

Status and Distribution of Indian Grey Hornbill in Specific Sites of Lucknow City, Uttar Pradesh, India

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Abstract:- Hornbills (Bucerotidae) have a huge bill with a casque on upper mandible in some species. The casque is smaller in female in some species. Indian Grey Hornbill (*Ocyrceros birostris*) is often found in dry deciduous woods, although these habitats have been disturbed by humans. Out of nine Hornbill species Indian Grey Hornbill have been studied most in some parts of India. Habitat destruction is the major cause of disturbance for the hornbill's population. Regular observations for Status and Distribution of Indian Grey Hornbill were made during January to April in 2023 using Point count Method. Total of 5 sites were included for this study in Lucknow city. Few sites show good status of Indian Grey Hornbill whereas others show less number of species distribution. This may be because of the habitat and the availability of Fig trees which is the main diet of Indian Grey Hornbill. As hornbills depend on tree cavities for nesting, prior to road widening works, density of these birds was high on the trees of near buildings. This study evaluated that, with the removal of trees in the name of development and man-made disturbance the number of these birds decreased in Lucknow City. Habitats are threatened because of wood extraction, road construction, clearing of forest for power transmission lines and dying of nest trees.

Keywords:- Hornbills, Bucerotidae, Habitat, Dry deciduous woods, Man-made disturbances.

I. INTRODUCTION

In the Old World tropics Hornbills (family Bucerotidae) are one of the most recognizable groups of birds. Indian Grey Hornbill, sometimes known as the Common Grey Hornbill, has been reported in India, Pakistan, and Nepal. In India it is distributed throughout the country, except for Malabar, parts of Rajasthan and Assam. This species is believed to occur in the dry deciduous tracts of the Eastern Ghats and the foothill forests of the Western Ghats in southern India. There are 54 species of hornbills in the world and nine species occur in India. The species is found mainly on the plains up to about 2000 feet. It may travel locally in the drier western region. It is predominantly found on the plains up to 1400 m in elevation and has limited overlap with the Malabar Grey Hornbill of the Western Ghats. Hornbills frequently exhibit strong nest-site fidelity, returning year after year to the same nest cavity. Hornbills are secondary cavity nesters, exploiting natural or dug cavities left by other birds.

Indian grey hornbills often live in couples, and the males may be identified from the females by their bigger size and the larger casque on their beak. In contrast to the

dark skin surrounding the males' eyes, the females' beaks are more yellowish, and the skin around their exposed eyes is paler reddish. Similar to the Black Kite, they make a screeching sound. The nesting season for Indian Grey Hornbill starts early in March and ends in June. On an average nesting period last up to 87 days. Hornbills have unusual breeding behaviors in which the female seals herself into a nest chamber, leaving only a thin passage through which the male passes her food until the nesting time is through. Hornbills prefer massive trees with a great girth for nesting; hence they are largely restricted to primary forests. Throughout the non-breeding season, Indian grey hornbills feed on figs of various *Ficus* tree species; nevertheless, it was discovered throughout the study that when the breeding season approaches, they begin to devour animal matter as well.

II. STUDY AREA

➤ Lucknow:

Lucknow serves as both the administrative centre for the district and division bearing the same name as well as the capital and largest city of the Indian state of Uttar Pradesh. It is India's 12th most populous urban agglomeration and the eleventh most populated city overall. The city is located at a height of around 123 metres (404 feet) above sea level. The Lucknow district has a total size of 2,528 square km (976 sq mi). Lucknow is located on the northwestern bank of the Gomti River and is surrounded by the cities of Sitapur and Hardoi to the north, Raebareli to the south, Barabanki to the east, Unnao to the west.

➤ Major study areas are:

- CSIR-NBRI
- Nawab Wajid Ali Shah Zoological Garden (Lucknow Zoo)
- Kukrail Reserve Forest
- University of Lucknow
- Isabella Thoburn College

III. METHOD & METHODOLOGY

The study was conducted from January to April 2023, covering 2 seasons viz, winter and summer, in morning and afternoon from 8 A.M. to 10 A.M. and 3 P.M. to 5 P.M. The aim of this study was to estimate the status and distribution of Indian Grey Hornbill in specific sites of Lucknow City. Point Count Method was applied for this particular study including 5 study sites. Data was supported by GPS and photographs were taken by Canon EOS 1300D. The status and distribution of the species was also extracted from eBird (www.ebird.org), iNaturalist (www.inaturalist.org).

IV. RESULT AND DISCUSSION

A. OBSERVATION TABLE

S.No.	Sites	Date and Day	Species count
1.	National Botanical Research Institute (CSIR-NBRI)	[1] 19-12-22 Monday	15
		[2] 21-12-22 Wednesday	14
		[3] 23-12-22 Friday	15
		[4] 26-12-22 Monday	18
		[5] 28-12-22 Wednesday	15
		[6] 30-12-22 Friday	14
		[7] 02-01-23 Monday	14
		[8] 04-01-23 Wednesday	15
		[9] 06-01-23 Friday	18
		[10] 09-01-23 Monday	15
2.	Kukrail Reserve Forest	[1] 03-01-23 Tuesday	3
		[2] 05-01-23 Thursday	1
		[3] 07-01-23 Saturday	2
		[4] 01-02-23 Wednesday	4
		[5] 04-02-23 Saturday	2
		[6] 10-02-23 Friday	3
		[7] 02-03-23 Thursday	1
		[8] 04-03-23 Saturday	4
		[9] 14-03-23 Tuesday	2
		[10] 16-03-23 Thursday	5
3.	Nawab Wazid Ali Shah Zoological Garden (Lucknow Zoo)	[1] 27-01-23 Friday	10
		[2] 29-01-23 Sunday	12
		[3] 31-01-23 Tuesday	12
		[4] 02-02-23 Thursday	12
		[5] 05-02-23 Sunday	9
		[6] 08-02-23 Wednesday	11
		[7] 01-03-23 Wednesday	10

		[8] 03-03-23 Friday	13
		[9] 28-03-23 Tuesday	12
		[10] 31-03-23 Friday	11
4.	Isabella Thoburn College Lucknow	[1] 06-02-23 Monday	2
		[2] 09-02-23 Thursday	1
		[3] 14-02-23 Tuesday	5
		[4] 17-02-23 Friday	7
		[5] 22-02-23 Wednesday	0
		[6] 06-03-23 Monday	6
		[7] 29-03-23 Wednesday	7
		[8] 05-04-23 Wednesday	1
		[9] 06-04-23 Thursday	2
		[10] 12-04-23 Wednesday	3
5.	University of Lucknow	[1] 01-04-23 Saturday	2
		[2] 10-04-23 Monday	0
		[3] 11-04-23 Tuesday	2
		[4] 13-04-23 Thursday	3
		[5] 15-04-23 Saturday	1
		[6] 17-04-23 Monday	2
		[7] 18-04-23 Tuesday	0
		[8] 19-04-23 Wednesday	3
		[9] 24-04-23 Monday	1
		[10] 25-04-23 Tuesday	2

Table 2: Analysis of data as per Table 1 which shows total number of Indian Grey Hornbill count on different sites of Lucknow city

S.No.	Visit Site	1	2	3	4	5	6	7	8	9	10	Total
1.	National Botanical Research Institute (CSIR-NBRI)	15	14	15	18	15	14	14	15	18	15	153(±2)
2.	Kukrail Reserve Forest	3	1	2	4	2	3	1	4	2	5	27(±2)
3.	Nawab Wazid Ali Shah Zoological Garden (Lucknow Zoo)	10	12	12	12	9	11	10	13	12	11	100(±2)
4.	Isabella Thoburn College Lucknow	2	1	5	7	0	6	7	1	2	3	34(±2)
5.	University of Lucknow	2	0	2	3	1	2	0	3	1	2	16(±2)

Table 3: Average Data Table of Indian Grey Hornbill

S.N.	Study sites	Total number of species found in 10 visits	Average species number in 6 visits
1.	CSIR-NBRI (National Botanical Research Institute)	153	153/10= 15.3
2.	Kukrail Reserve Forest	27	27/10= 2.7
3.	Nawab Wazid Ali Shah Zoological Garden (Lucknow Zoo)	100	100/10= 10
4.	Isabella Thoburn College, Lucknow	34	34/10= 3.35
5.	University of Lucknow	16	16/10= 1.65
Estimated total average number of Indian grey Hornbill in Lucknow City in 10 visit on 5 sites			33

During the **observation of 4 months** including **10 visits on 5 sites** the estimation of Indian Grey Hornbill in study area of Lucknow City is **33**.

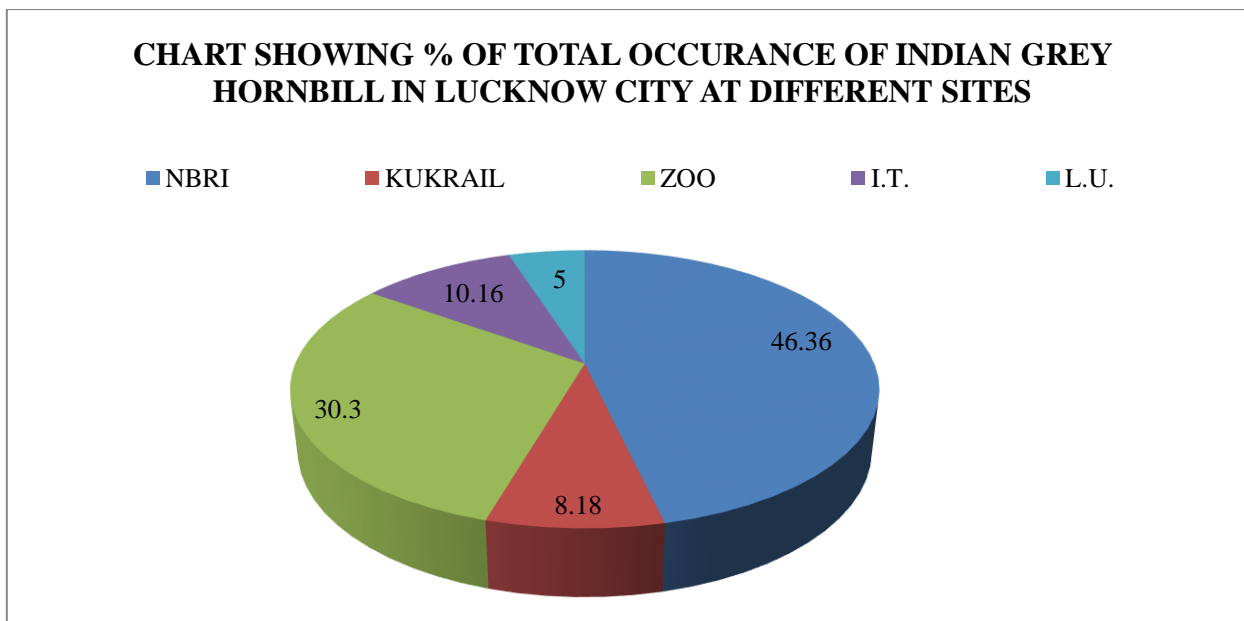


Fig. 1: Chart Showing % Of Total Occurance Of Indian Grey Hornbill In Lucknow City At Different Sites

V. DISTRIBUTION MAPS OF INDIAN GREY HORNBILL

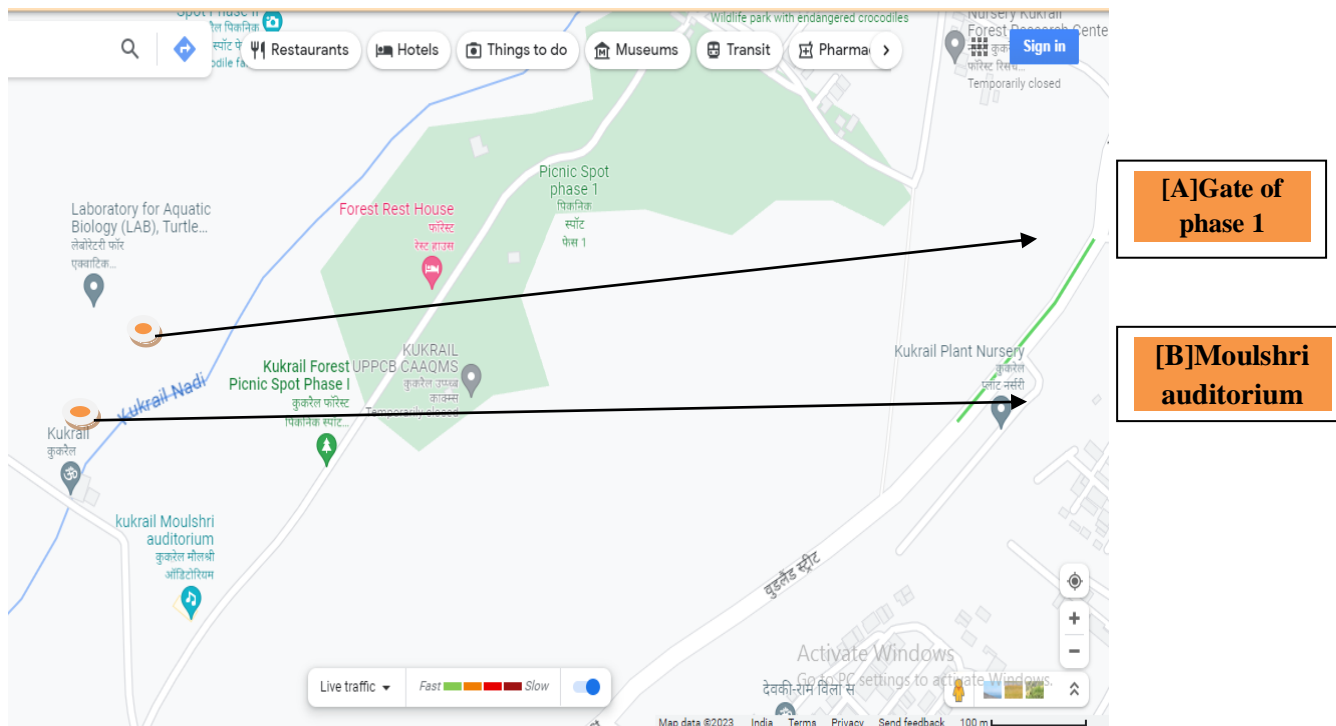
A. Distribution Map of Indian Grey Hornbill in National Botanical Research Institute (NBRI):



Map 1: Map of National Botanical Research institute showing Distribution of Indian grey Hornbill

Source: <http://nbri.res.in>

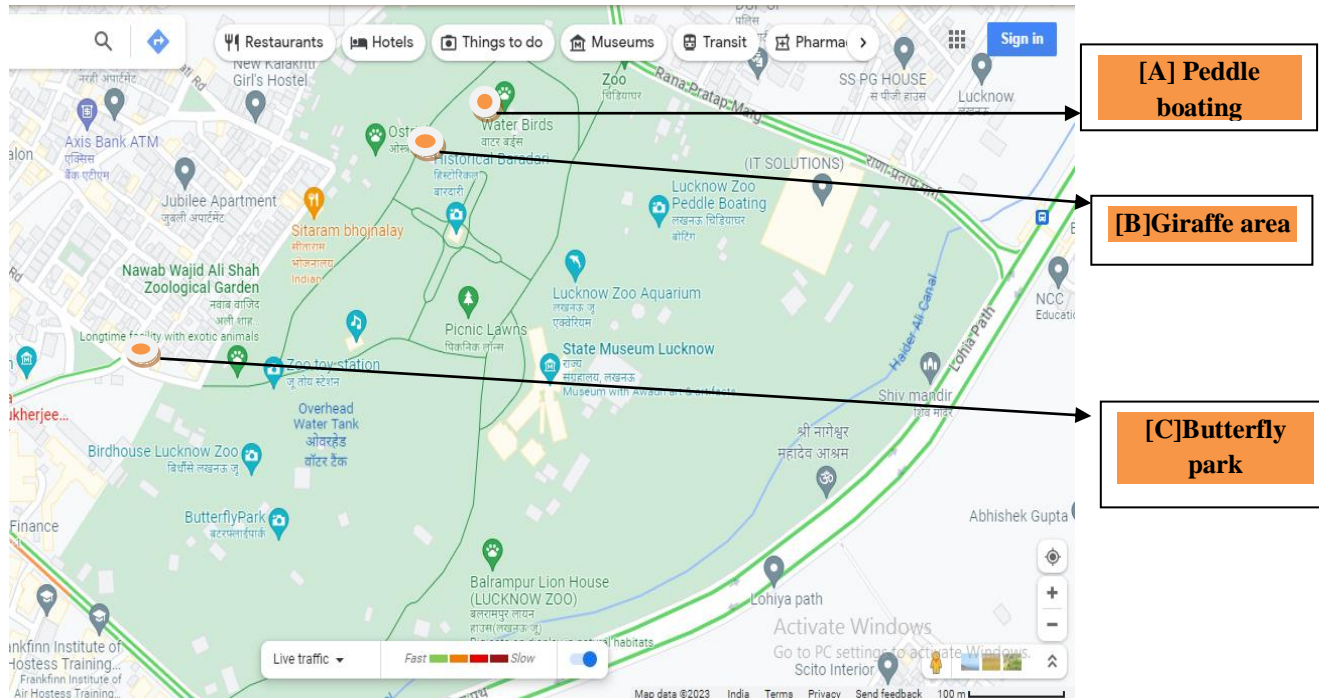
B. Distribution Map of Indian Grey Hornbill in Kukrail Reserve Forest



Map 2: Google map of Kukrail Reserve Forest showing the Distribution of Indian grey Hornbill in Kukrail Reserve Forest

Source: google map

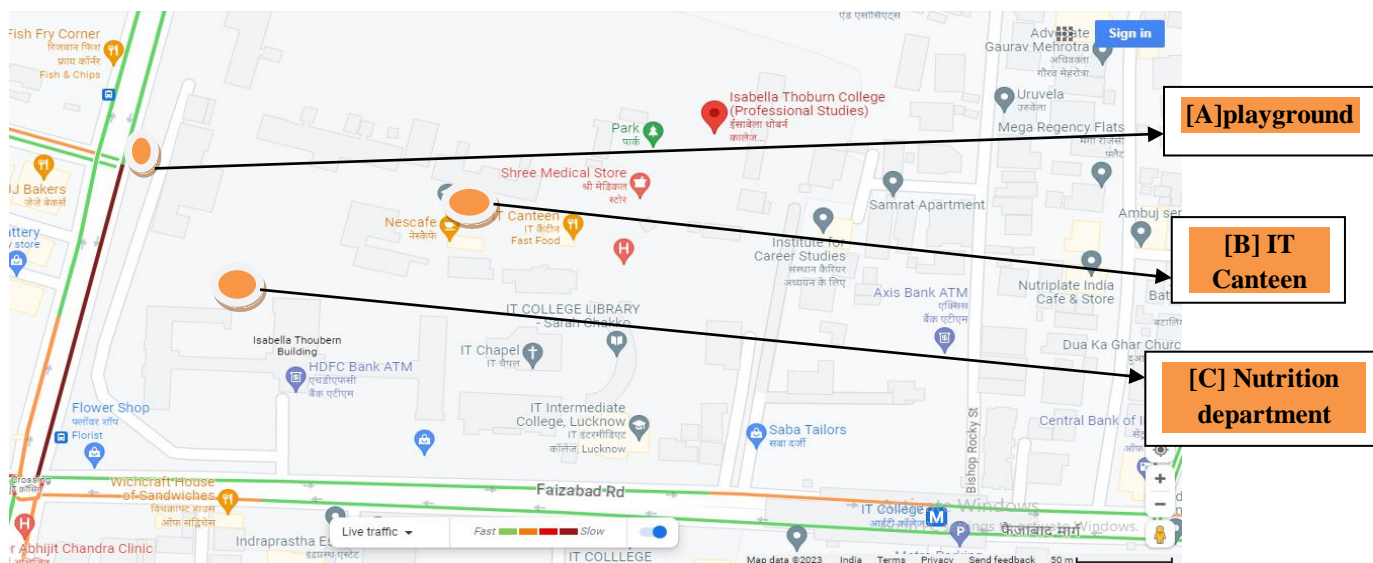
C. Distribution Map of Indian Grey Hornbill in Nawab Wazid Ali Shah Zoological Garden (Lucknow Zoo)



Map 3: Google map of Nawab Wazid Ali Shah Zoological Garden showing the Distribution of Indian Grey Hornbill

Source: google map

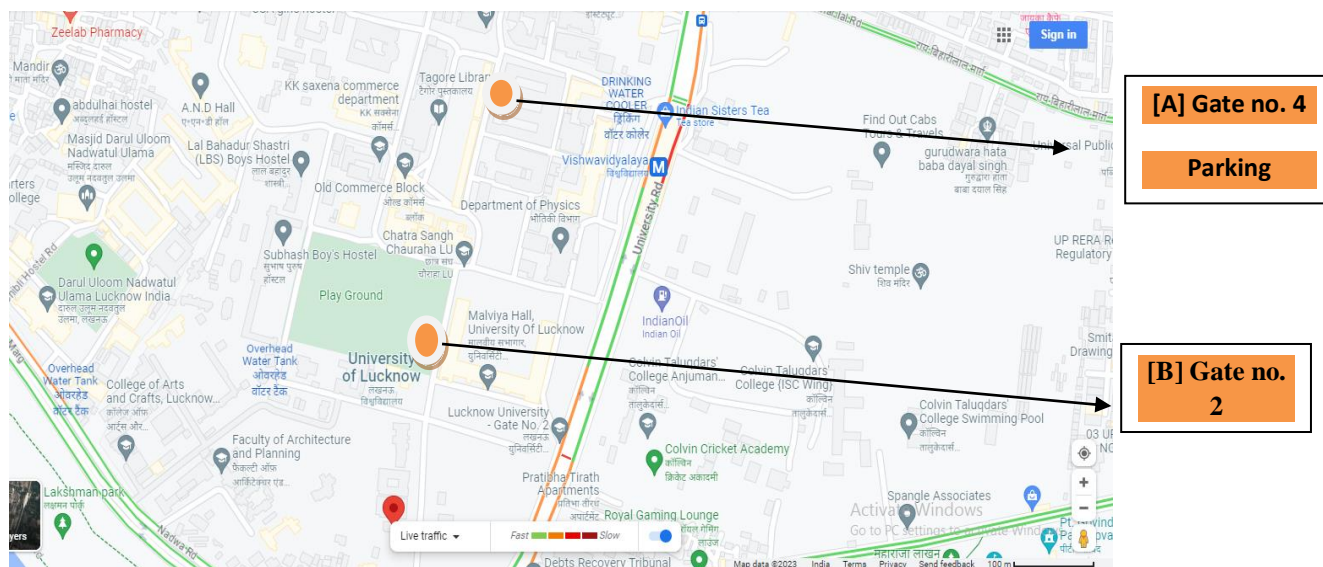
D. Distribution Map of Indian Grey Hornbill at different points in Isabella Thoburn College



Map 4: Google Map of Isabella Thoburn College showing the Distribution of Indian grey Hornbill in I.T. College

Source: google map

E. Distribution Map of Indian Grey Hornbill at different points in University of Lucknow



Map 5: Google map of University of Lucknow showing the Distribution of Indian grey Hornbill

Source: Google Map

VI. CONCLUSION

From the study of the status and distribution of Indian Grey Hornbill in specific sites of Lucknow city. It was concluded that the highest occurrence of species number is at the National Botanical Research Institute and the lowest occurrence is at the University of Lucknow.

The scarcity of the population of Indian Grey Hornbill is due to 2 main reasons:

- Due to lack of fruiting trees like Banyan & Peepal on which Indian Grey Hornbill feeds.
- Due to the man-made disturbances.

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