

# Daily Activity Pattern of Nilgai (*Boselaphus tragocamelus*) in Shekhawati Region of Thar Desert, India

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**Abstract**—Activity pattern of Nilgai was studied in crop fields during study period (2012 and 2013) in Shekhawati region of Thar Desert. Activity pattern has been observed from sunrise to sunset and compared for each of the three seasons at every hour. The parameters covered in study are – Standing, Feeding, Resting, Moving and Other. Other activities of the animals were defecation, urination, drinking, breeding and suckling etc; which ranged up to 2% in all the three seasons.

Normally the Blue-bull becomes active well before dawn and starts its moving activities in the vicinity of night resting places. The morning activities comprised chiefly restricted movement of individual for feeding, grooming, drinking, urination, defecation, basking in the sun, tail movement, tongue movement and herd movement etc.

The Activity pattern of Nilgai in different season suggests that less feeding activity occur in monsoon (19%) than summer (23%). High feeding activity in summer is due to least availability of food. More time was spent by animals standing in monsoon (36%) than winter (24%) and summer (19%).

**Keywords:** Activity pattern, Thar Desert, Nilgai, Urination, Defecation, Feeding.

## 1. INTRODUCTION

Time spent by Nilgai on various activities in general is influenced by environmental factors, particularly weather conditions and food. Human disturbance may be overriding factors. Animals have to spend much less time on feeding when the food is abundant and conveniently available. Nilgai allocate their time and use available habitat to satisfy their basic nutritional requirements, movements, social interaction and rest.

Animals move from one place to another for a variety of reasons. They may, for example, undertake seasonal migration to avoid unfavorable conditions and to satisfy their basic need. This study of activity patterns of Nilgai had been taken up to fill the gaps in our knowledge of the species and to strengthen the hands of managers.

## 2. MATERIAL AND METHOD

### 2.1 Study Area-

The Shekhawati region of Indian Thar desert, located in the North-East part of Rajasthan lies in between 27°24' to 29° 02' N latitude and 73°4' to 76° 5' E longitude at a height of about 320 meters from sea level. The natural climatic conditions in the region are very harsh and inhospitable for life. The region has a hot summer, scanty rainfall, a chilly winter season and general dryness of the air except in brief monsoon season.

### 2.2 Methods

Activity pattern of Nilgai was studied in crop fields during study period (2012 and 2013) in Shekhawati region of Thar Desert. The Nilgai groups were observed by scan sampling method as described by [1].

Activity pattern has been observed from sunrise to sunset and compared for each of the three seasons at every hour. Most of the continuous observation lasted for 10-12 hours. Only those groups which could be observed continuously for 10 hours had been considered for ranging pattern.

A questionnaire was then designed to collect information on the location of forested patches and their proximity to the crop fields, the approximate number of the animals (Nilgai) associated with each forested patch.

## 3. RESULTS

Activity pattern of Nilgai was studied in crop fields during study period. Normally the Blue-bull becomes active well before dawn and starts its moving activities in the vicinity of night resting places. The morning activities comprised chiefly of restricted movement of individual for feeding, grooming, drinking, urination, defecation, basking in the sun, tail movement, tongue movement and herd movement etc. First of all herd may go to drink water. On their way, if food either

grazing or browsing is available may stop here and there to graze or browse.

All members of group were ever seen sitting at a time: different member stand and sit in shifts, it appears. The most strategies are that the every member of herd sits always in cross pattern at high ground level, so that individual animal can watch every side for farmer or feral dog.

**Table 1: Observed activity patterns of Nilgai during study period (2012 and 2013).**

Activities in %	Seasons		
	Winter	Summer	Monsoon
Standing	24	17	36
Feeding	20	23	19
Resting	31	25	22
Moving	23	32	21
Other's	02	03	02



**Fig. 1: Urinating and browsing.**

Female with calf appeared more vigilant and alert for obvious reasons. Just looking any danger the standing individual moves their fore legs to alert other. Remaining members stands up and moves their tail in round; urination and defecation take place because they become ready to run for protection. Animal seldom keep running without a short pause, they usually stop after running for some distance probably to look back and review the situation. The pattern of running behavior is not definite but mostly observed the herd in a queue followed by dominant male or female at first and last position.



**Fig. 2: Nilgai herd in moving phase**

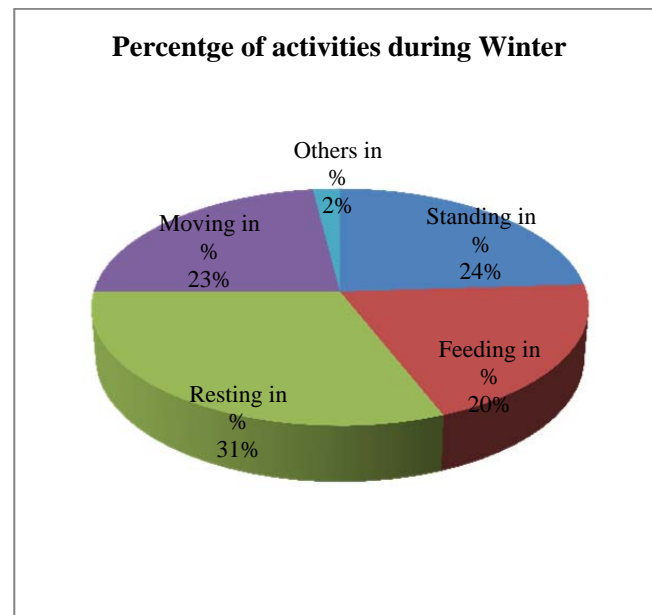
Activity pattern has been observed from sunrise to sunset and compared for each of the three seasons at every hour. The parameter covered in study are -1. Standing 2. Feeding 3. Resting 4. Moving 5. Others (Other activities of the animals include defecation, urination, drinking, breeding and suckling etc; which ranged up to 3% in all the three seasons.)

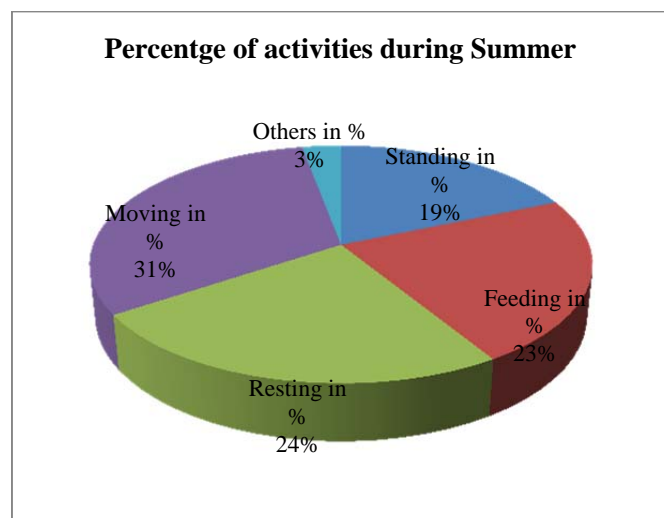
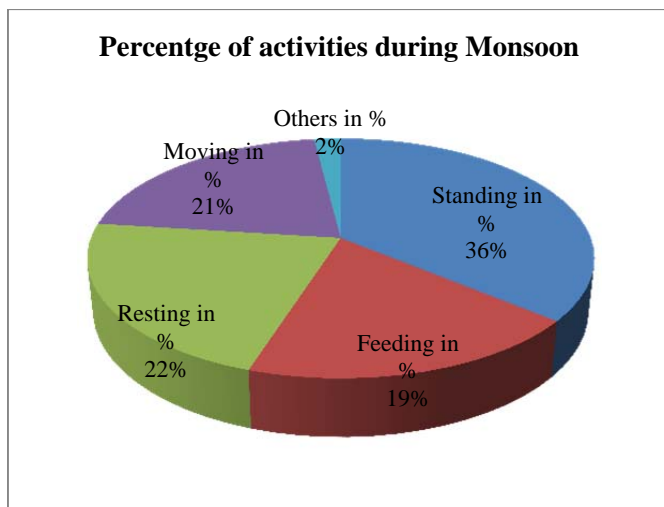
#### 4. DISCUSSION

The time budget has been observed to undergo seasonal variation in study area. Although the feeding activity has been recorded does not reflect the correct picture because no observation were possible at night when feeding probably continues undisturbed.

The Activity pattern of Nilgai in different season suggests that less feeding activity occur in monsoon (19%) than summer (23%). High feeding activity in summer is due to least availability of food. Resting time was found to increase in winter (31%) followed by summer (25%) and less in monsoon (22%) (Table 1). While resting most individuals indulged in chewing the cud, when chewing the cud is over, the individual may lie in a rest posture. In the afternoon, begin its evening activities which were similar to the morning activities [4].

Running was maximum 32% in summer, 23% in winter and 21% in monsoon. More time was spent by animals standing in monsoon (36%) than winter (24%) and summer (19%). While [8]. observed more time spent by animals standing in winter and summer





**Fig. 3: Daily activity pattern of Nilgai in different seasons (2012 and 2013).**



**Fig. 4: Nilgai herd in resting phase.**

than during monsoon. Making variation in different activities of the animals in the habitats observed and seasonal variations in activities has also been seen [3].

In winter animals usually spend most of the day time in the reserve forest where there is much less disturbance. They however, raid crop field when it become dark and their presence is not detected by the watchful farmers. Animals retreats to reserve forest at dawn [8]. Insignificantly little time was observed to be spent on other activities in comparison to feeding, running, resting and standing. The resulting activities patterns may vary with age, sex, time of day, season and weather conditions.

Observation have revealed that at least one animal in each resting group keep standing. This is apparently meant to keep a watch on any danger; such as farmers or dogs. [7]. observed animal resting under trees during the day in summer. Short duration of weather changes had no impact on animals' activities, especially feeding. [6, 2] and [5] also reported that ungulates did not react to light rains, except to shake off water.

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