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DESTRUCTION OF HABITAT OF *ARDEOTIS NIGRICEPS* (GREAT INDIAN BUSTARD) IN THE SOLAPUR DISTRICT

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Abstract:-
Present study deals with habitat status of *Ardeotis nigriceps* in solapur districts during the period of 2012 to 2014. The *Ardeotis nigriceps* (Great Indian Bustard) has been up listed to critically endangered category by bird life & IUCN based on the research conducted by the wild life institute of India (WII).This study describe status & threats to GIB. Bustards are the birds of grassland habitat and found in arid and semi arid habitats. Habitat loss and habitat destruction is one of the major causes of species extinction and biodiversity loss. Our results indicate that habitat loss due to various human activities, rehabilitation, mining activity, irrigation, agriculture activity & Industrial activity.

Keywords- Habitat, Grassland, GIB, Destruction, Mining, Solapur.

Introduction

The Great Indian Bustard (GIB), *Ardeotis nigriceps* (Vigors, 1831) is a long large and handsome ground bird with a great threat of rapid extinction. GIB has a grassland habitat. Rapid extinction of GIB from earth directly affects grassland ecosystem. The Great Indian Bustard *Ardeotis nigriceps* is found to plays an important role as biological controlling agent of pests. It feeds largely on invertebrates like grasshoppers, locusts, crickets, mole crickets, mantis, beetles, water termites, large ants, caterpillars, centipedes, spiders and worms. 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 conservation in general. As a grassland species, the Great Indian Bustard is often considered as indicator of the health of our grasslands or pulse of grassland ecosystem which has unfortunately remained neglected and being considered as wastelands (Conservation India, 2013). Grasslands are very fragile ecosystems; now a days this ecosystem is facing major threats of decline due to industrialization, urbanization and agricultural development.

GIB generally favor flat open landscapes with minimum visual obstruction and less disturbance. In the breeding season (summer and monsoon) it congregates in traditional undisturbed grassland, territorial males may use the same area, which tends to be bare of vegetation and slightly elevated, patches and which are characterized by a mosaic of less grazed relatively tall grass (less than 50 cm) giving slightly greater security from nocturnal predation (Rahmani, *et al.,* 1989) preferred by nesting females for concealment and interspersed with well grazed short grass preferred by displaying males (Dutta, *et al.,* 2011). While in the non-breeding season it vagrantly uses wide agro-grass-scrub landscapes (Rahmani, 1989a).

In general, the species requires four sub different types of habitat. Feeding habitat: Habitat lies in areas receiving 12.5-75 cm of rain per year (Gupta, 1970). **Breeding and Nesting habitat.** Little is known about the breeding ecology of the Great Indian Bustard. Although it is possible for breeding to take place round the year but it seems to be mainly dictated by the monsoon. GIB breeds mostly during the monsoon season when females lay a single egg on open ground. **Display habitat** Display habitat involved open ground usually short on slightly elevated ground for display; sparse vegetation (<25 cm vegetation) to provide greater visibility (Rahmani, 1989; Dutta, 2011). **Roosting habitat** Roosting habitat with minimal scrub supplied by bare ground at night for roosting; and moderate (25-50 cm vegetation) shade for resting (Rahmani, 1989; Dutta, 2011) (e.g. next to or under small trees or shrubs) by day (Rahmani, 1989; Vyas, *et al.,* 1983).

Materials and Methods

Materials

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.

1) Study Area

The entire study is conducted in the Solapur district Maharashtra state, India. Survey area covers eleven Taluka, places (having 1027 villages) of Solapur districts. At-most study area is decided in and around Nanaj sanctuary area.

Methods

Survey Method

Survey is conducted, according to forest survey method (Taylor, 1954; Government of India Ministry of Environment and Forests, 2010), covering all physical and biological factors. Survey is conducted around the Great Indian Bustard Sanctuary near Nanaj from January 2012 to December- 2014 by considering biodiversity, habitat, arid and semi-arid grassland, and ecosystem.

Observation methods

Present study is largely based on field observations during July 2012 to June 2014. The area is explored by travelling on vehicles as well as on foot. Observations are carried out with binoculars (Nikon 10x50) on Machans (Taylor, 1954) for a better view of the grassland and species are identified using recognized field guides like those of (Ali, *et al.*, 1983; Grimmett, *et al.*, 1998; Rasmussen, *et al.*, 2005). Generally, the minimal disturbance to GIB *Ardeotis nigricep,* (Jame Dale, 1990; Rahmani, 1996a and Sharma, 1996).

Results

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

The preliminary investigation with forest officers and farmers is collected as the literature on *Ardeotis nigriceps*. Eleven taluka places including villages are surveyed for finding habitat for *Ardeotis nigriceps*. 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.

Survey is conducted in and around the GIB Sanctuary near Nanaj from July 2012 to June 2014 by considering biodiversity, habitat status, distribution of *Ardeotis nigriceps* and its population. Habitat is arid and semi-arid grassland ecosystem represents with the scattered patches, bushes and thorn scrub vegetation.

According to our survey and observations there are various factors are responsible for destruction of habitat in GIB.

1. Mining

It is observed that in the GIB forest area of sanctuary near about twelve (12) sites of mining are present.

2. Industrial activity

In north Solapur taluka forest area, nearest to the Gangewadi, near about 10-12 stone-(Figure) crusher projects are existing. The industrial activity is observed at the Karmala taluka (Figure) Sugar factory and in the Kondi and Chincholi MIDC near Nanaj which is area of GIB forest area of sanctuary. It is recorded that a stone crusher unit has adversely affected soil fertility and air quality which in turns mainly affects grassland habitat ultimately on GIB population.

3. Human exploitation

Human activities have massively affected habitat of GIB. Activities are recorded such as establishing sugar factories in the area (Figure) of karmala taluka, north Solapur (wadala region) and MIDC projects. In north Solapur taluka forest area, nearest to the Gangewadi, near about 10-11 stone-crusher (Figure) projects are recorded. Stone crusher units have adversely affected soil fertility and air quality which mainly affects GIB population. In addition to this human habilitation in and around the sanctuarian

4. Grazing of cattles:

It is observed that grazed animals actively grazing is observed.

5. Fragmentation of habitat:

In study area making of the road and highways through the habitat. Anthropogenic activities such grazing, mining, industrialization, power line threats, habitat fragmentation, destruction of eggs from trampling of rodents and dogs, poaching and hunting activities are at alarming rate. There after no juvenile was observed in the year 2012. Possibly there was destruction of lekking sites or collection of egg. A lekking site is a traditional place where males gather to display and attract females. If these sites are subjected to disturbance or degradation, GIBs may not be able to breed (Ali, *et al.*, 1982).

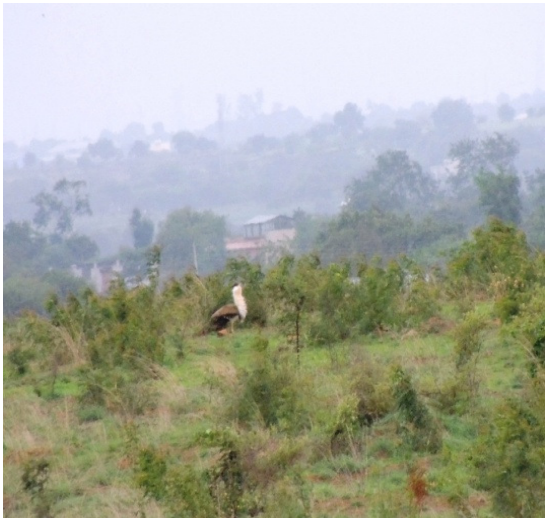
The GIB landscapes and breeding sites have undergone rapid infrastructural development to make way for new intensive agricultural practices which has increased the chances of bird mortality. Death of every single bird due to human cause is a huge loss and is another step forward towards the species extinction (Dutta, 2011).

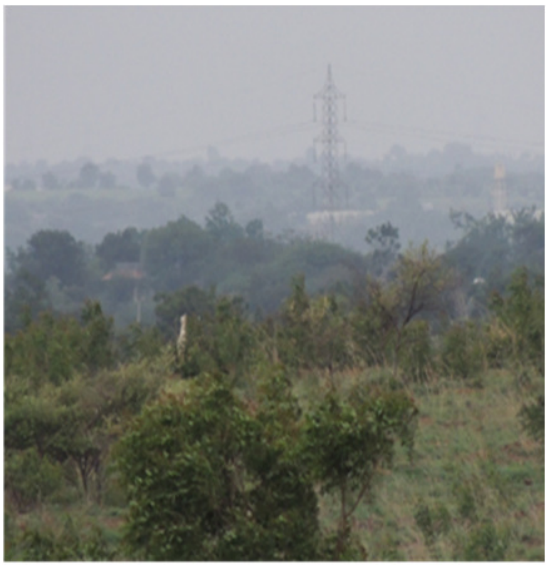
Conclusion

The main objective of the present research work is to focus on destruction of habitat and directly threats to *Ardeotis nigriceps* in the GIB Sanctuary at Nanaj, Solapur District, Maharashtra. There has been a steady decline in abundance and range occupancy of GIB and qualifies as endangered because of its very small and declining population. Use of all retain vehicles should be restricted in grassland areas, especially in protected area during breeding seasons. This may be the single most important step in saving the species. Similar might be the

case, as in present study admitted with the data, observed by (Dutta, 2011and WLPA, 1972) to shifting of the agricultural practices- severe habitat loss for the bustards. This results in the decline viability of food and danger due to formulation of pesticides and insecticides. Usage of insecticides and pesticides should be minimized and farmers should be encouraged for organic farming.

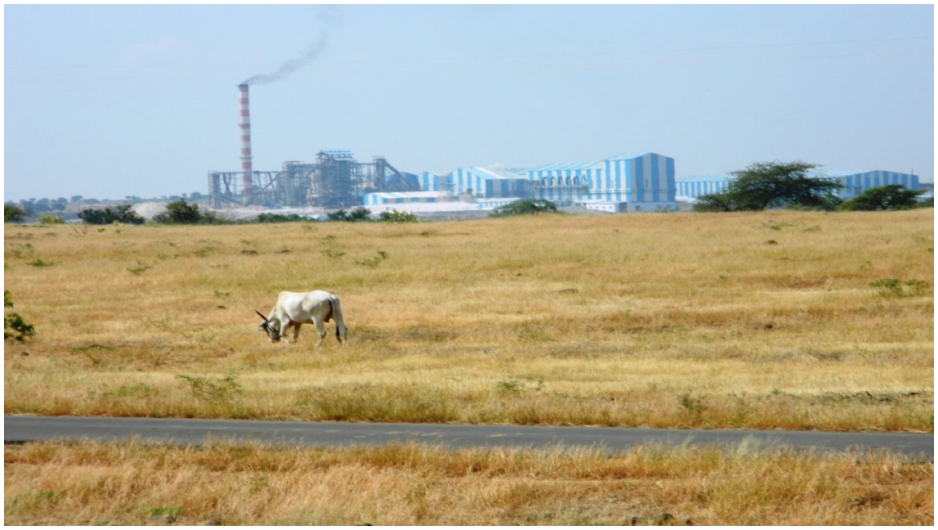
In Nanaj due to fragmentations of the grassland, ecosystem and human disturbance have been the causes of a decline in population only two individuals are surviving. Looking at these results, the conditions seem to be quite critical. The number *Ardeotis nigriceps* has decreased from 13 in 2012 to 03 (1 male and 2 female) in 2014. It is also noticed that no juvenile was recorded in the study region since 2012 to 2014. The number of GIB is declined very drastically.











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