*The following supplement accompanies the article*

**Population demographics and dynamics of coconut crabs, *Birgus latro*, on Aldabra Atoll, Seychelles**

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SUPPLEMENT 1. Habitat composition

supp_figures/principal-component-analysis.pdf**Figure S1**. First two components of the habitat composition in the 66 sections of our transects. Color indicates distance from shore.

SUPPLEMENT 2. Density model

We fitted a set of hierarchical distance sampling model for each of the 254 surveys performed.

First, we fitted four sets of models without detections or abundance covariates. The sets of models used a half-normal, negative exponential, hazard rate, or uniform detection function. The half-normal set of models had the lowest Akaike Information Criterion (AIC) in 39% of the surveys, the negative exponential in 36% of the surveys, the hazard rate in 23% of the surveys and the uniform in the resting 2%. However, in many cases the AIC value from the different functions was close to each other. We used a negative exponential detection function in our models because it was within two units of the model with the lowest AIC in 76% of the surveys.

To determine the influence of the habitat covariates we fitted a set of models in which the first and the second principal component as well as the distance from shore were included as both detection and abundance covariates. We found that for most surveys these habitat covariates had no significant effect on either the density or detectability of coconut crabs (Figure S2 and S3).

supp_figures/detection-coovariates.pdf**Figure S2**. Distribution of p-values of the three detection covariates. For a large majority of surveys neither distance from shore or habitat composition had a significant effect.

supp_figures/density-coovariates.pdf**Figure S3**. Distribution of p-values of the three density covariates. For a large majority of surveys neither distance from shore or habitat composition had a significant effect.