

Integrating inter-individual variation in resource-use and movement behaviour in Chatham Island brown skuas

Following two successful field seasons on the Chatham Islands in 2014 and 2015, Rebecca and I visited South East Island for a third season to study space-use and diet of brown skua (*Catharacta antarctica lonnbergi*). Tracking data from previous seasons suggested differences in foraging behaviours between male and female brown skuas (Fig. 1). However, additional information was required to confirm that this pattern is also existent in brown skuas' diet.

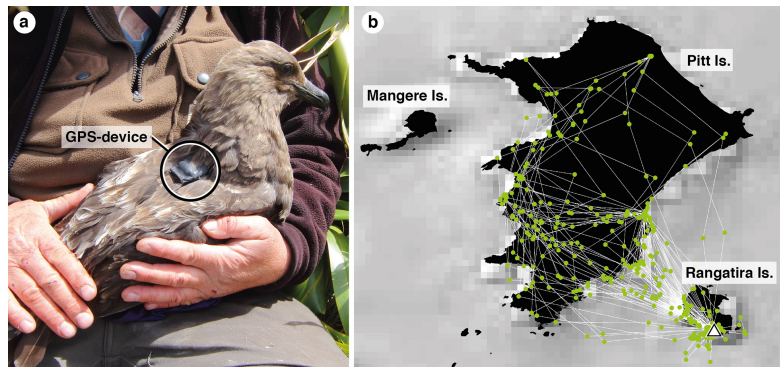


Fig. 1. Female brown skua with GPS (a) and resulting GPS track (b). Females forage more time on farmland than males. Image “a” by Rebecca Hohnhold.

In October 2016, we deployed GPS devices on 45 individual brown skuas out of which we retrieved 37 functional loggers after two to four weeks of deployment. Eight birds had either lost their device or could not be re-captured for data retrieval. Consistent with observations in previous years, females foraged longer times on farmland and males were more inclined to forage in bush and ocean habitat. Stable carbon and nitrogen isotopes of blood reflect diet representative of the breeding season. To test whether sex-specific differences in movement data were also reflected in dietary composition, we collected blood samples from all tracked individuals. In addition, tissue samples from skua prey remains were collected as isotopic references. All samples were meanwhile analysed at the NIWA stable isotope facility in Wellington and preliminary analysis suggests that sexual foraging segregation is observed in both skuas' movement patterns and dietary composition. While females showed strongly depleted carbon stable isotope values indicative of a terrestrial diet component, males showed carbon values representative of a mostly marine diet. We are currently analysing the data in more detail. Using so-called isotope mixing models, we aim to determine which prey species contributed most to the diet of female and male brown skuas. Movement data obtained from GPS tracking devices suggests that female skuas foraged predominantly on farmland. If diet models reveal that sheep constitutes a major diet component for females, these findings underline the importance of communicating brown skuas' foraging ecology to local farmers, who are legally allowed to cull skuas when perceived as a threat to their livestock.

Thanks to the Birds New Zealand Research Fund, Rebecca and I were able to visit TeOne Primary School on Chatham Island and Pitt Island School on the remote Pitt Island to run a seabird workshop. The students had a broad knowledge on local wildlife and it was great to see the passion and appreciation they had for living in such a unique place. As part of the workshop, the students cut out corflute shapes of local shorebirds and seabirds and then coloured in these shapes using water-based paint, which was kindly sponsored by Resene Colors (Fig.2). Rebecca and I were very thankful for the opportunity to meet and work with the Chatham Island schools. We would like to thank Birds New Zealand as well as the Miranda Shorebird Centre's "The Flock", Resene Colors, and the University of Auckland Centre for Biodiversity and Biosecurity (CBB) for their support in running this workshop.



Figure 2. Workshops at TeOne and Pitt Island Primary Schools. Colours were kindly provided by Resene ColorShop.