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THE FOREST WITHOUT HORNBILLS: COMPARING THE FOREST BETWEEN BREEDING AND NON-BREEDING SITES OF HORNBILLS IN THE SOUTHERN TENASSERIM WESTERN FOREST COMPLEX CORRIDOR IN THAILAND

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ABSTRACT

This study compares the two adjacent forest communities in the southern Tenasserim Western Forest Complex Corridor in Thailand. We distinguished the difference between the two forest communities as breeding and nonbreeding sites from the presence of active nests of hornbills where the breeding site is located in the protected area. In 2011–2012, we established a total of 36 plots (20 × 50 m2) covering the sampling areas of 3.6 hectares in each forest site. The species diversity and composition of the two forest communities tended to be similar. However, the availability of potential nest trees (dbh ≥ 40 cm.) and productive-sized known fruit trees for hornbills (dbh ≥ 10 cm.) in the breeding site were more abundant for hornbills to use as breeding and feeding sites than the non-breeding site. The non-breeding site could serve only as a temporary feeding site due to its low density of known fruit trees.

Keywords: Hornbills, breeding and non-breeding sites, protected areas, the southern TWFC

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JABATAN MUZIUM SARAWAK

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INTRODUCTION

The southern Tenasserim Western Forest Complex Corridor (hereafter referred to as the Southern TWFC) is home to four hornbill species (Bucerotidae): the Great Hornbill (*Buceros bicornis*), Tickell's Brown Hornbill (*Ptilolaemus tickelli*); Wreathed Hornbill (*Rhyticeros undulatus*); and Oriental-pied Hornbill (*Anthracoceros albirostris*). Based on the findings from Teampanpong (2014), Maenam Pachee Wildlife Sanctuary (MPWS) harbours active nests of all four hornbill species, therefore is identified as a hornbill breeding site (BS). Meanwhile, the forest in the Natural History Park (NHP)

initiated by Her Royal Highness Princess Maha Chakri Sirindhorn is formally declared to conserve wildlands for sustaining a local livelihood, located outside the protected area of Thailand. We declared NHP as a non-breeding site (NBS) due to its absence of active nests of hornbills. This fact brought our interest to explore the forest community of the two adjacent habitats to provide suggestions on the role of hornbills as seed dispersers of tropical plants to the degraded forest.

This study compares the forest communities between BS and NBS of hornbills in the southern TWFC based on 1) forest composition, 2) availability of nest trees and nest tree species, and 3) availability of known fruit trees fed by hornbills. These findings can be implemented for managing the forest for hornbill conservation in the southern TWFC.

STUDY AREA

The southern TWFC lies on 13°5'–44' N and 99°10'–27' E of western Thailand, formed by the two protected areas; MPWSand Thai Prachan National Park and NHP.WCS-TP (2009) classified forest cover in this landscape. MPWS covered 50.2% of evergreen forest, 36.7% of degraded forest, 11.5% of mixed deciduous forest, and 1.6% of the human settlement. NHP comprises 67.9% of degraded forest, 15.5% of the evergreen forest and 13.0% of mixed deciduous forest, and 3.5% of agricultural use and human settlement.

MATERIALS AND METHODS

We conducted a forest inventory between October 2011 and February 2012. A one-time 36 plots sized of 20 x 50 m^2 were laid using belt transect covering an area of 3.6 ha each in MPWS and NHP. Each plot was divided into ten subplots of 10 x 10 m in size as working units. We measured, counted, and identified all individual trees with diameter at breast height at 1.30 m above ground (dbh) $\geq$ 10 cm to the nearest millimetre, where possible. We used Sorensen and Bray-Curtis indices to indicate the similarity in term of species presence and species abundance between the two forest conditions, respectively. Also, we calculated the density (D), frequency (F), of species presence and species abundance between the two forest conditions, respectively. Also, we calculated the density (D), frequency (F), dominance (Do), relative density (RD), relative frequency (RF), relative dominance (RDo), and Shannon-Weiner diversity index (H') of potential nest trees, and known fruit species fed by hornbills.