of this bird is found in Western Rajasthan (Y. D. Singh 1980).

Instead of dense vegetation this bird prefers undulating open scrub land, it hides behind bushes and clumps of grass not higher than its eye level.

To prevent the extinction of this bird joint effort were made by local bodies and the State Forest Department to create awareness for the conservation of this bird among masses. This has resulted in more sightings of GIB in Rajasthan.

Bombay Natural History Society, with the help of the U. S. Fish and Wildlife Services through the Government of India, started a five-year project in 1981 under the guidance of renowned ornithologist Dr. Salim Ali to study ecobehavioural status of this bird in India. Prior to this, and to assist conservation efforts through reproduction biology, attempts were made to breed the bird in captivity in 1962 in Bikaner Zoo. This was the beginning of captive breeding history of GIB. Constant watch on captive breeding of this endangered bird was done in 1983 and 1984 in Jodhpur Zoo. Seven eggs were also laid by the hen at that time but the same were not incubated and these attempts at captive breeding got frustrated. Experts said that reasons for this failure were size (12 X 30 X 30 feet) and location of the cage, lack of protein rich diet at the time of incubation and disturbances by visitors.

Looking at the drawbacks of the last attempt it was decided by the zoo authority to construct a new modified enclosure for GIB in the Zoo. Again it was a burning problem for zoo authorities to get a piece of land for the construction of the cage due to lack of co-operation between five different departments of State Government existing

together within a single complex (the Umed Garden) in Jodhpur. However it was finalized to renovate an abandoned old ostrich enclosure in the zoo sized about 11/2 acre. Funds for this purpose were sanctioned by the joint efforts of Godawan Society and State Forest Department. The work of renovation of new cage was completed in 1984 under the supervision of Zoo Supdt, Mr. V. K. Bissa. The whole enclosure was covered by wire gauge and had a centrally located hut. A small water hole was constructed. Some natural plants were grown to give security and privacy to the bird in the enclosure.

Meanwhile, up to the end of 1984, out of seven birds only two males remained in Jodhpur Zoo (one named 'Sohan' trapped and released in Jodhpur Zoo on 25.11.73 and another brought from Bikaner Zoo, in May 1980). At that time out of 500 zoos in the world (Norris McWhirter, 1980) only Mysore Zoo (two females) and Jodhpur Zoo (two males) had the GIB in captivity. In order to make a breeding pair one bird of one zoo was exchanged with one bird of other zoo in February 1985. Fortunately female of Mysore Zoo reached Jodhpur safely whereas the male (brought from Bikaner to Jodhpur) died in Mysore due to leg injury in transit.

The female brought from Mysore Zoo was kept in a separate cage for a few months to get her adjusted to the new atmosphere. That time 'Sohan' (male) was displaying in separate cage. When the female adjusted herself in Jodhpur Zoo she was allowed to live with 'Sohan' in the old cage. That time also the males reproductive organs were found stimulated causing courting display but the female ignored the same.

On 11 August 1985 morning the pair of GIB was released in the new renovated enclosure. Since then the writer did not see the male display in new enclosure. However it was reported by zoo authorities that the male was displaying in the new cage also.

The writer constantly recorded the activities of the pair from 19th April 1986 to 20th May 1986 (breeding time) three times a day. The male was not seen displaying.

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However on 24th April 1986 when the weather was dusty and stormy, the maximum temperature recorded 40.2°C and maximum relative humidity in atmosphere was 65%, the female laid one pale brownish egg of size 10x6 cm. The nest site was a shallow depression of land at the base of a bush not taller than the female. The nest was full of dry foliage (perhaps due to high wind velocity) exposing the egg from top.

Parental care was not shared by the male. The egg was not continuously incubated by the hen at one sitting. She was walking near the nest site looking towards the nest at different intervals.

After a few days of the egg laying I saw a slit like brood pouch (about 12 cms long) on the breast of the hen. In most birds this pouch is for keeping the egg in direct contact with the skin of bird so that the egg will remain at body temperature for incubation.

In 1984 a female GIB died in Jodhpur Zoo due to anemia caused by continuous incubation for 41 days, so as a precautionary measure, 25 days after egg laying, the same was removed from the nest site on 19th May 1986 by the zoo authorities. The maximum temperature was 45°C and the weather was dusty and stormy. This egg was placed under a domestic hen in the aviary of the zoo. This egg also could not hatch as it was not fertile. Once again the captive breeding attempt of GIB has been frustrated.

The conclusion of my observations is that maximum time of a day the hen was found to rest in a patch of bushes (Sps not identified) in about 10 X 20 feet area not higher than the eye level of the bird and the nest site was also near this patch at the base of a small bush. My observations reveal that though the area of new enclosure is sufficient the habitation (thick vegetation with trees) of the enclosure is not a sufficiently natural habitat for the bird to exist.

Male and female were keeping apart from each other and male was not found displaying. Its reason may be due to lack of harem; 2 to 3 hens may be required to stimulate male's reproductive organs in such a big enclosure. However the female was found more active than the male during these observations.

In addition disturbances by visitors, motor vehicles and sound of loud speaker from a place of worship near the enclosure may have also affected the bird's courting. It would have been better if this breeding complex had been set up in the natural habitat so that studies might be done in scientific way under a planned project as BNHS is doing in the field to conserve this bird.

Finally I am thankful to Mr. V. K. Bissa, Supdt. of Jodhpur Zoo, Shri Liyaquatullah Khan, President of Godavan Society and to Dr. B. S. Gaur, Associate Professor of Zoology, University of Jodhpur, who helped me in the preparation of this article.

Announcement from Species Futures, a South Asia Climate Change e-Network of CBSG and WAZA

The World Association of Zoos and the IUCN SSC Conservation Breeding Specialist Group have formed a Climate Change Task Force CCTF.

CBSG South Asia and SAZARC is representing the Task Force in this region and we have started a climate change network associated with this CCTF of CBSG and WAZA. This network will focus primarily on species and their susceptibility to climate change, hence its name "Species Futures".

We have been sending emails to all people in our various networks announcing this but invariably, due to some limitations of our server we don't reach everyone. If you are interested being involved with a Climate Change network, please write to **zooreach@zooreach.org** and ask for our first three descriptive emails. Read them and if you are interested to join, then just send us an email from your email address only to **zooreach@zooreach.org** stating "I want to join your Climate Change Network". If you do not have an email address, you are not eligible to join this network.

Best wishes,
Sally, Sanjay, Daniel, Marimuthu and the ZOO Crew