

Murray Regional Strategic Pest Animal Management Plan **2018 - 2023**





Local Land
Services

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Murray Regional Strategic Pest Animal Plan 2018-2023

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing in May 2018. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Local Land Services or the user's independent adviser.

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Minister's Foreword

I am pleased to announce the Murray Regional Strategic Pest Animal Management Plan. This plan is a vital community tool, as it provides a strategic regional approach to improving the coordination and delivery of on ground, nil tenure pest animal management activities for terrestrial vertebrate and freshwater aquatic pest species in NSW.

The Murray Regional Strategic Pest Animal Management Plan is an excellent example how local communities can work together to protect the environment, community and economy from the negative impacts of pest animals and to support positive outcomes for our landscapes and ensuring we maintain a bio-secure environment.

The Murray Regional Strategic Pest Animal Management Committee represents major land uses and relevant economic, environment and community representatives for each region. The committee delivers a collaborative approach to setting regional priorities and is integral to the ongoing effective delivery of pest animal management outcomes in the region.

This plan is a product of extensive collaboration and engagement across numerous stakeholders involved in pest animal management. It will continue to grow and evolve with the changing environment and is an excellent framework to contribute to the delivery of improved coordinated pest animal management in NSW.



The Hon. Niall Blair MLC Minister for Primary Industries, Minister for Regional Water, and Minister for Trade and Industry



Photo credit: Paul Meek©

Executive Summary

The Murray region is impacted by a number of pest animal species that require coordinated and targeted control.

This plan has been prepared by the Murray Regional Pest Animal Management Committee, a sub-committee of Murray Local Land Services with membership representing farmers, the community, environmental groups and government land managers.

The overall goals of the plan are to:

- reduce the impacts of pest animals within the Murray region on production, the environment and the community
- improve community engagement and expertise in pest animal management
- improve monitoring and reporting of pest animal management activities.

A uniform prioritisation process was used across the state to assess the management category of each pest species within local regions (refer Appendix 1).

The pest species prioritised for action within the Murray Region are:

- | | |
|----------------|----------------|
| • European fox | • Wild dog |
| • Feral cat | • Wild horse |
| • Feral goat | • Wild rabbit |
| • Feral pig | • Common carp. |
| • Wild deer | |

Species that do not occur in the region that may be likely to establish in the region have been identified as ALERT SPECIES requiring immediate reporting and eradication. These species are:

- | | |
|---------------------------|-----------------------|
| • Chital deer | • Hog deer |
| • Rusa deer | • American corn snake |
| • Red-eared slider turtle | • Mozambique tilapia. |

Local management plans will be a major tool used to improve coordination of pest animal management activities within the region. Plans will be implemented where individual species are presenting a high risk to agricultural, social or environmental assets and will be created in conjunction with affected stakeholders. They will contain specific, achievable, measurable and timely outcomes. Plans may target one or more species within defined sub-regional areas and will outline best practice control activities that will allow local land managers to meet their General Biosecurity Duty whilst reducing the overall impact of the pest across the local plan area.

1. Introduction

1.1 Overview

- The Murray Regional Strategic Pest Animal Management Plan (RSPAMP) outlines how Government, industry and the community can work together and share the responsibility to eradicate, contain or manage pest animals in terrestrial and freshwater aquatic environments across the region
- The economic impact of wild rabbits, carp, pigs, foxes, dogs, goats and introduced birds has been estimated at \$170 million in NSW.
- Under the *NSW Biosecurity Act 2015*, all community members have a general biosecurity duty to prevent, minimise or eliminate any biosecurity risk. The general biosecurity duty is a principle that can be used by the community, landholders, Government and industry to implement best practice behaviours to achieve effective pest animal management.

1.2 Purpose of the plan

The overall purpose of the RSPAMP is to work together to protect the environment, community and economy from the negative impacts of pest animals to support positive outcomes for biosecurity and sustainable landscapes. The plan supports regional implementation of the *NSW Biosecurity Act 2015* and NSW Biosecurity Strategy and is reflective of key aligning themes including:

- Improved community engagement in biosecurity management
- Improved identification, diagnostic, surveillance, reporting and tracing systems for pests, diseases and weeds.
- Increased numbers of well trained and resourced people

This plan is one of 11 RSPAMPs across NSW. It presents a clear vision by identifying regional priorities for pest animal management and outlines how Government agencies, community groups and individual landholders will share responsibility and work together across land tenures to prevent, eradicate, contain and manage the impacts of pest animals.

RSPAMPs will provide guidance on how both public and private land managers can meet their general biosecurity duty and identify key commitments for pest animal management activities over the life of this plan.

1.3 What is considered a pest animal?

Under the *NSW Biosecurity Act 2015*, pest animals are not defined by species. Pest species can be considered as any species (other than native species) that present a biosecurity threat.

Whilst the Act does not define pest animals, there are specific activities that are permitted under the Biosecurity Order (Permitted Activities) that would otherwise be prohibited (such as keeping exotic animals in captivity).

It is the responsibility of individuals to ensure they discharge their general biosecurity duty to manage the biosecurity risks posed by pest animals. The Biosecurity Regulation 2017 will outline mandatory measures for pest animal management in NSW. General control and management of pest animals outlined in this plan can be considered mechanisms for individuals to discharge their general biosecurity duty and landholders and community members should work with stakeholders identified for ongoing implementation of pest animal management practices.

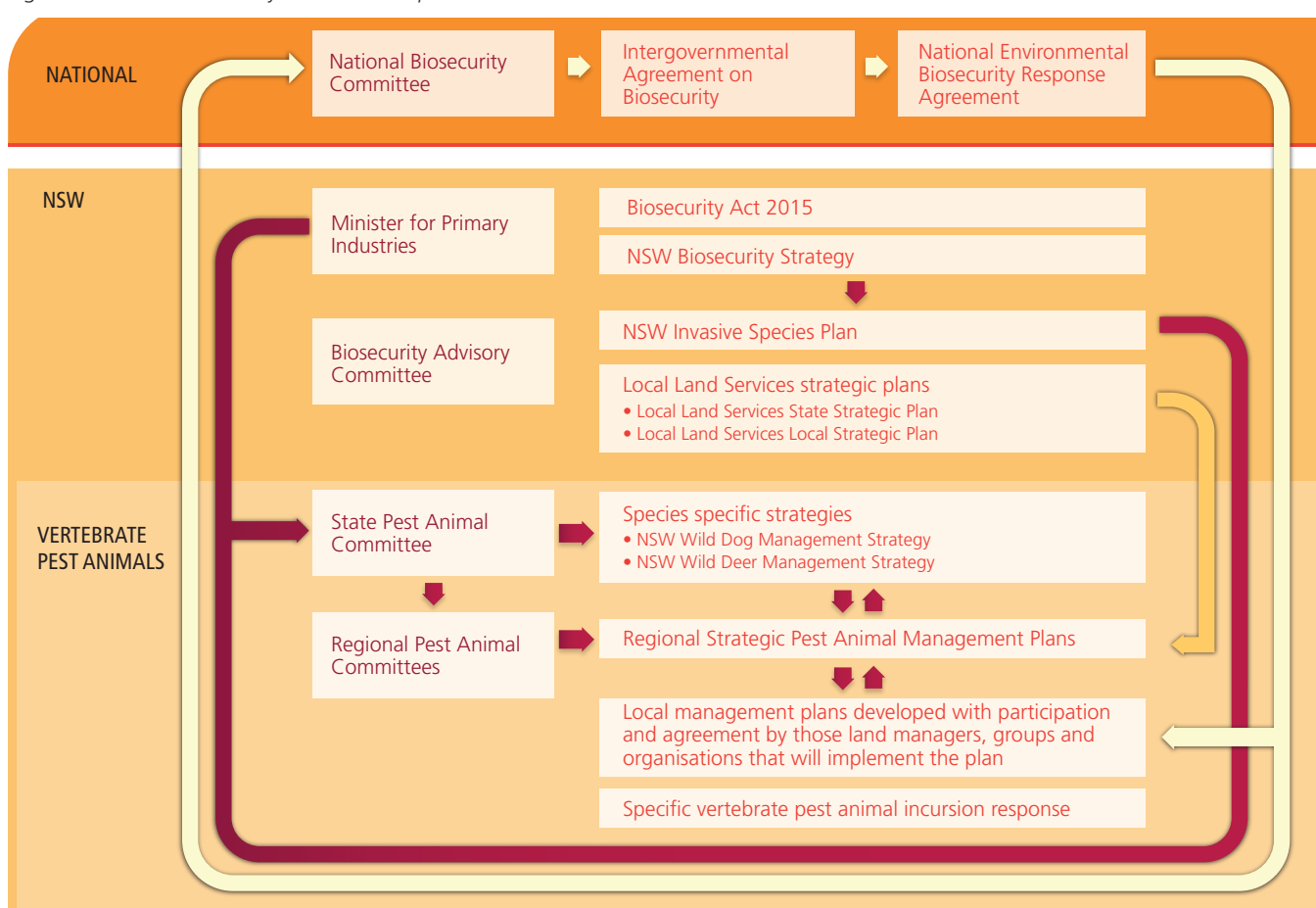
1.4 Managing native animals

Native species are protected by law in NSW and are not covered in this RSPAMP. Issues associated with managing the impacts of native species (such as kangaroos, emus, wombats and possums) should be addressed separately in consultation with National Parks and Wildlife Service and having regard to the regulatory requirements of the Biodiversity Conservation Act 2016. Non-lethal methods may include exclusion netting, fencing, gating, and olfactory devices. Where it is necessary to use lethal methods such as shooting to destroy native animals because they are a threat to human safety, damaging property and/or causing economic hardship, the National Parks and Wildlife Service can issue a biodiversity conservation licence to harm protected native animals under the Biodiversity Conservation Act 2016.

For further information visit <http://www.environment.nsw.gov.au/wildlifelicences/OccupierLicences.htm>

1.5 Framework for pest animals

Figure 1. The NSW Biosecurity framework for pest animals in NSW



1.6 Roles and responsibilities

- Under the new Biosecurity Act 2015 framework, biosecurity is a shared responsibility where Government, industry and the people of NSW work together to protect the economy, environment and community from the impacts of pest animals.
- Public, private and aboriginal land managers all have a shared and equal responsibility to eliminate and minimise biosecurity risks across land in NSW.
- A key focus of the RSPAMP is to encourage engagement and participation across all land tenures to enhance the participation and delivery of coordinated pest animal management activities for improved outcomes.
- Government plays a key role in coordination and regulation for pest animal management under the legislative framework. NSW DPI have a lead role in managing terrestrial and freshwater aquatic pest incursions. Local Land Services supports the delivery of pest animal management activities and also have a regulatory role under the *NSW Biosecurity Act 2015*.

The following outlines the role of the Regional and State Pest Animal Committee in the delivery of the RSPAMP. For more information on key roles and responsibilities in pest animal management, please refer to the Invasive Species Plan 2018-2021.

State Pest Animal Committee

The State Pest Animal Committee (SPAC) is responsible for overseeing a consistent approach to the ongoing operation of RPACs and development of tenure neutral RSPAMPs across the State. SPAC oversee key policy and strategy documents to guide pest animal management outcomes across the state.

Regional Pest Animal Committees

Regional Pest Animal Committees (RPACs) facilitate tenure neutral strategic planning and coordination for priority pest animal management programs in each Local Land Services (LLS) region. RPACs have an important role to play in the delivery of the RSPAMP through promoting land manager and general community involvement in detecting and reporting sightings of new or 'unusual' animals in the local area as well as managing established pest animals. RPACs play an important role in the ongoing periodic review and adaption of the plan as required.

1.7 Incursion management and alert species

We need to work together to ensure early detection and awareness of incursions and alert species are able to be managed swiftly and effectively. It is important the community remain vigilant and report any unusual sightings to ensure a rapid management response.

The *NSW Biosecurity Act 2015* outlines species that are prohibited from being kept in NSW.

Land managers and community members play a major role in reporting any unusual sightings of pest animals in the region.

ALERT SPECIES FOR THE MURRAY REGION

If you see any of the species listed below or any other unusual animals, please contact the Invasive Plants and Animals Enquiry line: **1800 680 244**.

- Chital deer
- Hog deer
- Rusa deer
- American corn snake.

If you see any of the species listed below or any other unusual aquatics, please contact the Aquatic Pests and Diseases Hotline: **1800 675 888** or email aquatic.pests@dpi.nsw.gov.au.

- Red-eared slider turtle
- Mozambique tilapia.



Top row (l-r): Chital deer, hog deer, rusa deer.

Bottom row (l-r): American corn snake, red-eared slider turtle, Mozambique tilapia.

Photographs courtesy NSW Department of Primary Industries

The following mechanisms can be used to report unusual situations in the region:

- Invasive Plants and Animals Enquiry Line: **1800 680 244**

For species that are yet to become widely established in NSW, the initial response to incursion reports is managed through consultation between DPI, Local Land Services and OEH. Where species are widely established in NSW but have spread into a new region, Local Land Services and the RPAC will consider whether local eradication or containment should be attempted.

2. Guiding principles of pest animal management

The following principles should be considered and implemented by all community, industry, landholders and other stakeholders in pest animal management.

Be alert

Monitor and report sightings of any species you have not seen in your area before. Prevention and early intervention from the community is important to avoid the establishment of new pest animal species.

Work together and participate

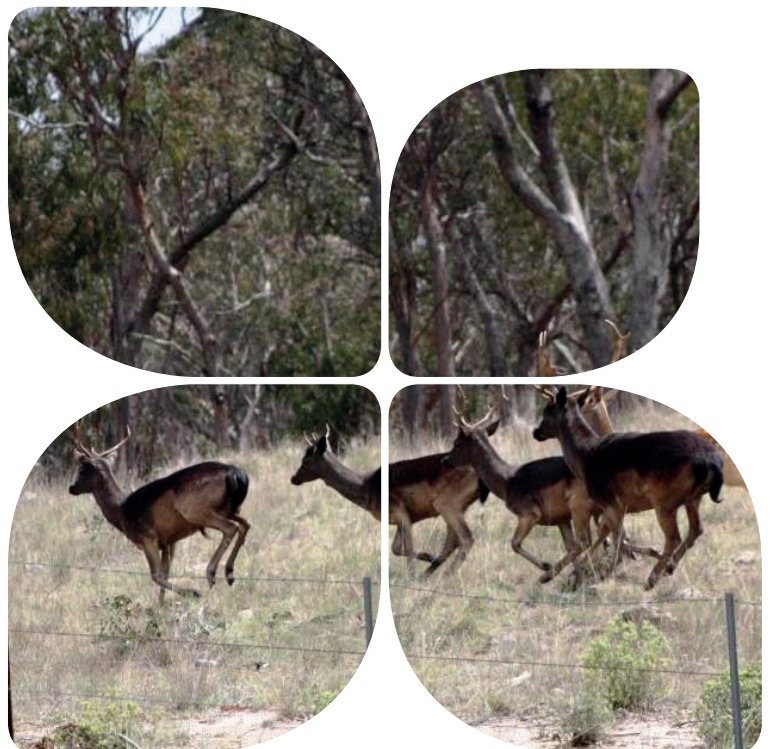
Pest animal management is a shared responsibility between landholders, community, industry and Government and requires a coordinated approach across a range of scales and land tenures.

Be committed

Effective pest animal management requires ongoing commitment by land managers, community, Government and industry. Those that create the risks associated with pest species and those that benefit from the pest animal management outcomes should help to minimise impacts and contribute to the costs associated with management

Stay up-to-date

Community, industry, government and landholders should stay up-to-date with new information to ensure that contemporary best practice pest animal management activities are employed to reduce pest animal impacts in a way that is as safe, effective, target-specific and humane as possible.



3. Our region

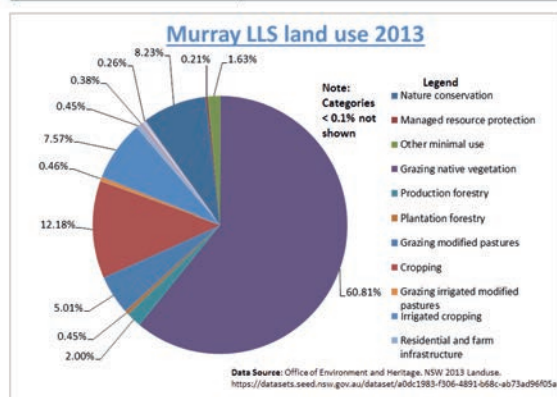
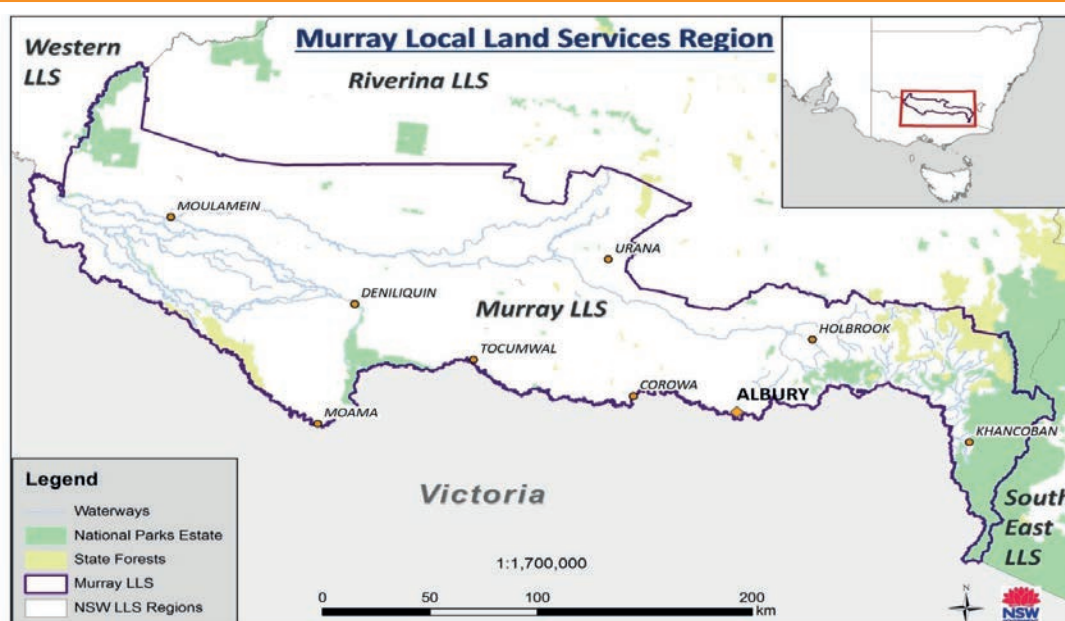
The NSW Murray Local Land Services region covers a land surface area of over 42,000 km². Bordered by the Murray River in the south, the region's landforms and vegetation communities range from Australia's highest alpine peaks and slopes, forests, and grassy woodlands and grasslands of the South West Slopes region to the semi-arid woodlands and vast grasslands and scrublands of the Riverina Plains.

Agricultural industries are diverse, including irrigated and dryland cropping, livestock grazing, and dairy production, with an estimated one-third of the region's community involved directly in agricultural enterprises. Extensive irrigation networks and the Snowy Hydro-Electric Scheme supply water to low rainfall areas. The region contains significant environmental assets such as the Central Murray state forests Ramsar sites.

Factors that currently influence pest animal management within the Murray region include restricted resources available for pest management, changes in farming practices (grazing to cropping), absentee land managers and small-scale farms, urban areas and public places with limited control options. Management of wild deer and feral cats is limited by a lack of control methods currently available for these species.

The Murray region borders Riverina, Western and South Eastern Local Land Services regions as well as Victoria. Inter-regional co-operative programs are already in place for wild dogs (annual aerial baiting program) and feral pigs (Western Riverina Feral Pig Program) with both the Riverina and Western regions. While the Great Dividing Range and the Murray River present significant physical barriers to the South East region and Victoria, local management plans bordering these areas will consider possible cross-boundary pest management in conjunction with relevant stakeholders and agencies. The existing tristate partnership, comprising NSW, Victorian and South Australian regional natural resource management organisations, provides an excellent vehicle for inter-state cooperation on emerging cross-border pest animal issues e.g. Common carp control developments.

Murray Local Land Services region



The pest animal distribution maps in this plan are based on statewide data compiled in 2016 from reports submitted and gathered. The maps are at a coarse scale and provide general guidance only about pest animal distribution. A key priority for future implementation of this plan will be to improve reporting of pest animals to refine regional information collected on pest animal distribution and relative abundance. Improved information on distribution and abundance will better guide management and investment and assess effectiveness.

4. Managing our pest animals

The following section details the management categories that should be used to minimise and mitigate the impact pest animals have on the community, environment and primary industries.

Pest animals in Murray region have been prioritised based on this framework.

Management Category	Overview
Prevention/Alert	<ul style="list-style-type: none"> GOAL: To prevent the pest animal species arriving and establishing in the Region causing adverse impacts on the environment, society and the economy. RESPONSIBILITY: To understand and report any sightings of alert species.
Eradication	<ul style="list-style-type: none"> GOAL: To permanently remove the species from the State or Region and to develop actions to prevent its re-establishment. RESPONSIBILITY: To participate in coordinated programs and stay up-to-date with current information on pest animals in the region.
Containment	<ul style="list-style-type: none"> GOAL: To prevent the spread of the pest animal species onto other parts of the State or Region. RESPONSIBILITY: To participate in coordinated programs, stay up-to-date and apply best practice pest animal management practices.
Asset Based Protection	<ul style="list-style-type: none"> GOAL: To reduce the impact of widespread pest animals on key assets with high economic, environmental and social value. RESPONSIBILITY: To participate in coordinated programs, stay up-to-date and apply best practice pest animal management practices. Ensure practices are coordinated with the wider community.
Limited Action	<ul style="list-style-type: none"> GOAL: Applies only to species that have a low to negligible risk in the region or for which further investigation is required on effective control techniques and strategies for management. RESPONSIBILITY: Stay up-to-date with current information.

Further reading and best practice guidelines for pest animal management may be found at:

PestSmart Connect (by Centre for Invasive Species Solutions)

<https://www.pestsmart.org.au>

NSW Department of Primary Industries

<https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/publications/nsw-vertebrate-pesticide-manual>

Meat and Livestock Australia

<https://www.mla.com.au/research-and-development/animal-health-welfare-and-biosecurity/invasive-animals>

Australian Wool Innovation Limited











<https://www.wool.com/on-farm-research-and-development/sheep-health-welfare-and-productivity/pest-animals>

5. Our priority pest species

Pest animals for the Murray region have been prioritised based on level of risk and feasibility of control assessed through prioritisation guidelines using the South Australian prioritisation tool.

Priority species listed below have been categorised into management categories and further strategies and actions are detailed.

Table 1.1: Species listed in this plan.

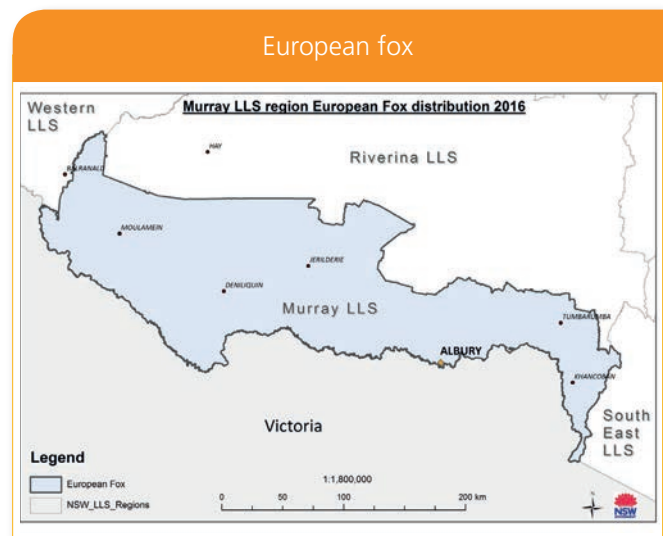
Common Name	Management Category	Section in Plan	Objective
European fox 	Asset based protection	5.1	Reduce the impacts of foxes on agricultural production and critical threatened species. Prevent the spread of disease.
Feral cat 	Asset based protection	5.2	Reduce the impacts to critical threatened species, sites to be identified in localised project plans. Reduce the impacts to agricultural production. Promote responsible pet ownership.
Feral goat 	Containment – Albury City Council local government area	5.3	Reduce the impacts of feral goats on agricultural production, threatened species and ecological communities within the Albury City Council local government area.
	Asset-based protection – excluding the Albury City Council local government area		Reduce the impacts of feral goats on agricultural production and the environment.
Feral pig 	Asset based protection	5.4	Reduce the impacts of feral pigs on agricultural production, threatened species and ecological communities. Prevent the spread of disease.
Wild deer 	Asset-based protection	5.5	Prevent further establishment of all wild deer species. Reduce the impacts of wild deer on agricultural production, threatened species and ecological communities.
Wild dog 	Asset-based protection - east of the Hume highway	5.6	Reduce the impacts of wild dogs on agricultural production east of the Hume highway. Ensure current wild dog management plans are in place.
	Eradication - west of the Hume highway		Eradicate.
Wild horse 	Asset-based protection	5.7	Land managers to manage wild horses in line with their current wild horse management plans, policies and/or objectives to reduce impacts on agricultural production, the environment, threatened species and/or public safety.
Wild rabbit 	Asset based protection	5.8	Reduce the impacts of rabbits on agricultural production, threatened species and ecological communities and cultural heritage.
Common carp 	Limited action	5.9	Support coordinated biological control programs.
House mouse 	Watch list	5.10	Monitor numbers and promote best practice control

5.1 Species - European fox

European foxes are widespread across the Murray region. As an established species that impacts on agricultural production and conservation lands, land managers should take all reasonable steps to suppress and destroy the population. Coordinated group fox baiting programs are well established within the Murray region. These programs provide land managers with technical support, training, access to fox baits and advice on best practice control options for fox populations.

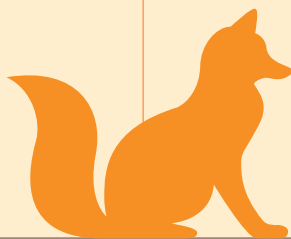
Barriers to effective control of fox populations are: changes in farming practices (grazing to cropping), absentee land managers, landholding aggregation, urban areas (public places - limited control options).

Major sheep-producing areas, Ramsar wetlands and other sites with significant environmental and cultural heritage will be prioritised for assessment of the need for the development of local management plans.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts on agricultural production and critical threatened species Reduce the risk of the spread of disease	Murray region	Asset based protection	Livestock – sheep, goats, farmed birds, piggeries, small domestic animals Critical threatened species	Primary Ground baiting Fox exclusion fencing Prepare and implement local fox management plans	Land managers Fox baiting groups Community based groups Local Land Services	Autumn & spring each year Ongoing
				Supplementary Ground shooting	Land managers	Ongoing
Increase the number of land managers conducting control Increase participation in group control programs			Improve community participation in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings	Land managers Local Land Services Community based groups	Ongoing

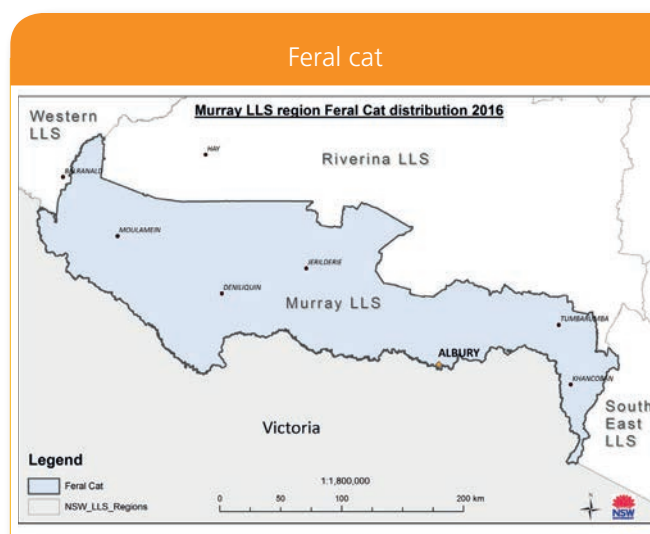


5.2 Species – Feral cat

Feral cats are established and widespread across the Murray region. The species poses significant risk to the environment and the potential for disease transmission to livestock. Feral cats have been identified as a species warranting coordination with local government to progress control strategies.

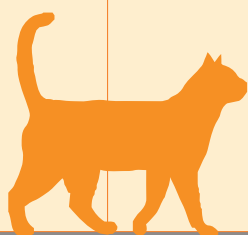
The aim of the plan is to raise awareness of the impacts of feral cats on the environment, to work collaboratively with stakeholders to implement effective cat control programs and to encourage the community to embrace responsible cat ownership.

Community engagement, surveillance and reporting will be key focus areas for future feral cat management. The restricted number of control methods available is a significant limiting factor to effective feral cat management.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts to critical threatened species. Reduce the impacts to agricultural production	Murray region	Asset-based protection	Livestock (farmed birds, small animals) Critical threatened species	Ground shooting Trapping Explore new management options Advocate for new targeted cat toxins Exclusion fencing	Land managers Feral cat management group members Local government Community based groups	Ongoing
Increase the awareness of the negative impacts of feral cats Improve responsible pet ownership			Improve community participation in key areas	E-newsletters New innovations / control options Social media	Land managers Threatened Species Commissioner Community based groups	Ongoing

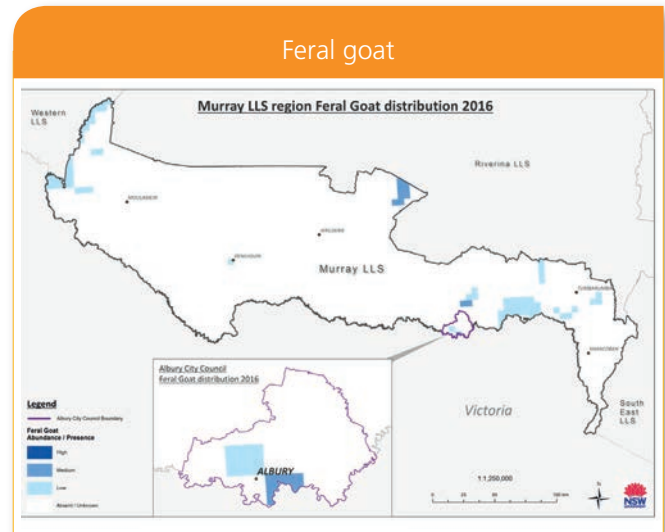


5.3 Species – Feral goat

Feral goat populations are largely found in small numbers and in isolated pockets across the region. Feral goats are mustered and sold as a resource by a number of land managers as market conditions remain favourable, and as such are being managed responsibly by regional landholders as part of their farming system with no impact on biosecurity for surrounding landscapes.

Land managers trading in goats within NSW are required to comply with the requirements of the National Livestock Identification Scheme. Where high populations of feral goats compete with livestock and native animals for pasture, contribute to land degradation and impact on biodiversity through excessive grazing, they will be managed for asset protection.

The feral goat population in the Albury City Council area is impacting on the environment, production and community amenity and therefore requires a coordinated control effort. The development and implementation of a local management plan within the Albury City Council area will be an early priority to be delivered under this plan. Other areas requiring local plans will be identified as the regional plan is implemented.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts of feral goats on agricultural production, threatened species and ecological communities within the Albury City Council area.	Albury City Council LGA local feral goat management plan	Containment	Agriculture Peri-urban holdings Native vegetation	Coordinated control programs Trapping Mustering Ground shooting Prepare and implement local goat management plans as required	Albury City Council Land managers Local Land Services	Ongoing Summer months on watering points for trapping
Reduce the impacts of feral goats on agricultural production and the environment	Murray region	Asset-based protection			Land managers Local Land Services Coordinated groups Community based groups	
Increase the awareness of the negative impacts of feral goats		Containment / asset-based protection	Improve community participation in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings	Albury City Council Land managers Local Land Services Community based groups	Ongoing

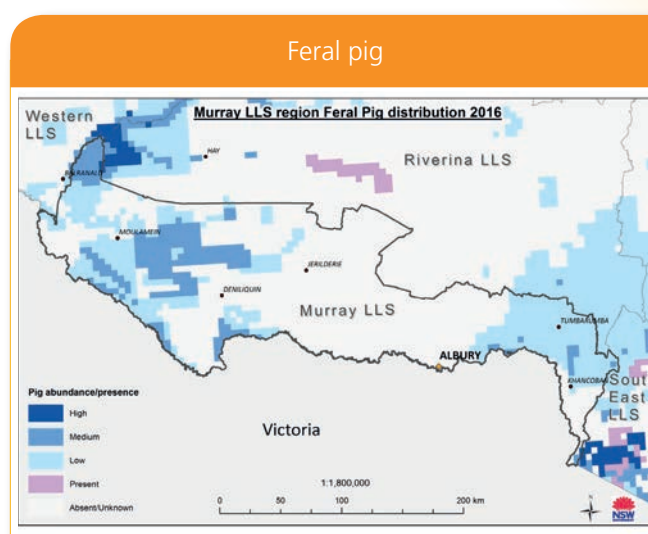


5.4 Species – Feral pig

Feral pigs are becoming increasingly embedded in the region and have been assessed as having negative economic, environmental and social impacts. The species poses threats to the major land uses in the region, namely grazing, cropping, forestry, conservation and land being rehabilitated. Local control programs will provide land managers with technical support, chemical user training and access to best-practice control options to manage feral pig populations. Unauthorised and uncoordinated recreational hunting activities that scatter feral pig populations may jeopardise effective control.

An inter-regional feral pig program has been operating in the north west of the region for several years. The program is a joint Murray, Riverina and Western Local Land Services program with participation by private land managers, NSW National Parks and Wildlife Service and NSW Department of Industry - Lands and Water and will serve as a template for future local feral pig management plans.

Mixed farming, including irrigation and dryland areas, forested areas, Ramsar wetlands and other sites with significant environmental and cultural heritage will be prioritised for assessment of the need for the development of new local feral pig management plans.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts of feral pigs on agricultural production, threatened species and ecological communities Prevent the spread of disease	Murray region	Asset-based protection	Agriculture – Livestock (e.g. Lambs) Pastures Crops Water quality Infrastructure Critical threatened species	Primary Coordinated group programs Ground baiting Ground trapping Aerial shooting Prepare & implement local feral pig management plans	Land managers Local Land Services Community-based groups	Ongoing Concentrated control programs during dry periods
			Human health Emergency animal disease	NSW Health DPI NSW -Emergency Management unit		
				Supplementary Ground shooting Recreational hunting	Land managers	Ongoing
Increase the awareness of the negative impacts of feral pigs			Improve community participation in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings	Land managers Local Land Services Community-based groups	Ongoing



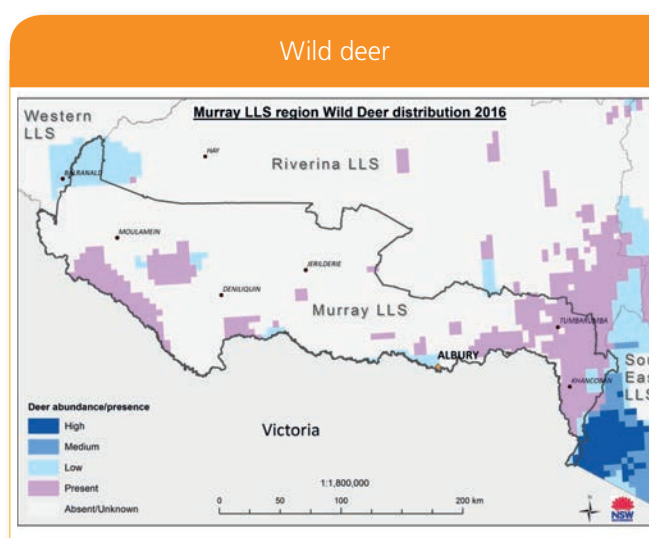
5.5 Species – Wild deer

Wild deer are recognised in this plan due to their increasing impact on the key land use types: grazing modified pastures, cropping, plantation forest and conservation lands. The impacts of wild deer through grazing competition are considerable, together with the emergence of public safety issues for road users.

Wild deer species currently in the Murray region are fallow, red and sambar deer. The goal of the plan is to raise awareness and reporting of deer populations and to work with land managers and the community to develop and implement local wild deer control programs, where required, to limit the further spread and establishment of the species.

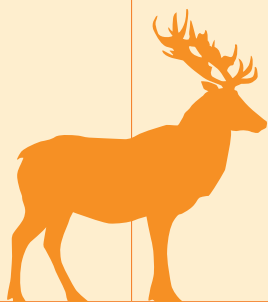
Wild deer are classified under the Game and Feral Animal Control Act 2002 (G&FAC) & Regulations 2012. Where local plans are implemented, consideration will be given to having the Game and Feral Animal Control Regulation 2012 suspended for wild deer in the local government area in which the local plan is to be implemented.

Assets where wild deer are currently distributed such as Central Murray State forests, Ramsar wetlands, the eastern slopes and ranges and other sites with significant environmental and cultural heritage will be prioritised for assessment of the need for the development of local wild deer management programs.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Prevent further establishment of all wild deer species Reduce the impacts of wild deer on agricultural production, threatened species and ecological communities	Murray region	Asset-based protection	Agriculture - Pastures Crops Forestry Horticulture Native vegetation Waterways	Regional deer plan Ground shooting Aerial shooting Recreational hunting Prepare and implement local management plans	Government agencies Land managers Local Land Services Community based groups	Ongoing
Increase the awareness of the negative impacts of wild deer			Improve community participation in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings	Land managers Community based groups	Ongoing

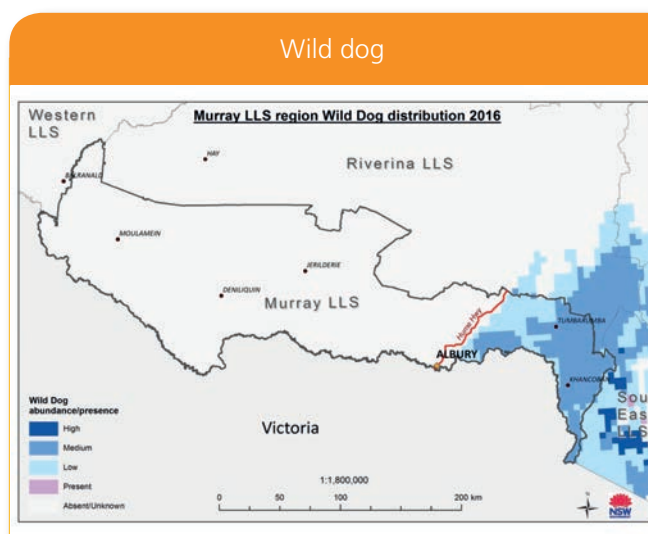


5.6 Species – Wild dog

Wild dogs are established in the eastern part of the Murray Local Land Services region (east of the Hume highway). Wild dogs have a significant impact on livestock and all land managers should participate in control programs.

The NSW Wild Dog Management Strategy 2017-2021 promotes a balance between managing wild dogs in areas where they have negative impacts and preserving the ecological role of dingoes. The conservation of dingoes is listed under the goals of the strategy. This is to be achieved by having the Regional Strategic Pest Animal Management Plan and local wild dog management plans focus control on areas where the risk of negative impacts are greatest and not undertaking control in other parts of the landscape with a low risk of negative impacts from wild dogs, to allow dingoes to fulfil their natural ecological role.

The region has well established collaborative management planning for wild dogs. These plans are developed by the Hume, Tumbarumba and Upper Murray Wild Dog Management Groups and outline the responsibilities, contributions and intentions of each stakeholder.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Wild dog activity detected to the west of the Hume Highway will be treated as a new incursion and a specific, targeted eradication plan will be implemented to remove any wild dogs present.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts of wild dogs on agricultural production east of the Hume Highway	All land within Murray Local Land Services region, east of the Hume Highway	Asset-based protection	Agriculture – livestock (e.g. sheep and calves)	Implement wild dog management plans Aerial baiting Ground baiting Trapping Shooting Exclusion fencing Monitoring Guardian animals	Land managers Local Land Services Community-based groups	Autumn for aerial baiting Ongoing
Wild dog management groups are facilitated Engage the community in wild dog management				Community meetings Field days Technical expertise Capacity building Feral scan - private reporting groups	Land managers Local Land Services Community based groups	Ongoing
No stock losses or impacts west of the Hume Highway	All land within Murray Local Land Services region, west of the Hume Highway	Eradicate	Agriculture – livestock (e.g. sheep and calves)	Prepare and implement a wild dog eradication plan All methods available	Land managers Local Land Services Community based groups	As detected
Engage land managers				Targeted within the incursion area	Affected land managers Community-based groups	Until eradication completed

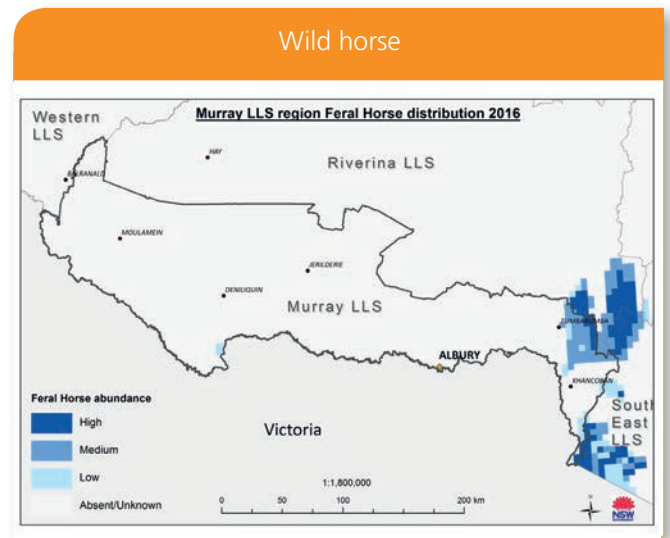


5.7 Species – Wild horse

A known established wild horse population is located in the eastern highland area of the Murray region, with small localised populations in other areas of the region.

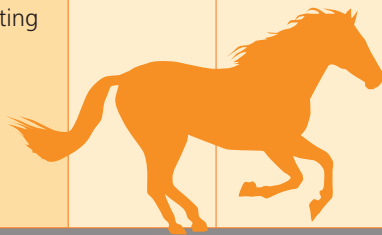
It is widely recognised that wild horses have negative impacts on sensitive environments and pose significant risks to road users. On land managed by NSW National Parks and Wildlife Service and Forestry Corporation of NSW, the management of wild horses is currently guided by their wild horse management plans.

The aim of this plan is to raise awareness and provide guidance to land managers in managing wild horse populations using approved wild horse management practices.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Land managers to manage wild horses in line with their current wild horse management plans, policies and/or objectives to reduce impacts on agricultural production, threatened species and ecological communities and/or public safety	Murray region	Asset-based protection	Environment Pastures Forestry Native flora Native fauna Waterways	Conduct control programs In line with approved horse management procedures.	Land managers Local Land Services Community based groups	Ongoing
Number of people reporting wild horse activity			Improve community participation in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings		

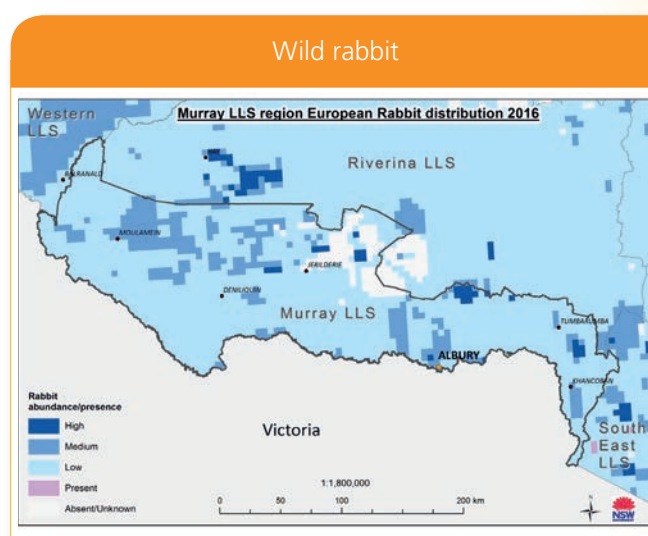


5.8 Species - Wild rabbit

Wild rabbits are widespread across the Murray region. This plan aims to reinvigorate rabbit management and encourage land managers to become more active in their direct control methods each year. Annual rabbit control programs are well established in the pastoral areas, being areas of high rabbit infestation, within the region. Local control programs will provide land managers with technical support, chemical user training and access to best-practice control options to manage rabbit populations. Seasonal variations may reduce the effectiveness of biological control and use of these controls will be managed accordingly.

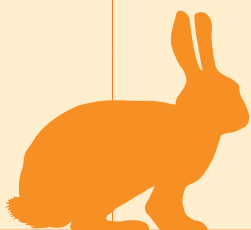
Barriers to effective control of the wild rabbit are: changes in farming practices, small-scale farms, urban areas (public places - limited control options) and seasonal conditions.

Mixed farming areas, Ramsar wetlands and other sites with significant environmental and cultural heritage will be prioritised for assessment of the need for the development of local rabbit management plans.



Murray Local Land Services (2018). Pest distribution animal data has been sourced from NSW Government agencies and collated by the NSW Department of Primary Industries in 2016.

Objective	Program name/area	Management category	Assets (where relevant)	Activities	Participants	Timeframe
Reduce the impacts of rabbits on agricultural production, threatened species and ecological communities and cultural heritage	Murray region	Asset-based protection	Infrastructure Dams Crops Waterways Pasture Native vegetation Soil structure Cultural heritage sites	Primary Ground baiting Harbour destruction Biological control Exclusion fencing Prepare and implement local rabbit management plans	Land managers Local Land Services Rabbit control groups Community based groups	Ongoing Prolonged ground baiting during dry periods
				Supplementary Ground shooting Fumigation Trapping	Land managers Local Land Services	Ongoing
Increase participation in coordinated rabbit baiting programs			Improve community participation and awareness in key areas	Targeted communications E-newsletters Media coverage Social media Community meetings	Land managers Local Land Services Community based groups	Ongoing
Increase the reporting of rabbit activities to Murray Local Land Services			Improve reporting to guide state-wide activities	Local Land Services database FeralScan use	Local Land Services Land managers	Ongoing



5.9 Species – common carp

Common carp are a major environmental pest that have impacted on a wide range of native species and have added turbidity in many catchments. Almost all fish species are difficult to control once established, but species-specific biological control offer some hope in controlling widespread aquatic pest species.

The strategy and focus of management for carp in the region will be to support any coordinated Commonwealth or NSW government biological control programs.

5.10 Watch list species

Species that do not currently require specific coordinated control across the region but whose distribution will be monitored for possible future local coordinated management.

- House mouse

Mouse numbers should be monitored by land managers to identify when a plague may be imminent. If you require assistance in monitoring mouse populations or require advice on control methods, please contact Murray Local Land Services 1300 795 299.



6. Measuring success and continuous improvement

The development and monitoring toward key performance indicators (KPIs) is a critical component of this plan. Monitoring indicators provides information needed to:

- identify priorities for immediate and future management planning
- evaluate previous or current programs (including both control and community engagement activities)
- improve understanding and knowledge about pest animal densities, current and potential range and their current and potential impacts
- raise community awareness of current and potential problems and opportunities for prevention and control.

Objectives and performance indicators are set for each of the pest and programs are outlined in chapter 6.1 below.

6.1 Key performance indicators

Key performance indicators (KPIs) have been set to ensure practices are effective and achieving outcomes. These are focused at a regional scale to ensure the implementation of programs deliver effective outcomes for the pest animals outlined in the plan. State-wide objectives and metrics for key species and goals will be formulated over the next 12 months to ensure a collaboration of regional planning efforts. These state-wide objectives will align with overarching goals and objectives set across plans and will be informed by overarching plans such as the NSW Invasive Species plan and NSW Biosecurity Strategy.

The KPIs set in this plan will be monitored and reviewed annually to ensure targeted progress on key programs and pest animals. This section will address how monitoring and evaluation of the KPIs will take place and the review the plan for continuous improvement.

6.2.1 Statewide KPIs

Providing a coherent story about the impact of the RSPAMPs across the state will require a coordinated monitoring, evaluation, reporting and improvement (MERI) framework. This will focus regional MERI programs to targeted evaluations on important outcomes that will be able to be aggregated to a state level to provide information on progress on pest animal density and distribution, and its impact on economic, social and environmental issues.

Objective	Indicator	Timeframe
Develop consistent statewide pest animal data metrics	Metrics are developed and RPACs are reporting on the metrics in a consistent manner	Implemented by July 2019
Develop a consistent MERI process for RSPAMPs	MERI process established to guide monitoring and management of pest animals in NSW for oversight by SPAC	Implemented by July 2019

6.2.2 Species KPIs

European fox

Objective	Indicator	Timeframe
Reduce the impacts of foxes on agricultural production and critical threatened species Prevent the spread of disease	Local fox management plan or plans are in place.	By 31 December 2019.
	A methodologically sound monitoring program has been established and implemented.	By 30 June 2019.
	50 people complete Vertebrate Pest Induction Training.	By 30 June 2019 and then annually.
Increase land manager participation in group control programs	Spring and autumn newsletters, e-newsletters and community meetings delivered.	By 30 June 2019 and then annually.

Feral cat

Objective	Indicator	Timeframe
Reduce the impacts to critical threatened species with sites to be identified in localised project plans. Reduce the impacts to agricultural production. Promote responsible pet ownership.	Discussions with local government, NPWS and community undertaken on feral cat management and promotion on responsible cat.	By 30 June 2019 and then annually.

Feral goat

Objective	Indicator	Timeframe
Reduce the impacts of feral goats on agricultural production, threatened species and ecological communities within the Albury City Council area.	Local Albury City Council area feral goat management plan in place. Targeted community consultation undertaken	By 30 June 2019.
Identify sites outside of the Albury City Council area that require action to reduce the impacts of feral goats on agricultural production and the environment	Site identification process completed. Local feral goat management plan or plans in place for identified sites.	By 31 December 2019. By 30 June 2020.

Feral pig

Objective	Indicator	Timeframe
Reduce the impacts of feral pigs on agricultural production, threatened species and ecological communities. Prevent the spread of disease.	Local feral pig management plan or plans in place. 50 landholders have attended Vertebrate Pest Induction training.	By 31 December 2019. Annually by 30 June.
Density and distribution data collection.	Improved monitoring of feral pig populations and associated data collection across the Murray region established	By 30 June 2019.

Wild deer

Objective	Indicator	Timeframe
Prevent further establishment of wild deer populations. Reduce the impacts of wild deer on agricultural production, threatened species and ecological communities.	Local wild deer management plan or plans in place sites identified as negatively impacted by wild deer.	By 31 December 2019.
	Improved monitoring of wild deer populations and associated data collection across the Murray region established	By 31 December 2019.

Wild dog

Objective	Indicator	Timeframe
Reduce the impacts of wild dogs on agricultural production east of the Hume Highway.	New Hume Cooperative Wild Dog Management Plan finalised.	By 30 June 2019.
	Hume Wild Dog Management plan KPIs delivered.	By 30 June 2019 and then annually.
	New Upper Murray Cooperative Wild Dog Management Plan finalised.	By 30 June 2019.
	Upper Murray Wild Dog Management plan KPIs delivered.	By 30 June 2019 and then annually.
	New Tumbarumba Cooperative Wild Dog Management Plan finalised.	By 31 December 2019.
	Tumbarumba Wild Dog Management plan KPIs delivered.	By 30 June 2019 and then annually.
No stock losses or impacts west of the Hume Highway.	Eradication plan implemented for wild dog incursions west of the Hume Highway.	Within one month of incursion report.
Wild dog management groups are facilitated. Engage the community in wild dog management.	Wild dog group meetings held as required according to individual plans	Annually.
	Regionally relevant goals of the NSW Wild Dog Strategy 2017-21 have been identified, actioned and reported against	Annually.
	50 people have completed Vertebrate Pest Induction training.	By 30 June 2019 and then annually.
	Targeted communications to encourage community to report wild dog activity completed.	By 30 June 2019 and then annually.

Wild horse

Objective	Indicator	Timeframe
Land managers to manage wild horses in line with their current wild horse management plans, policies and/or objectives to reduce impacts on agricultural production, threatened species, the environment and/or public safety.	Annual review by the Murray Regional pest animal committee of the status of wild horse management across the region completed	By 30 June 2019 and then annually.
	Targeted communications to encourage community to report wild horse activity completed.	By 30 June 2019 and then annually.

Wild rabbit

Objective	Indicator	Timeframe
Reduce the impacts of rabbits on agricultural production, threatened species and ecological communities and cultural heritage	Local wild rabbit management plan or plans in place.	By 31 December 2019.
	50 people complete Vertebrate Pest Induction Training.	By 30 June 2019 and then annually.
	A methodologically sound monitoring program, including monitoring the effectiveness of RHD programs, has been established and implemented.	By 30 June 2019.
Coordinated rabbit baiting programs Increased reporting of rabbit activities	Spring newsletters, e-newsletters, targeted community field days delivered annually.	By 30 June 2019 and then annually.

6.3 Measuring performance

Reporting will occur on an annual basis based on the KPIs identified in this plan. A formal monitoring, evaluation, reporting and investigation process will be implemented by July 2019 to improve regional and state-wide collaboration and reporting on pest animal indicators across NSW. Improved intelligence on key pest animals will lead to more efficient management tools and outcomes.

6.4 Plan review

A mid-term review of this plan will be undertaken at year three (2021) and a full review will be undertaken nearing the end of the five-year term for this plan (2023). The Murray Regional Pest Animal Committee may adaptively manage reviews of the plan to respond to new developments and information as required.

7. The *Biosecurity Act*

The *NSW Biosecurity Act 2015* is a new piece of legislation that allows improved management of biosecurity risks in NSW to enable landholders, community, industry and Government effectively manage and respond to biosecurity incursions and risks.


A fundamental principle of the *NSW Biosecurity Act 2015* is that biosecurity is everyone's responsibility. All land managers, regardless of whether on private or public land, have the same responsibilities. Likewise, the general community have a role to play in reducing risks through their activities and as 'eyes and ears' on the lookout for any potential new risks. A general biosecurity duty under the Act requires that anyone who knows or ought to reasonably know about a biosecurity risk has a duty to prevent, eliminate or minimise that risk as far as reasonably practicable.

The *NSW Biosecurity Act 2015* includes a number of mechanisms (regulatory tools) that can be used to manage biosecurity risks such as pest animals in NSW. Landholders, industry and community should be familiar with these tools and what they require of them in their daily practices.

Further information in the NSW Biosecurity legislation can be found at the NSW DPI website

- <http://www.dpi.nsw.gov.au/biosecurity/biosecurity-legislation>

Figure 2: Regulatory tools of the Biosecurity Act 2015.

Regulatory tools: NSW Biosecurity Act 2015		
Biosecurity Regulation 2017	Biosecurity Regulation (NLIS) 2017	Biosecurity Order (Permitted Activities) 2017
 General Biosecurity Duty: Managing the impact and spread of pest animals. <i>E.g. You are discharging your GBD if you are implementing an on-farm biosecurity plan</i>		
Biosecurity Management Tools		
PROHIBITED MATTER	Listed in Schedule 2 of the Act. It is an offence to deal with prohibited matter. If a person becomes aware of, or suspects the presence of prohibited matter they have a duty to prevent, eliminate or minimise the risk or potential risk it may cause E.g. Hendra Virus, Foot and mouth Disease, Avian Influenza	
CONTROL ORDER	Can be made by the Minister or delegate to establish a control zone, establish measures in connection with a control zone to prevent, eliminate minimise and manage a biosecurity impact. e.g. Disposal of contaminated stock to prevent entering the food chain	
PROHIBITED DEALING	A dealing with biosecurity matter described in Schedule 3 of the Act. e.g. Non indigenous animals such as African Pygmy Hedgehog	
BIOSECURITY ZONES	A zone established to a premises, specified area or part of the state to prevent, eliminate, minimise or manage a biosecurity risk or impact. Generally used where longer term management is required. e.g. Phyloxera Exclusion Zone in Riverina	
BIOSECURITY DIRECTIONS: GENERAL	Issued by an authorised officer to the general public or class of persons e.g. at a sale yard	
BIOSECURITY DIRECTIONS: INDIVIDUAL	Issued to a single person by an authorised officer, either orally (followed up in writing within 7 days) or by notice in writing. e.g. A direction to a landholder to implement Foot rot program	
BIOSECURITY UNDERTAKINGS	A negotiated set of actions agreed to by an individual and accepted by an authorised officer. Both parties are signatories	

8. Further information

Plan to manage biosecurity risks

This plan can be used by landholders and community members to understand manage and mitigate risks associated pest animal management in the region.

Organisations may choose to apply for funding/allocate resources to support strategic pest animal projects.

The activities outlined in this plan can be used by relevant landholders and community members in the area as guidelines for discharging their general biosecurity duty to improve pest animal management. Pest animal requirements under the **Biosecurity Order Permitted Activities**, which is updated from time to time, should also be considered by landholders and the general community.

Use this plan as a guide to mitigate your risks in your on-farm biosecurity plan to ensure you are effectively managing pest animals in the most effective and efficient manner.

Educate yourself

While this plan sets a benchmark for integrated pest animal management across the region, there are a number of alternative mechanisms that can be used to meet individuals general biosecurity duty and individuals are encouraged to utilise the following resources as well as contact their Local Land Services office for further information.

Resources:

- Local Land Services
- Office of Environment and Heritage (National Parks and Wildlife)
- Department of Primary Industries
- Invasive Animals CRC
- PestSmart Connect
- FeralScan.

Monitor your environment

- Be aware of changes in the landscape around you.
- Report anything unusual. If you become aware of unusual animals in the wrong place or illegal activities such as the movement, keeping, breeding and sale of controlled category nonindigenous animals, report it as soon as possible
- Discuss ongoing monitoring programs and techniques with Local Land Services.
- Ensure you keep up to date with any Government and industry changes.

Comply

- Ensure you meet the requirements set out in both your on-farm biosecurity plan and any other on farm biosecurity plans for properties you deal with.
- Ensure you are aware of and comply with specific legislation for pest animals.

Appendix 1: Prioritisation Process

Public and private land managers have limited resources to manage pest animals and it is therefore important to prioritise activities. Important considerations for prioritisation are:

- It is generally more cost-effective to prevent the establishment of pest animals into new areas through prevention and early intervention (eradication or containment of small isolated populations) than to have to fund ongoing management of established species (see Figure 1).
- For established species, resources should focus on managing the pest animals and areas where there is the greatest impact on a valued 'asset' (e.g. protecting an endangered native animal from fox predation or a sheep production area from wild dogs) – this is known as 'Asset-based Protection'.
- The feasibility of management needs to be considered and this will depend on the availability of approved cost-effective control techniques and any biogeographic limitations (e.g. difficult terrain or potential impact of control techniques on non-target species).

Generalised invasion curve showing actions appropriate to each stage

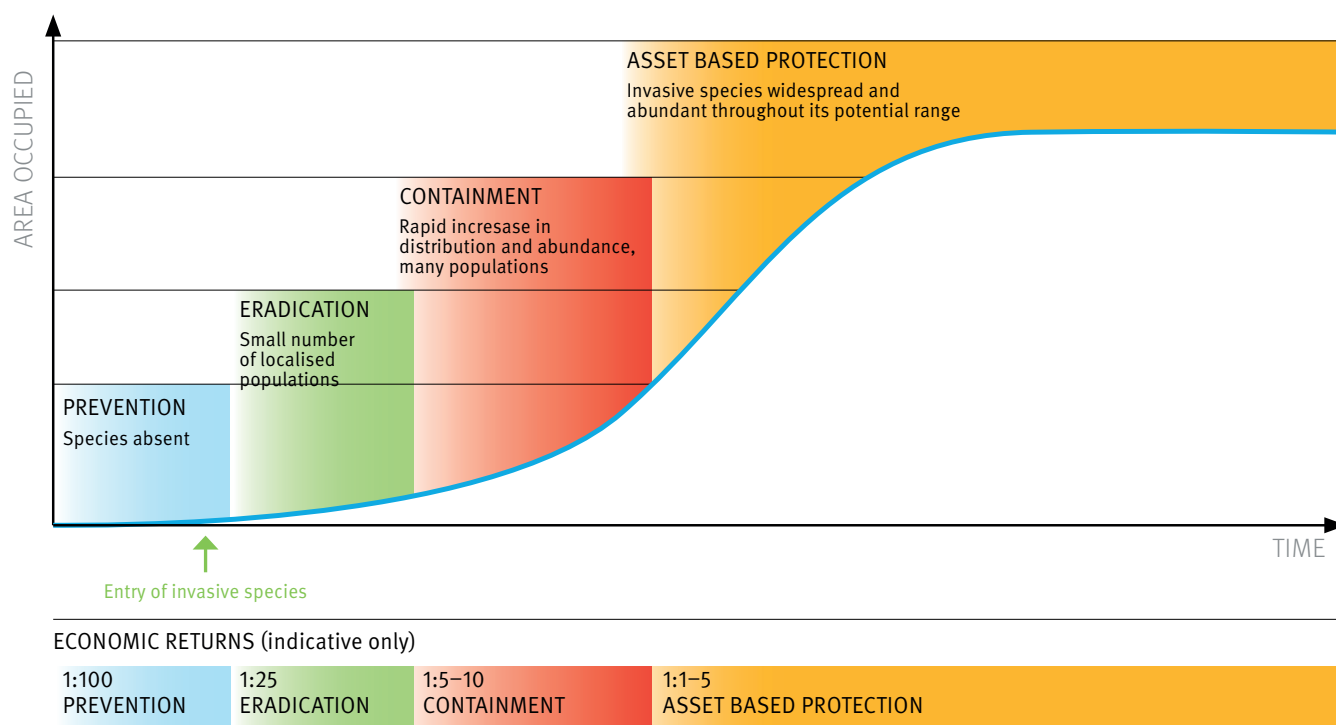


Figure 1: The 'Invasion Curve', showing the importance of allocating resources to prevent the establishment of new pests. Invasion Curve sourced from NSW Invasive Species Plan 2018-2021 and Department of Primary Industries, Victoria

In developing lists of priority pest animals and management areas, RPAMPs have considered the South Australian Pest Animal Risk Management Guide and prioritisation tool:

http://pir.sa.gov.au/_data/assets/pdf_file/0017/254222/SA_pest_animal_risk_assessment_guide_Sept2010.pdf

The South Australian prioritisation tool accounts for pest animal impacts and the feasibility of effectively reducing those impacts and allocates management of particular pest animals in particular areas into one of four categories: Limited Action, Asset-based Protection, Containment or Eradication.

'Limited Action' will be the likely management approach for introduced species that aren't considered to have a significant impact in a particular area and/or for which there is currently a lack of effective management options. There are 64 terrestrial and freshwater aquatic exotic vertebrates that have established wild populations in NSW however, many of these will fall into the 'Limited Action' category and the focus of RPAMPs will be on a much smaller list of high priority pest impacts.

'Eradication' or 'Containment' are generally only realistic management options for new incursions and small isolated populations of species where this is a good selection of control techniques available.

