An Experimental Approach to the Translocation of the North Island Saddleback (*Philesturnus carunculatus rufusater*) to Bushy Park Reserve, Wanganui

North Island Saddleback. Photo: Joanne Thorne

A thesis presented in partial fulfilment of the requirements for the degree of

Masters of Science
in
Conservation Biology

at Massey University, Palmerston North, New Zealand

Joanne Maree Thorne
2007

ABSTRACT

Translocation, the intentional release of a species into a new location, is a key technique used in the conservation of New Zealand's threatened species. Despite the frequency with which translocations are carried out, factors affecting their outcome are not fully understood and greater emphasis on research based approaches is required for improvement. The translocation of North Island saddlebacks (*Philesturnus carunculatus rufusater)*, an endangered forest passerine, from Mokoia Island, Lake Rotorua, to predator fenced reserve Bushy Park, Wanganui provided the opportunity to investigate some key aspects that were identified *a priori* as factors that may affect its outcome. A greater understanding of these factors may increase the success of future saddleback translocations to the mainland.

The enforcement of complex disease screening programmes during translocation is a routine part of New Zealand translocations, yet the impacts these procedures have on post release survival is unknown. The saddleback translocation was designed to experimentally test these impacts by comparing the post release survival of four treatment groups that underwent different regimes of quarantine and prophylactic disease treatment (used to prevent stress induced disease) as part of a standard disease screening programme. However the detection of a *Plasmodium* in four of the translocated saddlebacks required a change in the original experimental design and subsequent comparison of post release survival between groups was difficult due to confounding factors. Despite this, the disease screening process resulted in difficulties in identifying which diseases were of concern, inaccurate diagnostic tests, increased cost, mortality during captivity and poor post release survival. These factors served to highlight some serious downfalls in the current 'guess work' approach applied to regulating disease risk during translocations and alternative approaches are discussed.

Population Viability Analysis (PVA) indicated that the population had 0% probability of extinction within the next five years. The model was based on data collected during the first year after release and therefore had a high degree of uncertainty. However, it provides a framework for adaptive management of the population in the future. As new data are collected under various management strategies the model can be updated to determine the most effective strategy. Breeding biology of the saddlebacks was

generally similar to island saddleback populations but fecundity rates were lower than that seen in other low density populations of North Island saddlebacks. This may have been due to the effect of the translocation which can lower reproduction and survival in the first year after release.

The saddleback's colonisation of Bushy Park was used as a natural experiment to investigate habitat selection. Eight out of nine saddleback pairs established home ranges around the periphery of the reserve in primarily dense secondary vegetation. The relationship between ten habitat variables and site occupancy was analysed in programme MARK. The best variable for predicting occupancy of a site was the complexity of the shrub tier (30 cm – 6 m). A complex habitat may represent a superior habitat by providing greater food availability and high quality nest sites. Caution is required when selecting release sites on the mainland as they tend towards mature forest which may not be high quality habitat for saddlebacks. Habitat quality at a release site is a vital consideration for ensuring a successful translocation outcome.

ACKNOWLEDGEMENTS

Firstly, I must say a huge thank you to my supervisors, without whom I would never have got to this point. To Associate Professor Doug Armstrong, your guidance, support and knowledge throughout this project has been invaluable. Thank you for your time and patience in explaining things to me and for making me laugh when I needed it most! To Dr Isabel Castro, thank you for the invaluable support you gave me during the translocation and the enthusiasm and passion you have given to this project. I am lucky to have had such great supervisors.

Some of my first and most memorable contacts with saddlebacks were on Cuvier Island. Thank you to Graeme Taylor and Kevin Parker for allowing me to accompany them on their respective trips to this amazing island. I have some fantastic memories of these weeks and am grateful for the experience.

I would like to acknowledge Dr Nic Peet for his help when the translocation was in its early planning stages. This was a daunting task for me to undertake and I am appreciative of the time and advice you gave on the proposal and associated permits that we required. Also to Keith Owen and Bridget Evans, thank you for taking the time to give me the 'Mokoia Island tour' and for your advice on logistics during the translocation.

To the Mokoia Island Trust, I thank you for your precious gift of Tieke to Bushy Park. In particular, thanks to John Marsh for your very warm welcome to the island and for your help with logistics.

Thank you to each and every translocation team member, there were too many to list individually but everyone's enthusiasm and support was immensely appreciated. I would like to make special mention of a few people. Once again thank you to Dr Isabel Castro for your expertise, encouragement and laughter, without which I'm quite sure the saddlebacks would not have made it to Bushy Park! To Connie Zander, thank you for lending me your teacher skills to help pull together my first translocation, and for being a good friend throughout my project. To our island chef, Joe Shepard, thank you for making sure our stomachs were always full with great Mokoia cuisine.

At Bushy Park I wish to express thanks to Allan Anderson and his team on the Bushy Park Trust for entrusting me with the task of bringing saddlebacks to their reserve. I owe a great credit to the trust for supporting my quest to approach this project as an experiment even when it seemed to complicate things further. To the chief aviary builders, Allan Anderson, Rick Brown and Hugh Stewart thank you for your incredibly hard work, long hours and for putting up with my design demands. I would also like to acknowledge the numerous volunteers that assisted in the care of the saddlebacks during the quarantine period. From collecting leaf litter to hunting down organic fruit, your help was invaluable. To Viv and Theo Perry of the Bushy Park homestead, thank you for your ongoing interest in my work and for supplying me with endless lattes and great conversation when I needed a break from field work. For help in the field, I am grateful to Alice Taylor for your company and help during some long nest searches! To Kelly Brider, thank you for so enthusiastically taking up the saddleback monitoring where I left off, it is reassuring that I was able to leave these precious birds in such capable hands.

Thank you to my family, in particular to Mum and Dad, for encouraging my interest in animals and their environment for as long as I can remember. Thank you for always supporting my work, and for understanding that I will one day join the 'real world'. It looks like that time has finally arrived!

This project was made possible with the financial support of Landcare Research and a Massey University Masterate Scholarship, for which I am very grateful.

Finally I wish to thank Malcolm, who has helped me throughout this project in a thousand different ways, from building aviaries and feeding stations, baking saddleback loaf, refining transfer box designs, helping with the release of the birds and being my computer technician during the great 'hard drive crash', the list is endless and I am so grateful to have had your help. I am not sure you will ever truly realise just how much you have helped me reach this point.

CONTENTS

LIST OF TABLES

TABLE

LIST OF FIGURES

FIGURE

LIST OF PLATES