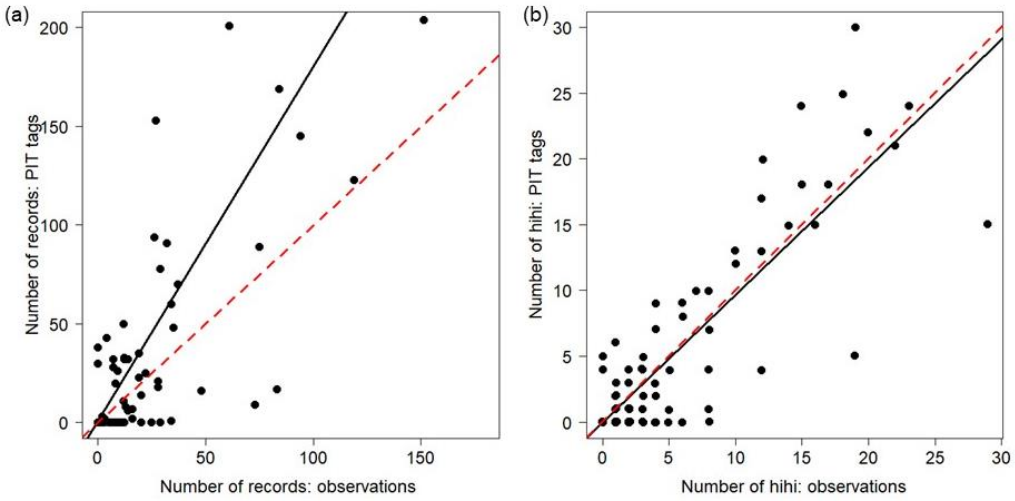
Appendix

In 2016, all hihi were fitted with Radio Frequency Identification (RFID) Passive Integrated Transponder (PIT) tags in plastic leg rings that replaced one colour ring in each bird's combination. This enabled remote logging of visits of individuals to temporary supplementary sugar water feeders set up in the juvenile group areas (used for a separate experiment). We compared number of individuals collected from RFID logging and observations over the period when feeders were present in group sites (7th Feb – 6th April 2016). This provided a cross-reference to assess if the number of birds present over a longer time period represented the number present in the hour-long surveys, to show if observational surveys captured an accurate representation of birds present in group sites each day.

First, we compared (1) number of hihi and (2) number of records recorded in each 1-hour survey in each group site, and recorded across the duration of the same day of each survey by PIT tags at feeders. There was strong correlation in numbers between each of the two methods (Supplementary Figure A1; Spearman's rank correlation: number of records, $S = 20789$, $rho = 0.72$, $P < 0.001$; number of hihi, $S = 22530$, $rho = 0.69$, $P < 0.001$). Overall, there was no significant difference in number of birds recorded by the two methods each day (paired Wilcoxon signed rank test: $V = 1278.5$, $P = 0.834$), but there were more records captured by PIT tags than observations (paired Wilcoxon signed rank test: $V = 846.5$, $P = 0.006$). This difference was not surprising, considering the PIT tag readers were recording throughout the day (approx. 13 hours per day), while surveys only took place for one hour. While this highlighted how the methods differed, overall the relative trends were consistent: busier days recorded more hihi and more records for both methods. No difference in the numbers of birds recorded suggested that collecting data on a coarser scale with 1-hour observations still accurately represented the number of birds present at a site that day.



Supplementary Figure A1. Correlation between the number of (a) records and (b) individual hihi recorded by 1-hour observations in group sites and PIT-tag recorders at feeders across the entire length of the same day of survey. Red dashed line represents 1:1 correlation, and black line represents correlation calculated from Spearman's rank analysis.