



OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

HABITAT STATUS OF *ARDEOTIS NIGRICEPS* (VIGORS) IN SOLAPUR DISTRICT, (M.S.), INDIA.

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ABSTRACT: The Great Indian Bustard (GIB) *Ardeotis nigriceps* is a member of the bustard family. The GIB is a large, handsome monotypic species endemic to the short grass plains of the Indian subcontinent, found in India and adjoining regions of Pakistan. Presence or absence of the animals or plants in a region is determined by ecological and historical factors, which are also living indicators of the characteristics of their environment. In twenty first century, biodiversity is under threat worldwide. GIB was found to play an important role as biological controlling agent of pests, making it familiar and beneficial for farmers and ecosystem. Therefore, it is imperative to recognize the ecological, hydrological, economic and sociological role of grasslands as a source of survival for millions of livestock and rural people, as protector of soil and water, of rare wildlife species and biodiversity. Present research Work had signified habitat status, threats conservation and restoration strategies about *Ardeotis nigriceps* from Solapur District, Maharashtra State, India.

Keywords: *Ardeotis nigriceps*, Habitat, Status Solapur.

I INTRODUCTION

Ardeotis nigriceps popularly known as the Great Indian Bustard (GIB) is one of the critically endangered birds in the world. GIB is a member of the bustard family, it is also known as the majestic bird of grasslands. The loss and degradation of habitat along, with poaching and overgrazing of grasslands are considered some of the major reasons for the drastic decline in numbers of *Ardeotis nigriceps* (Great Indian Bustard), populations. *A. nigriceps* is a large, handsome monotypic species endemic to the short grass plains of the Indian subcontinent and the adjoining regions of Pakistan. GIB is confined to the some parts of Rajasthan, Gujarat, Maharashtra, Karnataka, Madhya Pradesh and Andhra Pradesh in India, and Sind in Pakistan, in scattered and isolated population [1-2].

Grasslands, which were the habitat of GIB, have been the most neglected habitat in India [3]. Already most grassland in India have been converted to agricultural lands or have been degraded by excessive cattle grazing. Looking at this grave situation, the Government has swung into action and taken steps to declare some of the wildlife and bird sanctuaries all over the country to preserve the rare species of animals and birds [4].

At present GIB is distributed in five different pockets of Maharashtra,

- A) Great Indian Bustard Sanctuary and adjoining areas (Solapur District)
- B) Umred (Nagpur district) and Warora and Bhadravati Tehsil (Chandrapur district) in Vidarbha region
- C) Ozar and Wani (Nashik district)
- D) Tuljapur taluka (Osmanabad district) in Marathwada region
- E) North and South Solapur, Barshi, Mangalvedha (Solapur district)

Habitat of *Ardeotis nigriceps*

A. nigriceps typically uses arid and semi-arid areas dominated by grasslands with 30-70 cm herbaceous height interspersed grasslands with scattered short shrub, bushes and low intensity cultivation in extensive agriculture flat or gently undulating terrain [5-7]. Its habitat requirements may vary according to season and behavior. Roosting may occur at different sites at different height. GIB *Ardeotis nigriceps* are observed in the open land using the grassland habitat (73%) and followed by areas covered with prosopis (11%) [8-9].

II MATERIAL AND METHODS

Survey Method:

Maps of eleven taluka of Solapur district and Nanaj sanctuary

area, High resolution camera for photography, Binoculars for observation, questioner sheet for collection of GIB information, Survey is conducted, according to forest survey method [4, 10], covering all physical and biological factors. Survey is conducted around the Great Indian Bustard Sanctuary near Nanaj from January 2011 to December 2012 by considering biodiversity, habitat.



Figure 1: Map of Solapur District (Maharashtra)

Observation methods

Present study is largely based on field observations during July 2011 to December 2012. Observation is carried out in the three seasons at early morning (6:30am to 10am) and late afternoon ((4:30pm to 7pm) when species is most active [5]. The area is explored by travelling on vehicles as well as on foot. Observations are carried out with binoculars (Nikon 10x50) on Machans for a better view of the grassland and species are identified using recognized field guides like those of Ali, *et al.* [8], Grimmett, *et al.*, [11] and Rasmussen, *et al.*, [12].

Questionnaire Method

This method is developed and designed with slight modification suiting to the research problems. Questionnaire form is primed with appropriate questions regarding *Ardeotis nigriceps* and other birds, knowledge about identification of Male and Female GIB, Sound of GIB along with different birds, arrival time of GIB in the sanctuary.

III RESULTS AND DISCUSSIONS

Generally, the minimal disturbance to GIB *Ardeotis nigricep*, [9], for each sighting of GIB *Ardeotis nigriceps*, number and sex of individuals, their activity, time is recorded, and the time spent in each area is noted together with a habitat. Out puts and interprets are totally based on preliminary data (Collected from Sanctuarian area) and secondary data (by literature study and consolation with experienced ornithologists).



Figure 2: Alpha Male *Ardeotis nigriceps* in the GIB Sanctuary at Nanaj, Solapur District, Maharashtra.



Figure 3. Female *Ardeotis nigriceps*, in the GIB at Nanaj, Solapur District, Maharashtra, India.



Figure 4.Habit and Habitat status in the year -2011
 A Displaying habitat at Mardi 100 hector, habitat used by GIB.
 B The Alfa male with gular pouch
 C Roosting GIB squat and rest around the grass and shrub for hiding purpose



Figure 5. Breeding plumage male territorial with a white gular pouch, Habitat used Nanaj 34+65 hectares.



Figure 6. Foraging habit and habitat used by GIB in the year 2012, Nanaj 34+65 hectares.

Table 1- Status of GIB and its habitat in and around the GIB sanctuary in the Solapur district (Jan.2011 to 2012

Area status hectors	Habit and Habitat status	Figure No.
Nanaj near Sanctuary Head quarter area- 100; Mardi: side by Nannaj- 100 Malki pathar- 259 Dreamland Area- 290	<p>Site of seen</p> <p>Habitat- Maximum sighting of flocks of 3-4 GIB, in shrubs, bushes. Herbaceous height (30-40cm), forages, displays.</p> <p>Availability of food Food materials were in large scales.</p> <p>Behavioral aspects- They squat and rest at times, under the shade of trees.</p> <p>Sharing of habitat. Shared its habitat with the blackbuck (<i>Antelope cervicapra</i>), Wolf (<i>Canis lupus</i>), Indian fox (<i>Vulpes bengalensis</i>).</p>	Figure 2 Figure 3 Figure 4
Nanaj near Sanctuary Head quarter area- 100. Mardi- side by Nannaj- 100 Malkipathar- 259 Dreamland Area- 290 Mardi-259 Mardi- 290	<p>Site of seen Recorded August in 2012</p> <p>Habitat of GIB was shrubs, bushes. Herbaceous height 30-40cm. Behavioral aspects - GIB arrival time was in the early morning. Displaying near about up to 45 min. and also GIB uses open land and was observed the using the dried grassland for nesting habitat nearer to the dense woodlots.</p> <p>Availability of food Grass Insects, Termites, GIB observed mostly near the mounds</p> <p>Sharing of habitat. This was the alpha male spears time in the short grasses, after some time looking here and there it showed sexual behavior, displaying its plumage from a peculiar spot</p>	Figure 2 Figure 3 Figure 4

Survey of GIB sanctuary and in and around the forest area of Solapur District, Maharashtra State, India.

All survey and studies are carried out with legalized permissions from respective agencies. Suggestions received from the Forest Warden Nagpur [letter no.-Letter No.D-22(8)/Permission/3736/2010-11,LetterNo.D-22(8)/Research/850/2011-12],Nagpur-440001, Dated 18 June,2011, are taken in consideration. Aside geographical area status is also studied during the surveys. The preliminary investigation with forest officers and farmers is collected as the literature on *Ardeotis nigriceps*. Eleven taluka places (Figure -1), including villages are surveyed for finding habit

and habitat for *Ardeotis nigriceps* (Figure 2 to 5). In most of the cases it is frequently seen that the survey location is fit for habitat of GIB. Sanctuary areas, including Gangewadi area are tartan regularly and repeatedly. The Table 1 shows the current area wise status of *Ardeotis nigriceps* and its habitat in and around the GIB sanctuary in the Solapur district. Alpha Male *Ardeotis nigriceps* (Figure 2) and Female *Ardeotis nigriceps* (Figure 3(A)) are seen in the GIB Sanctuary at Nanaj, Solapur. Maharashtra, India.

Observations of *A. nigriceps*

Observations are made from the year 2011 and flocks of 3-4, birds are observed in the Mardi (100 hectares), Nanaj (34+64 hectares) where GIBs were foraging (Figure 3,4) roosting and displayed their plumage (Figure- 5) to attract female. Maximum sightings of *Ardeotis nigriceps* are seen at the pure grassland areas, they are not recorded in the dense woodlots. GIB needs open habitat for nesting and display. Some areas have become dense woodlands because of the dense growth of weeds like *Hyptis suaveolens* and *Lantana camara*. The arrival time of GIB is 6 am in the forest area. It has been observed that *Ardeotis nigriceps* continuously stayed for about 45 minutes at a single place in open grassland habitat (Figure 2,3,4) with short grass herbs, bushes, The following are observations for the present study.

Habit of *Ardeotis nigriceps* is studied in August 2011 by observing the flocks of 3-4 birds. Most of time it is recorded in June, 2012. By sighting of GIB the arrival time is noted at exact 6 am. The alpha male spends his time in the short grasses, displaying its plumage titling the plumage from a peculiar spot after some time looking here and there searching of female for lekking. Displaying is near up to 45 min. Most of the times it is observed that GIB's use open grassland habitat and not recorded in the woodlots followed by areas covered with prosopis land (Figure 3 B).

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