Forest Habitat and Fruit Availability of Hornbills in Salakphra Wildlife Sanctuary, Kanchanaburi Province, Thailand

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Abstract

This study aimed to examine the quality of hornbill habitat in terms of tree and fruit availability in mixed deciduous forests, Kanchanaburi Province, Thailand. Salakphra Wildlife Sanctuary (SLP) has been known as a mixed deciduous forest, which has been disturbed by human activities. All canopy trees with a breast height diameter (DBH) ≥ 10 cm within the ten belt-transects of 2,000 m X 20 m (a total of 40 hectares) were monitored monthly. A total of 30 tree families including 81 species were observed on the tree-belt transects and the dominant species were non-hornbill fruit species. As hornbills needs emergent tree for nesting, trees with DBH size ≥ 40 cm were regarded as a potential nest tree and 37.78% of trees were found in SLP. The abundance of preferred nest tree species (families Dipterocarpaceae, Myrtaceae and Datiscaceae) were 12.14%. The density of Ficus spp., which is regarded as the most important food source for hornbill, is 0.55 trees/ha in SLP. The Fruit Availability Index (FAI) of all fruit species during the breeding season is 23.49% while the FAI of hornbill fruit species is 58.88%. Furthermore, in addition to this study, a pair of Great hornbills was observed during the breeding season and the male abandoned the nest to feed the mate prior to the expected hatching period. A pair of great hornbills was observed during the breeding season in SLP and the male would only leave the nest to find and retrieve food for the female mate prior to the expected hatching period. The average estimated number of food items fed to the female mate was 220 food items during the period from March (n = 3) to 13 food items in April 2014 (n = 4). The reduction in the availability of food items may be considered as one of the factors that affect the success or failure of producing offspring.

Keywords: Forest Habitat / Fruit Availability / Hornbill / Salakphra Wildlife Sanctuary

1. Introduction

Habitat structure and fruit availability have been regarded as a factor that strongly influences the density and distribution of Asian hornbills (Poonswad and Kemp, 1993). These are adversely affected by both human and natural disturbances (Winarni and Jones, 2012; Cahill and Walker, 2000). The mixed deciduous forest of Salakphra Wildlife Sanctuary (SLP) is one of the badly disturbed protected habitats supporting two hornbill species, Great hornbill Buceros bicornis and Oriental pied hornbill Anthracoceros albirostris (Wiles, 1979). In Khao Yai National Park (KYNP), Thailand, it has been reported that a) fruit is the major source of food for hornbills and b) that the availability of ripe fruit, especially figs, is positively correlated with the density of hornbills (Poonswad and Jirawatkavi, 2004; Angraini et al., 2000).

In addition, even though hornbills are known as a cavity nester, the availability of nest cavities in the forest is crucial since they cannot carve trees themselves. However, there has been little study on the environmental conditions for hornbill in mixed deciduous forests compared to major study sites for hornbills in Thailand such as Khao Yai National Park, Budo Su-ngai Padi National Park and Huai Kha Khaeng Wildlife Sanctuary. In this study, trees habitat and year-round fruit availability were examined for the quality of hornbill habitats at mixed deciduous forest of SLP. Moreover, in addition to this study, the breeding behavior of Great hornbill, which is regarded as one of the near threatened species by the International Union for Conservation of Nature (IUCN, 2013), was observed during the breeding season in order to understand hornbills traits in mixed deciduous forest, SLP.

2. Methodology

2.1 The Study Site

SLP was established in 1965 as the first wildlife sanctuary in Thailand, which covers 858.55 km². SLP is one of protected areas in Western Forest Complex (WEFCOM) as shown in Figure 1, which is the largest protected forest complex in Thailand located next to the border between Thailand and Burma. The main vegetation type in SLP is classified into mixed deciduous forest and bamboo forest, and the rest into evergreen, dry evergreen forest and grassland. The average temperature of 28 °C and the average annual precipitation is 1,170 mm which is relatively dry compared to other areas in Thailand. The dry season in this area is known for its extreme dry condition. Natural fires often occur in this area during the dry season. The highest temperature reaches 34 °C and the lowest is 23 °C.