4. RCB Flight Range

Maximum range for a single straight-line flight is 4 km, as measured in a lab experiment with tethered beetles on a flight mill. However, from field observations it appears that natural flight is limited to a few hundred meters. In a mark-release-recapture experiment, Kamarudin and Washid measured a dispersal rate of 19m per day.

References:

Hinckley, A. D. 1973. Ecology of the coconut rhinoceros beetle, *Oryctes rhinoceros* (Coleoptera: Dynastidae). *Biotropica* 5 (2):111–116.

"Beetles freshly fed on a palm were flown on a tether in the laboratory. Their flight duration averaged between 2 and 3 hours. Distances traveled were between 2 and 4 km. Beetles exhausted by such long flights were held in moist soil or wood for a day or two, after which they could again fly, although seldom longer than 30 minutes."

Kamarudin, Norman and Mohd B. Washid. 2004. Immigration and activity of *Oryctes rhinoceros* within a small oil palm replanting area. *Journal of Oil Palm Research* 16 (2):64–77.

"Based on the capture, mark, release and recapture experiment using pheromone traps, the beetle's ability to fly was estimated at about 19 m day-1 or more than 130 m in a week. The range covered was estimated at 10-23 m day-1. This suggests that the flight of beetles within a replanting area is quite limited because of the abundance of food and breeding sites."

"Earlier reports have suggested the ability of the beetle to fly considerably long distances (Nirula, 1955; Hinckley, 1973). A distance recorded in the field was about 700 m (Monty, 1974). However, a laboratory experiment has indicated that the beetle can fly up to 2 to 4 km in 2 to 3 hr (Hinckley, 1973). Liau and Ahmad (1991) reported a flying distance of 140 m into a replanting area. This was in the case of migration to new breeding areas. But in this study, which was done within a replanting area, the beetle was noted to fly less (estimated around 19 m day-1, and about 133 m a week) (Table 5). These values may be below the actual flight potential as their flights were monitored using pheromone traps. However, the conducive environment, availability of food and abundant breeding sites in the replanting area logically play a role in the flight distance."