

## (V)

# HABITAT UTILIZATION BY GAUR *BOS GAURUS* IN BAISIPALLI WILDLIFE SANCTUARY WITH THE SPECIAL NOTES ON THEIR WATER DEPENDENCY, EASTERN GHAT, INDIA

Gaur (*Bos gaurus*) commonly referred as the Indian Bison belongs to the sub family Bovidae of the order Artiodactyla and is the largest living bovine. Globally Gaur is distributed in Bangladesh, Bhutan, Cambodia, China, India, Peninsular Malaysia, Burma, Nepal, Thailand and Vietnam. In India Gaur is found in Central, Southern, Southwestern and Northeastern regions (Choudhury, 2002). The Indian Bison is enlisted under Schedule- I of Wildlife (Protection) Act, 1972 and treated as vulnerable mammal (Duckworth *et al.*, 2008). Studies on habitat utilization and water dependency of Gaur have been carried out in different habitats by number of researchers. Types of terrain and vegetation structures of Gaur habitat have been given by Schaller (1967). Habitat utilization of Gaur have been studied by Duckworth and Hedge (1998), Timmins and Rattanak (2001) in Lao PDR, Viet Nam and Cambodia. Forest type and densities of Gaur have been studied by Karanth and Sunquist (1992) in Nagarhole National Park, India. Water dependency of Gaur have been studied by Schaller (1967), Sahai (1972) and Vairavel (1998). The present study was undertaken with an aim to know habitat utilization and water dependency of Gaur in Baisipalli Wildlife Sanctuary (BWLS) where the species remain largely unstudied.

The Sanctuary spreads over Nayagarh and Boudh District of Orissa. It is contiguous with the Satkosia Gorge Sanctuary. It is located between latitude 20°31' 37" to 20°45' 37" North and longitude 84°43' 03" to 85°05' 17"

East. The total area of the Sanctuary is of 168.35 km<sup>2</sup>. It is considered as the gateway to the Eastern Ghats. The annual rainfall varies from 1000mm to 1800mm having approximately 100 rainy days a year. No frost is experienced in the Sanctuary but dew fall occurs regularly in the winter mornings. The average humidity is 80% in the Sanctuary. The vegetation of the Sanctuary largely comprises of Northern tropical moist deciduous and dry deciduous forests and moist peninsular low level sal.

Line transect method (Burnham *et al.*, 1980) was applied for direct sighting and to get evidences of Gaur. To know the preferred habitat used by the animal data were collected on description of the terrain like, hilly area, plain area, stream bed, water hole with the type of forest and vegetation. Human disturbance data were also collected according to the disturbance level as nil, minimum, moderate, maximum. To know the preferable time of water dependency of Gaur in BWLS, different water holes within the Sanctuary were searched in different hours. The water holes which were visited in the evening, were again searched the next day early morning to know whether the animal is nocturnal or diurnal while visiting the water holes.

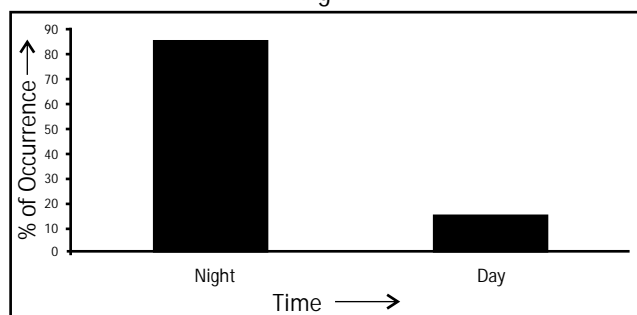
During the study period, 116 evidences of Gaur were found, out of which maximum evidences 51 (43.96 %) found in hilly area followed by 36 (31.03 %) in plain area and 29 (25.5%) in dry stream bed (Table 1). A total of 26 (22.41%) evidences were found near water holes present in hills, plains and stream beds. The common

**Table 1**  
Number of evidences found in different types of terrain showing habitat suitability of Gaur in BWLS.

	Place	Hilly area				Plain area				Dry stream			
		HM	DG	SM	SK	HM	DG	SM	SK	HM	DG	SM	SK
1.	Nimandi	7	0	1	0	12	5	0	0	5	0	0	0
2.	Malisahi	0	0	0	0	0	0	0	0	5	0	0	1
3.	Tikrajhari	7	0	0	0	4	3	0	0	18	0	0	0
4.	Sapapathar	6	4	0	0	0	0	0	0	0	0	0	0
5.	Pandurikud	8	0	0	0	0	0	0	0	0	0	0	0
6.	Danigadu	4	1	1	0	0	0	0	0	0	0	0	0
7.	Kuturi	5	0	0	0	7	2	0	0	0	0	0	0
8.	Padmatola	0	0	0	0	3	0	0	0	0	0	0	0
9.	Salapagond	7	0	0	0	0	0	0	0	0	0	0	0
Total		51				36				29			

HM-Hoof mark, DG-Dung, SM-Scratching mark on tree trunk, SK-Skull of Gaur.

Fig. 1



Percentage of hoof marks laid during day and night periods near the water holes.

forest type found in these areas are moist deciduous forests with dominant vegetation as *Shorea robusta*, *Pterocarpus marsupium*, *Dalbergia sisoo*, *Cleistanthus collinus*, *Terminalia tomentosa*, *Termilia arjuna*, *Diospyrous melanoxylon* and *Albizia labbek* and three species of bamboo patches available including *Bambusa bambus*, *B. arundinacea* and *Dendrocalamus strictus*. The level of human disturbance was minimum in the areas where Gaur evidences were found. Out of 26 hoof marks which were found near different water holes 22 hoof marks (84.61 %) were found to be laid in the night and 4 hoof marks (15.38 %) were laid in the day time (Fig. 1).

It was observed that Gaur prefers to remain in undisturbed hilly area coming to low lands and plains for the purpose of feeding and also for drinking if waterhole is not available in the hills. These observations are in

agreement with the report of Schaller (1967), who cautioned that the apparent preference of Gaur for hilly terrain may be partly due to earlier conversion of most of the plains and other low lying areas to cropland and pastures. Throughout the range of Gaur, habitat destruction and human presence is usually higher in low lands than in hills, meaning that differential human pressure may have caused the apparent preference of Gaur for hills. Sahai (1972) stated that Gaur drink at least twice in a 24 hour period but there appears to be no fixed time for drinking. Viravel (1998) reported that Gaur in Parambikulam WLS was seen drinking water only during noon hours, in Pench Tiger reserve dawn and dusk hours, have been observed as the most frequent periods of visitation to water holes by Gaurs. In BWLS, it was observed that night hours (from dusk to dawn) is the preferable time for Gaur to come to the water hole, but it was also observed that sometimes Gaur visit the water hole during noon hours especially in undisturbed area. Hence level of disturbance seems to affect the water drinking behaviour of Gaur.

Gaur in Baisipalli Wildlife Sanctuary prefers to remain in undisturbed hilly terrain with availability of food plants and water holes, sometimes coming to the low lands and plains for the purpose of grazing and browsing. In Baisipalli Wildlife Sanctuary Gaur is nocturnal in habit while depending on the water holes but in summer it seldom comes to the water holes during noon hours especially in the undisturbed areas.

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