

## Dwindling status of great Indian Bustard- (*Ardeotis nigriceps*) of Rollapadu wild life sanctuary-a bioindicator of Grassland Ecosystem

Mohammed Ghouse S<sup>1</sup> Indira P<sup>2</sup>

1. Department of Zoology, Osmania College, Kurnool - 518001

2. Head of dept. of Zoology, S.K.University, Anantapur-515003  
syed0002001@rediffmail.com

### Keywords:

Agricultural activities, grazing policy, hunting, Indian Bustard, project bustard, Rollapadu, urbanization decline,

### Abstract

Biodiversity is under threat worldwide. Indian Bustard (*Ardeotis nigriceps*) popularly known as the Great Indian Bustard (GIB), is one of the critically endangered birds in the world. The Great Indian Bustard (*Ardeotis nigriceps*) or Indian Bustard is a bustard found in India and the adjoining regions of Pakistan. An estimated less than 300 individuals are reported to be surviving sporadically in different parts of the country. The GIB is categorized as 'critically endangered' under the IUCN Red List and listed in Schedule I of the Indian Wildlife (Protection) Act, 1972. Rollapadu Wild life Sanctuary was established for the conservation of Great Indian Bustard and also its associated species in Nandikotkur of Kurnool district. The population of Great Indian Bustard seems to be increasing with the efforts of the forest department, but due to the agricultural activities or farmlands the habitat of this bird is disturbed, which resulted in the decline of the birds. The bird is also facing another critical threat of loss of habitat due to encroachment, alteration of the habitat for urbanization and industrial infrastructure and hunting GIBs are known to abandon nests due to human disturbance. The bird is the indicator of grassland ecosystem and depending species in the grassland. At present this bird is seen in 6 states of India, Andhra Pradesh, Gujarat, Maharashtra, Madhya Pradesh, Rajasthan and Karnataka. Most of the bustard habitat is lost because of absence of grazing policy. There is a urgent need of project bustard. The present paper focus upon the reasons for the decline and mitigation measures for the increase in the population of this beautiful bird.

### INTRODUCTION

The great Indian bustard popularly known as the majestic bird of grass lands. The Great Indian Bustard (*Ardeotis nigriceps*) has been up listed to critically endangered category in 2011 by Bird Life International and IUCN based on the research conducted by the Wildlife Institute of India (WII). Population of the Great Indian Bustard (Great Indian Bustard) has been dwindling very fast. Human induced threats have increased and likely to increase manifold. Currently not more than 300 birds left in the world with no known breeding population outside India.

The Great Indian Bustard was first described to science as *Otis nigriceps* (Vigors 1830) from specimens collected at the Himalayan foothills of Northwest India. The current classification recognizes 11 genera and 25 species. This group lacks hind toe, flies rarely and is strictly terrestrial.

The great Indian bustard is a Omnivorous bird feeding mainly on the insects of orthoptera, ground nuts, reptiles etc. It Prefers arid and semi arid grasslands and generally avoids cultivated lands. Breeding occur s

The lineage originated 77 million years ago in Africa, at three focal points, Sub Sahara, East Africa and South Africa. *Ardeotis* with the largest generic range is hypothesized to be the earliest stock that spread across Eurasia, India and Australia, crossing oceanic barriers and speciating in discreet ranges.

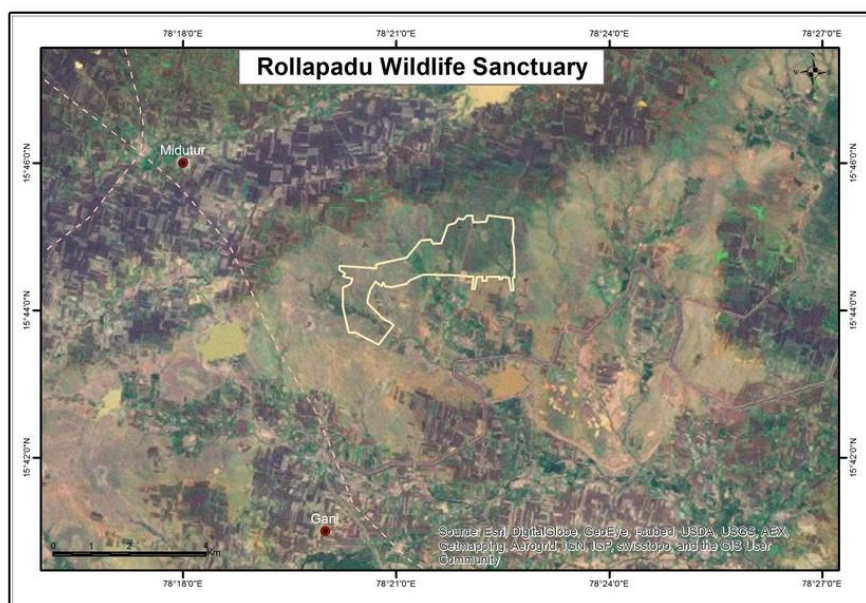
Historically Great Indian Bustard was distributed throughout the western half of India in 11 states; from Punjab and Haryana in north to Tamil Nadu in south, and from Gujarat and Rajasthan in west to Orissa in east; spanning eleven states (Rahmani, et al., 1989). The last three decades have seen a drastic reduction in the range occupancy of this species (Dutta et al. 2010). The current distribution is restricted to fragmented pockets in six states of the country namely Madhya Pradesh,, Andhra Pradesh, Raiasthan,Gujarat, Maharashtra, Karnataka.

in the month of March to September. Male is 122cms in length and weighs around 8- 14.5 kgs, with black breast band gular pouch, polygamous, without parental care, whereas Female is about 92 cms length weight 3.5 to 6.75 kgs, breast band rudimentary or absent, lays only one or two eggs and incubates.

**Table 1: Protected Areas**

S.no	Name of the protected area	Districts	Area	Year of establishment	State
1	Desert national park	Jaisalmer	3162 km <sup>2</sup>	1992	Rajasthan
2	Kutch Bustard Sanctuary or Lala-Parjau sanctuary, or Kachchh Great Indian Bustard Sanctuary	1)Kutch, 2)Jamnagar	2 square kilometers	July 1992	Gujarat(Small est)
3	Karera wild life sanctuary	Shivpuri	202 km <sup>2</sup>	1981	Madhya Pradesh
4	Great Indian bustard sanctuary or Jawaharlal Nehru Bustard Sanctuary of Maharashtra	Solapur	849,644 hectares (3,280.49 sq mi)	1979	Maharashtra
5	Rane bennur black buck sanctuary	<a href="#">Haveri</a>	119 km <sup>2</sup>	1974	Karnataka
6	Rollapadu wild life sanctuary	Kurnool	6.14 square kilometers	1988	Andhra Pradesh

### Rollapadu Wild Life Sanctuary



### Satellite image of Rollapadu

Rollapadu WLS is established in 1988, it is distributed in the area of 6.14 square kilometers in Kurnool. Rollapadu is a small village, 18 km southeast of Nandikotkur town, in the plains between the Nallamalai and Erramalai ranges of the Eastern Ghats. The River Krishna flows northwest of Nandikotkur. Rollapadu shot to fame in July 1984 when a flock of 35 Great Indian Bustard *Ardeotis nigricaps* was discovered (Manakadanand, Rahmani et al., 1989, 1993). Recommendations were made by the Endangered Species Project of

the Bombay Natural History Society to the Andhra Pradesh Forest Department to establish a sanctuary. Soon after, the State Forest Department declared the Rollapadu Great Indian Bustard Sanctuary. The Sanctuary, though established primarily to protect the Great Indian Bustard, has benefited the rest of the wildlife in the area. Prior to its establishment, the animals were persecuted by professional trappers and hunters from nearby towns and villages (Manakadan and Rahmani et al., 1989). Most of the Sanctuary is covered by grasses. Shrubs and small trees are common near the two small streams that

flow within the Sanctuary. In the 1980s, there were about 60-70 bustards in and around Rollapadu and the Sanctuary was developing very well, but due to subsequent mismanagement of the grasslands, and poaching of bustards during their movement away from Rollapadu, the bustard population has come down drastically. Not more than 20-25 birds remain. Large flocks of 15-20 birds are rarely sighted now. Another globally threatened species that is now regularly seen is the Lesser Florican *Sypheotides indica* (Sankaran and Manakadan et al., 1990, Manakadan and Rahmani et al., 1999).

Bustard bird resembles like a young Ostrich of Africa with deep buff colored wings with black sides and conspicuous black-crowned crown and out stretched neck which is white in color with self design and the white under parts with beautiful long legs walks gracefully in the meadows keeping its head high looking at the sky like a royal queen in the jungle. It is a ground bird occasionally its flights & landing are beautiful sights for the viewers.

#### Other Fauna of Rollapadu:

Indian wolf, Jackal, Indian fox, Black buck, Hare, Great Indian Bustard, Lesser Florican, Harriers, Horned Owl, Sand grouse, Indian courser, Cobra, Rock Python, Russel's viper, Saw scaled viper and moniker lizard. Flamingoes, Barheaded geese, Pinkheaded Duck, Mountain Quail, Jerdon's Coursers, Forest Spotted Owlet, and Demoiselle Cranes migrate to Rollapadu areas in winter.

#### Threat and Conservation Issues In Rollapadu WLS

1. Poaching
2. Irresponsible management inputs
3. Irrigation projects
4. Lack of grazing policy
5. The decline in bustard population has been blamed on the increase in the population of black bucks.
6. Irrigation projects at Rollapadu WLS changed the crop pattern dramatically, which resulted in the fragmentation of habitat of bustards.

#### Current Status and Threats to GIB in India

More than three decades ago, 1260 individuals of GIB were known to be thriving in the western parts of India (Dharmakumarsinhji et al., 1957, 1971). That population came down to 745 individuals in 1978 (R. S. Dharmakumarsinhji et al., 1978). Western Rajasthan is the only place where it is found in continuous stretch: in other areas it has disjointed distribution. It has disappeared from Uttar Pradesh, Punjab, Haryana, Orissa and Tamil Nadu, except for stray individuals here and there (Rahmani et al., 1987). In 2001, the

numbers further dwindled to 600 birds (Birdlife International 2001). The situation continued to worsen and the numbers of GIBs decreased to less than 300 individuals in 2008 (A.R. Rahmani et al., 2006) Guideline for the GIB recovery programme MoEF, human persecution for its alleged aphrodisiac value, the species is facing immense threat of extinction not only in Pakistan but also in India. GIBs have been hunted as game birds (Hume and Marshall et al., 1878; Ali et al., 1927; Rahmani et al., 1989) and continue to be hunted in neighboring Pakistan (Khan et al. 2008) (Dutta et al. 2010). Low intensity poaching still persists within India as well (Dutta et al. 2010) The bird is also facing another critical threat of loss of habitat due to encroachment resulting from the expansion of agricultural fields, and alteration of the habitat for urbanization and industrial infrastructure. These result into the habitat loss for the birds, which lead to the decrease, dispersal or migration in the population. In addition, increasing infrastructural development like high-tension electrical wires and windmills coupled with vehicular disturbance, within the GIB habitats increases the chances of fatal bird strikes. GIBs are known to abandon nests due to human disturbance (Rao and Javed et al., 2005). The last two decades have seen a drastic reduction in the range occupancy and population size of the GIB in India. India has declared 13 sanctuaries for the protection of this bird. One of these, the Kutch Bustard Sanctuary (2 sq. km), is located near Lala village in Abdasa taluka, Kutch. However, a major breeding population of GIB thrives outside the protected area in Abdasa taluka. Currently, the wildlife of Abdasa area of Kutch is under extreme anthropogenic pressures. Source: Ministry of Environment and Forests, Government of India  
Great Indian Bustard is in urgent need for ex-situ conservation. Captivity breeding failed previously now it is a possible.

#### Interesting facts of the bird

##### Reproductive System & Rate

Age of producing 1st offspring (sexual maturity)  
3 years (♀) & 4 years (♂)  
Max. age of reproduction  
20 years  
Average. no of progeny/year  
1  
Sex ratio at birth  
1♀:1♂  
% Adult ♀ breeding/year  
50 ± 10 %

% ♂ in breeding pool

25

**Mortality rate**

1st year

50 ± 10%

2nd year

10 ± 2%

(♀) & 16 ± 3% (♂)

Adult's

5 ± 1%

(♀) & 8 ± 1.5% (♂)

**Source: Ministry of Environment and Forests, Government of India**

Suggestions for the long-term conservation of Indian Bustards

1. Enhanced protection given to Indian Bustards in the State.

2. During the breeding season of Bustards, anthropogenic disturbances should be controlled by the Forest Department to ensure safe and successful breeding of this critical endangered species henceforth.

3. A campaign like 'Save Indian Bustard' started by the Corbett Foundation should be made popular in the local villages, to encourage local communities towards Bustard conservation.

**Conclusion:**

The Great Indian Bustard is listed in Schedule I of the Indian Wildlife Protection Act. It has been declared as State Bird of Rajasthan. It was also listed in National Wildlife Action Plan 2002-2016. As per the National Forestry Commission recommendation No. 172, 'Project Bustards' should be initiated to protect highly endangered Great Indian Bustard. IUCN urged India for the project bustard for the protection of this beautiful bird in India Captivity breeding may increase their number.

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**Table 2: status of past and present population of Great Indian Bustard**

	State	Past(1980s estimates)	Present estimated number
1	Andhra Pradesh	80-100	35-40
2	Karnataka	20-30	<20
3	Maharashtra	60	20-25
4	Madhya Pradesh	30-35	<5
5	Gujarat	50	30
6	Rajasthan	500	80-100