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SPATIAL DISTRIBUTION AND HABITAT CHOICE OF TWO SYMPATRIC SPECIES OF HORNBILLS IN VIDARBHA, MAHARASHTRA, CENTRAL INDIA

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ABSTRACT

Vidarbha is the eastern region of Maharashtra state, lies on the northern part of the Deccan Plateau and has the Satpuda Hill ranges to the north. Vidarbha region has two species of hornbills, i.e., Indian Grey Hornbill *Ocyrceros birostris* and Malabar Pied Hornbill *Anthracoceros coronatus*. The Malabar Pied Hornbill is now listed as Near Threatened by the IUCN. Data collected from three methods is used in this paper, data collected during field surveys by the authors, compilation of published bibliographic data of previous sightings and by compilation of data from citizen science forums. The study indicates that the spatial distribution of the two sympatric hornbill species is largely influenced by fragmentation of well protected forests due to agricultural expansion and urbanisation. The Malabar Pied Hornbill prefers and is mainly confined to the protected areas like tiger reserves and wildlife sanctuaries. Whereas, the Indian Grey Hornbill prefers fragmented forests and large gardens in urban areas and is also found in protected forested areas overlapping with the Malabar Pied Hornbill.

Keywords: Spatial distribution, habitat choice, *Ocyrceros birostris*, *Anthracoceros coronatus*, Central India



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Abstract

Vidarbha is the eastern region of Maharashtra state, lies on the northern part of the Deccan Plateau and has the Satpuda Hill ranges to the north. Vidarbha region has two species of hornbills, i.e., Indian Grey Hornbill *Ocyrceros birostris* and Malabar Pied Hornbill *Anthracoceros coronatus*. The Malabar Pied Hornbill is now listed as Near Threatened by the IUCN. Data collected from three methods is used in this paper, data collected during field surveys by the authors, compilation of published bibliographic data of previous sightings and by compilation of data from citizen science forums. The study indicates that the spatial distribution of the two sympatric hornbill species is largely influenced by fragmentation of well protected forests due to agricultural expansion and urbanisation. The Malabar Pied Hornbill prefers and is mainly confined to the protected areas like tiger reserves and wildlife sanctuaries. Whereas, the Indian Grey Hornbill prefers fragmented forests and large gardens in urban areas and is also found in protected forested areas overlapping with the Malabar Pied Hornbill.

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INTRODUCTION

Nine species of hornbills are found in India but five of these are threatened (IUCN 2017). Indian subcontinent's hornbill species are, Great Hornbill *Buceros bicornis* (Near Threatened), Rufous-necked Hornbill *Aceros nipalensis* (Vulnerable), Wreathed Hornbill *Aceros undulatus* (Least Concern), White-throated Brown Hornbill *Anorrhinus austeni* (Near Threatened), Malabar Pied Hornbill *Anthracoceros coronatus* (Near Threatened), Malabar Grey Hornbill *Ocyrceros griseus* (Least Concern), Oriental Pied Hornbill *Anthracoceros albirostris* (Least Concern), Indian Grey

Hornbill *Ocyrceros birostris* (Least Concern), and Narcondam Hornbill *Aceros narcondami* (Endangered) (IUCN 2017). Of these nine species of hornbills in India, four are found in Western Ghats part of Maharashtra: The Great Hornbill, Malabar Pied Hornbill, Malabar Grey Hornbill and Indian Grey Hornbill (Ali & Ripley 1987; Rasmussen & Anderton 2012). Out of these four, only two species are recorded from Vidarbha region of Maharashtra (Kasambe & Wadatkar 2003; Wagh *et al.* 2011; Rasmussen & Anderton 2012).

In Central India, Vidarbha is the eastern region of the Maharashtra state that lies on the Northern part of the Deccan Plateau and it is adjacent to the Satpuda Hill ranges. Five Tiger Reserves including Pench Tiger Reserve, Tadoba-Andheri Tiger Reserve, Bor Tiger Reserve, Navegaon-Nagzira Tiger Reserve and Melghat Tiger Reserves (MTR), six Wildlife Sanctuaries namely Umred-Karhandla, Tipeshwar, Katepurna, Painganga and Dnyanganga and also a number of reserved forests are located in Vidarbha. It is an ecologically important region in Central India. The Vidarbha region has maximum forest cover as compared to other parts of Maharashtra State. The forests of Vidarbha are under pressure due to agriculture expansion, logging, roads expansion and urbanisation.

The Malabar Pied Hornbill is endemic to the tropical deciduous forests of Central India, Southern India and Sri Lanka. According to IUCN Red List (2017), this species is listed as 'Near Threatened' due to its declining population trends. Deforestation and habitat fragmentation (Reddy *et al.* 1990) are major threats to this species throughout its range. It has been recorded mostly from the protected forest areas of Vidarbha while the Indian Grey Hornbill has been recorded in both the protected forest areas and the non-protected forest areas. Indian Grey Hornbill is also recorded in the cities, cultivated landscapes, riverine habitats and large institutional campuses (Kasambe 2011).

This paper presents an analysis on the spatial distribution of the two species of hornbills in different localities of Vidarbha. In this study we covered 11 protected areas (Tiger Reserves and Wildlife Sanctuaries), 20 Reserve forests, cities, cultivated landscapes, riverine habitats and large institutional campuses in the Vidarbha region.

Study Area

The Vidarbha region is situated in Central India. It is the eastern region of state of Maharashtra and it covers 97,321 km². Geographically Vidarbha lies on