

REVIEW

Reintroduction Biology: Integrating Science and Management

Edited by John G. Ewen, Doug P. Armstrong, Kevin A. Parker & Philip J. Seddon
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Given the number of pages contained in this book it is a weighty tome. It consists of 14 chapters, each of which is formatted as a scientific paper, much like those in *Notornis*, involving tables, figures and a list of references, but no abstract. A useful feature is the inclusion of text 'boxes', being explanations of terminology, concepts or detailed examples; a useful addition to assist understanding of a topic. There are 35 contributors to this book, leaders in the science and/or practice of reintroductions. It is of note that New Zealanders are to the fore as contributors to this book, including that all four editors (who are senior authors of chapters as well) are too. This is not unexpected given the crucial role that translocations of endemic birds and other fauna have played in the history and success of species conservation in New Zealand.

The chapters cover all the topics readers might expect to find in such a book:

1. Animal translocations: what are they and why do we do them?
2. A tale of two islands: the rescue and recovery of endemic birds in New Zealand and Mauritius
3. Selecting suitable habitats for reintroductions: variation, change and the role of species distribution modeling
4. The theory and practice of catching, holding, moving and releasing animals
5. Dispersal and habitat selection: behavioural and spatial constraints for animal translocations
6. Modelling reintroduced populations: the state of the art and future directions
7. Monitoring for reintroductions
8. Adaptive management of reintroduction
9. Empirical consideration of parasites and health in reintroduction
10. Methods of disease risk analysis for reintroduction programmes
11. The genetics of reintroductions: inbreeding and genetic drift
12. Genetic consequences of reintroductions and insights from population history
13. Managing genetic issues in reintroduction biology
14. Summary

The first chapter includes a very useful glossary of the various terms used in the literature relating

to translocations. It also includes descriptions and examples of various reasons for translocations; non-lethal management of problem animals, commercial and recreational, biological control, aesthetic, religious and wildlife rehabilitation. For those interested in some history of bird translocations, chapter 2, is well worth reading. It includes a table listing the problem, solution (such as translocation) and outcome of management actions for various New Zealand (including saddleback, black robin, kakapo) and Mauritius bird species. Also, there is information on a variety of intensive management actions that were used to conserve bird populations in the two nations, such as nest guarding and monitoring, egg and brood manipulations, egg removal and fostering, head starting, supplementary feeding, captive management, and disease control and management.

Chapter 4 is a must-read for anyone expecting to be involved in translocations in some way. It begins with a good discussion of the likely impacts of stress, both acute and chronic, that translocation procedures may have on an animal. The following quote is worth keeping in mind: "For an active wild animal, capture is probably perceived as an attempted predation event, and may therefore elicit a violent stress response appropriate to this life-and-death situation." An important conclusion with regard to minimising stress in animals "is to understand thoroughly the species [behaviour and biology] being translocated and to consider how best to tailor protocols to decrease the amount of stress experienced throughout the translocation procedure."

Chapter 7 discusses monitoring in the intended release area before and after the translocation of animals. Probably the most crucial aspect of pre-release monitoring in the New Zealand mainland context is knowledge about the density of introduced mammalian predators, and if present whether their populations are being suppressed sufficiently to enable the growth and persistence of a population of the translocated species. In this situation the authors advise that following release predator populations should continue to be monitored as well as various aspects of the released animals (survival, dispersal, productivity and recruitment). This chapter and chapters 6 and 8 describe the use of modelling through various techniques, such as Structured Decision Making and Adaptive Management, to ensure the most appropriate monitoring is carried out to meet the objectives of the programme.

Little consideration was given to disease issues during the initial translocation programmes in New Zealand, but the recognition that animals under stress from translocation procedures (capture, handling, being held captive at the capture site, transport) are occasionally vulnerable to disease

from their host pathogens or novel pathogens picked up during transit or at the release site with fatal consequences, have forced operators to be proactive in consideration of this problem. Chapter 9 provides a glossary of relevant terms, a review of the history of the impact of pathogens on reintroduction programmes, including New Zealand examples, and what has been done to overcome such problems (e.g. not moving individuals with obvious disease or in ill health, screening for pathogens, quarantine, vaccination). Chapter 10 describes qualitative and quantitative disease risk assessment procedures for translocation programmes. While the authors recognize there is difficulty in carrying out effective disease risk analyses (e.g. numerous hazards, some pathogens are difficult to detect, it may be years before a disease outbreak is evident that was a consequence of a reintroduction), they provide a framework for structured decision making and adaptive management that should go some way to addressing these difficulties.

For those involved in the planning of translocation projects, the possible genetic impacts for the translocated populations is a major concern because of the possible long-term consequences (e.g. inbreeding depression), and therefore the desire to get it right first time. How many individuals should be transferred, what post-release monitoring will be necessary during population establishment to determine whether all or most genetic diversity

is represented in the new population, will further translocations (necessitating more funding and time) into the new population be necessary, etc? Chapters 11 – 13 provide a wealth of information that has been derived from studies of previously translocated populations, and as a result provide advice and suggestions on how best to carry out translocations in order to take account of genetic issues. The authors indicate that each translocation project should involve a multidisciplinary team that includes someone providing advice on the genetic implications of the proposed procedures for the new population should it establish.

So to sum up, I consider this book will be an important addition to the libraries of those people involved regularly in planning and/or leading translocations. Those that participate in translocations would find much useful information in it too. It contains the latest information and advice on all topics related to translocations. Given the font size (same as *Notornis*) and with line spacing of 1.5 (1.0 in *Notornis*), the text format is well suited to the eyesight of the majority of the Ornithological Society of New Zealand membership! I'm sure the OSNZ library copy will get frequently borrowed and well read.

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