



Flight distance and homing ability of *Melipona fasciculata* assessed by Radio Frequency Identification (RFID)

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The flight distance of bees determines the area they can explore. This area must contain the resources they need to survive and reproduce. It also influences their ability of migration and dispersion. Thereafter, understanding flight distance is crucial for comprehending bee ecology and management for pollination and/or conservation purposes. The aim of this study was to estimate the flight distance of *Melipona fasciculata* using the RFID tracking technology. For determining the flight distance of *M. fasciculata* we conducted 2 two experiments. The first experiment was done at Embrapa Amazônia Oriental, Belém, Brazil, in March and April 2017. For this, we stipulated seven distances: 100 m, 600 m, 1100 m, 1600 m, 2100 m, 2500 m and 3000 m. At each one of these distances we released 45 bees equipped with RFID microsensors. The second set of experiments was done at Carajás National Forest, Brazil, during July and August 2017 and focused on determining the maximum flight distance of *M. fasciculata*, thus the distances 4000 m, 5000 m, 7500 m and 10000 m were tested. At each distance we released 30 bees equipped with RFID microsensors. Our study resulted verified in a flight range of 2000 km and a maximum flight distance of 10 km for *M. fasciculata*, with a negative correlation between distance and the rate of bees returning ($r=-0.72$, $p<0.05$). Our results show an astonishing ability of homing by this species, what have important implications for understanding the capacity of dispersion and colonization of new areas by this species of bee. Moreover, our results indicate that colonies of *M. fasciculata* are able to explore an area of 10 ha for foraging and thus pollination.