Description of the raw data

Waggle dances for nest sites were decoded in order to locate the nest sites.

For each dance, the ***circuit duration*** and the ***dance angle*** was measured. Depending on the visibility 2 to 15 (mean ± sd: 6.36 ± 2.31) dance circuits (***number of circuits***) were included into the analysis, from which the average values were calculated (***mean circuit duration***).

To calculate the real ***flight angles***, the ***solar azimuth angle***, according to the respective location (***colony location coordinates***), ***date*** and ***daytime*** was added.

To calculate the ***flight distances***, the formula *flight distance [m] = LN(‑0.2253179 \* mean circuit duration [s] + 1.3305467) \* (-1.534086)* was used for circuits up to 4.439852 s, which corresponds to flight distances up to 1.7 km. Dances with longer circuit durations respectively flight distances greater than 1.7 km, were calculated by the formula *flight* *distance [m] = 1.242854 \* mean circuit duration [s] - 3.818086.* Negative distance values were set to zero.

Dances in the last hour before swarming were additionally determined from ***waggle duration***. If possible, the durations of 6 waggle phases (***duration waggle 1 – 6***) of a dance were measured and averaged (***mean waggle duration***). Dances with waggle duration up to 2.2282219 s, which corresponds to a flight distance of 1.7 km, were calculated by the formula *flight* *distance [m] = LN(-0.3355544 \* mean waggle duration [s] + 1.06688877) \* (‑1.488695)*. For longer dances respectively further flight distances the formula *flight* *distance [m] = 1.496422 \* mean waggle duration [s] - 1.63436* was applied.

Flight distances and flight angles were used to calculate the offset between the swarm stand location and the nest site location (***offset meters*** and ***offset degrees***). Those in turn were added to the ***colony location coordinates*** in order to determine the location of the advertised nest sites (***nest site coordinates***).