

**Managing overabundant and mobile
wildlife:
Social and institutional dimensions of
kangaroo harvest in South Australia**

**by
Dana Arlene Thomsen**

This thesis is presented for the degree of Doctor of Philosophy
at The University of Adelaide, School of Agriculture, Food and Wine
December, 2007

This thesis is dedicated to my delightful son, Angas.

NOTE: These images are included in the print copy of the thesis held in the University of Adelaide Library.

“The pursuit of truth and beauty is a sphere of activity in which we are permitted to remain children all our lives”

Albert Einstein

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968. The author acknowledges that copyright of published works contained within this thesis (as listed below) resides with the copyright holders of those works.

Thomsen, D. A. and Davies, J. 2005. Social and cultural dimensions of commercial kangaroo harvest in South Australia. *Australian Journal of Experimental Agriculture* 45:1239-1243.

Thomsen, D. A. & Davies, J. 2007. Improving capacity for the kangaroo industry to benefit South Australian regional communities and rangeland environments. *Australasian Journal of Regional Studies* 13:1:83-100.

Thomsen, D. A. & Davies, J. 2007. Managing the commercial harvest of a common pool resource: Rules, norms and shared strategies in the kangaroo industry. *Australasian Journal of Environmental Management* 14:2:123-133.

Thomsen, D. A. & Davies, J. 2006. From pest to resource: The prospects for financial returns to landholders from commercial kangaroo harvest. *Australian Farm Business Management Journal* 3:2:92-102.

Thomsen, D. A., Muir, K. & Davies, J. 2006. Aboriginal perspectives on kangaroo management in South Australia. *The Rangeland Journal* 28:127-137.

Dana A. Thomsen
December 2007

Abstract

In South Australia, overabundant kangaroo populations are managed through commercial harvest. Kangaroo harvest rates over the past decade have averaged only 40% of the harvest quota despite strong demand for the product. With kangaroo populations increasing, the problem of low kangaroo harvest rate in South Australia requires research attention. Previous research regarding kangaroo harvest has focused on questions of biology and ecology and little attention has been directed towards advancing understanding of the human dimensions of kangaroo management. This research sought to fill this gap in knowledge.

Qualitative research methods were most appropriate due to the focus on social and institutional dimensions of kangaroo management. Data were collected during interviews with people involved in commercial kangaroo harvest: landholders, harvesters and meat processors. The main topics covered were regulations and policy, economic issues, the rights and interests of various industry stakeholders and South Australian harvest rates. The views of Aboriginal people were also sought including the significance of kangaroos to Aboriginal people, access to kangaroos for subsistence harvest, kangaroo management and the kangaroo industry.

The main findings of this research are presented as a series of peer-reviewed articles:

- Article 1 introduces the research topic and presents preliminary findings of this study.
- Article 2 establishes that an increase in South Australia's low harvest rate is needed if kangaroo harvest is to make greater contributions to regional communities, and recommends institutional reform to meet this goal.
- Article 3 examines the management regime for kangaroos in South Australia and shows how the informal rules in use are often incongruent with the formal rules established by management administrators.
- Article 4 describes the undervalued position of landholders in the kangaroo industry and the obstacles to landholders deriving income from kangaroo harvest.

- Article 5 discusses the cultural basis of Aboriginal perspectives on kangaroo harvest and includes suggestions for appropriate ways for Aboriginal people to contribute to kangaroo management.

The main findings of this research were applied in a comparative study of kangaroo management with that of moose management in Finland. This study found that similar social and institutional factors impact on the management of moose and kangaroos.

The broad lessons for wildlife management drawn from the comparative study are:

- mobile wildlife resources require flexible management systems
- stakeholder involvement is critical to management
- hunters/harvesters are conservative of their resource base
- declining harvester numbers need to be addressed through support, incentives and training.

These lessons can be applied in part, or in whole, to other overabundant and mobile wildlife species. Thus this thesis makes contribution to kangaroo management by making specific recommendations for the industry, but also contributes to wildlife management in a broader sense through the application of findings to other species.

Acknowledgements

Funding for this project was provided by the Rural Industries Research and Development Corporation (RIRDC), the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) and the South Australian Department for Environment and Heritage (SA DEH). I also received financial support in the form of a scholarship stipend provided by Land and Water Australia.

A large number of people participated in this research. Most importantly I thank the people involved in the kangaroo industry and Aboriginal people who provided their perspectives on kangaroo management and the industry. Without these research participants this thesis would not have been possible.

SA DEH provided harvest data that required considerable work from staff of the kangaroo management program. SA DEH staff were also helpful by providing additional information as required. Indeed, many people from other State government regulatory bodies also provided data and information.

The indigenous component of this research received support and advice from the Aboriginal Legal Rights Movement Inc., in particular Tim Woolley. Also, Yami Lester facilitated field work and provided valuable information and feedback from the inception of this project and for the duration. Kado Muir and Joseph Lennon also provided research support. Lisa Strehlein from AIATSIS provided assistance with understanding the legal framework of Aboriginal rights and interests in kangaroos.

I also owe thanks to many other people and organisations who have been of assistance in the preparation and presentation of this research. Worthy of specific mention are George Wilson, Steven McLeod, Lisa Farroway, Peter Ampt, Alex Baumber, Graham Carr, Tony Pople, Alex Knight, Mike Young and Christine James.

People from The University of Adelaide were helpful and supportive in the production of this thesis including Ian Cooper, Phillip Stott, Gurjeet Gill, Michael Burdett, Gavin Riggs, Murray Unkovich and David Rutley. Fellow postgraduate students based at Roseworthy campus were a source of motivation, humour,

Understanding and friendship. These people include Louise Moylan, Ben Fleet, Tom Giles, Bhagaraith Chauhan, Shyamantha Bandara, Sukendra Mahalya, Richard Bosworth, Aryn Perryman, Sharna Nolan, Alex Pickburn and Michael Cobiac.

NOTE: This image is included in the print copy of the thesis held in the University of Adelaide Library.

Fellow PhD students (from left) Richard Bosworth, Ben Fleet, Louise Moylan and Tom Giles.

Remote area field work was assisted by Luke Diddams, Luke drove the vehicle, set up camp, cooked the meals, stoked the camp fire, made the tea and helped me clean the vehicle when we returned home. He shared stories, befriended research participants, made everyone feel at ease and kept the field work running smoothly! Thanks Luke.

NOTE: This image is included in the print copy of the thesis held in the University of Adelaide Library.

Luke Diddams and his beautiful daughter, Lena.

My greatest thanks is reserved for my research supervisors: Dr Jocelyn Davies, Dr Ian Nuberg, Dr John Hatch and Dr Patricia Murray. Their enduring patience and their support, both professional and personal, provided inspiration and made this PhD process a truly exceptional learning experience.

Special thanks goes to Dr. Jocelyn Davies. The idea for this project was conceived by Jocelyn and she was the driving force behind the project funding. It was Jocelyn's

Insightful advice that directed this research and her faith in me that helped me through the difficult times. Jocelyn is an extraordinary researcher, a motivated supervisor, a treasured friend to me a loving godmother to my son, Angus. Thank you Jocelyn.

NOTE: This image is included in the print copy of the thesis held in the University of Adelaide Library.

Two of my greatest supporters, Dr Jocelyn Davies and Angus Thomsen.

Finally, I would like to thank my family and friends. I would like to make specific mention of my best friend, Sharna Nolan, now living and working in Afghanistan who managed to encourage me from afar. I have many wonderfully supportive friends and family members, and to all I say 'Thank you'!

Table of Contents

Declaration.....	iii
Abstract.....	iv
Acknowledgements.....	vi
Table of Contents.....	vi
List of Publications.....	xi
Extent of involvement of the student in publications.....	xii
Chapter 1 Introduction.....	1
Introduction.....	2
Research problem, aim and objectives.....	3
Research approach.....	4
Relevance of the thesis.....	5
Organisation of the thesis.....	6
Thesis structure.....	8
Chapter 2 Literature review.....	9
Introduction.....	10
Common pool resource: a definition.....	10
Tragedy of the commons.....	11
Wildlife management and solutions to the tragedy of the commons problem.....	13
Wildlife management in Australia.....	23
The management of kangaroos.....	27
Research problem, aim and objectives.....	38
Chapter 3 Methodology.....	41
Introduction.....	42
A philosophical framework: finding the appropriate paradigm.....	43
The research approach.....	46
Demonstrating validity: evaluating qualitative research.....	50
Conclusion.....	62
Chapter 4 Social and cultural dimensions of commercial kangaroo harvest in South Australia.....	63
Chapter 5 Improving the capacity for the kangaroo industry to benefit South Australian regional communities and rangeland environments.....	71

Chapter 6 Managing the commercial harvest of a common pool resource: rules norms, and shared strategies in the kangaroo industry	91
Chapter 7 From pest to resource: The prospects for financial return to landholders from commercial kangaroo harvest	105
Chapter 8 Aboriginal perspectives on kangaroo management in South Australia	119
Chapter 9 Transferability to other overabundant and mobile wildlife resources: comparing management of kangaroos and moose	133
Introduction.....	134
Comparable resources: kangaroos and moose	136
Do the management issues relevant to kangaroo also apply to moose?	140
Lessons for managing overabundant and mobile wildlife	149
Adaptive management	149
Conclusion	152
Chapter 10 Impact and conclusions	155
Introduction.....	156
Interactions and impacts of the research process.....	157
The future of kangaroo management in South Australia.....	160
Future research directions	164
Significance and implications	Error! Bookmark not defined.
References.....	166
Appendix 1: Field work activities and duration.....	188
Appendix 2: Interview question guides	189
Interview question guide - meat processors.....	189
Interview question guide - kangaroo harvesters	190
Interview question guide - landholders.....	191
Interview question guide - Aboriginal people	192
Appendix 3: Findings presented to research participants	193
Research findings discussed with non-indigenous research participants during member checking.....	193
Research findings presented to Aboriginal people in the northern Flinders Ranges for verification and comment.....	195
Research findings presented to Anangu research participants for verification and comment.....	196
Appendix 4: Letter to the Minister for Environment and Conservation.....	200

List of Publications

The following publications have arisen from research conducted during PhD candidature and are included in the thesis as individual chapters. Contributions of co-authors are described in authorship statements that appear prior to each article.

Chapter 4 – Article 1

Thomsen, D. A. and Davies, J. 2005. Social and cultural dimensions of commercial kangaroo harvest in South Australia. *Australian Journal of Experimental Agriculture* 45:1239-1243.

Chapter 5 – Article 2

Thomsen, D. A. and Davies, J. 2007. Improving capacity for the kangaroo industry to benefit South Australian regional communities and rangeland environments. *Australasian Journal of Regional Studies* 13:1:83-100.

Chapter 6 – Article 3

Thomsen, D. A. and Davies, J. 2007. Managing the commercial harvest of a common pool resource: Rules, norms and shared strategies in the kangaroo industry. *Australasian Journal of Environmental Management* 14:2:123-133.

Chapter 7 – Article 4

Thomsen, D. A. and Davies, J. 2006. From pest to resource: The prospects for financial returns to landholders from commercial kangaroo harvest. *Australian Farm Business Management Journal* 3:2:92-102.

Chapter 8 – Article 5

Thomsen, D. A., Muir, K. and Davies, J. 2006. Aboriginal perspectives on kangaroo management in South Australia. *The Rangeland Journal* 28:127-137.

A significant publication that is not included in this thesis as a chapter is the major report presented to the Rural Industries Research and Development Corporation (RIRDC). The citation for this report is:

Thomsen, D. A. and Davies, J. 2007. *People and the kangaroo harvest in the South Australian rangelands: social and institutional considerations for kangaroo management and the kangaroo industry*. RIRDC Publication No 07/039, February 2007. Rural Industries Research and Development Corporation, Canberra, available on-line at <<http://www.rirdc.gov.au/reports/RWS/07-039.pdf>>.

Extent of involvement of the student in publications

The majority of the work submitted for this thesis was conducted as a Rural Industries Research and Development Corporation (RIRDC) research project in the Resilient Agricultural Systems program. The indigenous component of the research was funded by the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS). Three of the peer-reviewed articles that form the body of this thesis are derived from the reports presented to RIRDC and AIATSIS. All of the peer-reviewed articles are multi-authored but I am the lead author on each. Descriptions of the involvement of each author and their agreement to the inclusion of the manuscript in this thesis are provided in the authorship statement at the start of each chapter in which each manuscript is reproduced in this thesis. A brief overview of the involvement of the authors in each article is provided below.

Article 1: My own work based on preliminary research findings with advice and editorial assistance from Dr. Jocelyn Davies.

Article 2: Drawn from the 2007 RIRDC report that was co-authored by myself and Dr. Jocelyn Davies. I wrote the article based on the content of the report and Dr. Jocelyn Davies provided editorial comment.

Article 3: I drafted this article prior to writing the 2007 research report to RIRDC. Editing by Dr. Jocelyn Davies greatly improved the quality of this article.

Article 4: Drawn from the 2007 RIRDC report with editorial advice from Dr. Jocelyn Davies.

Article 5: Drawn from the AIATSIS report that was co-authored by Dr. Jocelyn Davies, Kado Muir and myself. I prepared and submitted the draft of this article. Significant modifications to the manuscript were required as a result of the reviewer's comments and I undertook the process of revising the manuscript. Dr. Jocelyn Davies and Kado Muir approved the final product.

The Literature Review (Chapter 2) includes parts on kangaroo management that are drawn from the 2007 RIRDC report co-authored by myself and Dr. Jocelyn Davies. Although I was the lead author on this report, Dr. Jocelyn Davies was primarily responsible for the subsection of the report titled, 'Aboriginal people and commercial use of wildlife'.

All other chapters of this thesis are the result of my own work with editorial advice from academic supervisors Dr. Jocelyn Davies, Dr. Ian Nuberg, Dr. John Hatch and Dr. Patricia Murray.

Dana Thomsen

December 2007