

Pornkamol Jornburom 2009: Density Estimation of Hornbills using Distance Sampling
in an Evergreen Forest Patch in Eastern Huai Kha Khaeng Wildlife Sanctuary.
Master of Science (Forest Biological Science), Major Field: Forest Biological Science,
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125 pages.

The objectives of this research were to estimate hornbill density and to compared the estimation of hornbill density between data from direct sighting and call, breeding and non- breeding seasons and different distance measurement methods, using Distance sampling with Point transects. Four 9-kilometer long trail transects were set up, each transect contains 45 observation points placed along transect at a spacing of 200 m. Observations were made in each point along transects for 8 visits. Total survey points were 1,440 points conducted during January 2004 to December 2005 and November – December 2008. The study area was in an evergreen forest patch in eastern Huai Kha Khaeng Wildlife Sanctuary.

Four species of hornbills recorded were Rufous-necked Hornbill (*Aceros nipalensis*), Brown Hornbill (*Anorrhinus tickelli*), Great Hornbill (*Buceros bicornis*) and Wreathed Hornbill (*Rhyticeros undulatus*). The result from DISTANCE analysis showed that only three hornbill species; Rufous-necked, Great and Wreathed Hornbill have enough observation to estimate the population density by sighting. Density estimates ($D \pm SE$) for Rufous-necked, Great and Wreathed Hornbill were 3.654 ± 1.011 , 5.280 ± 1.188 and 7.30 ± 2.929 individuals/km² respectively. Brown Hornbill could not estimated due to low detections. Density estimate from direct sighting and using range finder (%CV=28.220) was more precise than that of bird calls (%CV=43.910). No differences in detection probability ($\hat{p}$) between breeding and non-breeding density estimates.

Distance sampling with enough observation, direct sighting and careful measurement can be an effective method to estimate and monitor population status of hornbill. Density estimation also provides baseline to habitat management not only for Huai Kha Khaeng Wildlife Sanctuary but for hornbill conservation and other important wildlife species in the other protected areas.

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Thesis Advisor's signature

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