

## Summary Report of Research Activities

Micronesian Megapodes in Palau, 2 November 2016 – 23 January 2017

Submitted by: Paul Radley

Research conducted is in support of my pursuit of a Ph.D. at Edith Cowan University (ECU), Joondalup, Western Australia. The goals for the field season were to 1) complete the acquisition of accurate GPS locations for all known and newly discovered Micronesian Megapode incubation mounds in the Rocks Islands Southern Lagoon Conservation Area (RISL), 2) survey rats and megapodes on visited and non-visited islands in the lagoon, 3) collect time budget, foraging behaviour, and foraging habitat use data for megapodes in the RISL, and to 4) continue collecting data, time and opportunity permitting, pertaining to microhabitat variables at active incubation mounds in the RISL.

Administrative and logistical issues involving the Koror State Government (KSG) drastically cut my time in the field and my data collection schedule was revised accordingly. Receipt of a research permit from KSG took a little over a month this season, when the previous season it took under a week. Adding to this, three weeks after arriving in Palau the KSG Rangers informed me that they would not provide any boat transport for the season. All field work was thus completed only with the funds acquired from WPA, which supported 19 days of boat transport in the RISL. Consequently, I am extremely grateful for the funds provided as without them I would not have been able to complete my research.

Field work began on 19 December 2016 and was completed on 23 January 2017. Using a *Trimble Yuma* differential GPS (DGPS) unit, we acquired the location of 61 mounds additional to my previous season bringing the total to 198 mounds in the RISL. Combining both seasons, 49 mounds (24.7%) were determined active and maintained, four possibly active, 14 were under construction, and 131 were inactive or old.

Surveys for rats were conducted by deploying *WaxTag* (non-lethal wax baits; <https://www.traps.co.nz>) 20 m apart along transects in littoral habitat on each of five islands visited by tourists and five not visited by tourists. Two replicates of 100 tags each were conducted over a period of eight days, with tags left out for two nights. A mean of 25.5 rats were detected on non-tourist visited islands (relative abundance = 0.52 rats / survey station) compared to a mean of 44.5 detected on tourist visited islands (relative abundance = 0.91 rats / survey station).

Megapodes were surveyed via call-playback at 48 stations placed 100 m apart along transects on the same islands as rat surveys, and situated in the same habitat. One replicate of this survey was completed over six mornings. A total of 107 individual megapodes were detected across the 10 islands, 77 on non-tourist islands (relative abundance = 2.66 megapodes / survey station) and 30 on tourist islands (relative abundance = 1.58 megapodes / survey station).

Megapode foraging habitat data were collected over 13 days between 9 and 23 January. We quickly determined that megapodes in the RISL were too skittish to allow close approach for adequate observation in thick vegetation and consequently we could not easily collect time budget and foraging behaviour data. Habitat data were collected at 64 foraging and random plots (127 plots total) across five islands. Given the drastically curtailed field season we only had time to collect vegetation data at two additional mounds and their corresponding random plots.

This fieldtrip, which concludes my PhD studies, was successful despite the challenges faced. I am currently in the process of undertaking detailed analyses and writing my thesis as well as preparing manuscripts for publication. WPA will be acknowledged in all relevant publications and I am very grateful for your support.