

*Research article***Day long Activities of Indian Blue Peafowl in Bangladesh National Zoo**

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ARTICLE INFO	ABSTRACT
<p>Article history: Received: 30/07/2020 Accepted: 30/12/2020</p> <hr/> <p><i>Keywords:</i> Indian Peafowl, daylong activities, winter, spring, summer, Bangladesh National Zoo</p> <hr/> <p><i>*Corresponding author:</i> Cell: +8801716405111 Email: f_cvasu@yahoo.co.in</p>	<p>The research work was carried out from July 2016 to June 2017 to explore the day long activities of Indian Blue Peafowl habitat at Bangladesh National Zoo. The objectives of the study were to understand the biological activities that happen in a day of this nice creature across different season. For this purpose we gave selected equal number of (n= 10) adult peacocks and peahens. . Total day time used by several activities in winter was found 10.51 hour. Peacock spent most of their diurnal time budget (28.10%) in resting state in winter .Feeding and displaying time was 1.74 hour and 1.25 hour respectively of the total day time .Without this percentage of preening time and walking time spent by the Peacock was 11.99 hour and 17.32 hour in winter. Resting, feeding and walking time spent by the Peahen are 3.02 hour, 2.25 hour and 2.03 hour respectively in winter. Roaming time Peahen is lower 0.88 hour than displaying time of Peacock. In the spring, the total time of several biological activities of Peafowl was found 11.54 hour. Resting time, walking time, displaying time and feeding time were 3.10 hour, 1.98 hour, 1.94 hour and 1.85 hour respectively in spring for Peacock. The percentage of resting and feeding time was higher compare to other two seasons and it was 28.34 and 21.66 hour of diurnal time budget for Peahen in spring. Roaming time was found 9.36% of the total day time and time of walking in the day was 2.08 hour for Peahen in spring. Total day time was found 13.15 hour in summer spent by the Indian blue peafowl in several activities. In the summer day time is long so all activities take more time compared to others seasons. Time spent on various behaviours by peacocks during day time in summer resting time, displaying time, feeding time and walking time were 26.92%, 16.65%, 16.05% and 16.20%, respectively. In summer the Peahen spends more time (3.55 hour) in resting and less time (0.83 hour) in calling and a big percentage of time 18.40, 17.64 and 13.92 were spent by the Peahen in summer for walking, feeding and roaming respectively. Resting, walking and feeding time was found higher in summer season because day length is more comparing to winter and spring season. Roosting and preening time are same 1.10 hour for Peahen in summer. Resting time is the highest and calling time is the lowest for Peacock and Peahen in all seasons. In conclusion we can say that day long activities vary based on season and sex.</p>

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## 1. INTRODUCTION

Indian peafowl (*Pavo cristatus*) belongs to the family Phasianidae, order Galliformes and the genus is *Pavo* (Ali and Ripley, 1989). Presently three species of peafowl are found in the world, *i.e.*, Burmese peafowl from eastwards to Sumatra, African peafowl in Belgian Congo and Indian peafowl in Indian subcontinent (Dharmakumarsinhji and Lavkumar, 1981). Indian peafowl is cosmopolitan in distribution; however, India, Sri Lanka, Pakistan, Nepal, Burma and Congo are considered to be its native homeland (Ansari, 1957). Indian peafowl is thought to be one of the largest flying birds. Attractive train and plumage are the reasons behind their worldwide fame (Liu et al., 2005). Their activity budget highly depends upon early morning and early evening as most of them rest under shade in summer season and it is also the breeding season in North India (Parashrya and Mukerjee, 1999). Adult peafowl can usually escape ground predators by flying into trees (Parashrya and Mukerjee, 1999). Birds devote a significant amount of time on maintenance behaviours, including preening, scratching, bathing, dusting, sunning, shaking and ruffling of the feathers (Simmons, 1985; Walther, 1997; Moyer et al., 2003). Maintenance behaviours require energy (Croll and McLaren, 1993) and take time. Time and energy devoted to maintenance cannot be devoted to feeding, vigilance, or other activities (Redpath, 1988). Nevertheless, all species of birds engage in maintenance, spending an average of 9.2% of their diurnal time budgets on these behaviours (Cotgreave and Clayton, 1994). In Bangladesh National Zoo there is an aviary for Indian Peafowl. But the day long activities of this Indian Peafowl are not known yet now. As we know several activities of birds in the day are very important to know the breeding behavior as well as normal physical fitness. For this reason the study was done with objectives of daylong activities of Indian Blue Peafowl in winter, spring and summer season.

## 2. MATERIALS AND METHODS

The research work was conducted at Bangladesh National Zoo 15 day's interval from November 2017 to June 2018. Day long activities were observed from selected 10 mature Peacocks and 10 mature Peahens. The data was collected from day long activities like feed taking time, displaying time, resting time, roosting time, preening time and all others activities by



Plate 1: Picture of walking of Peacock



Plate 2: Picture of feeding of Peacock

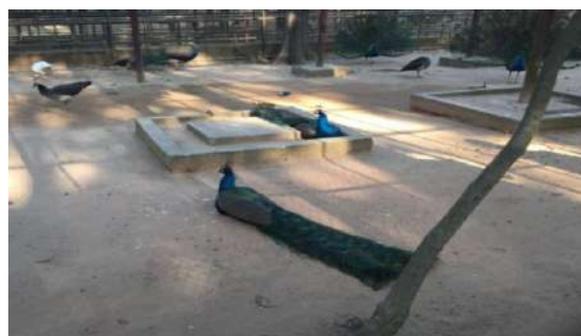


Plate 3: Picture of resting of Peacock



Plate 4: Picture of roosting of Peacock

observing. Time calculation has been done by using stop watch. The data were collected for winter (November to January), for spring (February-March) and for summer (April-June). Then data was present as the percentage of total time of the days. Finally data was tabulated in Microsoft Excel. The collected data was analyzed by using Microsoft Excel.



Plate 5: Picture of displaying of Peacock



Plate 6: Picture of preening of Peacock

### 3. RESULTS AND DISCUSSION

Total day time used by several activities in winter was found 10.51 hour. Males spent most of their diurnal time budget (28.10%) in resting (Table 1) from total day length 10.51 hour. Often, they roost on some roosting site or a tree branch which was 8.47 percent of total time. Result showed that feeding and displaying time was 1.74 hour and 1.25 hour of the total day time (Table1). The calling time was the lowest (0.60 hour) of the day time (Table 1).

Table 1: Daylong activities of Indian Blue Peacock in Bangladesh National Zoo in winter

Events	Total time (hours)	Range (hours)	(%) of day time
Feeding time	1.74	1.5 -2.0	16.56
Roosting time	0.89	.75-1.0	8.47
Displaying time	1.25	1.0-1.5	11.89
Calling time	0.60	.50-.75	5.71
Walking time	1.82	1.65-2.0	17.32
Preening time	1.26	1.0-1.6	11.99
Resting time	2.95	2.8-3.1	28.10

Without this percentage of preening time and walking time spent by the Peacock was 11.99 and 17.32 which was really massive time period. Table 2 shows that the resting, feeding and walking time spent by the Peahen are 3.02 hour, 2.25 hour and 2.03 hour respectively. Roaming time is lower 0.88 hour only comparing to displaying time of Peacock from total day time 10.31 hour (Table 2). The result show that calling

time is the lowest 4.76% of total day time (Table 2).

Table 2: Daylong activities of Indian Blue Peahen in Bangladesh National Zoo in winter

Events	Total time (hour)	Range (hour)	(%) of day time
Feeding time	2.25	2.0-2.50	21.41
Roosting time	0.97	0.83-1.0	9.23
Roaming time	0.88	0.75-1.0	8.37
Calling time	0.50	0.33-.67	4.76
Walking time	2.03	1.83-2.33	19.31
Preening time	0.86	0.67-1.0	8.18
Resting time	3.02	2.83-3.17	28.73

In the spring the total time of several activities of Peafowl was found 11.54 hour. Table 3 shows that resting time, walking time, displaying time and feeding time are 3.10 hour, 1.98 hour, 1.94 hour and 1.85 hour respectively from total day length. Calling time spent by the Peacock also the lowest 6.85% of total day time. Without this roosting preening time was same .94 hour from total day length (Table 3). The result shows that percentage of resting and feeding time is high 28.34 and 21.66 hour of diurnal time budget for Peahen (Table 4). Roaming time was found 9.36% of the total day time. Time of walking in the day was 2.08 hour for Peahen in spring (Table 4).

Table 3: Daylong activities of Indian Blue Peacock in Bangladesh National Zoo in spring

Events	Total time (hour)	Range (hour)	(%) of day time
Feeding time	1.85	1.67 -2.17	16.03
Roosting time	0.94	0.83-1.0	8.15
Displaying time	1.94	1.75-2.17	16.81
Calling time	0.79	0.67-.92	6.85
Walking time	1.98	1.83-2.17	17.16
Preening time	0.94	0.83-1.08	8.15
Resting time	3.10	2.92-3.33	26.86

Table 4: Daylong activities of Indian Blue Peahen in Bangladesh National Zoo in spring

Events	Total time (hour)	Range (hour)	(%) of day time
Feeding time	2.50	2.33-2.67	21.66
Roosting time	1.00	0.83-1.17	8.67
Roaming time	1.08	1.00-1.17	9.36
Calling time	0.63	0.50-.75	5.46
Walking time	2.08	1.83-2.33	18.02
Preening time	0.98	0.92-1.17	8.49
Resting time	3.27	3.00-3.50	28.34

Total day time was found 13.15 hour in summer spent by the Indian blue peafowl in several activities. Percentage of time spent on various behaviours by peacocks during day time in summer resting time, displaying time, feeding time and walking time were 26.92, 16.65, 16.05 and 16.20 respectively (Table 5).

Table 5: Daylong activities of Indian Blue Peacock in summer

Events	Total time (hour)	Range (hour)	(%) of day time
Feeding time	2.11	1.75 -2.42	16.05
Roosting time	1.10	0.92-1.33	8.37
Displaying time	2.19	1.92-2.50	16.65
Calling time	1.00	0.83-1.33	7.60
Walking time	2.13	1.83-2.42	16.20
Preening time	1.08	0.92-1.33	8.21
Resting time	3.54	3.33-3.83	26.92

In the summer day time is long so all activities take more time compared to others seasons. Roosting time (1.10 hour) and preening time (1.08 hour) was near to similar in case of Peacock in summer season (Table 5).

In summer the Peahen spends more time (3.55 hour) in resting and less time (.83 hour) in calling (Table 6). A big percentage of time 18.40, 17.64 and 13.92 were spent by the Peahen in summer for walking, feeding and roaming respectively (Table 6). Roosting and preening time are same 1.10 hour for Peahen in summer shown by the Table 6. Without this calling time is the lowest (0.83 hour) in summer for Peahen.

Table 6: Daylong activities of Indian Blue Peahen in summer

Events	Total time (hour)	Range (hour)	(%) of day time
Feeding time	2.32	1.92-2.75	17.64
Roosting time	1.10	1.00-1.25	8.37
Roaming time	1.83	1.67-2.00	13.92
Calling time	0.83	0.66-.92	6.31
Walking time	2.42	2.08-2.67	18.40
Preening time	1.10	0.92-1.33	8.37
Resting time	3.55	3.33-3.83	27.00

The behavior of Indian peafowl was strongly influenced by age and sex (Dookia, 2015). Adult males spent only about half as much time as females in feeding. This could be attributed to greater amount of time spent in standing, displaying and preening by adult males than by females in breeding season (Sumit et al., 2015). Adult males spent significantly more time in

preening than sub-adult males and females, suggesting they incurred a high maintenance of being a handicap because of the elaborate ornamentation of trait feathers (Walther and Clayton, 2005). Reduced feeding and increased display and maintenance activities are energetically costly for a male, and therefore, ensure that only for long periods of time, resulting in greater mating success. In the present study, it was found that adult males spend more time in displaying than sub-adult males whereas, females spend more time in feeding and roaming around displaying adult males (Sumit et al., 2015). Unlike red jungle fowl, which spent most of their time foraging and very little time resting (Dawkins, 1989), peacocks spent only about one quarter of their daily time budgets on feeding, but more than one-fifth on resting. Long bouts of maintenance behaviour were performed while peacocks were resting or standing, while short bouts occurred while peacocks were walking or feeding. Displaying took up about 7% of the total time budget, and was the most absorbing behaviour as no feeding or maintenance behaviour was performed during displays (Walther, 2003). In present study we find Peahen spends more time in feeding and walking compare to Peacock which also agree with earlier study findings. Without these findings from present study presented daylong activities differ based on seasons and sex. That result also supports by the past found results. Most of the present results supported by the past findings of day long activities of Indian peafowl. But some findings of daylong activities of Indian peafowl vary because of several countries differ in the weather and climatic condition, which effect bird activities.

#### 4. CONCLUSIONS

The time budget of day long activities of Peacock and Peafowl in winter, spring and summer were 10.31 hour, 11.54 hour and 13.15 hour respectively. Peacock spends significant amount of time for displaying whereas female spends less time in roaming compared to male displaying. Peahen spends more time in feeding and walking than Peacock in all seasons. Resting time is the highest for Peacock and Peahen in all seasons. On the other hand calling time is the lowest for Peacock and Peahen in all seasons. In conclusion we can say that day long activities vary based on season and sex.

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## REFERNCES

- Ali, S. and Ripley, S.D. 1989. The compact handbook of the birds of India and Pakistan. Oxford University Press, Bombay, pp. 567.
- Ansari, M. A. R. 1957. A note on the mensuration of an ischnoceran Mallophaga, *Goniodes pavonis* (Linnaeus), infesting the Indian common peafowl (*Pavo c. cristatus* Linnaeus). Pak. J. Health. 6(4): 243-269.
- Cotgreave, P. and Clayton, D. H. 1994. Comparative analysis of time spent grooming by birds in relation to parasite load. Behaviour, 131(3-4): 171-187.
- Croll, D. A. and McLaren, E. 1993. Diving metabolism and thermoregulation in common and thick-billed murre. Journal of Comparative Physiology B, 163(2): 160-166.
- Dawkins, M. S. 1989. Time budgets in red junglefowl as a baseline for the assessment of welfare in domestic fowl. Applied Animal Behaviour Science, 24(1): 77-80.
- Dharmakumarsinhji, R S. and Lavkumar, K. S. 1981. Indian peafowl, sixteen Indian birds Publication division, Ministry of Information and Broadcasting, Government of India. P: 24-28.
- Dookia, S. 2015. Ecology and Behaviour of Indian Peafowl (*Pavo cristatus*) in Keoladeo National Park, Bharatpur, Rajasthan, India. International Journal of Fauna and Biological Studies, 2(4): 97-103.
- Liu, S., Chen, J., Chen, J., Kong, X., Shao, Y., Han, Z., Feng, L., Cai, X., Gu, S. and Liu, M. 2005. Isolation of avian infectious bronchitis coronavirus from domestic peafowl (*Pavo cristatus*) and teal (*Anas*). J. Gen. Virol. 86(3): 719-725.
- Moyer, B. R. and Clayton, D. H. 2004. Avian defenses against ectoparasites. *Andover, UK: Intercept Ltd. Insect and Bird Interact* (2004): 241-57.
- Parasharya, B. M. and Mukherjee. 1999. A. Roosting behaviour of Indian Peafowl *Pavo cristatus*. Journal of Bombay Natural History Society. 96(3):471-472.
- Redpath, S. 1988. Vigilance levels in preening dunlin *Calidris alpina*. Ibis, 130(6): 555-557.
- Simmons, K. E. L. 1964. Feather maintenance. In: Landsborough Thomson, A. (Ed.) A new dictionary of birds. London, Thomas Nelson & Sons, pp. 278-286.
- Sumit D., Reenu K. S. and Anoop K.R. 2015. Ecology and Behaviour of Indian Peafowl (*Pavo cristatus*) in Keoladeo National Park, Bharatpur, Rajasthan, India. International Journal of Fauna and Biological Studies. 2(4): 97-103.
- Walther, B. A. and Clayton, D. H. 2005. Elaborate ornaments are costly to maintain: evidence for high maintenance handicaps. Behavioral Ecology, 16(1): 89-95.
- Walther, B. A. 1997. Comparative studies of ectoparasite communities of birds. D. Phil. thesis, Oxford University
- Walther, B. A. 2003. Do peacocks devote maintenance time to their ornamental plumage? Time budgets of male blue peafowl *Pavo cristatus*. *Lundiana*, 4(2): 149-154.