Australian Government
Rural Industries Research and Development Corporation

Landholder Collaboration in Wildlife Management

Models for landholders to share benefits from kangaroo harvesting

RIRDC Publication No. 08/150

Rangeland & Wildlife Systems R&D Program

RIRDC Innovation for rural Australia

Australian Government
Rural Industries Research and Development Corporation

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February 2009

RIRDC Publication No 08/150
RIRDC Project N0 *PRJ 000066*

ISBN 1 74151 739 7
ISSN 1440-6845

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Published in February 2009
Printed by Union Offset, Canberra

Foreword

This report is about landholder involvement in the management of wildlife in Australia. The objective of this study is to develop, evaluate and trial models for rangeland landholders to be involved in wildlife management and share the benefits of wildlife harvesting on their lands. It examines and evaluates a set of broad options for landholders to be involved in and benefit from kangaroo harvest, based on assessment of current management practice and selected overseas experience. It then proposes and develops in detail a model based on collaboration and benefit-sharing between harvesters and landholders.

This research is important because there are good arguments that involving landholders in kangaroo management can help deliver better rangeland outcomes in terms of conservation and land management, on one hand, and more diversified and resilient rural incomes, on the other. These arguments have been made for many years, but little attention has been paid to developing and evaluating models for making it happen. This research fills this gap.

This work supports the implementation of the RIRDC-sponsored Sustainable Wildlife Enterprise trials. These pilot initiatives aim to integrate wildlife management into agricultural systems to provide incentives for more conservation-friendly land management practices. The primary target of this research is the Maranoa Wildlife Management Conservancy, an SWE initiated by the Mitchell and District Landcare Association in cooperation with local kangaroo harvesters. Other major targets are participants in other SWE trials, land managers, Landcare groups, catchment/regional management authorities in areas of commercial kangaroo harvest, kangaroo processors and industry bodies, and regulators and policymakers with responsibility for kangaroo management and land management.

This study proposes to the Maranoa SWE a model based on the establishment of a trading cooperative ("the Coop") for kangaroo management, processing and marketing. Landholders and shooters would be equal members of the Coop and share equitably in its benefits. All members benefit from the greater negotiating power of the Coop in relation to processors, the establishment of cooperative, long-term relationships between the groups, and the potential for development of high-value niche products reliant on landholder involvement.

Implications and variations of this model are explored, and a series of recommendations made for the Maranoa SWE and participants in other SWEs; Landcare groups and catchment/regional natural resource management bodies in areas of commercial kangaroo harvest, kangaroo processors, and relevant regulators and managers, particularly those at state level with responsibility for kangaroo management.

This project was funded from funds provided to RIRDC by the National Landcare Program to investigate aspects of Sustainable Wildlife Enterprise (SWE) trials

This report, an addition to RIRDC's diverse range of over 1800 research publications, forms part of our Rangelands and Wildlife Services R&D program, which aims to facilitate a more diverse rural sector, enhanced biodiversity and innovative industries based on non-traditional uses of the rangelands and their wildlife. Most of our publications are available for viewing, downloading or purchasing online through our website:

- downloads at www.rirdc.gov.au/fullreports/index.html
- purchases at www.rirdc.gov.au/eshop

Peter O'Brien
Managing Director
Rural Industries Research and Development Corporation

Acknowledgments

This work has benefited from particularly extensive input and discussion with the following individuals, who I would like to acknowledge and sincerely thank: Tom Garrett, Project Officer, Maranoa Wildlife Management Conservancy, kangaroo harvester and box operator; Stacey Henry, Landcare Coordinator, Mitchell; Alex Baumber, Project Officer, FATE Program; Peter Ampt, Program Manager, FATE Program, and George Wilson, Program Manager, RIRDC.

The need for the examination of sharing structures is identified in the Strategic and Implementation plans for the SWE trials.

I would particularly like to acknowledge Carley and Nick Walker in raising the idea of property level employment of kangaroo managers outlined in Chapter 5, and discussing it extensively; and Alex Baumber for development and much discussion on ideas about regulatory change to support landholder groups in Chapter 6.

I would also like to acknowledge and sincerely thank for the following for their valuable contributions, thoughts, and input: Brad Cooper, kangaroo harvester, Roma; Bim Struss, landholder, Mitchell area; Jeff Campbell, landholder, Mitchell area; Merv Phillips, landholder and harvester, Mitchell area; Alan Brady, chiller box operator, Westmar; Ray Borda and Doug Jobson, Macro Meats, Adelaide; Dana Thompson, Kangaroo Manager, South Australia; and Sheree Scott, RMAP Project Officer, Wentworth; and all the other landholders and harvesters from the SWEs and beyond that have taken part in the meetings and workshops outlined in Chapter 2.

Abbreviations

CSU	Conservation through Sustainable Use
DMG	Deer Management Group
FATE	Future of Australia’s Threatened Ecosystems
MWMC	Maranoa Wildlife Management Conservancy
NSW	New South Wales
Qld	Queensland
RIRDC	Rural Industries Research and Development Corporation
SA	South Australia
SWE	Sustainable Wildlife Enterprise

Contents

Executive Summary

What the report is about
This report is about landholder involvement in the management of wildlife in Australia. It examines and evaluates a set of broad options for landholders to be involved in and benefit from kangaroo harvest, based on assessment of current management practice and selected overseas experience. It then proposes and develops in detail a model based on collaboration and benefit-sharing between harvesters and landholders.

This research is important because there are good arguments that involving landholders in kangaroo management can help deliver better rangeland outcomes in terms of conservation and land management, on one hand, and more diversified and resilient rural incomes, on the other. These arguments have been made for many years, but little attention has been paid to developing and evaluating models for making it happen. This research fills this gap.

Who is the report targeted at?
This research supports the implementation of the RIRDC-sponsored Sustainable Wildlife Enterprise trials. These pilot initiatives aim to integrate wildlife management into agricultural systems to provide incentives for more conservation-friendly land management practices. The primary target of this research is the Maranoa Wildlife Management Conservancy, an SWE initiated by the Mitchell and District Landcare Association in cooperation with local kangaroo harvesters. Other major targets are participants in other SWE trials, land managers, Landcare groups, catchment/regional management authorities in areas of commercial kangaroo harvest, kangaroo processors and industry bodies, and regulators and policymakers with responsibility for kangaroo management and land management.

Background
Land degradation, biodiversity loss and income vulnerability remain serious major problems in the Australian rangelands. Recent years have seen the growth of interest in sustainable commercial utilisation of native wild plants and animals, as an innovative strategy both to support more diversified and resilient rural communities and economies and to provide incentives for wildlife/habitat conservation and improved land management. In response, three Sustainable Wildlife Enterprises (SWEs) sponsored by RIRDC are underway in NSW and Qld, in conjunction with rangeland Landcare groups. These seek to involve landholders in wildlife management and increase economic benefits to them from wildlife populations, in order to generate incentives to retain and restore on-farm habitat and biodiversity. The current focus of each of these SWEs is on the commercial kangaroo harvest. Involving landholders in managing and benefiting from kangaroo management could aid in habitat retention, better total grazing pressure (TGP) management, and income diversification. A major challenge for these groups is developing clear operational models for how landholders could become involved, taking into account relationships with harvesters and processors, the regulatory context, and land management priorities. Various models for such involvement have been suggested, but none have been evaluated in detail.

Aims/Objectives
The objective of this study is to develop, evaluate and trial models for rangeland landholders to be involved in wildlife management and share the benefits of wildlife harvesting on their lands. The major beneficiaries of this work are the participants in the Maranoa Wildlife Management Conservancy, an SWE under implementation by the Mitchell and District Landcare Association, Qld, for whom these models are primarily intended. Further beneficiaries are participants in other SWE groups, and land managers, Landcare groups, and catchment/regional management authorities in areas of commercial kangaroo harvest.

Methods used
This work proceeded through desk-based literature research and analysis, and discussion and dialogue with key stakeholders including SWE participants, harvesters, box operators, landholders and processors. It proceeded through examining current practice in regulation and management of commercial kangaroo harvest in Australia, drawing out key weaknesses from the perspectives of environmental sustainability and various stakeholders. Overseas examples of landholder involvement in wildlife management were examined, in order to seek lessons relevant to the Australian context. A series of broad options were developed and evaluation. Based on these analyses, a detailed model was developed and presented to the SWE for implementation.

Results/Key findings
Current practice in commercial kangaroo regulation and management has a number of weaknesses. Landholders gain no benefits from the kangaroos on their land, and their ability to manage the kangaroo component of total grazing pressure is limited. Relationships between landholders and harvesters are often poor, and potential for cooperation on issues such as feral animal control is not realised. Harvesters have little security of access to country for harvesting and little ability to bargain on price with processors. The processing industry as a whole relies for supply of their resource on landholders, who would seek to reduce populations as far as feasible if means became available. Individual processors cannot ensure reliable and consistent supply, as this would require guaranteed access to country.

Examination of overseas examples of collaborative landholder involvement in wildlife management revealed no clear analogues for kangaroo management. In particular, the commercial rather than recreational nature of the harvest, and the particularly tight government control of wildlife in Australia, strongly suggest that Australia must develop unique models for kangaroo management. However, three examples presented and discussed here illustrate several useful lessons. First, where landholders benefit from sustainable use and management of wildlife, this can dramatically shape how they manage that land and the wildlife on it. Second, that collaboration among neighbouring landholders in management of wildlife populations can be effective and beneficial. Third, these examples illustrate how good management can be fostered through a cooperative, supportive stance of government agencies toward landholder involvement in collaborative wildlife use and management.

Landholders in Australia have a range of possible options for gaining a stake in kangaroo management and harvest. They could require payment from shooter in return for access to their properties. They could become licensed harvesters themselves. They could employ kangaroo managers on their properties, either individually if feasible or in a group. Or they could collaborate with each other and with kangaroo harvesters. Evaluation of these models indicates only the last has the benefits of fostering better relationships with harvesters, gaining the negotiating power of a group, involving landholders in management of harvest (rather than simply gaining benefits), and promoting management at the cross-property scale required for populations that move regularly across property borders. The proposed detailed model is therefore based on this latter option.

This study proposes to the Maranoa SWE a model based on the establishment of a trading cooperative (“the Coop”) for kangaroo management, processing and marketing. Landholders and shooters would be equal members of the Coop and share equitably in its benefits. All members benefit from the greater negotiating power of the Coop in relation to processors, the establishment of cooperative, long-term relationships between the groups, and the potential for development of high-value niche products reliant on landholder involvement. Activities of the Coop would initially focus on collective bargaining with processors on behalf of its members; chilling and holding of kangaroo products produced by its members; and quality assurance. In the future, the aim would be to expand into development of premium products, badged on the basis of environmental standards (land management, biodiversity), regional identity, and/or landholder involvement; and potentially into processing and marketing to buyers further toward the consumer end of the chain.

The major obligation for landholder members is that they provide exclusive access to Coop harvester members to their properties for harvest. A further obligation for landholders is that landholders do not use damage mitigation permits on their properties. The major obligation for harvester members is that kangaroos harvested on Coop member properties are supplied exclusively to the Coop chiller box, up until its capacity is reached. They further commit to implement any quality assurance schemes developed by the Coop.

A cooperative business structure appears appropriate for this enterprise for a number of reasons. The most salient reasons are that its limited membership, user-controlled and democratic structure are well suited to an enterprise where encouraging cooperation is a key objective. The model developed here draws on some of the features that have contributed to the success of "new generation cooperatives" in recent years for producers in the USA and Canada. Development of this Coop could be substantially assisted by cooperation and support from government agencies through such mechanisms as allocation of a group quota to the Coop, for it to manage and allocate among its members.

Implications for relevant stakeholders

1. For the Sustainable Wildlife Enterprise initiated by the Mitchell and District Landcare Association, the Maranoa Wildlife Management Conservancy, the major implication of this work is that the model presented in Chapter 6 is the recommended model to pursue their objectives.

   This model involves establishing a harvest management, processing and marketing cooperative with both landholders and harvesters as members. While implementing this model will involved substantial inputs of time, effort, and some money, and will require the establishment of a relationship of trust and cooperation between landholders and harvesters, it offers the potential for both landholders and harvesters to benefit through:
   - collective bargaining to gain best market terms for the product they both play a role in producing
   - more effective kangaroo management at a cross-property level, both to meet production objectives and for better management of TGP
   - more cooperative relationships between landholders and harvesters, including harvester participation in ferals control and weed management
   - more secure and exclusive access to country for harvesters
   - reduced use of shoot and let lie tags (non-commercial damage mitigation culling), and
   - equitable sharing of profits.

2. For Landcare groups and regional/catchment management bodies, the model recommended here offers them a potential option to meet objectives of better management of total grazing pressure, improved diversification of landholder incomes and better socio-economic resilience, and better management of feral animals and weeds at the local level.

3. For processors, collaboration between landholders and harvesters in kangaroo management, according to the recommended model, could offer real benefits to them as well. Establishment of a cooperative involving landholders and harvesters opens the way to:
   a. assuring an exclusive, consistent source of supply from the properties involved
   b. improved quality management from field to fork, through development and implementation of best-practice quality assurance programs
   c. harvest management measures that allow improvements to meat quality, such as selection of specific age/sex/species combinations
   d. implementation of sophisticated, GPS-based traceback systems
   e. environmental branding based on conservation-friendly land management practices of landholders.

For relevant regulators and policymakers, particularly managers of state kangaroo management programs, the implications of this work are that landholder involvement in kangaroo management is feasible and potentially beneficial in meeting a suite of land management and industry development objectives. Government support for such initiatives would greatly assist their implementation and empower landholders to take a more active role in kangaroo management, in cooperation with relevant government entities. Recommended support includes:

f. providing advice and technical and scientific support to groups seeking to collaborate on kangaroo management
g. providing funding for such initiatives
h. supporting the allocation of quota to collaborating landholder/harvester groups, subject to certain conditions such as adequate procedures to ensure chain of custody of tags
i. exploring other approaches to conditionally devolve more kangaroo management rights to collaborating groups, in return for these groups taking on a larger role in sustainable management.

1. Introduction

Past conventional agriculture in Australia's rangelands has led to severe degradation of the natural resource base, and threats to ecosystem services including biodiversity conservation, salinity control, water quality and soil fertility (Beeton et al. 2006). At the same time, economic returns from rangeland agriculture have declined, and face worsening terms of trade, limited potential for increased productivity, drought, and climate change. In response to these factors and to overseas conservation experiences, recent years have seen the growth of interest in sustainable commercial utilisation of native wild plants and animals, as an innovative strategy both to support more diversified and resilient rural communities and economies (Indigenous and non-Indigenous), and to provide incentives for wildlife/habitat conservation and improved land management (e.g.Grigg 1995; Senate RARATR Committee 1998; Lunney and Dickman 2002; Webb 2002; Archer and Beale 2004). A range of initiatives are currently underway in Australia's rangelands that seek to involve landholders in wildlife management, increase economic benefits to them from wildlife populations, and change the status of wildlife from a pest to a valuable resource. In particular, three Sustainable Wildlife Enterprises (SWEs) sponsored by RIRDC are underway in NSW and Qld (Wilson and Mitchell 2004). The innovative nature of these initiatives means they face a number of challenges – new governance processes and mechanisms are required to enable and facilitate this approach to reconciling economic development and environmental sustainability. This study seeks to contribute to the development of these SWEs, and to conservation through sustainable use more broadly, through developing and evaluating models for landholders to become involved in and share benefits from wildlife use.

1.1 Sustainable use as an approach to conservation and rural economies

Sustainable use of wildlife has become widely accepted in recent years as a strategy to secure conservation outcomes at the same time as supporting human livelihoods (CITES 1992; IUCN 2000; CBD 2004). Use of wild resources, it is argued, can generate incentives for conservation of wild species and ecosystems, and these incentives can counteract the powerful drivers currently operating for conversion of biodiverse natural landscapes to intensive production (Webb 2002; Hutton and Leader-Williams 2003; CBD 2004). The argument for this strategy of "conservation through sustainable use" (CSU) rests on the recognition that there is an urgent need to increase the extent to which humans value biodiversity in order to motivate commitments to its conservation. Habitat loss and degradation remains, by a long margin, the most serious current cause of threat to species worldwide (IUCN 2004), and this is driven by the values that people can derive from intensive use. One means to add value to wild landscapes is use of wild resources that generates benefits to people. This can include consumptive use such as harvesting for meat and hides, bushfoods, safari hunting, or fishing, and non-consumptive use such as tourism.

In Australia, many writers have highlighted the potential benefits of sustainable use of wild fauna and flora and called for its wider adoption (Grigg, Hale and Lunney 1995; Wilson 1995; Senate RARATR Committee 1998; Lunney and Dickman 2002; Webb 2002; Archer and Beale 2004). Much of the attention has focussed on kangaroos, with repeated calls for landholders in the Australian rangelands to manage and earn income from the kangaroos on their land, and move away from sole reliance on non-native stock species (Grigg 1987; Grigg 1987; Grigg 1988; Grigg 1989; Grigg 1995; Grigg 2002; Ampt and Baumber 2006).

1.2 The Sustainable Wildlife Enterprise trials

This study is part of a wider RIRDC initiative focussing on pilot Sustainable Wildlife Enterprises (SWEs) (Wilson and Mitchell 2004). The aim of the SWE initiative is to examine the potential for increased commercial use of native wildlife (harvesting, tourism, bushfoods, fisheries, reintroductions etc) to serve as an incentive for landholders to retain and restore on-farm habitat and biodiversity. The intention is to promote the integration of these enterprises within existing conventional farming production, rather than replacing them. Three pilot SWEs have been established, supported by RIRDC's Rangeland and Wildlife Systems Program, and each involving local Landcare groups. The pilot SWEs are the Murray-Darling Rangeland Conservancy, located on the Murray River near Wentworth in NSW; the Maranoa Wildlife Management Conservancy in the Maranoa- Balonne catchment near Mitchell, Qld; and a collaborating group of landholders in the Barrier Ranges near Broken Hill. The latter project is carried out by the FATE Program at UNSW in collaboration with the Barrier Ranges Rangecare Group.

The project reported here supports the broader RIRDC-sponsored project focussed on the development of the Maranoa Wildlife Management Conservancy (Project MDL-1a). Current objectives of this broader project are:

- To define a framework that enables landholders to share the proceeds of harvested wildlife
- Estimate kangaroo numbers that enable landholders to more effectively manage populations and integrate wildlife with their property and natural resource management plans
- Identify markets for products that are badged as leading to net conservation gain, and
- Share information and experiences from the trial sites and encourage regional collaboration in natural resource management and wildlife planning.

This project squarely addresses the first objective. While the Maranoa group is, in the long term, interested in pursuing a range of options for wildlife management, the current focus is on kangaroos. This research therefore focuses on kangaroos.

1.3 The potential benefits of involving landholders in kangaroo management

How do general arguments about conservation through sustainable use translate to use of kangaroos in the rangelands? One line of argument has been consistently championed by Gordon Grigg (1987; 1987; 1988; 1989; Grigg 1995; Grigg 2002). Grigg has called for "sheep replacement therapy" as an antidote to twin problems: the status of the kangaroo as a pest in graziers' minds, despite its high regard in the public consciousness; and widespread severe land degradation in the rangelands. Grigg argues that landholders who are earning income from kangaroos will be more likely to perceive them as a valuable resource. Income from kangaroos would mean landholders could maintain overall productivity (and better land condition) with reduced levels of stock (Grigg 1995). If the value of kangaroos rose to the point that kangaroos became more profitable than sheep, graziers could seek to maximise their production by de-stocking completely. While kangaroo populations might increase, they would have less impact on the rangelands than sheep, due both to much lower energetic requirements and a probable lower foot pressure (see discussion in Grigg 1995).

Ampt and Baumber (2006) have recently developed this thinking, and elaborate additional conservation and economic benefits that could be gained through landholders having a role in kangaroo management and gaining income from kangaroos (alongside stock). These benefits include habitat retention, better total grazing pressure (TGP) management, and income diversification. First, habitat retention would be particularly favoured in areas where eastern greys dominate. This species favours vegetation mosaics, so if landholder gained benefits from kangaroos, they would be more likely to maintain or restore areas of native vegetation. Second, the critical potential benefit is better management of TGP (as Grigg also emphasises), and Ampt and Baumber develop more detailed ideas in this respect. Currently, landholders have little flexibility in managing kangaroos for the purposes of managing TGP - it may be difficult or impossible to find a shooter willing and available to manage large aggregations in a timely way. If they were themselves involved in management, they may be able to better target harvest pressure to manage aggregations, and better integrate kangaroo management with property management priorities. They could carry out a range of actions to reach TGP goals, such as harvesting heavily going into drought, providing supplementary feed in drought, or maximising productivity per unit grazing pressure by adjusting age/sex ratio of targeted animals. Third, diversified incomes mean reduced pressure to over-stock, particularly in drought.

There are therefore clear arguments for applying the concept of CSU to kangaroos in the Australian rangelands, both to promote economic diversification and resilience and to promote long-term ecosystem benefits. A key missing element, however, is exactly how landholders should be involved. This forms the primary subject of this report.

1.4 Structure of this report

Objectives and methods for this study are set out in Chapter 2. Chapter 3 surveys kangaroo management in Australia and highlights a series of problems with the current system. Chapter 4 seeks lessons for Australia from examination of examples of landholder involvement in wildlife management overseas. Chapter 5 develops and evaluates a series of options for landholders to be involved in and share the benefits from kangaroo harvesting within current regulatory frameworks. In Chapter 6, a specific and detailed model for the Maranoa Wildlife Management Conservancy is articulated and explained. Chapter 7 discusses these results, and implications and recommendations for key stakeholders are set out in Chapter 8.

2. Objectives and Methods

2.1 Objectives

The objective of this study is to develop, evaluate and trial models for rangeland landholders to be involved in wildlife management and share the benefits of wildlife harvesting on their lands. The specific focus is the group of landholders that have established the Maranoa Wildlife Management Conservancy, under the auspices of the Mitchell and District Landcare Association Inc, in Mitchell, Qld. As the major current option for wildlife-based enterprise for this group involves kangaroo harvesting, this study focuses on kangaroos. Models are examined in terms of their potential to deliver environmental and NRM benefits, and their impacts on other key players in the product chain, the harvesters and processors.

2.2 Methods

Desk-based literature research was carried out focussed on wildlife and specifically kangaroo management in Australia and international examples of landholder involvement in wildlife management. This included academic literature, "grey" literature, legislation and policy, project planning documents, and websites.

The project was informed by wide consultation and discussion with kangaroo harvesters, regulators, landholders, Landcare coordinators, consultants, and relevant academics. In particular, the attitudes and experiences of key stakeholders involved with the MWMC were sought by face to face or telephone discussion, including the landholders involved with the MWMC, the Mitchell and District Landcare coordinator, the Project Officer, and key local harvesters and box operators.

A series of meetings and workshops provided input to assessment of kangaroo management in Australia (Chapter 3), development of options (Chapter 5), and development and trial of the proposed model (Chapter 6). These included:

- A meeting of landholders and local harvesters in Charleville, 15 June 2006, organised by the Mitchell and District Landcare group and involving a site visit to the United Game Processing works. This was attended by the author in advance of commencing this study
- The Macropod Industry Forum held by the Qld Environmental Protection Authority and Department of Primary Industries and Fisheries in Charleville on 21 August 2007, including a wide range of kangaroo industry stakeholders
- A meeting between representatives of the MWMG and Macro Meats, 21 August 2007, at which a variant of the model proposed here was presented and discussed with the latter
- A meeting of the Maranoa Wildlife Management Conservancy on 12 March 2007, organised by Mitchell and District Landcare, at which this project was introduced and comments sought
- A meeting of the Maranoa Wildlife Management Conservancy on 3 February 2008, at which the proposed model was presented for discussion among landholders, box operators and harvesters, agreement on the broad outline of the model was gained, and a working group established to take it forward
- A meeting of landholder and harvester participants from all three SWEs, regulatory officials, and kangaroo processors in Broken Hill, 14-15^{t} February 2008, organised by the FATE Program, at which the proposed model was presented and discussed
- A meeting of the MWMC Kangaroo Working Group on 3 March 2008, Mitchell, in which plans were made to implement the concept of the proposed model and draft Coop rules were discussed.

3. Commercial kangaroo harvest in Australia

This section provides necessary context for exploration of models for engaging landholders in wildlife management and sharing benefits. It begins by outlining current regulation and operating practice for the commercial kangaroo harvest. It then goes on to highlight some key issues and problems of current arrangements. The focus is on the states in which SWEs are located – Qld and NSW.

3.1 An overview of regulation and management practice

3.1.1 State and Commonwealth regulation

While there are around 48 macropod (Family Macropodidae) species, only 5 are subject to commercial harvest on the mainland in Australia – red *Macropus rufus*, eastern grey *Macropus giganteus*, western grey *Macropus fuliginosis*, euro (wallaroo) *Macropus robustus*, and whiptail wallabies *Macropus parryi* (Queensland only), and only the first four are commercial exported. Throughout this paper the term "kangaroos" is used to refer to these commercially harvested species only.

Kangaroo harvest is regulated at both Federal and state levels in Australia. States have the primary responsibility for regulation of take, killing and trade of protected species (all macropods are protected), while the Federal government regulates export. States regulate and manage the commercial harvest through a wide range of functions, including monitoring of populations through regular surveys, establishment of sustainable harvest quotas, and implementation and enforcement of a strict licensing and tagging system. All harvested kangaroos are tagged with a unique, self-locking tag. Harvesters and processors must be licensed and are subject to reporting requirements. Extensive animal welfare and food hygiene requirements to be followed by harvesters and processors are also regulated at state level.

In addition to managing the commercial harvest, States may authorise non-commercial culling to assist landholders to mitigate damage to crops or land. For damage mitigation culling, landholders faced with large aggregations can apply for what will be referred to throughout this paper as "shoot and let lie" tags. These are issued directly to landholders and are not subject to a quota. In general, carcasses are left in the field and do not enter commercial trade, although Qld and NSW both allow some to enter commercial trade under a small "special quota" (NSW DECC 2007; Qld Government 2008).

All export of kangaroo products requires approval from the Commonwealth. In practice, States submit five-year management plans for approval as a "wildlife trade management plan" by the Commonwealth under s303 of the *Environmental Protection Biodiversity Conservation Act* 1999. Kangaroo products from states with an approved plan will be granted export permits.

3.1.2 Kangaroo harvesting

Kangaroos are harvested at night by harvesters using high-powered rifles, searchlights, and a modified utility vehicle fitted with facilities for initial field dressing (removal of viscera, head and tail) and hanging of carcasses. They require permission from landholders to access properties, and in NSW and Qld the properties that a shooter may shoot on are either specified on the harvester's licence or are specified when tags are issued. Numbered, self-locking tags are affixed to carcasses when shot. Carcasses are delivered each morning to a refrigerated chiller box (remote or in town), where shooters are paid. These boxes are owned and operated either by independent box operators or processors. Processor refrigerated trucks pick up carcasses regularly and deliver them to processing plants. At processing plants, skins (and tags) are removed from carcasses and skins are sent to a tannery. Processors often play a major role in operating chillers, organising shooters, and ensuring supply and quality.

3.1.3 Landholder involvement

In all states, shooters require permission from landholders to enter their properties to harvest kangaroos. Shooter will generally initially contact landholders to request access to their country. Shooters may shoot on a property from their own motivation or in response to a request from a landholder, who may direct shooters to areas where they know there are large aggregations. In Qld this will generally be the only landholder involvement, as tags are issued directly to shooters. These tags can then be used on any property. In NSW it is technically landholders who are granted an "occupier's licence" to commercial harvest on their land. However, in shooters will usually physically bring the application forms for signature to landholders, submit forms, pay fees, and receive the tags.

3.1.4 Property rights and kangaroos

It is worth briefly exploring the situation with respect to property rights over kangaroos, as property rights are typically crucial aspects in determining which stakeholders can gain benefits from wildlife, and how (Hanna, Folke and Maler 1996). The concept of "ownership" or "property" includes a bundle of related rights. Property rights to shared natural resources can be broken down as follows (adapted from (Schlager and Ostrom 1992). The first apply at the individual level, the third to fifth concern collective decision-making among the group sharing the resource:

- Access: the right to enter a defined physical property
- Withdrawal: the right to obtain the products of a resource e.g. catch fish, harvest animals, collect water
- Management: right to regulate patterns of use of a resource and potentially enhance productive capacity
- Exclusion: right to determine who will have an access right, and how that may be transferred
- Alienation: the right to sell or lease either of the above two rights.

In Australia, most of these rights with respect to kangaroos are held by the Crown. All native wildlife, including kangaroos, are explicitly or implicitly the property of the Crown in all States (Cooney 2006). They become the property of authorised harvesters when shot under licence. Consequently landholders only exercise access rights. They exercise these in a *de facto* rather than formal sense – as they exercise control of access to land on which kangaroos live, they control access to kangaroos. The withdrawal rights – rights to harvest kangaroos - are controlled by the state but can be gained by appropriately licensed harvesters, including the landholders themselves if they seek to harvest kangaroos. However, there is nothing to prevent landholders organising themselves to exercise management rights, exclusion rights, and alienation rights at the level of a group of landholders, within the rules established by the state with regard to these rights. So, for instance, looking at management rights, the state may establish an overall quota, but a group of landholders could regulate patterns of resource use across their properties within this quota.

3.2 Problems with current practice

The commercial kangaroo harvest is probably the largest terrestrial harvest of vertebrates in the world. It is demonstrably biologically sustainable for the species concerned (Pople and Grigg 1999). From the perspective of kangaroo conservation, then, there are few immediate problems. However, more broadly and from a longer-term perspective, there are some significant issues with current practice, both from the perspective of some of the key stakeholders, and from the perspective of ecological sustainability. Problems are discussed from the point of view of landholders, harvesters, and processors in turn, although some cut across the groups. Ecological, natural resource management issues are discussed in relation to landholders.

3.2.1 Landholders and land/natural resource management

From the point of view of landholders, the most obvious drawback of current practice is that the kangaroos on the land that they manage primarily represent a cost to them. While anecdotal reports suggest a minority of landholders charge fees to harvesters for access on to their properties, and a minority of landholders are also licensed kangaroo harvesters, otherwise, however, landholders receive

no benefits from the kangaroos on their land. Kangaroos are perceived by many landholders as costing them considerable amounts of money, primarily through reducing the feed available to stock. (For instance, one landholder interviewed estimated kangaroo costs on her properties at A$300 000 annually). While the actual impacts of kangaroos on stock production are disputed (Olsen and Low 2006), the impacts may be greatest at times of drought, which is when landholders are most financially stressed. Landholders receive no compensation for these costs, leading them to view kangaroos as a pest rather than a resource.

Equally or more important for landholders is that they play only a very minimal role in management of the kangaroo contribution to total grazing pressure (TGP). While kangaroos are an important component of grazing pressure, landholders have little effective means to manage them. The commercial harvest is a blunt instrument – landholders may not be able to get harvesters to come to their property when they want them, kangaroo management is not integrated with property level management, zone quotas may have run out when local densities are extremely high or having major impacts, there is a lower weight limit for the commercial harvest, and so forth.

These two problems for landholders have knock-on environmental consequences (some of which have been outlined in the Introduction). Scant landholder involvement in managing harvest means management of TGP is suboptimal. Kangaroo pose disincentives to landholders when they seek to de-stock or spell pastures to allow regeneration, such as for conservation schemes, in rotational/cell grazing, or in drought. This often leads to an influx of kangaroos seeking the “green pick” in regenerating pastures. Confronting such an influx can be a disincentive for landholders to actually take stock off pastures – if feed is simply going to be eaten by kangaroos, and given that landholders earn nothing from kangaroos, there may be little benefit to pasture condition. Lack of benefits from kangaroos means there are no incentives to retain or restore native vegetation to provide cover for kangaroos, and continuing incentives to clear to reduce kangaroo populations. Further, if new techniques for controlling and reducing kangaroos become feasible, as things stand they would be keenly sought by landholders. Such techniques include technology to control kangaroos access to water points based on machine recognition of species, fencing out kangaroos using macropod fences (single properties or groups), and in the longer-term, biocontrol techniques such as immunocontraception. This could become a conservation issue if landholders sought to exclude kangaroos from large areas of the rangelands.

3.2.2 Landholder-harvester relationships

A further issue for both landholders and harvesters, with environmental implications, is that there is generally little cooperation between shooters and landholders. Lack of communication or common interest between the groups means there is no integrated management of kangaroos at local or regional level in order to balance and meet the needs of both. For landholders, kangaroos are primarily a pest, to be reduced to the extent feasible. For harvesters (and processors) the kangaroos are the resource on which their livelihoods and businesses rely. In consequence, their interests are to maintain an abundant stock, and to manage harvesting to have minimal reduction of population, such as focusing harvesting on males. This divergence sets the stage for widespread discord between landholders and harvesters.

If these relationships were established on a more secure footing, harvesters could make important contributions to property management and NRM. For instance, as shooters drive from property to property, they are capable of rapidly spreading noxious weeds. Cooperation could see landholders requiring and/or harvesters implementing procedures to prevent this. Shooters could contribute to controlling feral animals such as cats and foxes.

One shooter interviewed indicated that he did stop to shoot any feral animals sighted for properties where he had a good relationship with the landholder, but not for others. If all shooters across a range of neighbouring properties were committed to shooting any feral animals seen, this could make a substantial contribution to local ferals management. With better cooperative relationships shooters could also contribute to property management in ways such as checking water points and fences. On their part, lack of strong relationships generally mean that landholders provide little security to shooters (discussed further below).

3.2.3 Harvesters

Probably the major problem kangaroo shooters currently face is that they have no bargaining power as individuals, leaving them vulnerable to fluctuations of price and market conditions. They work individually and are paid per kg of kangaroo delivered at the chiller door. With certain exceptions, any particular shooter is of minimal value to a processor - if one refuses to accept a price, processors will have little trouble in securing adequate supplies from others. Prices are subject to large fluctuations in response to a wide range of relevant conditions, such as international terms of trade, availability of product, and price behaviour of competitors. Harvesters are at the "bottom of the food chain" in the kangaroo industry – they currently have little ability to negotiate security, better cash returns or other benefits.

This situation has been exacerbated by an influx of shooters into the market in recent years in Qld and NSW. Many of these are "weekenders" rather than professionals – individuals who have other jobs but shoot occasionally or on weekends to supplement their income. This increases competition between shooters for access both to limited quota to country, and further reduces the bargaining power of individuals with processors. In some areas, there have many fewer tags available than those sought by shooters, meaning longstanding full-time professionals cannot plan their shooting, and can have serious difficulty maintaining a livelihood. For example, in NSW, the numbers of kangaroo shooters increased from 620 in 1996 to 860 in 2007 (Lawson 2007). Competition over tags led NSW to use a ballot system to distribute tags, as a first-come first-served system was leading to people camping out on the NPWS doorstep the night before tags were released, and many missing out. The number of licences issued to shooters is generally not restricted, despite repeated industry calls in NSW and Qld to cap the number of licences issued, as happens routinely in fisheries management[1]. Currently NSW has responded to these calls by adopting a moratorium (still in place at time of writing) on the issue of new licences (N. Payne, pers. comm.). The over-supply of shooters has some potentially poor consequences for standards in the industry. Weekend shooters are likely to be less experienced, less technically proficient, and less stringently observe welfare and food safety standards than those who rely on harvesting as their full-time livelihood.

Improvement of professional standards in general is not promoted by the current system. Harvesters have little to gain by investing in higher standards of practice in areas such as harvesting and handling of carcasses. With some rare exceptions, they do not gain higher prices for delivering carcasses that have been handled better. Part-timers, by their nature, have little incentive to invest in the long-term future of the industry, its standards, or its reputation. The Queensland Macropod and Wild Game Harvesters Association have been involved in developing technological innovations such as the use of data loggers and bar codes to enable traceback systems (Australian Government 2003). However, unless these are adopted by processors, harvesters are not in a position to influence their uptake.

The second major problem harvesters face is that they rely for their livelihood on landholders continuing to grant them access to their properties. At any point, a landholder can decide, for any reason, to stop allowing a shooter onto their property. For instance, a landholder may decide to have their kangaroos shot by a different shooter or to carry out shooting themselves. Likewise, shooters have no security that they will be the only shooter allowed on to a property. Particularly when there are many kangaroos on a property, landholders may grant access to additional shooters, undercutting the benefits for the long-term shooter.

[1] For instance, this issue was raised at the Qld Macropod Industry meeting, Charleville, August 2007

3.2.4 Processors

Current practice has many advantages for processors – they benefit from the lack of any group voice for harvesters and the competition between them, and can largely dictate the terms on which they acquire product. However, over the long term they are in a very insecure position. They are perhaps one of the only global industries for which continued access to their fundamental resource relies completely on people who would like to see it virtually eliminated from their lands. Unlike other primary industries, their resource is not managed by land managers for production and increase, but rather as a pest. This becomes a more serious problem in light of growing interest in some parts of the rangelands in erecting macropod fences around one or a group of properties, to exclude kangaroos completely. Technologies for selectively excluding kangaroos from watering and feeding points are being developed (with extensive government support), using machine vision technology to identify individuals and open or close gates. On this point, for example, researchers see an objective as aiming "to stop the artificial build-up of feral populations so that introduced and native animals do not become pests" (Foreshew 2007). The kangaroo harvesting and processing industry currently relies on kangaroos becoming pests, in order to motivate landholders to allow harvesters on to their land, so these developments pose a very significant long-term threat.

While this is a long-term threat for the processing industry as a whole, individual processors also face difficulties in securing reliable and consistent supply, as they have little contact or relationships with landholders. Landholders can at any point switch shooters and allow access to a shooter servicing a chiller box of a different processor on to their land.

A problem affecting processors, but also all other stakeholders, is the comparatively low value and variable quality of kangaroo meat. Kangaroo still has a small (if growing) market in Australia and overseas. The price per kg is substantially lower than for other red meats, and there is no attempt to market differentiated kangaroo products. Some of the obvious marketing points for kangaroo include environmental messages, such as "free-range" living conditions, organic, chemical-free, lower contribution to greenhouse gases, and environmental management. Critically, however, many of these marketing opportunities require the involvement of landholders. On the quality front, regular eaters of kangaroo meat (the author included) often find high variation in tenderness between samples of the same cut. Supply of product to discriminating buyers such as high-end restaurants will require uniformly high quality. Landholder involvement could open up quality management options such as managing populations to ensure high populations of species species/age/sex combinations that are of high value to consumers.

4. Landholders and Collaborative Wildlife Management: some overseas experiences

This section examines some selected overseas experiences of landholder involvement in wildlife management. It does this to set kangaroo management in a broader context for comparison, and specifically to see whether overseas models could offer useful "templates" for application in Australia. In the course of this analysis, however, it became clear that kangaroo management offers some unique challenges, and no adequate analogues could be found globally. For this reason this chapter is quite brief, and aims primarily to provide some good international illustrations of landholder involvement in wildlife management and draw some broad insights to guide development of options for Australia. These examples all involve *collaborative* wildlife management – that is, where landholders are cooperating with each other (neighbours) in order to manage wildlife at a larger scale than individual properties. This emphasis is chosen because commercially harvested kangaroos move freely and frequently across property boundaries, so a cross-property level is more appropriate for their management (Ampt and Baumber 2006). Collaborative experiences therefore provide more relevant insights for our purposes.

4.1 Wildlife Conservancies in southern Africa

The first example selected is Conservancies in southern Africa, covering a set of rather differing experiences across Namibia, Botswana, South Africa and Zimbabwe. Each has differing regulatory environments and specific experiences, but key general features are summarised here. "Conservancy" here refers to mean groups of properties across which wildlife is collectively managed (although it can also refer to single properties) (Goodwin et al. 1997). Save Valley in Zimbabwe, for instance, included at one point[2] 23 landholders and 340 000 ha (Muir-Leresche and Nelson 2000). Some key drivers of the development of Conservancies have been over-stocking and land degradation, drought and the desire to be more resilient to drought, the returns from wildlife management, conservation of species, soil, water and habitat, and the opportunity to manage resources at a more appropriate scale (Goodwin et al. 1987). Conservancies are established for both socio-economic and environmental objectives: for example "to develop a system of land use based on the management of natural resources which is ecologically sound, economically viable, financially profitable, satisfying to its members and politically and socially acceptable…" (Chiredzi Conservancy, see Goodwin et al. 1997). Typically the perimeter of the area is game-fenced, but there are few game fences within. Agricultural activities may continue within Conservancies, including running livestock and even irrigated agriculture, particularly while the Conservancy is being established.

Across all these countries, landholders are conditionally empowered to manage most wildlife on their land. For instance, in Namibia, once a group of landholders has fulfilled the requirements for a Conservancy (including establishing a perimeter fence), they are explicitly stated to be the owners of "huntable game" (including oryx, springbok, kudu, warthog, buffalo and bushpig), and can utilise these with no permitting requirements. "Protected" species can be used under a permit system. Game may be commercially bought and sold, and income from use and sale retained by farmers (Jones 1999). In Zimbabwe no licence or other authorisation is required to establish a Conservancy – landholders are designated as the "appropriate authority" to manage wildlife under the relevant legislation, and may simply band together to do so (Goodwin et al. 1997).

[2] Conservancies in Zimbabwe have been greatly affected in recent years by land redistribution policies, illegal land seizures and economic collapse under the Mugabe government. References here should be understood as referring to the situation up till about 2000.

In South Africa, game ranches can be established under a licencing regime that similarly devolves most wildlife management functions for game species to landholders who meet the requirements of the legislation. In all of these countries, landholder rights over wildlife, involvement in wildlife management, and promoting benefits from wildlife to landholders has been an explicit objective of government policy. In each of these countries there have been very significant benefits to wildlife conservation management as a result, as well as economic benefits. For instance, in South Africa, the ca 11000 wildlife ranches on private land managed cover ca 20.5 million ha (16.8% of the land surface), as compared to the only 7.5 million ha (6.1%) of Government protected areas (Bothma and Sartorius von Bach In press).

Income from wildlife management activities on Conservancies (and private wildlife ranches in general) derives from hunting, tourism (phototourism, birdwatching, fishing, horseriding, etc); and game cropping for meat and skins. Conservancies generally sign a voluntary agreement or Constitution committing them to undertake joint wildlife management activities. They agree on arrangements for collaborative management of the wildlife, sharing revenues from wildlife operations, allocation of costs for joint projects, and other collective sharing of benefits and responsibilities as appropriate ventures (Goodwin et al. 1997). Collaborative management measures may include establishing quotas, game patrols to deter poaching, maintaining fencing, monitoring, reintroductions, culling, wildlife sales, and so forth. A management committee will generally establish quotas for hunting or culling based on sound scientific advice and management planning (R Martin, pers. comm.).

It is important to note however that not all functions are shared – many remain within the responsibility of individual landholders. Wildlife on a Conservancy is not common property managed by a single body – rather, individuals make decisions about management on their land, subject to guidelines and restrictions agreed by all to avoid misuse of a shared resource (Du Toit, cited in Goodwin et al. 1997). In particular, individual properties primarily generate income at the level of the individual property, through sale of hunting rights, operating guest lodges and tours, and so forth. However, where commercial activity is to take place at the level of the group, say through purchasing animals for restocking that will travel across the properties, the Conservancy may establish a commercial organisation for these purposes.

4.2 Red deer management in Scotland

Landholders take a major role in the management of red deer on estates in Scotland (see Gordon and Hope 1998; Deer Commission of Scotland undated). Populations have expanded dramatically since the 1950s, as deer are viewed as an asset to estate owners for their value for sport shooting and venison. Red deer are *res nullius* – they are not owned by anyone, but the owner of the land on which they roam holds the right to shoot or capture them. They are managed primarily through sport-shooting: landholders may carry out sport shooting themselves or sell the rights to do so.

Deer are both asset and pest, to different groups. Deer are of value to the owners of estates for sport shooting and meat, and this has driven large increases in population. However, these populations can damage the natural regeneration of native pine, birch and oak woodlands and damage crops (Gordon), and so there is potential for conflict between estate owners, on one hand, and farmers, forestry interests, and urban-based environmentalists, on the other. Deer populations are managed to control their numbers to avoid negative impacts on the herd or the environment, and to maximise the number of mature stags. Production of venison is generally a by-product of these activities, rather than a primary motivation, although it can provide an important income stream to estates.

Red deer wander freely across estate boundaries. Many estate owners manage deer through voluntary Deer Management Groups (DMGs), supported by the Deer Commission of Scotland, a statutory authority with responsibility for deer management (see ADMG undated). DMGs have been promoted by the Deer Commission to enable communal management across property boundaries. These groups are encouraged to develop Deer Management Plans with guidance from the Deer Commission. These have specific aims of encouraging discussion and trust between deer managers, promoting wider awareness of deer management issues, assisting deer managers to arrive at informed decisions, safeguarding deer-related employment, maximizing economic returns from deer, preventing habitat degradation, protecting interests such as agriculture and forestry, and improving deer health (Gordon and Hope 1998; Deer Commission for Scotland undated). Interventions covered include not only shooting, but also other management tools such as fencing and feeding, developing guidance on best practice, increasing training uptake, and improving professionalism and discipline in wild deer management. The aim is for DMGs to take ownership over and responsibility for their interventions and their consequences. To this end Deer Management Plans include provision for the group carrying out their own monitoring and reporting against their objectives, rather than requiring that this be done by external governmental bodies such as the Deer Commission for Scotland or Scottish Natural Heritage. Likewise the Deer Commission only advises and assists DMGs on management measures, such as quotas, rather than setting quotas themselves. It further plays a role in doing counts, carrying out research, disseminating best practice, assisting in training, working with other agencies on wider policy issues, and advising Scottish Ministers on all deer matters in Scotland.

4.3 Wildlife “Co-ops” in the USA

In some states of the USA, recent years have seen the growth of organisations involving collaboration among neighbouring landholders to manage, restore and improve wildlife and habitat, often called “Co-ops” or Wildlife Management Associations (WMAs). Many focus on hunting in particular, managing habitat and feed for game species (e.g. ensuring farm activities provide for year-round supply of adequate vegetation), quotas, management measures to raise the trophy quality of hunted game, build populations, and so forth. Others seek to improve birdwatching, fishing, or simply ecosystem health and quality.

Texas offers a particular well-developed example, with the first WMA established in the 1950s (Texas Parks and Wildlife 2004; Williams 2007) (Wagner et al. 2007). Now over 160 Wildlife Management Associations exist, managing around 770 000 ha (Texas Parks and Wildlife 2004; Wagner et al. 2007). These WMAs focus mainly on deer. Effective management for deer hunting – managing a herd for sustainable offtake of high-quality trophies (antlers) – must be done through collaboration, as populations move freely across property boundaries. A major driver for their establishment is driven by declining returns for traditional land uses. By contrast, returns from leasing out land for recreational deer hunting is increasing – in prime deer habitat, hunting now yields more value than traditional agriculture. In addition to these more utilitarian ends, WMAs have a strong conservation and land stewardship ethic (Wagner, 2007), and have been successful in restoring quality wildlife habitat and populations in many areas (Texas Parks and Wildlife, 2004).

Establishment of a WMA generally involves landholders getting together and agreeing to adhere to a non-binding agreement on how to manage wildlife. Landholders are typically supported by biologists from the Texas Parks and Wildlife Authority in drawing up a Wildlife Management Plan based on scientific advice, including measures such as setting hunting quotas. Establishment of a WMA may entitle landholders with particular benefits such as special permits (Texas Parks and Wildlife, 2004). Members voluntarily choose to implement the provisions of the Management Plan on their land, and participate in data collection and reporting observations.

4.4 Insights for Australia

None of these contexts offers us a straightforward analogy for management of kangaroos. One major difference is that all these examples involve recreational hunting as a major source of the value of wildlife on private land, rather than commercial harvesting for meat and skins, although in the southern African and red deer examples this is an important additional source of revenue. Recreational hunting involves much higher values for small numbers of animals taken – landholders are selling the experience, not the product. Another implication is that recreational hunters do not need to derive a livelihood from their activity, while commercial hunters do. A second major difference is that the state exercises much tighter control of property rights in wildlife in Australia than in any of these contexts. In Australia the Crown "owns" wildlife across all States, either explicitly (in state legislation) or implicitly (through exercising all rights to take, kill, hold, move etc). Landholders in Australia have only the de facto right of access through controlling access to their properties. In the southern African countries discussed landholders can gain most property rights under certain conditions, and in Scotland and the USA landowners control (with some limitations) the right to hunt and manage deer on their land.

A model for landholders to be involved in and benefit from kangaroo management will therefore be a unique one. However, we can draw some broad general lessons and guidance from surveying these experiences.

The first is simply the straightforward observation that where landholders benefit from sustainable use and management of wildlife, this can dramatically shape how they manage that land and the wildlife on it. The figures presented above for South Africa illustrate the power of sustainable use of wildlife by landholders in not just changing attitudes toward the specific species concerned, but driving widespread shifts toward wildlife as a primary land use. In Scotland, the rights of estate owners to sport-shoot and manage deer have driven a major population increase, and a change in perception of deer from a pest to a valued resource. Indeed, such is their value as assets to landholders that many wish to maintain them at levels too high for healthy forest regeneration (Pearce 1993).

Second is the benefit of collaboration among neighbouring landholders in management of wildlife populations. All these examples illustrate that landholders can effectively embark on voluntary collaboration in wildlife management, with many benefits for wildlife, habitat, income and recreation. Examples from the USA and southern Africa illustrate that such collaboration can take place alongside maintenance of traditional agriculture based on individual properties. One point to note is that none of these examples involve individuals surrendering all autonomy over their decisions to a higher-level collaborative body. Instead, in each of them individuals continue to make decisions and earn most income from wildlife on their own property, but voluntarily choose to make these within the framework of agreed guidelines and management frameworks. Many rural landholders have a strong independent ethos, and it may be that structures which lock individuals too tightly into collective decision-making will be resisted.

Third is the cooperative, supportive stance of government agencies toward landholder involvement in collaborative wildlife use and management in all these examples. In southern Africa, empowering landholders to manage and use wildlife has been an explicit conservation policy. In the Texas example here, state agencies provide support and scientific advice to assist landholders to establish collaborative groups. Further, they are provided with regulatory incentives to enter into wildlife management, through gaining benefits such as special permits. Likewise in Scotland, the Deer Commission for Scotland supports and advises estate owners in forming groups and developing management plans. In Australia there is no history of landholder involvement in kangaroo management, so it is not surprising that there is no history of government support to landholders to facilitate this. However, these models offer useful illustrations of cooperation between government agencies and landholders on wildlife management, achieving conservation and ecosystem management benefits at a low government cost.

5. Options for Landholder Involvement in Kangaroo Management

5.1 Background

To enable integrated management of kangaroo populations, for effective control of total grazing pressure, for kangaroos to provide incentives for habitat conservation, and for secure access of the kangaroo industry to its resource, landholders will need to become involved with kangaroo management or benefit from them in some way (see Introduction and Chapter 3). This will require substantial change in ways of operating and doing business, and potentially regulatory and policy change as well. While voices such as Gordon Grigg's have long called for the involvement of landholders in kangaroo management and harvest (Grigg 1987; Grigg 1987; Grigg 1988; Grigg 1989; Grigg 1995; Grigg 2002), these calls have gained little traction. Today landholders remain almost completely uninvolved in kangaroo management. One reason for this may be that little attention has been paid to the question of exactly how landholders could be involved and gain economic benefits. What roles would they carry out? How would they influence management? How would they work with the existing kangaroo industry – the harvesters and processors? How would they derive income?

Some possibilities have been highlighted in work to date. Grigg has argued that if the price for kangaroo products rose, graziers would become interested in being involved in harvesting them. He (1987a) points to instances in Queensland of graziers harvesting kangaroos themselves, particularly when sheep prices are low. He has also raised the possibility that landholders could require payment from shooters, and briefly outlined a concept by which landholders could receive an allocation of property-specific tags that they could use or sell (1995). Martin (1995) assumes that landholder involvement will involve mustering, branding and tagging, like domestic stock. More recently, Ampt and Baumber (2006) outline a model in which landholders collaborate to jointly manage kangaroos across their properties, and become more involved in raising quality standards and development of a differentiated product. However, detailed examination of the range of options available, how they would operate, and their various advantages and disadvantages is lacking.

The objectives of this chapter are to set out options for landholders to be involved in kangaroo management and benefit from the kangaroos on their land, and evaluate their implications for key stakeholders and for rangeland sustainability. Most options are possible within existing regulation and policy frameworks, and where this is not the case, the changes required are indicated. Practical operation of each model is described and relevant issues related to licensing, regulation, or general feasibility highlighted. These models are then evaluated in terms of their likely contribution to incentives for conservation and better TGP management, to benefits to landholders, and to benefits to harvesters and processors where these are relevant.

These are models for how landholders could become more involved in kangaroo management and/or gain benefits from this kangaroo harvest. Note that these two aspects do not always go hand-in-hand – in some of these options landholders gain a larger role in management but do not gain any income, while in other they gain a benefit but don't expand their role in management. Note also that this categorisation of options is necessarily quite broad and doesn't canvass every possible arrangement – for many of these options there could be endless minor variations on how each operates in practice.

5.2 Landholders require payment from shooters

5.2.1 Description

The most straightforward way for landholders to gain an economic return from the kangaroos on their land is to require shooters to pay them to enter onto their land to harvest kangaroos. This is already happening in some areas. For instance, participants at the Macropod Industry Forum in Charleville, Qld, in August 2007, spoke of instances of this occurring in the region. Landholders may require harvesters to make a payment in return for access to their land, which could be levied per night or per kangaroo shot. Landholders do not actually own kangaroos, so cannot actually sell kangaroos to shooters. However, there seems no reason why they cannot make access to their land conditional in this way.

5.2.2 Evaluation

The benefit of this arrangement for landholders is straightforward – they gain some income from the kangaroos on their land. This could, if the returns were great enough, encourage them to view kangaroos as less of a pest and more of a resource. A drawback of this approach for landholders is that this approach does not lead to a greater landholder role in kangaroo management, and will not enable them to better control TGP. Harvest management remains unchanged. Further, this approach will only be effective if there is competition between shooters for access to country, and shooters are willing to pay. Individual landholders have little bargaining power – if shooters can gain country elsewhere, they will simply shoot there.

Most importantly, this approach is likely to cause resentment among shooters and destabilise relationships with them. Shooters have made very clear in the course of the implementation of each SWE trial that they view such an approach as unfair and will strongly resist it. In practice, access to country is a limiting factor for many of them, and if landholders forced them to pay many would have to pay, which would substantially decrease their already thin profit margins. Further, workshops and consultations made clear that most landholders also view such a charge as unfair, and do not want to impose an additional financial burden on kangaroo shooters, who they perceive as delivering a valuable service.

5.3 Landholders become licenced shooters themselves

5.3.1 Description

The second fairly straightforward method of both gaining economic benefits from kangaroo harvest and of playing a role in kangaroo management is for landholders to become licenced kangaroo shooters themselves. Grigg (1987; 1987; 1995) refers to instances of graziers in western Queensland starting to harvest kangaroos from their properties in the mid-1980s, when prices for wool dropped. While it is not clear how widespread this practice is, several individuals involved in the ongoing SWEs are both landholders and harvesters. Harvesting is generally an additional activity to grazing, carried out for additional income when time and property management permits.

Commercial harvesting licences (which have various different names in different states) are not limited in number in any state. Any landholder can gain the appropriate licence from the State regulatory authority under the same terms as any other applicant. This will require a valid firearms licence, completion of a short accreditation course for professional shooters, and completion of the relevant game meat handling and hygiene course. Landholder harvesters would, like other shooters, sell carcasses to chiller box operators and gain the price/kg being offered. If they sought to shoot on other properties as well as their own, they would need to secure agreement from those landholders and, in NSW, apply for tags for those specific properties. Currently, some landholders operate chiller boxes on their properties, usually owned by a processor, so could simply shoot into these boxes.

Gaining commercial harvester's licences would not prevent landholders applying for shoot-and-let-lie permits to manage aggregations of kangaroos which are under the legal weight limits for commercial harvest, or when annual quotas are exhausted.

5.3.2 Evaluation

Under this model, landholders would gain economic benefits from sale of kangaroo carcasses that they shoot. Further, they would take over kangaroo management on their own properties, so should be able to better manage TGP. For instance, they will be able to plan their own time and the number of tags they hold to ensure they can target aggregations in a flexible and timely fashion and according to their property management priorities. They may also have better information than other harvesters about where aggregations are. Further, in NSW, where tags must be used on a specified property, they will generally have on hand a supply of tags for their own properties, which may not be the case with a commercial shooter.

On the down side, harvesting kangaroos involves a specially equipped vehicle, specialist skills that may be arduous and time-consuming to acquire, and extensive work at night. Assuming landholders maintain their other agricultural activities - running stock and cropping – the demands of these activities mean that landholders may not have the time to take on additional night work.

From an environmental management perspective, the fact that landholders gain economic benefits under this model should help change their perceptions of kangaroos from a pest to a valuable resource, with the potential habitat conservation benefits linked to this. However, this option only allows for kangaroo management at the level of individual properties, rather than at the cross-property level required for effective management of a shared resource.

5.4 Landholders employ kangaroo managers

5.4.1 Description

One model that has received little attention to date is the idea of individual landholders or groups of neighbouring landholders employing a "kangaroo manager", in the way that they might employ a farm manager or other on-station staff. Such a manager would have the task of devising how to best manage kangaroos as a component of overall property management, in a way that maximizes revenue to the landholder(s) and minimizes negative impacts on other productive activities such as sheep or cattle production, as well as carrying out harvesting, marketing produce to processors, and potentially operating a chiller box on-site. The manager would receive a salary from the landholder (perhaps supplemented by a per-kg payment as an incentive), while the income from sale of kangaroo meat and hides would go to the property owner. While kangaroo managers might physically sell kangaroos at a chiller box, income could be directed straight to the landholder by the chiller box operator, or returned in some way to the landholder by the manager.

Management could encompass strategies to maximize local kangaroo populations, in areas or conditions where this would yield returns. For instance, some areas of a property might be very attractive to kangaroos, but of marginal importance for cattle. These areas might be de-stocked in favour of encouraging kangaroo aggregations for harvest. Harvest could be timed to maximize production: for instance, going into a drought, when vast numbers of kangaroos typically starve, managers could seek to harvest at the maximum rate possible, in order to harvest before individuals lose weight and to minimize effects of drought on remaining populations.

On very large properties with large kangaroo numbers, individual properties might be able to employ kangaroo managers. In other areas, several neighbouring properties could employ a manager to work across their properties. This would probably work best where there is a basis of collaboration already established - for instance, they could be employed to work across a group of properties already cooperating in a local Landcare group, or across properties owned by family members.

There are some issues to be negotiated with this model in terms of meeting regulatory requirements. Once they are shot, kangaroos become the legal property of the licensed shooter, rather than the property of the landholder. However, under this model returns from the sale of kangaroos must flow to the landholder, rather than the harvester. Presumably this could be resolved through contractual provisions between landholder and manager, specifying that income from kangaroos was the property of the landholder as a condition of employment.

5.4.2 Evaluation

This model gives landholders control of kangaroo management, either at a property-level or cross-property scale. It returns economic benefits to the landholder, as long the returns from kangaroos (plus any benefits from better kangaroo management, such as reduced grazing pressure at critical times) outweigh the cost of paying a kangaroo manager. It avoids the conflicts of the previous model, with respect to property management being too time-consuming to allow for kangaroo harvesting at night. It fosters kangaroo management as a well thought out component of overall property management, integrating it with NRM and agricultural priorities. As the kangaroo manager is a farm employee, it entrenches a strong relationship between the and the landholder, which can enable the harvester to contribute to NRM and property management activities such as feral control, weeds management, and checking water points and fences. It is comparatively simple to implement, particularly if individual properties are large enough to support a kangaroo manager alone. The benefit for the kangaroo harvester is that they have a stable, secure income and no competition for country to shoot on. While some harvesters undoubtedly prefer to work independently, this may be attractive to many.

One challenge for this model is that there are probably few properties that would harvest enough kangaroos to make employment of such a kangaroo manager economically viable, so it would have to be done by a group of properties working together. While this is probably a good thing in terms of facilitating larger-scale kangaroo management, joint employment of a single kangaroo manager by a consortium of properties, to work across all of them, will require substantial cooperation and trust to be built up. A further challenge is that this model shifts the risk involved in kangaroo harvesting from an individual harvester to the landholder(s). If kangaroo harvesting is unprofitable, it is the landholder who loses financially, rather than the harvester. Few landholders may be willing to take on this risk, given that most have little direct experience with the harvest, or close relationships with kangaroo harvesters. Despite these challenges, this model has many strengths, and could have much potential where landholders are highly motivated to improve kangaroo management on their properties, particularly where they are dealing with high densities of kangaroos.

5.5 Collaboration among landholders

5.5.1 Description

Landholders could establish a collaborative group to play a role in harvest management, chiller box operation, processing and marketing, and seek to build relationships with shooters who were interested in cooperating on these objectives. This group could focus on some or all of a range of specific functions, which are discussed in turn below. An initial issue is to what extent landholders and harvesters work together as members of the same collaborating group to benefit all, as distinct from landholders primarily collaborating with each other, and contracting or making arrangements with individual shooters. Many of the possibilities discussed under this model could be done in either manner, and the difference this aspect could make in practice will be discussed where relevant.

5.5.1.1 Collective bargaining with processors

A collaborating group could negotiate collectively with processors to gain the best market price for kangaroos supplied. The group can offer a processor:

- exclusive access to kangaroos from collaborating properties. If the group consists of a large enough group, an economically significant supply of product could be involved. How attractive this is to processors will rely on the level of demand for product and the level of competition between processors
- if shooters were involved, the group could also offer exclusive access to product from those shooters. In many areas there is an oversupply of shooters, so this may not be particularly attractive. However, some shooters are known by processors to supply consistently good-quality product, so having these as part of the group could be an advantage
- stopping or limiting the use of shoot-and-let-lie permits (see below at 5.5.1.3) by collaborating landholders. This could be attractive to processors interested in ensuring long-term, abundant sources of supply
- consistent high-quality kangaroos, through implementing quality assurance schemes and high standards of harvesting and handling (see below at 5.5.1.5). If shooters were part of the group, they would be implemented as conditions of membership. If not, landholders could require that shooters accepted and implemented these standards as a condition for access to their properties.

In return, the group could seek from processors an additional margin per kg of meat delivered, over and above the standard market rate (usually consistent between different processors and locations). This margin can then be returned to the group, with any profits to be divided among members. The division of profits will depend on who is in the group and what each of them have had to do to secure the greater return. If only landholders are group members, any profits can be divided equally. In this case, however, part of the pre-profit margin secured will probably need to be paid to harvesters on a per kg basis, in recognition of the higher standards of practice they have been asked to implement. If landholders and harvesters are both group members, they will need to reach agreement on how to divide profit between them in an equitable manner. For instance, if harvesters have had to make big changes to their practice, while landholders have had to make only minor changes, the group may consider it equitable to return a greater share of benefits to harvesters, and *vice versa*.

5.5.1.2 Chiller box operation

The collaborating group could own and/or operate one or more chiller boxes themselves. They could buy or lease their own chiller, and engage a box operator to run it. The group would manage and oversee the chiller, including developing and implementing standards for operation.

Taking on box operation means they can additionally offer processors a high standard of box operation to ensure meat quality. Meat quality and shelf life are critically affected by aspects such as how close together carcasses are hung, how soon they reach the desired temperature and how consistently that temperature is maintained. The industry standard for processors to pay to box owner/operators is about 15c/kg, of which 7-10c goes to the person physically running the box. So, for example, if the collaborating group secured 20c/kg for their product from processors as a box owner/operator, after paying the person physically running the box they would have a return of 10-13c/kg to cover group operating expenditures and generate benefits for members.

The distribution of benefits again depends on who is in the collaborating group. If the collaborating group consists only of landholders, shooters could be paid as usual at the chiller box, and processors could make an additional payment at appropriate intervals to the landholder group. Harvesters may be able to negotiate an additional price per/kg from the landholder group, in view of any additional standards/procedures they are following. If the group consists of both landholders and shooters, it will need to decide as a group how to distribute profits among its members. Harvester members could be paid a better price per kg at the chiller box, with any additional profits distributed among landholder

members, or harvesters could be paid the going rate at the chiller box, with any profits regularly distributed between landholder and harvester members.

In some states, there are some licensing issues to deal with if this model is pursued. In Qld, there should be no obstacle to landholders obtaining the Commercial Wildlife Licence required under the *Nature Conservation (Wildlife Management) Regulation 2006* in order to operate a chiller and buy wildlife. In NSW, under the *National Parks and Wildlife Act 1974*, a Fauna Dealer (Wholesaler) licence (FD licence) is required to buy kangaroos from harvesters. However, the the number of FD licences in NSW is restricted - in general, no new licences are issued (Macarthur Agribusiness and Econsearch P/L 2003). They may be able to obtain their own licence either by buying one from an existing holder (licences turn over at about the rate of 1/yr), or by making a case to the regulatory agency (NSW Department of Environment and Climate Change) to issue an additional licence. This is not impossible, but it will involve additional uncertainty and effort. Alternatively they could operate as a sub-licensee of one of the processors who currently hold the FD licences. This, however, locks them into a single relationship and gives them little flexibility for bargaining with different processors for the best price for their product. In addition, under this arrangement kangaroos would remain the property of the licence holders, and not be owned at any stage by landholders. While it is not clear that this would be a problem in practice, it could restrict options for negotiation, processing and marketing.

5.5.1.3 Harvest management

The collaborating group could play a role in managing the harvest at an individual property and a group level: addressing TGP management priorities, integrating the harvest with regional, sub-catchment and property level priorities, and responding to large aggregations. They could manage the harvest to increase offtake, including through avoiding the use of shoot-and-let-lie permits, or targeting specific age-sex classes. The extent to which the group sought to be involved in management would depend on the group's resources and needs, and the extent to which shooters are part of the collaborating group or peripheral to it. The group could develop and implement a kangaroo management plan for the group of properties involved, based on scientific advice. The group could share information and communicate regularly, gather input on kangaroo densities and priorities from landholders, carry out monitoring to assess local kangaroo populations, collate information on level and location of harvest, keep track of collaborating shooters and pass on landholder input to them, potentially keep track of how many tags each shooter has available for each property (in states where this is necessary), and assist landholders in meeting TGP management priorities.

5.5.1.4 Group quota and tags

Quota and tags could be assigned to the group as a whole, rather than to specific landholders or harvesters. How this would operate, and how it would change current practice, depends on the state.

In NSW, tags can only be used on the property for which they are issued, as specified on the relevant Occupier's Licence. This limits the degree of possible collaboration between landholders in harvest management. It is not possible, for instance, for harvest effort to be easily planned and coordinated across the group of properties - if kangaroo aggregations move from one property to another, tags for that property will need to be applied for and received before they can be targeted. Collaboration across properties in harvest and TGP management could be made substantially easier if quota and tags could be issued to the group as a whole, rather than to individual landholders, with tags able to be used on any property across the group.

The FATE Program at UNSW and the Barrier Ranges Rangecare Group (BARG) have developed a model for how this could work. This has been approved by the NSW Kangaroo Management Plan as an "adaptive management trial" under the NSW Kangaroo Management Plan 2007-2011.Under this model, the group of landholders is granted collectively a general licence (under s120 of the NSW *National Parks and Wildlife Act*), containing equivalent provisions to an occupier's licence, and a quota. The quota is determined by calculating the land area of collaborating properties as a proportion of the land area of the zone: the group is allocated the corresponding proportion of the annual zone quota. It is then up to the group how they allocate this quota among harvesters. They can direct harvest effort across the group of properties according to kangaroo movements and the TGP management priorities of landholders. As now, shooters would own carcasses they shoot and sell them to box operators.

In Queensland, the situation is somewhat different because tags are issued directly to shooters, rather than landholders, and can be used anywhere within the harvest zone. (Qld has only three harvest zones, each of which covers an enormous area). This arrangement has the benefit of flexibility for shooters, avoiding some of the hurdles facing cross-property collaborative management in NSW. If kangaroos move across property boundaries, tags can follow them, enabling a group of landholders to plan and manage on a larger scale. However, they still face problems of competition for limited quota, and the problem of quota running out before the end of the year. If a collaborating group of landholders, or landholders and shooters, could be granted their own "ring-fenced" quota it would allow them to plan and manage with more predictability. However, it should be noted that a group of landholders/shooters receiving a quota and tags represents a greater change from current practice in Qld than NSW, and may require legislative change. The potential for groups to secure their own quota is returned to in the following Chapter.

5.5.1.5 Quality assurance, product differentiation and marketing

The collaborating group could play a role in developing premium, high-value kangaroo products, labelled and marketed on the basis of high quality standards and/or environmental attributes.

Quality standards and practices could encompass, depending on assessment of the market and negotiation with processors:

- selection of animals in the field (e.g. selection of species species/sex/age/size characteristics, or healthy animals)
- field dressing methods
- transport to chillers (e.g. no. of hours before reaching a chiller)
- ensuring even and quick chilling of animals and avoiding overcrowding in the chiller
- enabling traceback of animals to the paddock, through tracking technologies used by harvesters, box operators and processors.

Labeling and marketing on an environmental basis could highlight high standards of land management and biodiversity-friendly practices, the low greenhouse gas emissions associated with kangaroos, or perhaps implementation of an EMS system such as Landcare's Australian Land Management System. There are a variety of issues to be thought through here, such as whether labels would be applied to kangaroo only or all products from the collaborating properties, whether first party, second party or third party certification is most appropriate, and what sort of attributes will be most attractive to the market.

Recent research associated with the development of the SWEs has explored characteristics of the market for kangaroo products. Ampt and Owen (2008) point to slow (if ongoing) increase in consumption of kangaroo meat, but also the need for clear messages surrounding the sustainability of the harvest and hygiene (among others) in order to maintain this growth. SWEs offer a potential advantage in meeting this need. Chudleigh et al.(In review) found that kangaroo product from SWEs could best be marketed by positioning it as a gourmet, environmentally branded, and high quality product. They emphasise that all three would be vital – the environmental message alone would be unlikely to attract significant market advantages.

Taking these products to market and securing a benefit for landholders could be done in different ways. The landholder/shooter group could enter into long-term contractual arrangements to supply high-quality products to processors, and take responsibility for maintaining and assuring quality standards. The processor would have to be willing to invest in labeling and marketing a differentiated product, as well as have systems in place to track the premium product. Alternatively, the landholder(/shooter) group could produce the premium product, pay a processor to process it on a contract basis, and market the product themselves. Indeed, the group could eventually invest in processing product themselves.

5.5.1.6 Evaluation

Most of the options above could be pursued by a group of landholders alone, who then made harvesting on their properties conditional on harvesters meeting certain conditions that the landholder group established. Achieving collaboration and agreement between a group of landholders will clearly be easier than achieving it between landholders and harvesters. Landholders and harvesters frequently do not see eye to eye, and tend to be on opposite sides of the fence on many kangaroo management issues. Organisation of a group of landholders to pursue some of the options above is likely to be far less time-consuming. However, while this might appear initially simpler, there are disadvantages to taking this option. The major drawback of the landholders-only approach is that it offers little to harvesters, and harvesters are likely to actively oppose it. Under this model, harvesters continue to have no negotiating power, and their position is further weakened by the strengthened position of landholders, who as a group are able to dictate terms of access to harvesters. Further, if harvesters are not part of the group, they will not have any incentive to promote the interests of the group as a whole, rather than evade its standards or rules when possible. Finally, harvesters have specialised expertise and industry understanding that landholders generally do not have. For these reasons, it is assumed in all comments below that the involvement of both landholders and harvesters as partners in a collaborative group is preferred and pursued.

The landholder/shooter collaborative model, with all its variants, appears to represent the most promising of the options so far. Landholders and harvesters both benefit from a stronger bargaining position through negotiating as a group rather than as individuals. Landholders benefit through gaining economic returns from kangaroos and from greater involvement in kangaroo management, allowing better management of TGP. Harvest management across properties, at an ecologically meaningful scale, is facilitated. Harvesters benefit from more secure access to country, better economic returns, and from landholder support of measures such as stopping use of shoot-and-let-lie tags. They also gain recognition and rewards for implementing higher professional standards. Better relationships between landholders and harvesters benefit both, with harvesters having more security and respect, and the potential for cooperation on aspects of NRM such as feral control, weeds, and checking fences and water points.

Achieving such collaboration will involve substantial costs for the individuals involved, and these need to be weighed in decisions to collaborate. Time and effort are required to increase understanding and reach agreement among the groups. Capital and staff are required to take on major activities and invest in items such as a chiller box. A level of financial risk is involved. Ongoing participation in management and decision-making will be required from all members. For shooters, being part of a collaborative group means having less independence regarding where and when they shoot, and for landholders, it involves an additional responsibility and drain on limited time.

6. The proposed model: a Kangaroo Coop to benefit landholders and harvesters

A collaborative model appears to hold the most promise for securing landholders a role in kangaroo management. This opens up as many questions as it answers, as there is a huge range of potential variations on the basic collaborative model presented above. This chapter proposes and explores in detail an operating model for engaging landholders in kangaroo management, based on collaboration between landholders and harvesters. It was developed to address the needs and priorities of the Maranoa Wildlife Management Conservancy, a Sustainable Wildlife Enterprise established by the Mitchell and Districts Landcare Association, in conjunction with local harvesters. It is therefore tailored to the regional conditions, regulatory framework, and kangaroo management prevailing in that area. A short background on the history of the group is given, followed by a description of the basic features of the model. Key aspects are then explained and discussed in more detail, followed by a description of the presentation and trial of the model with the major target group.

6.1 Background: the Maranoa Wildlife Management Conservancy

The Mitchell and District Landcare Association is based in Mitchell, on the Maranoa in western Queensland. It is the umbrella association for many local Landcare groups around the town. For several years, this group has been engaged in exploring options for establishing a Sustainable Wildlife Enterprise, with support from RIRDC, and have established the Maranoa Wildlife Management Conservancy. As commercial harvest of kangaroos offers the most obvious wildlife-based enterprise for the group, this has been the focus of their efforts. As yet the group remains an informal organisation. At the inception of this study, the group had carried out a range of activities: information and awareness-raising activities among landholders and harvesters to lay a basis for collaboration, workshops to explore issues surrounding collaboration, initial negotiations with processors, and a survey of kangaroos across the area. The model put forward here was developed in close collaboration with key stakeholders from this group.

6.2 The model

6.2.1 Outline of the model

6.2.1.1 Coop function and structure

A trading cooperative is established – the Maranoa Kangaroo Harvesters and Growers Coop. The Coop's primary activities are kangaroo management, processing and marketing (with processing understood here to include operation of chiller boxes). Membership of the Coop is limited to those who support the business of the Coop - landholders and harvesters. All members benefit from the greater negotiating power of the Coop in relation to processors, the establishment of cooperative, long-term relationships between the groups, and the potential for development of high-value niche products reliant on landholder involvement.

Its major activities initially will focus on collective bargaining with processors on behalf of its members; chilling and holding of kangaroo products produced by its members; and quality assurance. In the future, the aim is to expand into development of premium products, badged on the basis of environmental standards (land management, biodiversity), regional identity, and/or landholder involvement; and potentially into processing and marketing to buyers further toward the consumer end of the chain. For a visual representation of the Coop's functioning, see Fig 1.

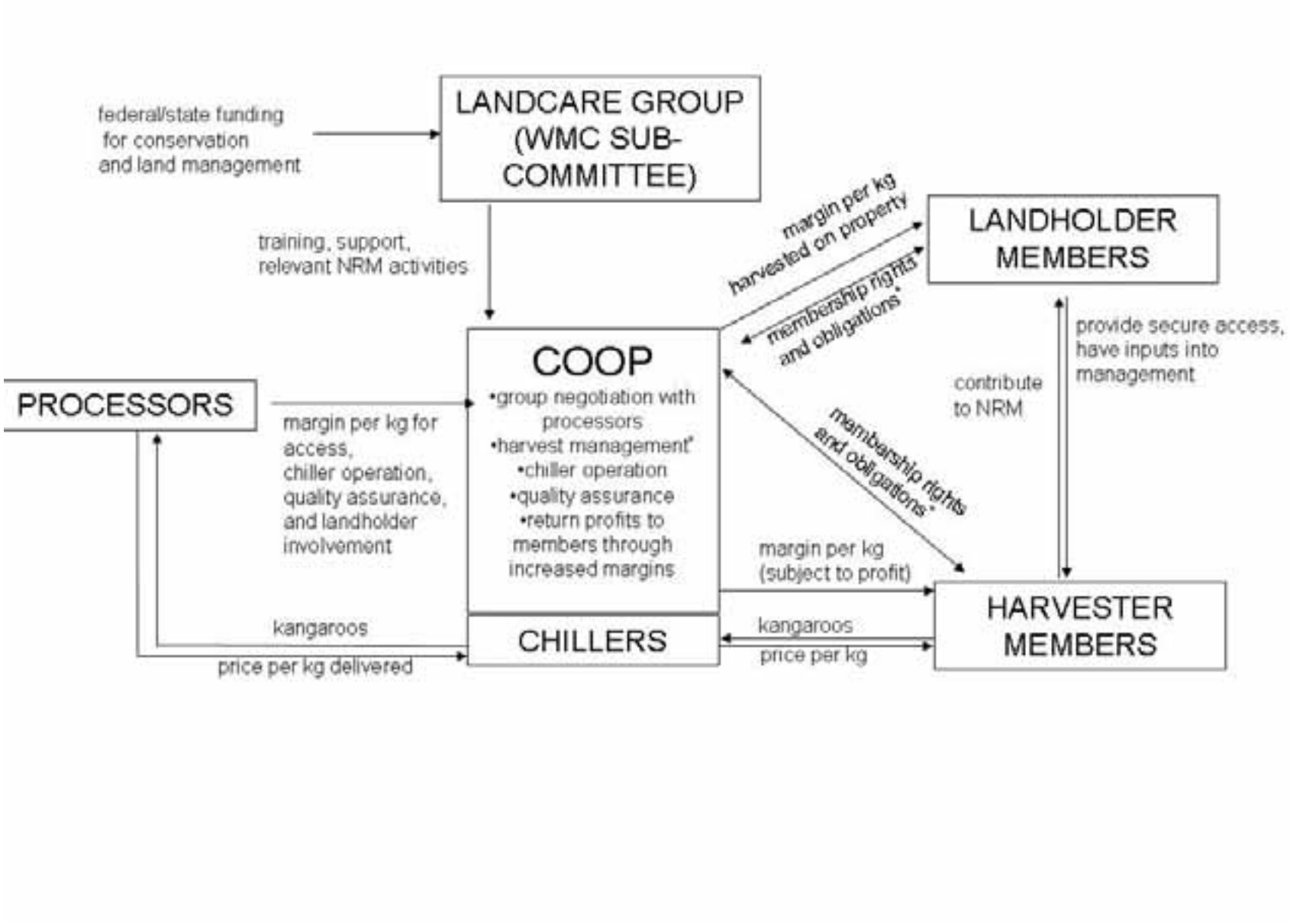

Fig 1. Visual representation of the proposed Maranoa Kangaroo Harvesters and Growers Coop

Members of the Coop can purchase two different kinds of shares – landholder or harvester shares – with varying rights and obligations. Negotiations with processors are carried out by the Coop on behalf of the group as a whole. The Coop owns/leases and operates one or more chiller boxes. Harvester members supply the chiller boxes with kangaroos harvested on landholder members' land. The Coop plays an active role in developing and implementing best-practice quality standards of carcasses produced, which could include standards of animal selection, harvesting, field dressing, transport, and chilling. The Coop seeks to negotiate an additional margin per kg from processors, on top of the standard prevailing market price/kg. As bargaining points, the Coop can offer processors

- Exclusive access to product from the properties of landholder members,
- Consistent high-quality product, and
- No use of damage mitigation permits by landholders.

Future avenues for exploration include specific size ranges (larger animals yield more profit to processors), selection of specific size/sex/age/species combinations that may have particular meat attributes, commitment to specific target volumes, and environmental labeling.

6.2.1.2 Rights and obligations of members

The major obligation for landholder members is that they provide exclusive access to Coop harvester members to their properties for harvest. They do not allow harvesters who are not members to harvest on their land – if their current harvester is not willing to become a member, they will no longer be able to harvest there. Member harvesters are given secure and exclusive access to country – no other harvesters will be allowed on against their will. Landholders still make all decisions about which shooters access their land, and are under no obligation to allow any specific member harvester on to their land, but any harvest on their land must be by a member harvester. A further obligation for landholders is that landholders do not use damage mitigation permits on their properties. This benefits the Coop by increasing future offtake.

The major obligation for harvester members is that kangaroos harvested on Coop member properties are supplied exclusively to the Coop chiller box, up until its capacity is reached. If the chiller operator indicates the Coop chiller is full, kangaroos can be sold elsewhere.

6.2.1.3 Returning value to members

At chiller boxes, the Coop (through a box operator) pays shooters on a per kg basis at standard market rates. The processor pays the negotiated rate to the Coop. The industry standard margin for a box owner/operator is 15c, so the Coop would be seeking ca 20c/kg and upward, on top of the price/kg paid to harvesters. Out of this the Coop pays the box operator a sum per kg (industry standard is 7-10c). The rest goes toward covering the Coop's costs and generating profit for its members.

The profits of the Coop are returned to its members on the basis of their contribution of kangaroos to the Coop. So landholders benefit on the basis of the amount of kangaroo harvested on their land, and harvesters on the basis of how much they have delivered to the chiller. The benefits paid to members would vary from time to time in line with the profitability of the Coop, its capital needs, and business strategy. These benefits could be distributed among members at the end of the financial year or by whatever arrangement was advantageous in terms of administrative and tax implications.

6.2.1.4 Governance and staffing

The Coop's decision-making proceeds on a one-member one-vote basis. All members, regardless or share class, land area, or volume of business transacted with the Coop, have an equal say, in line with Cooperative principles. A Board of Directors is elected by the membership from among its members. The Board of Directors oversees the running of the Coop, establishes strategy and policy, appoints and manages staff, ensures financial and legal obligations are met, and so forth. Independent directors (non-members) can also serve as Directors, and may bring important skills such as specialised business expertise.

The Coop employs staff to pursue the activities of the Coop, such as developing business strategy; expanding membership; implementing quality assurance programs; negotiation with processors; developing marketing strategies; compilation and maintenance of records on harvest; regular liaison and communication among members; overseeing chiller box operation and maintenance, including meeting regulatory requirements; and financial record-keeping and reporting. A Managing Director should be appointed, initially on a part-time basis, and a chiller box operator will be required.

6.2.1.5 Relationship with Landcare group

The Coop maintains a close working relationship with the Maranoa Wildlife Management Conservancy, which is a sub-group of the Landcare group. Since membership is overlapping, this should not be difficult. The Landcare group retains responsibility for elements of kangaroo management that fall within its remit (i.e. are related to land and TGP management), such as supporting landholders in integrating kangaroo management within property management, training and support in EMS implementation, gaining scientific input to guide harvest strategies, or carrying out kangaroo surveys. It can seek financial support to support these activities from state and Federal sources.

6.2.1.6 Raising capital

In terms of capital needs, for the Maranoa group some funding of the parent Landcare group will assist in the early stages. The Landcare group has purchased two chiller boxes, which represent the major investments required, and has funding to assist in establishment of the Coop. Minor additional capital will be raised by the purchase of shares by members. These are priced at a low figure of ca $50-500, in order to encourage membership. The Coop can borrow from financial institutions, and regional and industry development funding may be available.

The following sections explore some aspects of this Coop in more detail, and explain and justify some of the choices made in formulating it.

6.2.2 Why a cooperative?

Various forms of organization can be used to facilitate cooperation among people to achieve shared objectives. In this case, an initial consideration is that the Coop itself needs to have legal personality, in order that it can own assets (such as chiller boxes), it can enter into contracts, sue and be sued, members are not personally liable for its debts, and so forth. A second consideration is that one aim of the Coop is to return economic benefits to its members. This rules out non-commercial structures such as incorporated associations and public companies limited by guarantee.

The major options are therefore a company (limited by shares) or a trading cooperative. Companies, which are registered under the Commonwealth *Corporations Act 2001* can be either public or private. Public companies limited by shares are primarily geared to facilitate public investment, which is not a current aim of this enterprise. They are also relatively expensive to establish. This brings the major choice down to a private company or a coop.

Private companies are the most common type of company. Key attributes for our purposes include the following:

- Companies are owned by the shareholders. Each member's interest in the company is represented by the number of shares the member holds in the capital of the company.
- Member liability is limited to the unpaid amount (if any) on each share.
- The company pays profit to shareholders in the form of dividends on shares, which can be traded by members.
- Private companies are restricted in size – they may have only up to fifty members.
- Private companies have low financial administration and reporting requirements: they do not require that an AGM be held, do not require that accounts be audited, and do not need to disclose their accounts to a regulatory body.

A cooperative has been defined by the International Cooperatives Association, the peak body supporting cooperatives globally, as "an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise". Key features of trading cooperatives, those which return profit to their members, are as follows:

- A coop is owned and controlled by those for whom it was established and who use its services. Only those who use or contribute to the business of the Coop can be members.
- Voting is one-member one-vote, rather than on the basis of shareholdings.
- The Board has control over who joins the Coop.
- Coops are registered under state law – in Qld, the *Cooperatives Act 1997*.
- There must be at least five members (under Qld legislation).
- Member liability is limited to the fully paid up value of their shares.
- Coops return value to members on the basis of member entitlements rather than shareholding.
- Their establishment is less complex and costly than companies.
- In Qld many of the requirements applied to public companies by the *Corporations Act* are applied to coops. Like public companies, they must hold an AGM, have audited accounts, and make annual disclosures to the Office of Fair Trading.

Globally, cooperatives are strikingly successful. A recent review revealed that the largest 300 cooperatives combined would rank in tenth place assessed against national economies. They held assets of US$30-40 trillion and had an annual turnover of nearly US$1 trillion, only marginally smaller than Canada in ninth position (International Cooperative Alliance 2008). Agricultural cooperatives are among the most successful sectors. For instance, this review shows that the Zen-Noh agricultural co-operative in Japan, the largest cooperative in the world, has a turnover of US$63 billion, and Europe's largest dairy business is a cooperative with a turnover of over US$7 billion.

Coops have a long history and a rather mixed reputation in Australia (Lyons 2001). However, they continue to be important entities in agricultural businesses in particular. Here they gain for producers the benefits of bargaining power when selling their produce and some have taken on processing as well. While relatively few in number, compared to coops in other sectors, most large coops are agricultural (Lyons 2001) and many are successful and long-established. For instance, Australia's largest dairy business is Murray Goulburn Co-operative. Over recent years, as agriculture faces challenges of globalisation and greater competition, coops have been established for purposes as diverse as fuel supply, telecommunications provision, farm forestry, organic farming, processing and selling knitting yarn, and marketing lambs (see generally (Cooperative Development Services undated). In Qld the number of registered cooperatives is holding steady (ca. 200), and in NSW is growing (>800) (Qld and NSW Offices of Fair Trading, pers. comm.).

Coops have some important strengths for pursuing the mutual objectives of landholders and harvesters:

- They are cheaper to establish, which is not insignificant given that starting capital for the enterprise is low
- The democratic voting structure (one-member one-vote) may be better to maintain an equitable and balanced representation of the interests of the two groups in decision-making (landholders and harvesters), rather than voting on the basis of shareholding (which will favour those with more capital to invest in shares). This may foster loyalty and better cooperation, which is essential for its success
- While reporting and governance obligations are stronger, and this imposes greater costs, the greater robustness and transparency required to fulfill these obligations should be viewed as an asset
- Coops return value via membership rights, rather than shares. They can return benefits to members on basis of the amount of business they transact with the Coop, such as the kg of kangaroo they produce for chilling and marketing by the Coop. It may be possible to do this under a company structure – for instance, landholders and harvesters could invoice the Coop at the end of each year for an agreed per/kg payment, decided by the Coop on the basis of their financial position, and the Coop would pay no dividends on shares. But this is not the way companies are designed to operate, and it is likely to be more straightforward to do this under a coop structure.
- Possibly the most important advantage of a coop is its more stable and easily controlled membership. Only those who contribute to the business of the Coop can be members, and the Board must approve new members, while private companies generally place few restrictions on the transfer of shares. These restrictions on Coop membership should facilitate cooperation among the group. Further, it should help to maintain the access to land that underpins the entire enterprise – a stable group of landholder members are required to ensure supply of kangaroos. The Coop can manage its membership to ensure it has roughly the right proportion of landholder and harvester members, and adequate chiller capacity to service them.
- Members of a coop seek to pursue their ends collectively, rather than simply seek financial returns on their investment, as in a company. They may therefore be more likely to act for the long-term good of the organization and support its aim of service to its members, as well as its broader community and environmental ethos.
- Products from a coop may have a market advantage, as many in the community support the cooperative ethos. This has been the experience of at least some farm forestry cooperatives, for instance (Andrew Lang (SmarTimber , pers. comm.).
- Assistance and advice in establishing and running a coop may be available from Office of Fair Trading Qld.

The major disadvantage to pursuing a coop model in this context concerns raising capital from investors. Coops can of course borrow money from financial institutions, and raise a certain amount of capital from their members. However, coops are less attractive to investors than companies, not only because of their restrictions on membership, but because shares cannot be easily transferred, do not pay dividends (generally) and do not appreciate in value. Coops thus face restrictions in terms of raising capital for expansion. It is this factor that has driven the de-mutualisation (conversion to a standard company) of some cooperatives in Australia in recent years. Some of these problems have been addressed by new forms of cooperative that have been developed in the agricultural sector in recent years, discussed further below.

In any case, however, a cooperative structure offers distinct advantages in facilitating the collaboration that is at the heart of this enterprise, particularly through restricted membership and democratic decision-making. This initiative is not simply a profit-making entity (although it has to be economically viable), and adopting a structure designed to return profit to shareholders does not appear well-adapted to meet its aims.

6.2.3 New forms of agricultural cooperatives

Recent decades have seen the emergence of new forms of agricultural marketing and processing cooperatives that seek to overcome many of the limitations of the traditional cooperative model. A variety of these can be distinguished on the basis of how ownership rights are distributed, and arrayed along a spectrum from a traditional cooperative to a investor-owned company (Chaddad and Cook 2004). One of the most successful models, particularly in the USA, is the "new-generation cooperative"(NGC). These cooperatives have emerged in recent years in response to a set of problems facing primary producers, particularly drought and declining prices, and have been very successful in increasing income for producers. Their key attributes can be described as follows (see Stefanson, Fulton and Harris 1995; Coltrain, Barton and Boland 1999; O'Connor and Thompson 2001; Fulton and Sanderson 2002). The processing capacity for the coop is determined in advance, which determines the total amount of product members can deliver to plant. NGC members purchase shares of equity stock, which convey the right and obligation to deliver a proportional number of units of product to be processed/marketed. The price of shares is determined by dividing the capital required for establishment by the number of units of farm product that can be absorbed by processing facility. So, for instance, a producer might buy one share, which would entitle and oblige him or her to deliver one unit, 10 t, of wheat for processing. If five shares are held, 50 t can and must be delivered. The number of shares is held constant – membership is closed. Importantly, NGCs also involve the establishment of a market for shares – these can be traded and can appreciate in value.

The NGC coop is not appropriate for kangaroo processing, because it fundamentally relies on members committing to deliver a predictable volume of primary produce. This is not possible for kangaroos, where the harvesters and landholders who produce kangaroos are at the mercy of climatic fluctuation and population movements. However, the model proposed here has some aspects which deviate from traditional cooperatives and are similar to NGCs. First, the Kangaroo Coop model includes an *obligation* for members to deliver product for processing and marketing, not just the right. Landholders must ensure the kangaroos from their property go to the Coop chiller (by only allowing access to member harvesters), and harvesters must sell product from Coop member properties to the Coop chiller. By contrast, traditional cooperatives involve the right for members to have product processed by the coop, but they are free to take their product elsewhere if they receive a better price. Second, traditional coops usually accept a range of quality in farm produce, whereas NGCs typically contract with members for stipulated quality as well as volume. In the model presented here, the Coop stipulates specific quality standards to be fulfilled by harvesters, as well as standards of land management to be applied by landholders (no shoot and let lie shooting).

6.2.4 Balancing power between landholders and harvesters

As one harvester can cover several properties, to have the right balance of landholder and harvester members there will generally need to be several times as many landholders as harvesters in the Coop. There is consequently a need to build mechanisms into decision-making procedures to ensure that harvesters have an equitable say in decision-making and management i.e. that the landholder majority cannot control decision-making without harvester support. This is particularly important in view of the fact that the robustness and stability of the organization depends on all its members feeling that they are gaining equitable benefits.

This can be achieved through the following mechanisms:

- Quorum at meetings should require a minimum number of harvesters to be present, as well as a minimum number of members overall.
- Voting should require the support of a majority of each group for a resolution or decision to be carried. So with 20 people voting, including 5 harvesters, a resolution would require at least 8 of the landholders *and* 3 of the harvesters to support it for it to be successful. This system should encourage both groups to find approaches that work for both.
- The Board of Directors should contain a minimum number or proportion of harvesters, say 40%. So, in an election for Board positions, if a straightforward vote count would not result in an adequate number of harvester Directors, a seat that must be filled by a harvester (to reach an adequate proportion) should be filled by the harvester candidate gaining the most votes.

6.2.5 Equitable benefit-sharing

The model proposed here involves the allocation of benefits to members based on a per kg payment to harvesters for kangaroos shot (in addition to prevailing market rates), and to landholders for kangaroos harvested on their property. This leaves open the question of how exactly benefits should be divided between harvester and landholder groups. These could be allocated equally, or the Coop could establish an equitable formula that took into account the contributions that each group to profits gained by the Coop. For instance, if the Coop was gaining a margin/kg above market rates primarily due to some substantial or costly changes to the practice of harvesters, the Coop could decide that harvesters should receive a greater share of profits and a higher payment per kg than landholders. In any case, the allocation of benefits will need to be decided through a clear and transparent Coop decision-making process, such as at the annual general meeting, and these might be revised as circumstances, practice, and the business environment changes.

Returning value to landholders on the basis of a per kg payment for kangaroos harvested on their land is not the only option. One alternative option would be on the basis of land area. The rationale for this is that where kangaroos are harvested does not necessarily reflect the land they use. They could be using shelter on one property during the day, but feed on a second property where they are shot at night. If benefits are distributed according to where they are shot, the landholder of the first property will receive nothing, despite the fact he or she may be providing critical habitat to large populations. While this is a valid point, distributing benefits on the basis of land area has the disadvantage of providing no direct incentives for landholders to value the kangaroos on their property, as their income is not linked to a measure of the number of kangaroos on their property. They receive the same benefit in any case. Linking the number of kangaroos harvested on one's property to the level of benefit received provides a strong incentive for landholders to value kangaroos and see them as an important asset, with the various broader NRM and conservation benefits this could bring.

In the case of shooter benefits, one alternative option for returning value to shooters is to pay them more per kg at the chiller door, rather than through periodic distribution. One problem with this is that at any one point in time the Coop will not have a clear idea of its profits and what would constitute an equitable share. However, this remains a potential option, and may make joining the Coop initially more attractive to harvesters.

6.2.6 Harvest and TGP management

In the model proposed here, the major short-term harvest management measure instituted is agreement by landholders to stop using the non-commercial shoot and let lie tags. The primary motivation for this initially is that this establishes a favourable bargaining position with processors. Once the Coop is established and operating, however, it should benefit all involved by increasing future offtake. Decisions on use of non-commercial culling will need to be reviewed in light of changing conditions – while under current conditions this will not have a great impact on landholders in the region, there may be situations where large aggregations cannot be managed through the commercial harvest. In this case a clear procedure for use of shoot and let lie tags will need to established, and decisions on their use will need to be made in negotiation with the Coop rather than unilaterally. Where possible, however, the Coop will seek to avoid or minimize their use through harvest planning and management.

Effective harvest management will require that the Coop develop a harvest management plan that meets priorities of the Coop, the landholders, and the harvesters, as well as contributing to sub-catchment and catchment level NRM objectives. Major objectives are likely to include management of TGP and ensuring consistent high production. The plan should be based on sound scientific advice and could address timing of harvest, location of harvest, sexes, ages and species targeted. Landholders could seek to integrate these harvest plans with property management to promote both economic and conservation/land management objectives.

6.2.7 Expanding to include independent box operators and truck drivers

In the model put forward here, only landholders and harvesters are Coop members. But there are other players involved who could potentially benefit from becoming Coop members, and benefit the Coop by joining. In particular, many boxes in Qld are owned by independent box operators. When the capacity of the Coop expands beyond the chiller boxes it now owns, rather than investing in more boxes it could collaborate with these box operators. Box operators could purchase a third class of share. Membership would entitle the box operator to receive and chill kangaroos from Coop properties, and would require that they preferentially (or even exclusively) accept kangaroos from Coop member properties and/or harvesters. They would apply quality standards developed by the Coop for chiller operation. Box operators would benefit by being part of a larger bargaining group, and would benefit the Coop by avoiding the need to make major capital investments in order to expand.

6.2.8 Marketing and badging

The Coop develops strategies for raising the value of its product through improving quality and labeling it on the basis of environmental attributes. In the first instance, the Coop will develop and implement a Quality Assurance program at best-practice level, including systems to monitor and ensure consistency. Looking longer term, the work of Chudleigh et al (In review) suggest a potential niche for environmentally branded, gourmet products of high quality. This study suggests that an effective “environmental story” needs to be clear and backed up by authoritative demonstration of its claims (Chudleigh et al. In review). Some options that could work for the Coop are canvassed here:

- One environmental benefit of eating kangaroo is its lesser contribution to global warming than domestic stock (Diesendorf 2007). However, while an important message to get across, this claim can be made with respect to any kangaroo and would not attract any market advantage to the Coop.

- Landholder involvement in kangaroo management itself may be attractive to consumers. Recent work appears to indicate that a large proportion of the public is not aware that kangaroos are harvested wild, without management from landholders (Ampt and Owen 2008). The Coop could highlight the message that only their kangaroo is managed with the involvement of landholders, which may be more palatable to some sectors of the public.
- The product could be labeled as originating from a Sustainable Wildlife Enterprise, with objectives of better land management and biodiversity conservation. For these claims to carry weight, however, the contribution of the SWE to these objectives would ideally be monitored and verifiable, which will not be the case for some time.
- Coop landholders are all Landcare members, and this could be the basis of a marketing message. Landcare guards the use of its trademark very closely, however (G. Wilson, pers. comm.), and gaining permission to use it could be challenging.
- Coop member landholders could all implement an Environmental Management System, such as Landcare's Australian Landcare Management System (ALMS). This provides a robust assurance of good land management to the consumer.

6.3 How could regulatory practice support this model?

There are a number of ways in which government regulatory practice could change to support this model. These ideas draw in part on some of the overseas experiences presented in Chapter 4, particularly the supportive and cooperative relationships established in these countries between local landholders and government wildlife management agencies, and the greater role in management given to landholders who demonstrated that they met particular conditions or requirements.

6.3.1 Allocation of quota to the Coop

Currently, harvesters apply for and are allocated tags in Qld on an individual basis. It would be a major benefit to the Cooperative if it could apply for its own quota to be used on Coop properties by Coop harvesters. This would allow it to manage how and when quota was allocated across harvesters and how it was used on properties across the Coop, in line with its agreed management planning and to meet shared Coop objectives. It would avoid uncertainty for harvesters and the Coop around whether they will obtain adequate tags, and allow them to manage tag allocation to avoid running out of tags at the end of the year.

The annual allocation could be initially determined on the basis of land area, taking into account habitat type and past harvest rates. Annual quota allocated to the group need not be exhaustive i.e. the group could apply for more if it foresaw greater demand, but this additional allocation would be subject to remaining quota and not guaranteed. This quota could be further linked to conservation activities carried out by the collaborating group. For instance, groups that carried out restoration of vegetation or reduced stocking rates could be granted a higher quota, providing an incentive for such activities.

The group allocation of quota should be conditional on a group meeting certain conditions and requirements, including specifying the properties involved, specifying the harvesters involved, putting forward a procedure to trace chain of custody of tags and inform the regulatory agency regarding which tags have been allocated to which shooter. In return for taking on additional management responsibilities, the group is being granted additional management rights of a secure quota and the power to decide on tag-allocation amongst the group.

This would be facilitated by including a section in the Qld Wildlife Trade Management Plan for kangaroos specifying the requirements and procedure for group allocation of tags. It is not clear whether this would require regulatory change – it may be possible for the authority to simply set aside an agreed quota of tags for the group, to be distributed to Coop harvesters as required throughout the year.

6.3.2 Conditional devolution of most management rights to the Coop

Landholders and harvesters willing and able to take on a yet greater role in kangaroo management could be supported by granting them greater roles in management, along the lines of the successful overseas examples outlined in Chapter 4. Landholders who met certain requirements could be empowered to manage kangaroos without state-imposed quotas, subject to monitoring that demonstrated sustainability of harvest. Requirements for landholders to gain the right to establish their own management measures could include implementing an effective population survey protocol, developing a sound sustainable management plan agreed by all stakeholders and based on science, and establishing procedures for regular reporting to the regulatory agency. The major benefit for the Coop of this approach is that harvest quotas will be based directly on local kangaroo densities – these may be higher than the statewide average. Further, local densities may be boosted by local land management measures, such as de-stocking some areas or conserving vegetation, and this will be reflected directly in quotas. Further, groups can use adaptive management approaches to determine the impact of local management measures including different harvest strategies.

6.3.3 Tradeable quotas

A further elaboration is that quota allocated to groups of collaborating landholders/harvesters could be tradeable within their harvest zone. If a group had excess quota it could sell quota to other collaborating groups (or even to individual harvesters), or if it had a quota shortfall it could buy quota from other collaborating groups (or potentially from the government agency as well). Effectively a market would be established for quota. This would provide additional flexibility to the Coop: for various reasons it may have a low harvesting level in one year, but could still benefit from their harvest allocation by selling it on, maintaining the economic incentive to value kangaroos. Cooperating groups that needed additional quota to maintain production volume could buy it from other groups.

Tradeable quota has been tried in the past in kangaroo management – in South Australia from 1996 to 2001 (Thomsen and Davies 2007). That system was based on trading between individual landholders and few actually took up the option to trade quota, with most simply authorising use of their quota by shooters/processors with no compensation. Several features of this individual-property trading system made it inflexible and cumbersome to use. Landholders were generally unaware of the option to trade their quota and faced very high transaction costs to sell it – they had to contact another individual landholder and reach agreement on sale and price. Further, quota could only be used on specified properties, not used across properties, making the system inflexible for harvesters. Finally, landholders selling quota for individual properties had little bargaining power, particularly since densities of kangaroos in SA are generally low. A group system like the one outlined here would get around many of these problems, however, as collective bargaining both cuts down on transaction costs and means quota controlled by a group is large enough to have some real economic value. Further, in the Queensland system tags can be used across any properties within the harvest zone, enhancing flexibility.

6.4 Trial of the model with the Maranoa SWE

The model outlined above was trialled with its major target group, the Maranoa Wildlife Management Conservancy, the SWE established by the Mitchell and District Landcare Association. It was presented to a meeting of involved landholders, harvesters and box operators in early February 2008. It was discussed at some length and an in-principle decision was taken by the group to further examine this model with a view to its implementation. A Working Group was established for this purpose. The model was then presented and discussed at a meeting involving participants from all three SWEs, in Broken Hill in February. The model received widespread support from many participants (see FATE 2008). Some long established industry participants stated that it was the first model they had seen throughout their involvement with the kangaroo industry that they believed could work. The Maranoa SWE Working Group met again in early March. At this meeting, as an initial step toward establishing a formal Coop, they agreed a set of obligations of membership of an informal Coop (attached in Appendix 1) and further actions toward securing membership were agreed.

7. Discussion

This research set out to develop, evaluate and trial models for rangeland landholders to be involved in wildlife management and share the benefits of wildlife harvesting on their lands. Based on consideration and analysis of current kangaroo management practice, overseas experience, and the range of options open to landholders, this research proposes a model based on the establishment of a kangaroo management, processing and marketing cooperative, involving landholders and harvesters as members. It is tailored to the circumstances of an SWE in Qld but could be easily adapted for operation in other states.

While this model appears to be feasible, practical, and offer a range of benefits, its successful establishment will face a number of challenges. It will require ongoing commitment from the landholders, the Landcare group, and harvesters involved. For landholders, kangaroos are a peripheral preoccupation – their time is often under pressure from their current property management priorities, and it may be difficult for them to maintain focus and activity toward establishing a Coop arrangement. While they may all wish for better management of kangaroos, and for economic returns, this does not necessarily translate into a willingness to commit the time and effort required to sustain such an initiative. For harvesters, the concept of landholder involvement in kangaroo harvest is typically a threatening one. In workshops and discussions carried on throughout this project, harvesters frequently expressed concerns that landholders would charge them for access to properties, and this would make the already thin profits from kangaroo harvesting even thinner. Establishment of a Coop will critically rely on the building up on trust and cooperation between these groups. Harvesters will need to recognise that grouping together with landholders and with each other can strengthen their position, and landholders will need to be prepared to work cooperatively with harvesters, not seek to impose an agenda on them.

Similarly, there is much scope for better relationships with processors. The industry body for kangaroo processors, the Kangaroo Industry Association of Australia, is generally perceived as unsupportive of landholder involvement in kangaroo management, and this was borne out by their input into workshops during this project. However, the model set out here indicates a range of benefits for processors as well. These include in particular exclusive access to a consistent, high quality source of supply, and the potential to develop niche products that are labelled and marketed on the basis of conservation-friendly land management.

These challenges could be substantially reduced with supportive policy and regulatory practice. The overseas models examined in Chapter Four illustrate well the benefits that can gained by establishing cooperative relationships between government and land managers. These models all empower land managers to play a larger role in wildlife management and harvest, including through devolving some aspects of property rights. Viewing the relationship between government and landholder groups as a partnership for wildlife management involving power-sharing opens the way for a suite of measures to encourage and support landholders who take a more active role. Extended management rights and privileges for collaborating groups can be awarded to those groups that demonstrate their ability and willingness to become engaged in sustainable wildlife management, and could be an effective regulatory “carrot” for regulators to encourage conservation-friendly land management practices. Probably the most important immediate change in regulatory practice that could be made to support a wildlife management Coop of the form envisaged here is to provide for the allocation of a harvest quota to a group, to enable them to hold their own quota and allocate it among collaborating harvesters and landholders. Further measures and mechanisms, including providing technical and scientific advice, (conditionally) devolving the power to set quotas at a group level, and establishing tradeable quotas could further support collaborative groups to take responsibility for kangaroo management.

8. Implications and Recommendations

1. For the Sustainable Wildlife Enterprise initiated by the Mitchell and District Landcare Association, the Maranoa Wildlife Management Conservancy, the major implication of this work is that the model presented in Chapter 6 is the recommended model to pursue their objectives. This model involves establishing a harvest management, processing and marketing cooperative with both landholders and harvesters as members. While implementing this model will involve substantial inputs of time, effort, and some money, and will require the establishment of a relationship of trust and cooperation between landholders and harvesters, it offers the potential for both landholders and harvesters to benefit through:

- collective bargaining to gain best market terms for the product they both play a role in producing
- more effective kangaroo management at a cross-property level, both to meet production objectives and for better management of TGP
- more cooperative relationships between landholders and harvesters, including harvester participation in ferals control and weed management
- more secure and exclusive access to country for harvesters
- reduced use of shoot and let lie tags (non-commercial damage mitigation culling), and
- equitable sharing of profits.

2. For Landcare groups and regional/catchment natural resource management bodies, the model recommended here offers them a potential option to meet objectives of better management of total grazing pressure, improved diversification of landholder incomes and better socio-economic resilience, and better management of feral animals and weeds at the local level.

3. For processors, collaboration between landholders and harvesters in kangaroo management, according to the recommended model, could offer real benefits to them as well. Establishment of a cooperative involving landholders and harvesters opens the way to:

- assuring an exclusive, consistent source of supply from the properties involved
- improved quality management from field to fork, through development and implementation of best-practice quality assurance programs
- harvest management measures that allow improvements to meat quality, such as selection of specific age/sex/species combinations
- implementation of sophisticated, GPS-based traceback systems
- environmental branding based on conservation-friendly land management practices of landholders.

4. For relevant regulators and policymakers, particularly managers of state kangaroo management programs, the implications of this work are that landholder involvement in kangaroo management is feasible and potentially beneficial in meeting a suite of land management and industry development objectives. Government support for such initiatives would greatly assist their implementation and empower landholders to take a more active role in kangaroo management, in cooperation with relevant government entities. Recommended support includes:

- providing advice and technical and scientific support to groups seeking to collaborate on kangaroo management
- providing funding for such initiatives
- supporting the allocation of quota to collaborating landholder/harvester groups, subject to certain conditions such as adequate procedures to ensure chain of custody of tags
- exploring other approaches to conditionally devolve more kangaroo management rights to collaborating groups, in return for these groups taking on a larger role in sustainable management.

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Appendix 1

Maranoa Kangaroo Harvesters and Growers Cooperative Membership Declaration

By signing this statement and paying the joining fee of $11, I am joining the Maranoa Kangaroo Harvesters and Growers Coop and committing myself to the following:

1. Each landholder will provide exclusive access to their property to one individual Coop member harvester at any one time

2. Harvesters will sell kangaroos from Coop member properties exclusively to the Coop chiller boxes. However, if the Coop box operator indicates the Coop boxes are full, they are free to sell elsewhere

3. Landholders will not apply for or use damage mitigation permits

4. Harvesters will implement any Quality Assurance schemes developed by the Coop.

Members will have the following rights:

1. the Coop will collectively bargain on their behalf to secure the best market price for their product

2. they receive an equitable share of any profits made by the Coop.

This is an interim set of rights and obligations, and they will be reviewed with your input as the process towards establishing a formal Cooperative progresses.

SIGNED

WITNESS

DATE

WHEN SIGNED, PLEASE RETURN THIS FORM AND $11 TO:

The Landcare Coordinator
48 Cambridge St
PO Box 94
Mitchell 4465

Cheques should be made out to Mitchell and District Landcare Assoc. Inc.

Landholder Collaboration in Wildlife Management

Models for landholders to share benefits from kangaroo harvesting

RIRDC Publication No. 08/150

This report is about landholder involvement in the management of wildlife in Australia. It examines and evaluates a set of broad options for landholders to be involved in, and benefit from, kangaroo harvest based on assessment of current management practice and selected overseas experience. It then proposes and develops a detailed model based on collaboration and benefit-sharing between harvesters and landholders.

The research is important because there are good arguments involving landholders in kangaroo management that can help deliver better rangeland outcomes in terms of conservation and land management, on one hand, and more diversified and resilient rural incomes, on the other. These arguments have been made for many years, but little attention has been paid to developing and evaluating models for making it happen. This research fills this gap.

The aim of this Program is to facilitate a more diverse rural sector, enhanced biodiversity and innovative industries based on non-traditional uses of the rangelands and their wildlife.

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