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Re-establishing North Island kākā
(*Nestor meridionalis septentrionalis*)
in New Zealand

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

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In

Conservation Biology

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For Orlando, Aurora and Nayeli

“I don’t want my children to follow in my footsteps,
I want them to take the path next to me and
go further than I could have ever dreamt possible”

Anonymous

Abstract

Recently there has been a global increase in concern over the unprecedented loss of biodiversity and how the sixth mass extinction event is mainly due to human activities. Countries such as New Zealand have unique ecosystems which led to the evolution of many endemic species. One such New Zealand species is the kākā (*Nestor meridionalis*). Historically, kākā abundance has been affected by human activities (kākā were an important food source for Māori and Europeans). Today, introduced mammalian predators are one of the main threats to wild kākā populations. Although widespread and common throughout New Zealand until the 1800's, kākā populations on the mainland now heavily rely on active conservation management. The main methods of kākā management include pest control and re-establishments.

This thesis evaluated current and past commitments to New Zealand species restoration, as well as an analysis of global Psittacine re-establishment efforts. First, I surveyed individuals involved in ecological restoration projects at multiple North Island locations, to establish their past and future commitments to the re-establishment of New Zealand native species. Secondly, another survey was distributed amongst several experts in the field of kākā re-establishment in New Zealand. Lastly, a systematic literature review was completed to establish which psittacine species have been part of re-establishment projects and the methods that were applied to these projects.

The outcomes of the surveys and literature review contributed to the development of a draft recovery plan for North Island kākā. This 10-year plan is a guide for the Department of Conservation (DOC) and interest groups involved in conserving North Island kākā.

Keywords: North Island kākā, *Nestor meridionalis septentrionalis*, threatened species recovery, recovery plan, conservation, stakeholder survey, expert survey, systematic review, Delphi technique, New Zealand

Preface

Thesis outline

The overall aim of this thesis was to develop a detailed recovery plan for North Island kākā (*Nestor meridionalis septentrionalis*) in the North Island of New Zealand. The four key concepts were identified as follows: 1) to investigate the success of re-establishment programmes globally with particular reference to species similar in biology and behaviour to North Island kākā; 2) to research and capture current knowledge amongst experts on North Island kākā distribution, reintroductions and translocations; 3) to establish a long-term goal for North Island kākā re-establishment into the entire North Island of New Zealand and 4) to investigate and capture the current commitments and future expectations of release sites, governmental organisations and community groups. The purpose of the research is to develop a recovery plan, which will include methods to develop a self-sustaining population of North Island kākā widely distributed across the North Island. This plan in turn could become an example for other species recovery plans.

The methods that have been used to meet the key concepts include a stakeholder contribution survey, a survey of kākā experts and a systematic literature review.

Thesis structure

The thesis is comprised of an introduction chapter (chapter one), three research chapters (chapters two to four) and a concluding chapter (six) which provides general conclusions and recommendations. Additionally, chapter five is the proposed recovery plan which has been reviewed by experts in the field of kākā conservation. Their feedback has been included in this final version. The contents of each chapter are as follows:

Chapter one: Introduces the background of the evolution of psittacines and the extinction of New Zealand species. Furthermore, it discusses the concept of re-establishment and New Zealand's unique position regarding the recovery of species.

Chapter two: This chapter provides the outcomes of a survey conducted with individuals involved in New Zealand restoration projects. The survey was approved to be 'low risk' in agreement with Massey University's Human Ethics Committee (Ethics notification number 4000016051). The survey was designed by me and reviewed by Denise Fastier (Department of Conservation) prior to circulation amongst restoration experts. The survey questionnaire is attached at Appendix III.

Chapter three: This chapter provides the outcomes of a three-staged survey, in line with the Delphi technique to attempt to reach a consensus on the factors that determine successful kākā re-establishment. The participants selected for this survey were kākā experts both past and current. The survey was approved to be 'low risk' in agreeance with Massey University's Human Ethics Committee (Ethics notification number 4000016298). The survey was designed by me and reviewed by Professor Dianne H. Brunton and Dr Aaron Harmer. The three survey questionnaires are attached at Appendix IV.

Chapter four: This chapter presents a systematic literature review on global psittacine re-establishments. The data extraction form was designed by me and reviewed by Professor Dianne H. Brunton and Dr Aaron Harmer. The data extraction form is attached at Appendix V.

Chapter five: This chapter is the final version of the recovery plan for North Island kākā. The plan was written by me and reviewed by experts in the field of kākā conservation and ecological restoration projects.

Chapter six: This final chapter presents the overall conclusions and recommendations for a successful re-establishment programme for North Island kākā in New Zealand.

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My family, especially my children, Orlando, Aurora and Nayeli, my little eco-warriors in the making, even though you made the whole process harder at times (sleep is so over-rated), I ultimately completed this for you, to demonstrate that even when you think you have too much on your plate, you can always add more... continue to make me proud!

Ultimately, to everyone who gave me support even in the smallest of ways, without you I could not have finished this enormous task.

Glossary and Acronyms

CBD	Convention on Biological Diversity. International multilateral treaty with the main objective to develop national strategies for the conservation and sustainable use of biological diversity. Entered into force on 29 December 1993.
DOC	Department of Conservation. New Zealand's principal conservation agency.
IUCN	International Union for Conservation of Nature. Global authority on the status of the natural world and the measures needed to safeguard it.
NGO	Non-Governmental Organisations. Non-profit organisation that is independent of governments and has no political affiliations.
RSG	Reintroduction Specialist Group. Part of the IUCN's SSC. Its primary objective is promoting the reintroduction of viable populations of animals and plants back to their natural ecosystems.
RTCI	Residual Trap Catch Index. A standard method for estimating relative densities of pests.
SSC	Species Survival Commission. A special commission operated by the IUCN, made up of a global network of scientists and conservation managers.
UNEP	United Nations Environment Programme. An agency of the United Nations and coordinates its environmental activities, assisting developing countries in implementing environmentally sound policies and practices.

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