**How far do Asian forest hornbills disperse seeds?**

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**Figure S1.** Map showing home ranges (95% minimum convex polygons) of the six male hornbills (five Great Hornbill and one Wreathed Hornbill).



**Figure S2.** Daily distance moved (in kilometers) by different hornbill individuals. Data used only if the number of locations per day was > 30 following Lenz et al. (2011). The single Wreathed Hornbill individual that was tagged moved much more than the Great Hornbills. Breeding season of the hornbills is from March to mid-August.

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**Figure S3.** Movement trajectory of the six individual hornbills shown with net-squared displacement. The two non-breeding birds (GH2NBr and GH5NBr) have different net-squared displacement patterns as compared to the breeding hornbills.

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**Figure S4.** Seed dispersal distribution for six male hornbills, three breeding Great Hornbills (a, b, c), two non-breeding Great Hornbills (d, e) and one breeding Wreathed Hornbill (f). For breeding hornbills, separate probabilities have been estimated for seed arrival at nest trees and other locations. Probability of seed dispersal at nest trees by male birds is very low. These distributions are generated assuming a random starting point. The last distance interval on x-axis is for greater than 10000 m.

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| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Tree species** | **Number of tree watches** | **Session I:** **(sunrise - 11 am) (h)** | **Session II:** **(11 am - sunset) (h)** | **Full day:** **(sunrise - sunset) (h)** | **Effort (h)** |
| 1 | *Aglaia spectabilis* | 20 | 61.8 | 60.8 | 0.0 | 122.5 |
| 2 | *Beilschmiedia* sp. 2 | 2 | 5.4 | 5.3 | 0.0 | 10.7 |
| 3 | *Chisocheton cumingianus* | 22 | 66.8 | 66.4 | 0.0 | 133.2 |
| 4 | *Cinnamomum bejolghota* | 5 | 12.5 | 12.0 | 12.0 | 36.5 |
| 5 | *Dysoxylum cauliflorum* | 10 | 30.1 | 30.0 | 0.0 | 60.1 |
| 6 | *Dysoxylum gotadhora* | 26 | 76.4 | 76.0 | 0.0 | 152.4 |
| 7 | *Ficus altissima* | 4 | 12.1 | 10.5 | 0.0 | 22.5 |
| 8 | *Ficus benjamina* | 2 | 5.2 | 5.3 | 0.0 | 10.5 |
| 9 | *Ficus drupacea* | 4 | 11.9 | 11.3 | 0.0 | 23.3 |
| 10 | *Ficus geniculata* | 2 | 5.3 | 5.3 | 0.0 | 10.7 |
| 11 | *Ficus* sp. 1 | 2 | 6.2 | 6.0 | 0.0 | 12.2 |
| 12 | *Heteropanax fragrans* | 8 | 20.7 | 20.6 | 0.0 | 41.3 |
| 13 | *Horsfieldia kingii* | 8 | 15.3 | 14.3 | 20.8 | 50.4 |
| 14 | *Knema erratica* | 10 | 30.2 | 30.0 | 0.0 | 60.2 |
| 15 | *Litsea* sp. 2 | 2 | 5.1 | 6.0 | 0.0 | 11.1 |
| 16 | *Olea dioica* | 7 | 11.5 | 10.6 | 31.8 | 53.8 |
| 17 | *Phoebe* sp. 2 | 2 | 6.0 | 6.0 | 0.0 | 12.0 |
| 18 | *Polyalthia simiarum* | 18 | 52.1 | 52.8 | 0.0 | 105.0 |
| 19 | *Prunus ceylanica* | 2 | 0.0 | 0.0 | 20.0 | 20.0 |
| 20 | *Sterculia villosa* | 6 | 18.2 | 18.0 | 0.0 | 36.2 |
| 21 | *Syzygium* sp. 1 | 7 | 15.5 | 15.4 | 9.7 | 40.7 |
|  | **Grand Total** | **169** | **468.2** | **462.5** | **94.3** | **1025.0** |

**Table S1.** Tree watch sampling effort in the breeding season. The table lists the number of tree watches per species and total effort in hours. The tree watch effort is also given across different time sessions. Session I (sunrise to 11 am), Session II (11 am to sunset) and full day tree watches (sunrise to sunset).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No** | **Tree species** | **Number of tree watches** | **Session I:** **(sunrise - 11 am) (h)** | **Session I:** **(sunrise - 11 am) (h)** | **Full day** **(sunrise - sunset) (h)** | **Effort (h)** |
| 1 | *Aglaia* sp. 1 | 2 | 5.0 | 5.3 | 0.0 | 10.3 |
| 2 | *Beilschmiedia assamica* | 2 | 5.5 | 5.3 | 0.0 | 10.8 |
| 3 | *Beilschmiedia* sp. 1 | 4 | 10.5 | 10.3 | 0.0 | 20.8 |
| 4 | *Beilschmiedia* sp. 2 | 2 | 4.9 | 4.4 | 0.0 | 9.3 |
| 5 | *Ficus drupacea* | 3 | 5.0 | 5.5 | 10.5 | 21.0 |
| 6 | *Ficus geniculata* | 1 | 0.0 | 0.0 | 11.5 | 11.5 |
| 7 | *Ficus nervosa* | 9 | 21.4 | 20.6 | 11.0 | 53.0 |
| 8 | *Ficus obtusifolia* | 7 | 15.5 | 15.4 | 10.8 | 41.7 |
| 9 | *Horsfieldia kingii* | 2 | 5.1 | 5.5 | 0.0 | 10.6 |
| 10 | *Leea indica* | 4 | 11.3 | 10.8 | 0.0 | 22.1 |
| 11 | *Livistona jenkinsiana* | 5 | 0.0 | 0.0 | 54.1 | 54.1 |
| 12 | *Prunus ceylanica* | 6 | 10.2 | 10.8 | 20.7 | 41.6 |
| 13 | *Sloanea sterculiaceae* | 3 | 4.8 | 5.3 | 12.5 | 22.7 |
| 14 | *Tetradium glabrifolium* | 2 | 5.2 | 5.1 | 0.0 | 10.3 |
| 15 | *Vitex glabrata* | 10 | 25.7 | 25.8 | 0.0 | 51.5 |
|  | **Grand Total** | **62** | **130.1** | **130.0** | **131.0** | **391.1** |

**Table S2.** Tree watch sampling effort in the non-breeding season. The table lists the number of tree watches per species and total effort in hours. The tree watch effort is also given across different time sessions. Session I (sunrise to 11 am), Session II (11 am to sunset) and full day tree watches (sunrise to sunset).

**References**

Lenz, J., W. Fiedler, T. Caprano, W. Friedrichs, B. H. Gaese, M. Wikelski, and K. Böhning-Gaese. 2011. Seed-dispersal distributions by trumpeter hornbills in fragmented landscapes. Proceedings of the Royal Society B 278:2257–2264.