AUSTRALIA'S

PEST ANIMALS

New Solutions to Old Problems

PENNY OLSSEN

Bureau of Resource Sciences

AUSTRALIA
*Australia's Pest Animals* is based partially on the Bureau of Resource Sciences' Pest Animal Guideline series:


and on material provided by Noel Preece and Penny van Oosterzee. The guidelines can be obtained by contacting:

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Foreword

Pest animals are those which threaten the agricultural, environmental and personal resources of human value. European settlement is mostly responsible for the large number of such species in Australia today.

Beginning last century, many animals were released deliberately for food production, game hunting, companionship or aesthetic reasons. Other species established accidentally, originating from incidental immigrants or are domestic animals which escaped to establish wild populations. Changes in land use have also caused some native animals to become pests.

Despite concerted effort to manage pest animals, their populations remain large and widespread and cause considerable damage.

The Bureau of Resource Sciences recently reviewed pest animal management in Australia and overseas. State and Territory pest management agencies, CSIRO, Environment Australia and representative community groups including the National Farmers' Federation, the Australian Conservation Foundation and the National Consultative Committee on Animal Welfare collaborated in the undertaking. The result is a series of national guidelines which outlines a revised, strategic approach to the management of particular pest animals, including feral horses, rabbits, foxes, feral goats, feral pigs and rodents.

The guidelines build on Australia's sound understanding of the biology of pests, and expertise in the development and application of pest control techniques. They bring together the experiences of resource managers and researchers across Australia and overseas, challenge old assumptions and ask how to do it better.

*Australia's Pest Animals* draws on these guidelines and other sources to give an overview of pest animal problems in Australia and promote the use of scientifically based strategic management that is humane, cost-effective and integrated with ecologically sustainable land management. The book is written for a general audience. It will assist farmers and natural resource managers to deal with their pest animal problems. It represents a useful overview of pest animal management in Australia for policy-makers and a source reference for students. Conservationists and other interested readers will gain better insight into one of the most significant conservation issues in Australia. Not least, the strategic management approach advocated in *Australia's Pest Animals* has application to a range of other natural resource management issues.

Peter O'Brien
Executive Director
Bureau of Resource Sciences
Preface

When I told a friend that I was writing a book on vertebrate pest management he inquired whether it was about sheep. One thought led to another and it occurred to me that this book is not about pest management at all, but about management of people. It is people who decide whether an animal becomes a pest either by moving it physically, by modifying habitats or land uses or by altering their own perceptions. It is people who decide whether an animal stays a pest either by managing it or by softening their perception of it. It is people who decide how, when and where to manage a pest, and people who determine whether a management program will be successful. So, this is a book about people managing themselves and cooperating in order to better manage their environment, be it farm or nature reserve, to minimise the damage caused by pests.

The book is based on the well-shaped principles, practical approaches and ready-made examples, developed and espoused in the national guideline series Managing Vertebrate Pests by the Bureau of Resource Sciences, with published volumes written by Dave Berman, Mary Bomford, Mike Braysher, John Burley, Judy Caughley, David Choquenot, Brian Coman, Will Dobbie, Robert Henzell, John McLennan, John Griffiths, Dana Kelly, Jack Kinnear, Terry Korn, Ian Parer, Bob Parker, John Parkes, Greg Pickles, Glen Saunders, Ron Sinclair and Kent Williams.

The preparation of Australia's Pest Animals would have been immensely harder without the generous contribution, enthusiasm and support of Mike Braysher. Much of the text was drafted by him and his philosophies on pest management influenced the entire book.

A number of other people were generous with their knowledge and assistance. Quentin Hart gave valuable guidance at all stages of the preparation of the book and was responsible for the general compilation of text, figures and photos for publication. Thorough reviews by John Parkes and Mary Bomford greatly improved the manuscript. Ron Sinclair was particularly helpful with the compilation of the case study on ravens. David Choquenot assisted with one on pigs and Quentin Hart prepared the study on the Sutton Grange project. Steve McLeod kindly drafted material on experimental design and population dynamics and Sandy Thomas checked the section on biological control. Information on immunocastration and on mice was kindly provided by Lyn Hinds and Grant Singleton. Graham Cullen gave advice on various sections and Dana Bradfield helped with the boxes on introduced species. Thanks are also due to the various photographers whose work adds colour, information and interest, and to Brett Cullen for skilled preparation of the illustrations.

I am also grateful to Andrew Cockburn, Head of the Division of Botany and Zoology, Australian National University, where I am a Research Fellow, for his unstinting support.
Introduction

Despite ongoing improvements in established pest control methods and the development of new techniques, Australia has basically the same suite of pests now as at the turn of the century, and animals that were critical pests then continue to cause concern. Each year hundreds of thousands of foxes, rabbits, kangaroos, goats, pigs, mice, cats, rats and parrots are trapped, poisoned, shot or otherwise destroyed because of the agricultural losses and environmental harm they cause. The hope has been that with lots of effort and the support of governments, pests can be all but eliminated. Yet, although several native animals have become rare or extinct because of human activities, pests continue to thrive. Clearly, it is time to review the past, and to plan pest management that is smarter and more successful.

Effective pest management must be sensitive to the ever-changing needs of land managers and the wishes of the community. In recent years, several developments have changed the way in which Australians approach pest animal management in particular, and land management, in general. These include:

- recognition that land systems should be managed as a whole and that pest animals are only one factor influencing sustainable use of the land and protection of biodiversity;
- consistently declining commodity prices—as primary producers are increasingly required to compete on deregulated world markets—which place even greater importance on the need for cost-effective pest animal control;
- better understanding of the range of groups—including, community Landcare, animal welfare and conservation groups, research organisations and financial institutions—interested in pest animal management and recognition of the need to involve them in the planning and management of pest animals;
- concern over extensive reduction in native habitat, particularly in areas converted to broad-scale cropping. This reduction results in many small, fragmented habitat remnants which isolate native plant and animal communities and make them more vulnerable to damage by pest animals;
- recognition that conservation of much of Australia’s biodiversity now depends on management of wildlife outside reserves, often on private land; and
- a decline in government assistance for pest animal control.

In the light of past experiences and present conditions, the Bureau of Resource Sciences recently reviewed pest animal management both in Australia and overseas. State and Territory pest management agencies, CSIRO, Environment Australia and representative community groups including the National Farmers’ Federation, the Australian Conservation Foundation and the National Consultative Committee on Animal Welfare collaborated in the undertaking. The
result is a series of national guidelines which outline an updated and strategic approach to pest management. The guidelines build on Australia’s knowledge of the biology of pests, and expertise in the development and use of pest control techniques. They incorporate the wealth of experience of resource managers and researchers across Australia and overseas, challenge old assumptions and ask how to control pests better.

Australia’s Pest Animals draws on the guidelines to give an overview of pest problems in Australia, and describes the processes of better management in a clear, thought-provoking way. The new approach to pest management is based on a whole land system plan, and emphasises control of the damage that pests cause rather than simple reduction in pest numbers. It is built around a central framework of five interrelated steps that:

- define the problem in terms of pest damage;
- determine objectives;
- identify and evaluate management options;
- implement a management plan; and
- monitor and evaluate the outcome.

Pest control is not easy and there is still much to learn. For most pests there is little good information about the type and amount of damage they cause. With no accurate damage assessment, it is not possible to know what benefit to expect from a given level of pest control. There is a need for basic research on these issues and on biological, social and economic pest management systems in general, but often there is neither the time nor the funds to spend on long-term research before control begins. A quicker solution is to adapt management so that it functions as a productive ongoing experiment, often in the hands of the land managers. The outcomes are fed back into improving management. This adaptive management, or ‘learning by doing’, combines observation, experience and research to help land managers care for their land in a more sustainable and cost-effective way.

Some of the answers to past failures and keys to future management can be found in the attitudes of people to pests and in pests’ special characteristics; these are discussed in the early chapters of this book. Later chapters deal with practical management issues, from identifying the pest problem to choosing control techniques, and formulating and implementing a management plan. A series of case studies illustrates the application of the five-step approach to a variety of pest animal problems, and the final chapter speculates on future developments and directions in pest management.