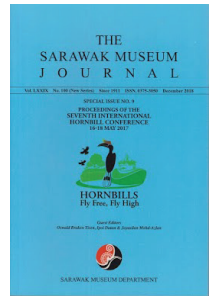




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VARIABILITY IN GUT PASSAGE TIMES OF ASIAN HORNBILLS

Ushma Shukla, Rohit Naniwadekar*, Aakanksha Rathore and Aparajita Datta
Nature Conservation Foundation, 3076/5, IV Cross, Gokulam Park,
Mysore 57002, India

*Corresponding author. Email: rohit@ncf-india.org

ABSTRACT

Seed gut passage time through animals influence germination and displacement distance of seeds from parent plants. Hornbills are the largest avian seed dispersers in Asian tropical forests. In this study, we compared gut passage times for five large seeded tree species across gut passage trials, for three hornbill species. This study was conducted on six captive birds in Nagaland, India. The gut passage time of seeds for the tree species varied from 5 to 536 minutes. There was no difference in gut passage times between trials, between male and female birds and different fruit tree species for the Oriental Pied Hornbill. For the Rufous-necked Hornbill, we found differences in gut passage times across trials for *Beilschmiedia assamica* and *Polyalthia simiarum*, between individuals for *Livistona jenkinsiana* and across tree species, especially for the female. For the Wreathed Hornbill, we found differences in gut passage times across trials for *Aglaia spectabilis* and *Syzygium cumini*, between individuals for *Beilschmiedia assamica* and *Livistona jenkinsiana* and across tree species only for the female bird. Mean gut passage times reported here are higher than those reported previously for Asian hornbills. Context-specific variability in gut passage times highlights the need to examine the causes that result in these inconsistent patterns.

Keywords: *Aceros nipalensis*, *Anthracoceros albirostris*, frugivores, large-seeded fruits, *Rhyticeros undulatus*, seed dispersal, seed retention

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INTRODUCTION

Hornbills are among the largest avian frugivores in Asian tropical forests. They play an important quantitative role and qualitative role in seed dispersal (Kitamura 2011). Due to their large body size, they feed on large number of fruits playing an important quantitative role in seed dispersal (Sethi & Howe 2012). Their ability to swallow large-seeded fruits and disperse the seeds unharmed at significant distances from their parent trees makes them important qualitative seed dispersers (Kemp 1995; Holbrook *et al.* 2002; Keartumsom *et al.* 2011; Viseshakul *et al.* 2011).