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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

Master of Science

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 agreeance 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 accordance 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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All those who contributed to the different aspects of my thesis, especially those who took the time to participate in surveys, providing me with useful information, reviewing the recovery plan and/ or proof reading parts of my thesis.

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.

# Table of Contents

Abstract .....	v
Preface .....	vi
Acknowledgements .....	viii
Glossary and Acronyms .....	ix
Table of Contents .....	x
List of Figures .....	xiv
List of Tables .....	xv
<b>Chapter 1 General introduction.....</b>	<b>1</b>
1.1 Introduction.....	3
1.2 History of New Zealand .....	4
1.3 North Island forest (past and present) .....	4
1.4 New Zealand birds .....	5
1.5 Extinction rates New Zealand species .....	6
1.6 Island endemism.....	7
1.7 Evolution of psittacines .....	8
1.8 Evolution of North Island kākā .....	9
1.9 Threats to psittacines worldwide .....	10
1.10 Kākā threats.....	12
1.11 Distribution of North Island kākā .....	14
1.12 Global re-establishments.....	16
1.13 Global psittacine re-establishments.....	19
1.14 New Zealand re-establishments.....	20
1.14.1 Island re-establishments .....	22
1.14.2 Mainland Islands.....	22
1.15 Chapter contents of thesis .....	24
<b>Chapter 2 Stakeholder contribution survey.....</b>	<b>25</b>
2.1 Introduction.....	27
2.2 Research objectives .....	28
2.3 Methods .....	28
2.3.1 Ethics.....	30
2.3.2 Survey design.....	30

2.3.3	Sample Size .....	30
2.4	Results.....	31
2.4.1	Response rate .....	31
2.4.2	Management Areas.....	31
2.4.3	Flora .....	31
2.4.4	Aviaries.....	32
2.4.5	Boundaries .....	32
2.4.6	Pest Control.....	32
2.4.7	Success rating.....	35
2.4.8	Source of birds .....	37
2.4.9	Involvement reasons.....	37
2.4.10	Release events .....	38
2.4.11	Release methods.....	38
2.4.12	Monitoring .....	39
2.4.13	Population modelling data.....	40
2.4.14	North Island kākā participation.....	41
2.5	Discussion.....	43
2.6	Acknowledgements.....	48
<b>Chapter 3</b>	<b>Kākā expert survey.....</b>	<b>49</b>
3.1	Introduction .....	51
3.2	Research objectives .....	52
3.3	Methods.....	53
3.3.1	Ethics .....	54
3.3.2	Survey design .....	54
3.3.3	Sample Size .....	54
3.4	Results.....	56
3.4.1	Response rates.....	56
3.4.2	Factors limiting kākā re-establishment.....	56
3.4.3	Rating of factors.....	58
3.4.4	Consensus .....	59
3.4.5	Additional clarification questions .....	60
3.5	Discussion.....	61
3.6	Acknowledgements.....	66

<b>Chapter 4 Global psittacine re-establishments: A systematic review .....</b>	<b>67</b>
4.1 Introduction.....	69
4.2 Research objectives.....	69
4.3 Methods .....	70
4.3.1 Literature Search .....	70
4.3.2 Inclusion and exclusion criteria .....	71
4.3.3 Data collection and analysis .....	72
4.4 Results .....	73
4.4.1 Databases .....	73
4.4.2 Review of double up studies .....	73
4.4.3 Publication information.....	74
4.4.4 Species.....	74
4.4.5 Distribution.....	76
4.4.6 Types of re-establishment programmes .....	76
4.4.7 Release events and numbers of birds .....	76
4.4.8 Source of birds.....	77
4.4.9 Predator management .....	78
4.4.10 Release management .....	79
4.4.11 Success measures .....	79
4.5 Discussion .....	81
<b>Chapter 5 Recovery plan: North Island kākā (<i>Nestor meridionalis septentrionalis</i>).....</b>	<b>85</b>
<b>Chapter 6 Conclusions and recommendations .....</b>	<b>185</b>
6.1 Introduction.....	187
6.2 Stakeholder contribution survey .....	187
6.3 Kākā expert survey .....	188
6.4 A systematic literature review on global psittacine re-establishments .....	188
6.5 Draft recovery plan.....	189
6.6 Communication .....	190
6.7 Cooperation.....	190
6.8 Future recommendations from thesis.....	191
6.9 Future recommendations from recovery plan .....	192
6.10 Final remark.....	192

<b>References</b>	.....	<b>193</b>
<b>Appendices</b>	.....	<b>I</b>
Appendix I:	Global psittacine reintroduction projects .....	II
Appendix II:	Guidelines for parrot reintroductions.....	III
Appendix III:	Stakeholder contribution survey.....	IV
Appendix IV:	Expert survey.....	XII
Appendix V:	Data extraction form.....	XVI

## List of Figures

Figure 1.1	Phylogenetic tree illustrating the relationship of Psittaciformes and the number of genera and species that fall under the superfamilies.	9
Figure 1.2	Schematic model of relationships between factors currently limiting New Zealand forest birds.	13
Figure 1.3	Overview of the number of reintroduction programmes per region.	17
Figure 1.4	Overview of the taxa focus for global reintroduction programmes.	18
Figure 1.5	Overview of global reintroduction success by taxa focus.	18
Figure 2.1	Parties responsible for pest control in the management areas.	34
Figure 2.2	Ground pest control techniques adopted in the management areas.	34
Figure 2.3	Targeted pest species for pest control in management areas.	35
Figure 2.4	Success ratings of release projects in New Zealand for all native species and native forest bird species only.	36
Figure 2.5	Source of forest birds for release in New Zealand restoration programmes.	37
Figure 2.6	Reasoning behind species selection for release projects in New Zealand.	38
Figure 2.7	Food items used for supplementary feeding as part of New Zealand restoration programmes.	39
Figure 2.8	Monitoring methods applied in New Zealand management areas.	40
Figure 2.9	Population modelling data maintained for released species in New Zealand.	41
Figure 3.1	Top five factors determining successful kākā re-establishment.	59
Figure 4.1	Number of publications per five-year period.	74
Figure 4.2	Number of release events per project (from systematic review data).	77
Figure 4.3	Minimum mortality and survival rates post-release for psittacine species.	80

## List of Tables

Table 1.1	Summary of the status of New Zealand species.	7
Table 1.2	Redlist categories Psittaciformes.	11
Table 1.3	Overview of the status of North Island kākā populations.	15
Table 2.1	North Island stakeholders.	29
Table 2.2	North Island stakeholder email contact outcomes.	30
Table 2.3	Summary of stakeholder participation.	31
Table 2.4	Description of management areas.	33
Table 2.5	Number of specimens per release event.	38
Table 2.6	Use of supplementary feeding post release in the management areas.	39
Table 2.7	Existence of monitoring in management areas.	40
Table 2.8	Frequency of occurrence of North Island kākā in management areas.	42
Table 2.9	Overview of North Island kākā stakeholder survey responses regarding current North Island kākā involvement and presence.	42
Table 2.10	Measure of potential human – kākā conflict post release in management areas.	43
Table 3.1	Kākā expert selection outcomes.	55
Table 3.2	Factors reported as influencing the success or failure of translocations.	57
Table 3.3	Factors determining successful kākā re-establishment.	58
Table 4.1	Terms excluded from literature review and reason for exclusion.	71
Table 4.2	Outcomes of electronic database and hand searches.	73
Table 4.3	Double up articles removed during extraction phase of the systematic review.	74
Table 4.4	Articles relating to psittacine re-establishments.	75
Table 6.1	Summary of responses post distribution of recovery plan.	189

