

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





Published by Western Local Land Services

Western Regional Strategic Pest Animal Management Plan 2018-2023

First published June 2018 www.lls.nsw.gov.au/western

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing on June 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 Western 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 Western Regional Strategic Pest Animal Management Plan is an excellent example of 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 Western Regional Pest Animal 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



Executive summary

The Western 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 Western Local Land Services region is the largest in NSW, covering 314,500 km², or 40 per cent of the State. The region is sparsely populated. These factors make early detection, accurate mapping and timely management of most pest animal species more difficult than in most other regions. It is bounded to the east by the North West, Central West, Riverina and Murray Local Land Services regions and shares a border with six other interstate natural resource management regions in three states (Queensland, South Australia and Victoria). Thus the importance of cooperative, cross-regional approaches to pest animal management is higher in the Western region than most other Local Land Services regions

Arid and semi-arid rangelands dominate the region. It is also bisected by the Barwon-Darling River system, and bounded by the Murray, Murrumbidgee and Lachlan rivers.

The vast majority of the region is used for extensive grazing of domestic livestock (sheep, cattle and goats) on native pastures. In recent decades, the region has seen an increase in more intensive forms of agriculture, with dryland farming and irrigated agriculture becoming more significant, particularly along the eastern and southern margins. A significant proportion of the region is now under some form of protection for conservation and/or cultural purposes.

Wild dogs, feral pigs, unmanaged rangeland goats, wild rabbits, foxes and feral cats are currently considered to be the most important pest animals in the Western region, causing damage to primary production, natural environments and cultural assets and increasing the risks associated with the spread of certain endemic and exotic diseases.

A number of other pest animals (deer species, feral camels, feral donkeys and wild horses) are considered to be emerging issues, requiring targeted approaches to prevent greater problems emerging.

The plan also identifies a number of pest reptile, bird and fish species that are not currently present in the region but have the potential to cause problems, as “alert” species. A high level of vigilance and prompt reporting by the region’s land managers and community will be required to reduce the risk of their introduction.

This plan identifies the strategic activities proposed to be undertaken for each of the previously mentioned species. It is tenure neutral (i.e. applies to all land managers; public, private and Aboriginal) and will require the active participation and cooperation of a range of stakeholders and local plans to be developed to be implemented effectively.

The overarching goals of this plan over the next five years will be to:

- improve the knowledge of and available data for the location and distribution of pest animal species in the Western region
- increase the active participation of land managers in coordinated control programs for a number of widespread pest animal species (particularly wild dogs and feral pigs)
- improve the awareness of land managers and the general community on the impacts of pest animal species, and the strategies required to keep them from entering the region or reduce their impacts.

The Western Regional Pest Animal Committee will play an important role in overseeing the implementation of this plan, monitoring its success and the ongoing periodic review and adaption of this plan as required.

1. Introduction

1.1 Overview

- The Western 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 eleven 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

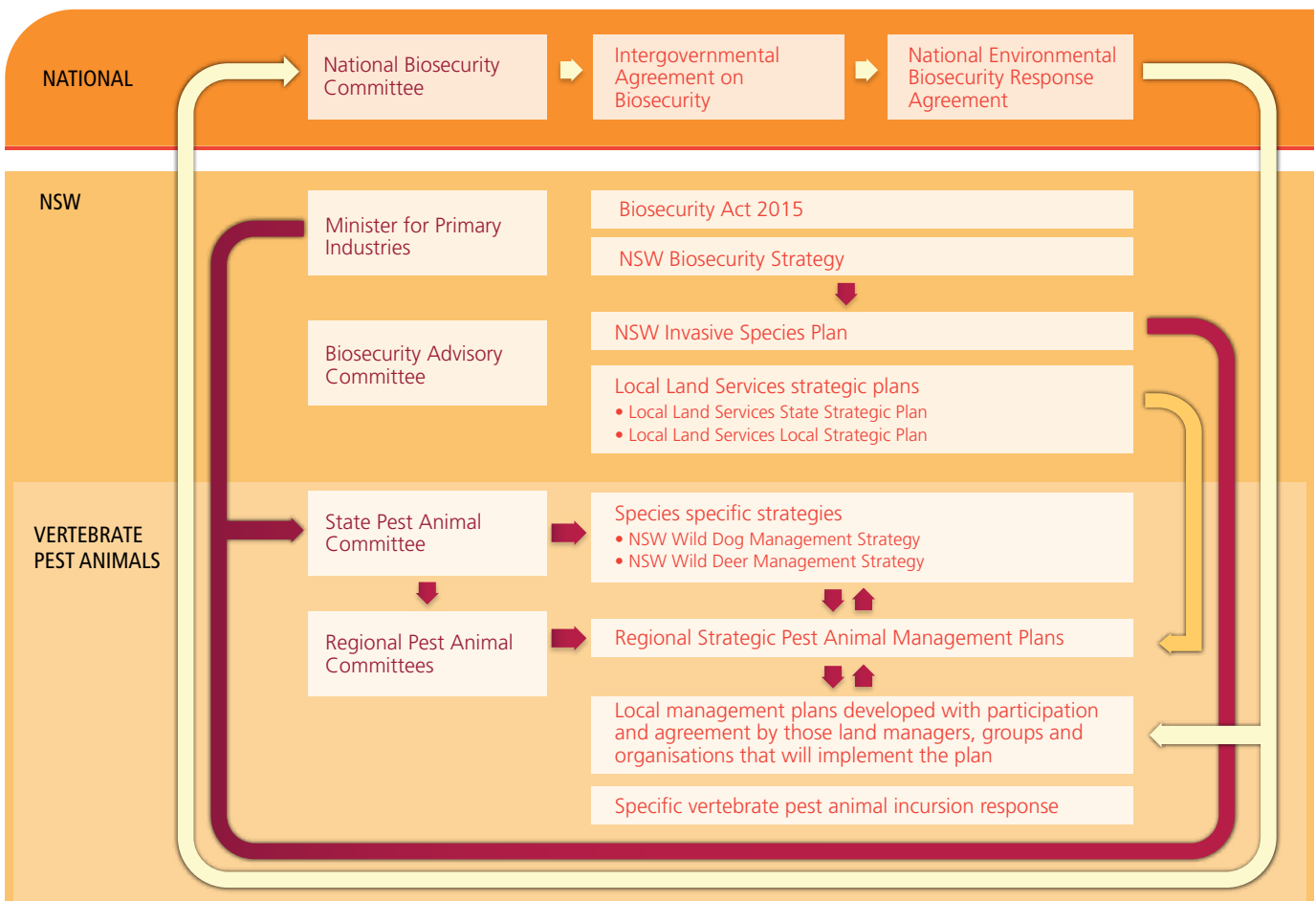
Native species are protected by law in NSW and are not covered in this RSPAMP. Issues associated with managing the impacts of native species (such as kangaroos, emus, wombats and possums) should be addressed separately in consultation with National Parks and Wildlife Service and having regard to the 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 oversees 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 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. Where pest management issues arise across regional boundaries, the RPACs for the regions concerned are the appropriate bodies to engage to resolve them. RPACs play an important role in the ongoing periodic review and adaption of the plan as required.

1.7 Incursion management and alert species

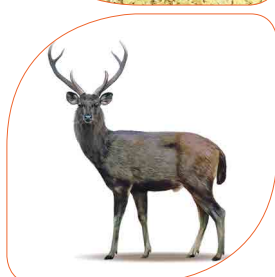
We need to work together to ensure early detection and awareness of incursions and alert species are able to be managed swiftly and effectively. It is important the community remain vigilant and report any unusual sightings to ensure a rapid management response. The *NSW Biosecurity Act 2015* outlines 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. The following species have been designated “alert species” for the Western region and all members of the community are strongly encouraged to promptly use the reporting options listed below if they have seen, or suspect they have seen, any of these species.

ALERT SPECIES FOR THE WESTERN REGION

- American corn snake (*Pantherophis guttatus*)
- Cane toad (*Bufo marinus*)
- Red-eared slider turtle (*Trachemys scripta elegans*)
- Barbary dove (*Streptopelia (Spilopelia) roseogrisea*)
- Indian myna (*Acridotheres tristis*)
- Ostrich (*Struthio camelus*)
- Red-whiskered bubul (*Pycnonotus jocosus*)
- Banded grunter (*Aminiatoba percoides*)
- Mozambique tilapia (*Oreochromis mossambicus*)
- Feral camel (*Camelus dromedarius*)
- Wild hog deer (*Axis porcinus*)
- Wild red deer (*Cervus elaphus*)
- Wild rusa deer (*Cervus timorensis*)
- Wild sambar deer (*Cervus unicolor*)

Phone the Invasive Plants and Animals enquiry line: 1800 680 244



Left to right: American corn snake (*Pantherophis guttatus*), cane toad (*Bufo marinus*) photo: Deborah Metters, wild red deer (*Cervus elaphus*), photo: Victorian Game Management Authority, red-whiskered bubul (*Pycnonotus jocosus*) photo: Jay Yeung, wild sambar deer - male (*Cervus unicolor*) photo Victorian Game Management Authority, Mozambique tilapia - male (*Oreochromis mossambicus*) photo: NSW DPI.

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

- Complete the Report an unusual animal sighting form at www.dpi.nsw.gov.au/biosecurity/forms/report-an-unusual-animal-sighting
- Phone: 1800 680 244
- Email invasive.species@dpi.nsw.gov.au

For species that are yet to become widely established in NSW, the initial response to incursion reports is managed through consultation between NSW 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

Location and communities

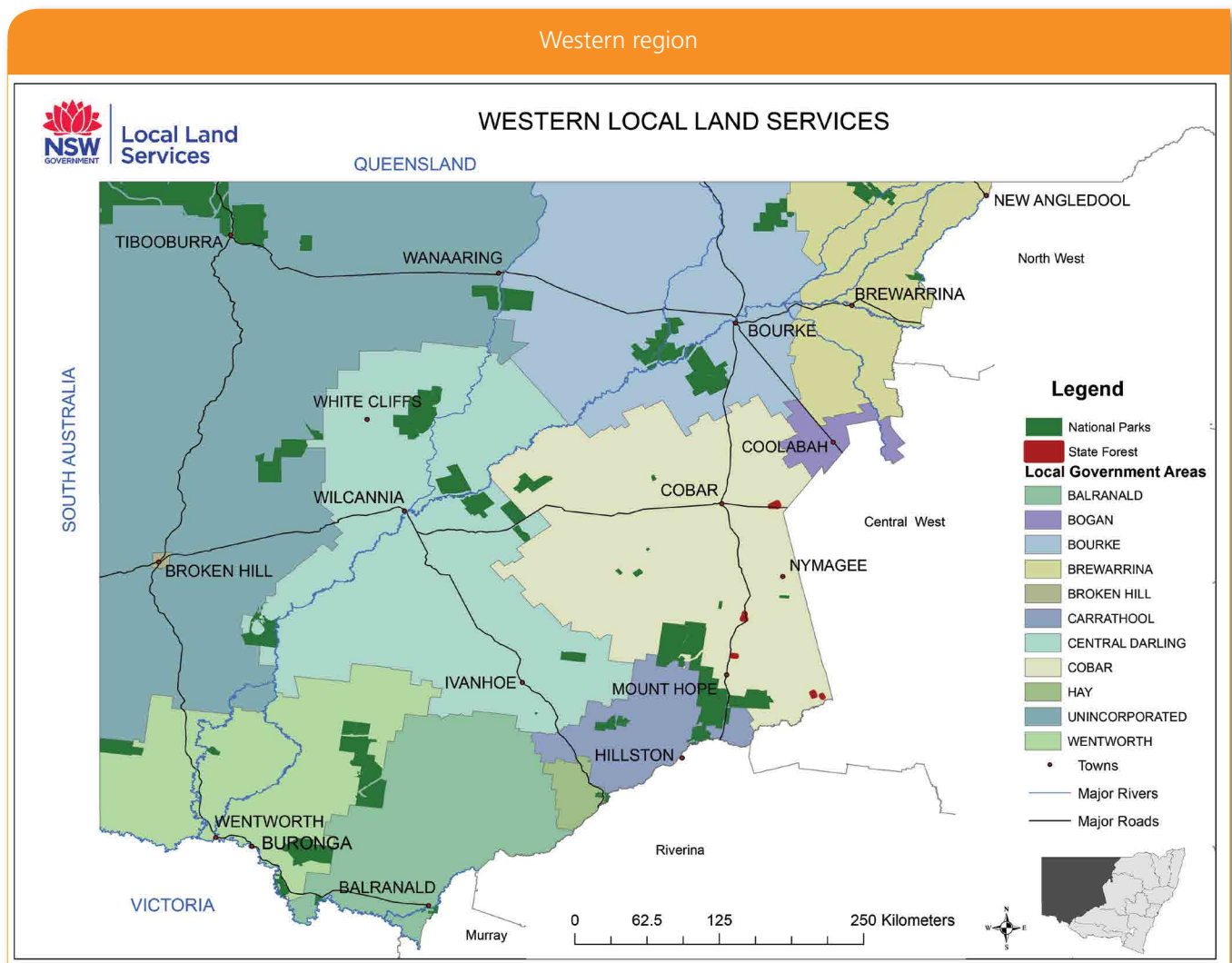
The Western region is the largest Local Land Services region in NSW, covering 314,500 km², or 40 per cent of the state. It is larger than the areas of Victoria and Tasmania combined. It is bounded to the east by the North West, Central West, Riverina and Murray Local Land Services regions and shares a border with six other interstate natural resource management regions in three states (Queensland, South Australia and Victoria). Thus the importance of cooperative, cross-regional approaches to pest animal management is higher in the Western region than most other Local Land Services regions.

The region is sparsely populated; out of a total population of approximately 43,000, only the mining communities of Broken Hill and Cobar have urban populations greater than 3,000. This makes the early detection and management of most pest animal species in the region very difficult.

Climate

The climate of the Western region is characterised by its low and unpredictable rainfall, hot to very hot summers and very low minimum temperatures during mid-winter. Annual rainfall is highest in the north-eastern parts of the region and lowest in the west; annual average totals ranging from 411 mm at Brewarrina, to 323 mm at Balranald, to 260 mm at Broken Hill.

Drought is a common part of the climatic cycle in the Western region. This can result in dramatic variations in the number and distribution of many of the pest animal species present from year to year and season to season. This both complicates and provide opportunities for effective pest animal control.



Land tenure and land use

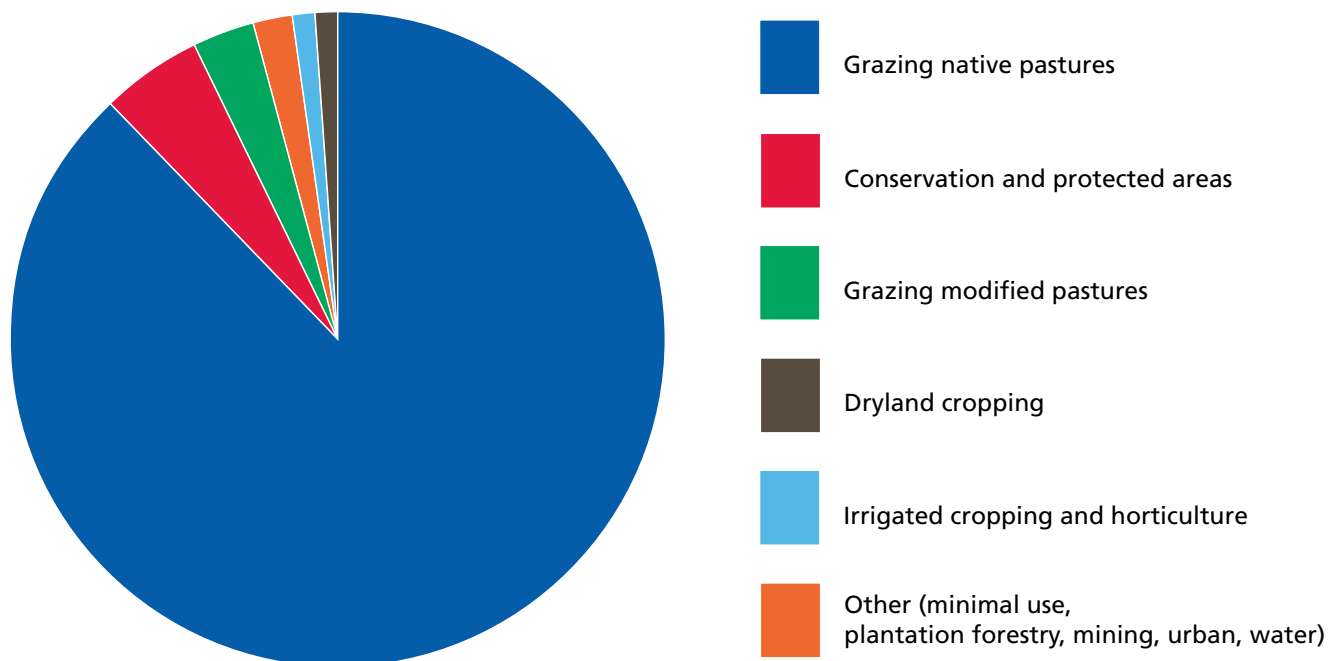
The vast majority of the region is used for extensive grazing of domestic livestock (sheep, cattle and goats) on native pastures. The size of these pastoral properties varies considerably; some properties in the far west of the region can be more than 200,000 hectares (2,000 km²) in size, while properties elsewhere can be much smaller.

In recent decades, the region has seen an increase in more intensive forms of agriculture, with dryland farming and irrigated agriculture being significant, particularly along the eastern and southern margins.

A significant proportion of the region is under some form of protection for conservation and/or cultural purposes. These areas can be found in most districts and, in some cases, are far larger than nearby properties used for other purposes. The region contains many important Aboriginal cultural assets. A growing tourism industry is strongly associated with these areas and is an important part of the regional economy.

This diversity of land use and the large size of most properties in the region pose some real challenges for effective management of many pest animal species in the region. A species that may pose a threat to one land use may be of minimal importance to an adjoining land use. Cost and logistical considerations mean that it is often not realistic to expect land managers to implement control programs for certain pest animal species across their properties.

Figure 2. Western Local Land Services land use.



Landscapes and vegetation

Arid and semi-arid rangelands dominate the region. It is a predominantly flat landscape, with small areas of low, stony ranges in its westernmost and easternmost parts. The region is bisected by the Barwon-Darling River system, which runs for approximately 1,400 km north-east to south-west via a mostly confined series of channels and wetlands. The region is also bounded by the Murray and Murrumbidgee rivers to the south and the Lachlan River to the south east. There are numerous other smaller, mostly ephemeral, rivers and creeks across the region.

A diversity of vegetation communities are present in the region, varying from the mulga woodlands and chenopod shrublands of the west, the mallee and Murray pine woodlands of the south, the brigalow-gidgee woodlands of the north and riparian vegetation associated with the river systems and floodplains.

This diversity of landscapes and vegetation has a strong influence on which areas certain pest animal species are normally found in; for example feral pigs are strongly associated with certain vegetation types in riverine/floodplain country. Some of the landscapes and vegetation types are more impacted by certain pest animal species than others.

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 mentioned in this plan have been assigned to one of the management categories listed below, based on a prioritisation process.

Table 4.1 Framework for managing pest animals.

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.








5. Our priority pest species







Pest animals for the Western Local Land Services region have been prioritised based on the level of risk they pose and their feasibility of control, as assessed using the prioritisation process outlined at Appendix 1.

When assessing the risks posed by a particular species to the Western region, consideration was given to the risks posed to primary production, environmental assets, cultural assets, biosecurity (in relation to the spread of animal borne diseases) and threats to human health and safety.

Table 5.1 below summarises those priority species already present in the region, for which further strategies and actions are detailed elsewhere in this section. A number of priority species not currently present in the region are listed under “1.7 Incursion management and alert species” on page 8.

Table 5.1: Summary of priority species for region, for which strategies have been developed.

Common Name	Management Category	Section in Plan	Objective
Common carp 	Limited Action	5.1	Australian and NSW Government control initiatives are supported
European red fox 	Asset Based Protection	5.2	The impact of foxes on primary production and the natural environment is reduced Community awareness of the purpose of and management of risks associated with fox baiting programs has increased
Feral camel 	Containment	5.3	The impact of feral camels on primary production, the natural environment and cultural assets is reduced The potential for feral camels to increase their numbers and distribution in the Western Local Land Services region is reduced
Feral cat 	Limited Action	5.4	The impact of feral cats on the region's natural environment and Aboriginal cultural assets is reduced The effectiveness of feral cat control programs in the region is improved
Feral donkey 	Containment	5.5	The impact of feral donkeys on the natural environment and primary production is reduced The potential for feral donkeys to increase their numbers and distribution in the Western Local Land Services region is reduced
Feral pig 	Asset Based Protection	5.6	The impact of feral pigs on primary production, the natural environment and cultural assets is reduced The number of landholders participating in coordinated feral pig control programs has increased
Unmanaged rangeland goat 	Asset Based Protection	5.7	The impact of unmanaged rangeland goats on areas of high biodiversity and/or cultural value is reduced Numbers of goats in key refuge/source areas are reduced A shift in landholder attitudes to favour “managed” goat enterprises

Common Name	Management Category	Section in Plan	Objective
Wild deer – <i>Cervus spp.</i> 	Containment	5.8	Wild populations of <i>Cervus spp.</i> deer are prevented from spreading from existing locations The impact of <i>Cervus spp.</i> deer on primary production and the natural environment and public safety is reduced
Wild deer – chital 	Containment	5.9	Wild populations of chital deer are prevented from spreading from existing locations The impact of wild chital deer on primary production and the natural environment is reduced
Wild deer – fallow 	Containment	5.10	The impact of wild fallow deer on primary production and the natural environment is reduced Increased community awareness of the abundance and location of wild fallow deer populations
Wild dog 	Asset Based Protection	5.11	Losses in domestic livestock enterprises from wild dogs are reduced The distribution and number of wild dogs in the southern third of the region has not increased from 2018 levels
Wild horse 	Asset Based Protection	5.12	The impact of wild horses on the natural environment and primary production is reduced The potential for wild horses to increase their numbers and distribution in the Western Local Land Services region is reduced
Wild rabbit 	Asset Based Protection	5.13	The impact of rabbits on primary production, the natural environment and cultural assets is reduced The number of land managers in the region implementing rabbit control activities has increased

Following are descriptions of proposed programs for current priority pest species in the Western Local Land Services region.

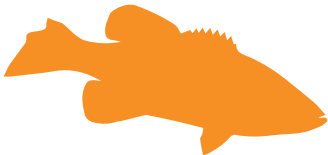
The pest animal distribution maps in this plan are based on statewide data compiled in 2016 from reports submitted and gathered, as amended following feedback received during plan consultation in April 2018.

The maps are at a coarse scale and provide general guidance only about pest animal distribution and may not accurately reflect the current situation at the local level.

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 assessment of effectiveness of control programs.

5.1 Species - Common carp



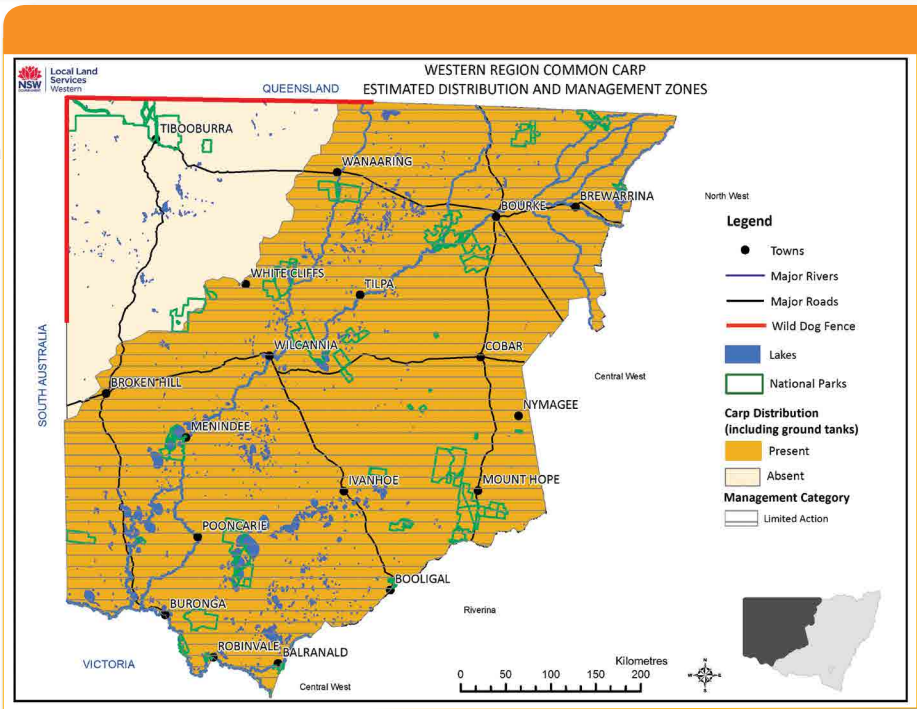
Land manager expectations

- Cooperate with Australian and NSW coordinated control initiatives where appropriate.
- Report presence of Common carp to Western Local Land Services where found in water courses/bodies that are not associated with the region's main river systems (i.e. Barwon-Darling, Murrumbidgee-Lachlan, Murray).

Common (or European) carp (*Cyprinus carpio*) are present throughout all major river systems in the Western Local Land Services region, and have also been found in a number of other natural and man-made water bodies not connected to these river systems such as ground tanks.

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 offers some hope in controlling widespread aquatic pest species such as carp.

The focus of management for carp in this region will be to support future coordinated Australian or NSW government control initiatives, including biological control programs.



General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
Control of carp improves through support of Australian and NSW Government control initiatives	Whole region	Limited Action	Riverine environments Native fish species	Biocontrol releases Trapping	Western Local Land Services, NSW DPI, NPWS, Australian Government





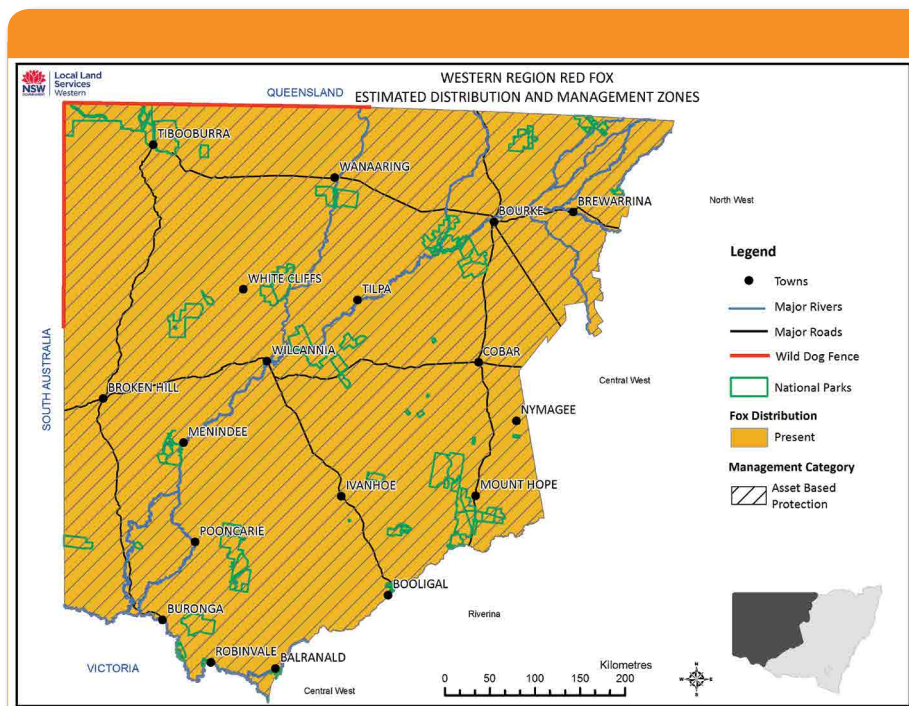
5.2 Species - European red fox

Land manager expectations

- Actively participate in coordinated group control programs, using [best practice techniques](#).

The European red fox (*Vulpes vulpes*) is distributed throughout the Western Local Land Services region. There is little to no potential for this species to spread further within the region. It has been observed that districts where effective coordinated wild dog control programs have been carried out usually also have low fox numbers.

European red foxes have a high impact on the environmental assets of the region, through predation of many threatened fauna species. Foxes can cause significant losses in small stock enterprises in the region, through their predation of lambs and kids, although this impact can vary seasonally. Foxes also have a significant impact on native species that have cultural significance to Aboriginal communities in the Western region, for example malleefowl.



Achieving effective fox control has become increasingly problematic in areas adjacent to the towns and villages of the region, due to the failure of some owners of domestic dogs to appropriately restrain their animals during baiting programs.

General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
Reduce impact of foxes on primary production and the natural environment	Whole region	Asset Based Protection	Threatened and endangered fauna species Small stock enterprises (sheep, goats)	Coordinated group control programs, including: Ground baiting Shooting	Western Local Land Services, NPWS, local pest control groups, land managers

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Community awareness of the purpose of and management of risks associated with fox baiting programs has increased	Whole region	Community meetings Targeted education programs	Western Local Land Services, local community members



5.3 Species - Feral camel

Land manager expectations

- Report numbers and location of feral camels to Western Local Land Services wherever found.
- Using [best practice techniques](#), actively control, and keep controlled feral camels on properties managed by the land manager.
- Actively participate in coordinated group control programs.

The number and exact location of feral camels (*Camelus dromedarius*) in the Western Local Land Services region is somewhat uncertain, although current information suggests there are only a few isolated, relatively small herds present, all in the northern half of the region.

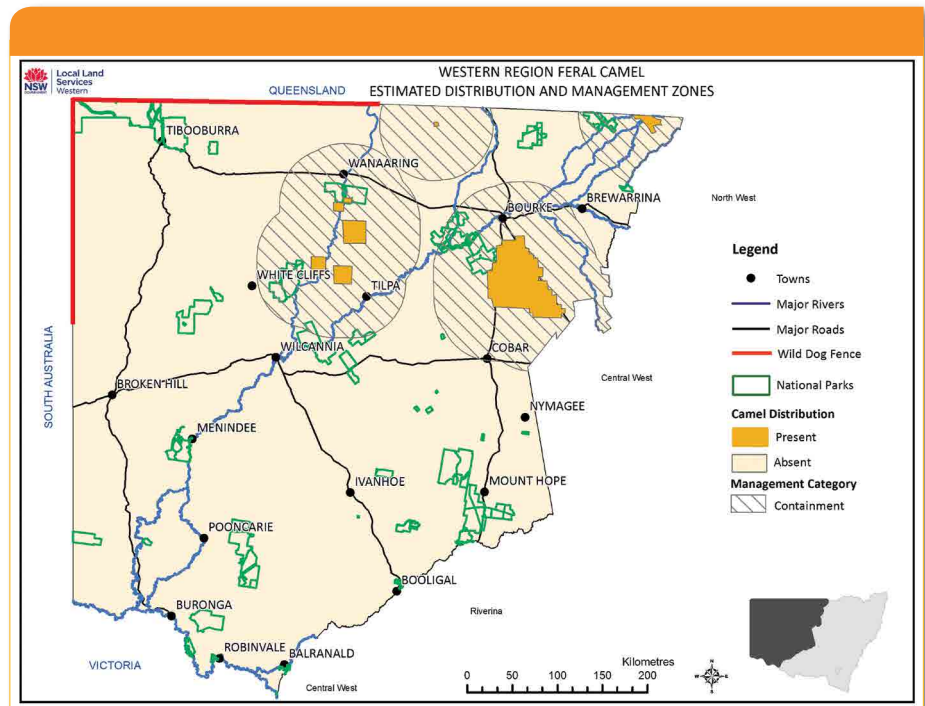
The situation is somewhat complicated by the presence of a number of “domestic” herds, some of whom do not appear to be held under the required permit. Feral camels have the potential to spread to most parts of the region.

Feral camels can cause significant damage to the region’s primary production, environmental and community assets if left unchecked. They can do severe damage to

fencing and water infrastructure and compete directly with domestic livestock for water. At high numbers, they have considerable grazing impact and have the ability to alter entire plant communities.

Feral camels have caused significant damage to key infrastructure in small communities and have heavily impacted on water – related Aboriginal cultural sites interstate (for example SA, NT and WA). Feral camels are occasionally implicated in vehicle accidents resulting in death or serious injury.

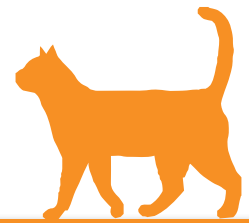
Currently, control of feral camels in the region is opportunistic.



General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impact of feral camels on primary production, the natural environment and cultural assets is reduced	Whole region	Containment	Domestic livestock enterprises Threatened and endangered flora species Aboriginal cultural assets Human health & safety	Ground shooting Aerial shooting (opportunistic)	Land managers, NPWS
The likelihood of feral camels being involved in serious vehicle accidents is reduced	Whole region			Enforce permit system	NSW DPI
The potential for feral camels to increase their numbers and distribution in the Western Local Land Services region is reduced	Defined containment zones (refer to map)	Containment	Domestic livestock enterprises Threatened and endangered flora species Aboriginal cultural assets Human health & safety	Ground shooting Aerial shooting (opportunistic) Enforce permit system	Land managers, NPWS NSW DPI
Increased knowledge of extent of feral camel problem in the region	Whole region	Containment	Improved collection of data on feral camel numbers and distribution	Landholder reporting of feral camels (from 2019 onwards) Aerial survey	Land managers, Local pest groups, Western Local Land Services Western Local Land Services, NPWS





5.4 Species - Feral cat

Land manager expectations

- Actively participate in or cooperate with coordinated control programs for feral cats, using [best practice techniques](#), where they are targeted at protecting high value agricultural and/or environmental assets.
- Take all reasonable measures to reduce the risk of domestic cats being released or escaping into the wild.

Feral cats (*Felis catus*) are distributed widely throughout the Western Local Land Services region, in all environments suited to the species. Little objective data exists on feral cat numbers, either in specific locations/ areas or the region as a whole.

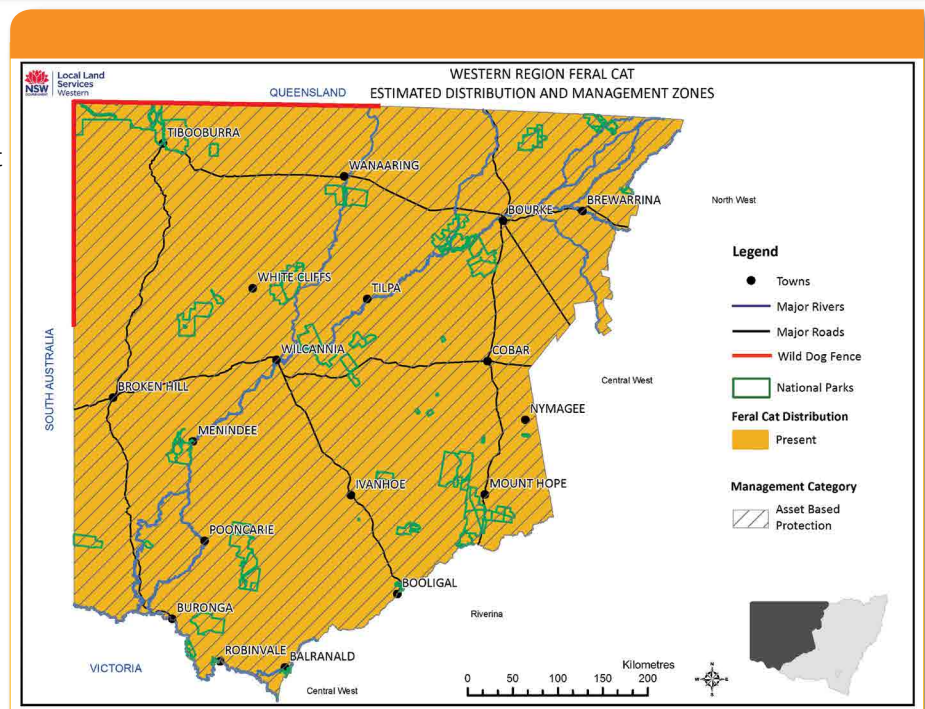
It is believed that the existing population is being regularly augmented by releases and escapes of domestic cats.

Feral cats are a significant threat to the environmental and cultural heritage values of the region, through their predation of many small to medium sized native fauna species which may be endangered and also important totems for Aboriginal communities. They are not known to have any significant impact on primary production in the region;

however in other parts of Australia (for example, South Australia) feral cats have been shown to pose risks to human health and affect the marketability of sheep for slaughter, through transmission of the *Toxoplasma* parasite.

Feral cat control is very difficult and success rates of programs highly variable. There is still much to be learned regarding effective baiting strategies and what “packages” of control measures work best for given situations.

Little is known on what impact, if any, baiting programs for wild dogs and foxes have on feral cat populations. Predator - proof fencing is being used in a small number of cases to exclude feral cats from specific areas of high environmental value.



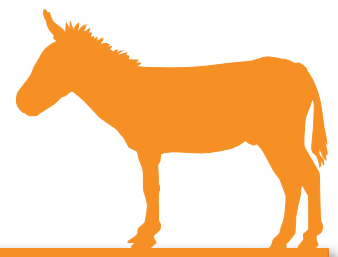
General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
<p>The impact of feral cats on the region's natural environment and Aboriginal cultural assets is reduced</p> <p>The risk of transmission of Toxoplasma parasite to humans and livestock is reduced</p>	Whole region	Limited Action	<p>Threatened and endangered fauna species</p> <p>Aboriginal community totems</p> <p>Human health & safety</p> <p>Sheep enterprises</p>	<p>Predator-proof fencing</p> <p>Shooting</p> <p>Trapping</p>	Land managers, NPWS, managers of refuse facilities
<p>The effectiveness of feral cat control programs in the region has improved</p>	Whole region	Limited Action	<p>Threatened and endangered fauna species</p> <p>Human health & safety</p> <p>Sheep enterprises</p>	Research	Western Local Land Services, NPWS, NSW DPI, universities, Centre for Invasive Species Solutions

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Reduction in domestic cat releases / escapes	Whole of region	Targeted education programs	Western Local Land Services, local community members, land managers





5.5 Species - Feral donkey

Land manager expectations

Report numbers and location of feral donkeys to Western Local Land Services wherever found.

Using best practice techniques, actively control, and keep controlled feral donkeys on properties managed by the land manager.

Actively participate in coordinated group control programs for feral donkeys.

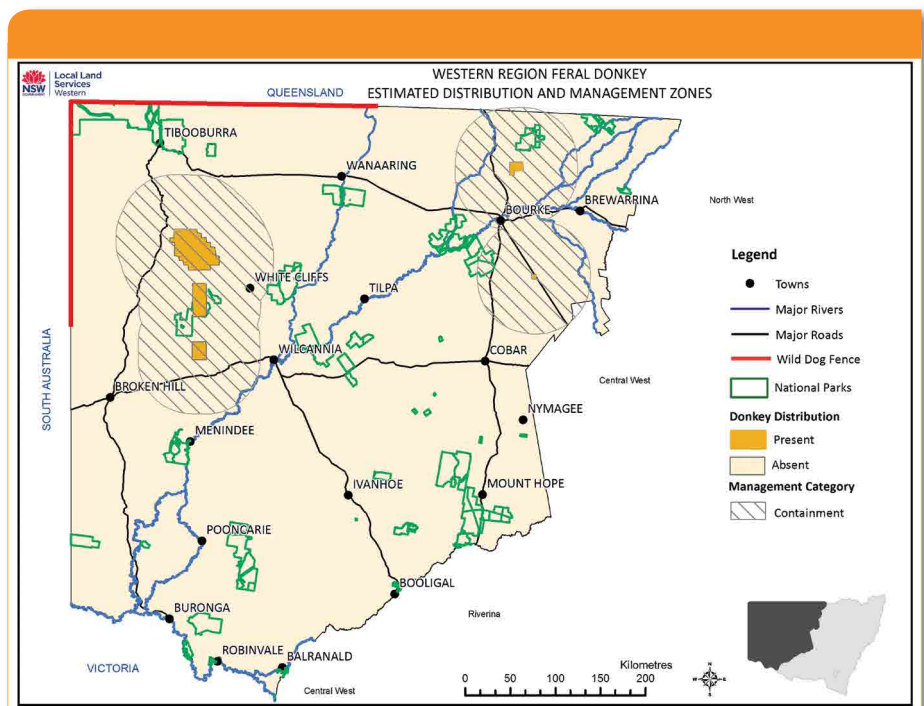
Do not release un-neutered guardian donkeys.

Currently there are relatively few, small, quite localised populations of feral donkeys (*Equus asinus*) found in the northern half of the Western Local Land Services region.

This species has the potential to spread throughout much of the northern and western parts of the region. However, a recent development has been the introduction of donkeys as guardian animals for sheep flocks, for protection against attack by canid predators such as wild dogs and foxes. It is believed that number of these donkeys have not been neutered and could breed with other "guardians" and the existing feral herd, thus contributing to an increase in numbers and distribution.

To date, the main impact of feral donkeys has been on domestic livestock enterprises in the areas they are present. Donkeys destroy fencing infrastructure, which has compromised a number of biosecurity programs which require strict segregation of livestock groups. They can reduce feed availability for domestic livestock species and deny them access to water. They have the potential to be involved in serious injury or fatal vehicle accidents. Given their preference for hilly habitats, they have the potential to threaten the environmental values of such areas.

Currently available control measures and strategies for feral donkeys are effective. Given the tendency of groups of donkeys to remain within a localised area and the region's limited numbers, it should be possible to at least contain current populations.

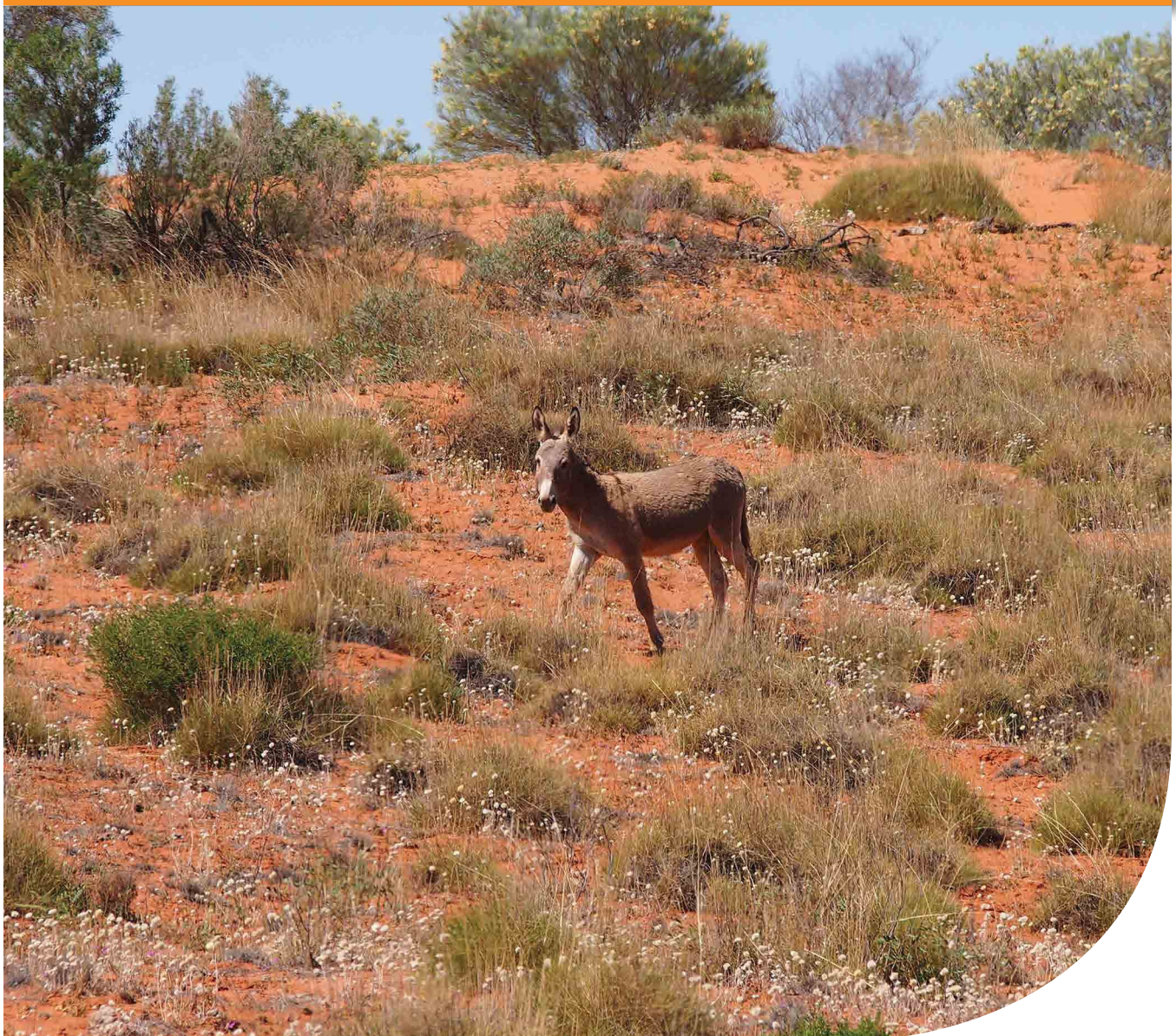


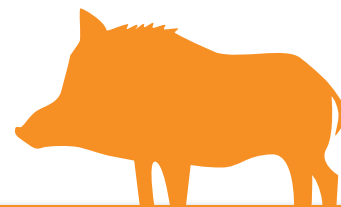
General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impact of feral donkeys on the natural environment and primary production is reduced The potential for feral donkeys to increase their numbers and distribution in the Western Local Land Services region is reduced	Whole region	Containment	Domestic livestock enterprises Threatened and endangered flora and fauna species Human health & safety	Mustering Ground shooting Aerial shooting	Land managers, NPWS, local pest groups

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Increased awareness of land managers of risks posed by releasing un-neutered "guardian" donkeys into wild	Whole region	Targeted education programs	Western Local Land Services, local pest groups, land managers (from 2019 onwards)





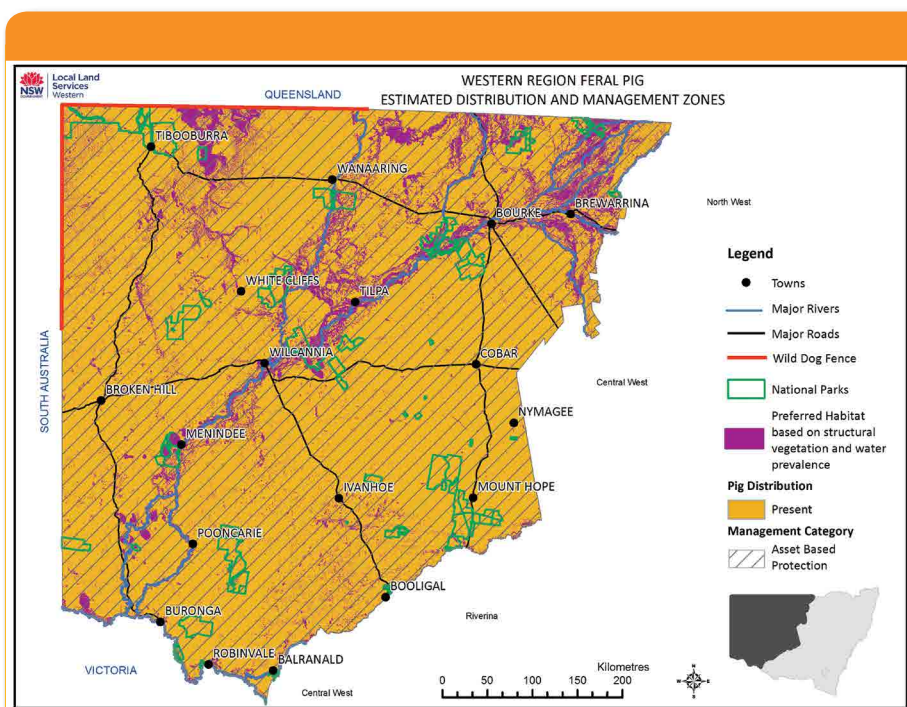
5.6 Species - Feral pig

Land manager expectations

- Using [best practice techniques](#), actively control and keep controlled feral pigs on properties managed by the land manager.
- Actively participate in coordinated group control programs for feral pigs.
- Regularly report numbers and locations of feral pigs and damage/losses believed to be caused by feral pigs to local pest control group and/or Western Local Land Services.
- Monitor and report results of feral pig control programs to local pest control group and/or Western Local Land Services.

Feral pigs (*Sus scrofa*) are present through most parts of the Western Local Land Services region, with preferred habitats in the riparian areas, floodplains and lakes associated with the region's extensive river and creek systems. Some populations are also based on a number other natural and man-made water bodies not connected to these river systems.

Pig numbers and distribution in the region varies markedly depending on seasonal conditions. In good (high rainfall) seasons, numbers are higher and pigs far more widespread and in poorer (lower rainfall) seasons pig numbers reduce, with populations tending to concentrate on preferred habitats. The full extent of the feral pig problem in the region (in terms of numbers) is not well understood.



Feral pigs cause significant economic losses to primary production in the region, particularly to small stock (sheep and goats) and cropping (dryland and irrigated) enterprises. They are hosts or vectors to a number of important endemic diseases of humans and animals (for example leptospirosis and tuberculosis) and would be important vectors of certain exotic diseases (such as foot and mouth disease) should they enter the country. Feral pigs can do considerable damage to the natural environment and Aboriginal cultural assets, particularly in riparian and floodplain areas which often hold significant cultural value for Aboriginal communities across the Western region.

Effective pig control is generally easier in the south eastern parts of the region, where property sizes are smaller, access to grain for baiting is a realistic option and there is a good recent history of integrated, cooperative control programs. Effective control in the more isolated (particularly northern) parts of the region is hampered by large property sizes, the current lack of a legal, cost-effective baiting option and no recent history of coordinated control programs. Current efforts by NSW DPI and Western Local Land Services to seek regulatory approval for a meat baiting option for feral pig control are strongly encouraged.

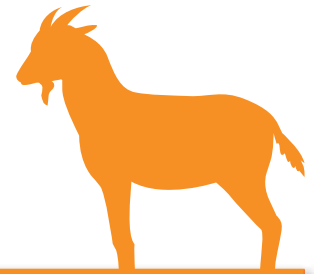
The desirability of feral pigs as a hunting "trophy animal" is considered to be a hindrance to effective pig control in some parts of the region, with some land managers reluctant to control feral pigs so as to maintain a population for hunters and gain financial benefit from that activity.

General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impact of feral pigs on primary production, the natural environment and cultural assets is reduced The risk of spread of pig borne endemic and exotic diseases has reduced	Whole region	Asset Based Protection	Small stock enterprises (sheep, goats) Cropping enterprises (dryland, irrigated) Riparian and floodplain ecosystems Threatened and endangered flora and fauna species Aboriginal cultural assets Human health & safety	Coordinated group control programs; including: Ground baiting Trapping Ground shooting Aerial shooting	Western Local Land Services, NPWS, local pest groups Land managers, Western Local Land Services, NPWS (southern part of region) Land managers, Western Local Land Services, NPWS (whole of region)
The number of landholders participating in coordinated feral pig control programs has increased	Whole region	Asset Based Protection	Improve community participation in key areas	Engage with existing local pest groups Facilitate formation of new local pest groups Facilitate development of local control plans Coordinate activities with adjoining Local Land Services regions	Land managers, Western, Riverina and Murray Local Land Services, NPWS
Knowledge of the extent of the feral pig problem in the region has increased	Whole region	Asset Based Protection	Improved collection of data on feral pig numbers, distribution and damage	Landholder reporting of feral pig numbers, distribution and damage (from 2019 onwards) Aerial survey of specific areas (opportunistic)	Land managers, local pest groups, Western Local Land Services Western Local Land Services, NPWS



5.7 Species - Unmanaged rangeland goats



Land manager expectations

- Regular trapping, mustering and removal of unmanaged rangeland goats on properties managed by the land manager.
- Prevent the release /escape of unmanaged rangeland goats once trapped/mustered.
- Actively participate in, or cooperate with, coordinated control programs for unmanaged rangeland goats, using [best practice techniques](#), where they are targeted at protecting high value environmental, agricultural or cultural assets.
- Where aiming to operate a rangeland goat enterprise, running it on a managed basis consistent with industry plans (e.g. Goatmeat and Livestock Industry Strategic Plan 2020 (GICA)) and standards.

Since the introduction of goats (*Capra hircus*) into the Western region of NSW, there has been a rapid expansion of their population and geographic distribution. Aerial surveys conducted by OEH and NSW DPI confirm that goat densities in the Western Local Land Services region are among the highest for any arid region in Australia. However, variable seasonal conditions, goat prices, harvesting efforts and efficiency and native herbivore populations can all impact on the level of unmanaged rangeland goat populations in the region.

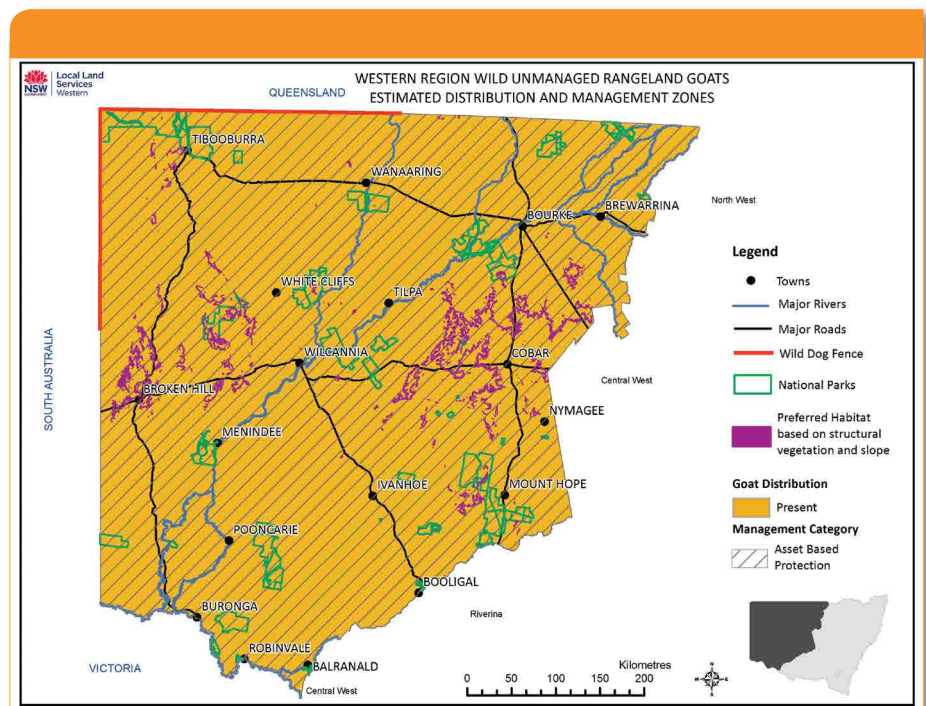
Very high populations of unmanaged rangeland goats (referred to as “feral goats” in other Local Land Services regions) in the landscape pose significant threats to environmental

and cultural assets and biosecurity in the Western region and highlights the need for better management (refer also GICA plan 3.1.6). Examples of this include direct competition with yellow footed rock wallaby for habitat sites, and defacing rock art and competition with other native species at watering points in Mutawintji National Park.

Management of goats in the region is characterised by a small number of producers operating managed goat enterprises at one extreme, to unmanaged rangeland goat populations that are mustered and sold as “harvested rangeland goats” at the other. Across that continuum, land managers adopt a range of management strategies for goats in combination with existing livestock enterprises.

Landholders who have opted to undertake a managed rangeland goat enterprise have invested in improved fencing infrastructure to control their goats, along with the introduction of improved genetics from more productive goat meat breeds such as male Boer goats to increase returns from the female rangeland base stock.

Higher standards of fencing significantly reduce the biosecurity risks from neighbouring properties and offers improved internal biosecurity management on property. It also provides greater flexibility in grazing management, with the added benefits of improved biodiversity and reduced risk of soil erosion in those landscapes prone to wind or water erosion (refer also GICA plan 3.1.5).



More accurate monitoring of goat populations is important for better management of unmanaged rangeland goats, including early detection of disease and residue issues along with their management (refer also GICA plan 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.7). A combination of aerial survey data (currently being carried out) and on ground records for managed and unmanaged rangeland goats mustered and sold annually, would provide more accurate and reliable data on the region's goat populations and their management.

This is also very important to the goat industry in developing a sustainable market supply chain that will ultimately provide benefits to landholders in the Western region (refer also GICA plan 1.1.1, 1.4.4).

To assist capturing this information, a number of solutions should be explored to determine the number of unmanaged rangeland goats being trapped/mustered and sold in any one year. One suggestion is amending the Local Land Services stock returns to capture both managed goat numbers and numbers of unmanaged rangeland goats sold each year. This information would also assist Department of Industry – Crown Lands & Water staff to work with land managers to more accurately assess the grazing impact of unmanaged rangeland goats on properties across the Western region (refer also GICA plan 1.1.1).

The risk assessment model used to assess the impact of unmanaged rangeland goats indicates that asset based protection is the most appropriate management objective for unmanaged rangeland goats in the Western region, based on their abundance and feasibility for control. This approach will focus on identifying high value environmental and primary production assets in the region that are at most risk and adopting management strategies to minimise the impact of feral goats on those assets. It also recognises that there are some preferred habitats that are high risk as refuge/source areas for unmanaged rangeland goats, where management strategies need to be implemented to reduce reinfestation into surrounding areas.



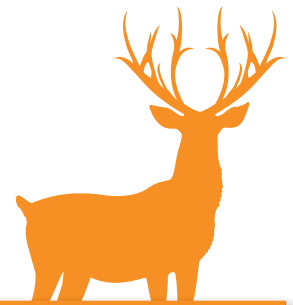
General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impacts of unmanaged rangeland goats on the rangeland grazing resource base and on-property biodiversity are reduced, while recognising value of goats as an economic resource	Numbers management	Asset Based Protection	Grazing resource base (soil and vegetation) On property plant biodiversity Reduced biosecurity risk	Mustering Trapping	Land managers Department of Industry – Crown Lands & Water
Areas of high biodiversity and or cultural value are protected from unmanaged rangeland goats Numbers of goats in key refuge/source areas are reduced	Targeted key areas	Asset Based Protection	Grazing resource base (soil and vegetation) High value biodiversity areas in NPWS estate Aboriginal Cultural assets	Mustering Trapping Management of waters Exclusion fencing "Judas goat" collaring Shooting	Land managers NPWS
Target fencing initiatives to areas in the landscape that are highly attractive to unmanaged rangeland goats and at risk from erosion or degradation	Incentive programs	Asset Based Protection	Parts of the landscape over >10% gradient or Mallee soils prone to wind erosion	Exclusion fencing Mustering Trapping	Land managers Western Local Land Services NPWS Funding bodies
Protect high value cropping and grazing enterprises	Mixed farming zones	Asset Based Protection	Cropping enterprises Sown pastures	Improved fencing Mustering Trapping	Land managers
Knowledge of unmanaged rangeland goat population densities and impact across the region has improved	Whole region	Asset Based Protection	Grazing resource base (soil and vegetation) High value biodiversity areas in NPWS estate Aboriginal cultural assets	Aerial and ground surveys Remote sensing Investigate alternative means of determining numbers of managed and unmanaged rangeland goats sold from each property	Western Local Land Services, land managers, NSW DPI, OEH, Department of Industry – Crown Lands & Water, NPWS, MLA
Knowledge of the health status of unmanaged rangeland goat populations has improved	Whole of region	Asset Based Protection	Health of all domestic livestock enterprises	Biosecurity staff work with landholders at mustering, to inspect and take specimens to determine their health status.	Western Local Land Services, land managers, NSW DPI

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Increased landholder awareness of net impacts of unmanaged rangeland goats	Whole region	Publications Media activities Land manager meetings	Western Local Land Services, land managers, researchers
Shift in landholder attitudes to favour managed rangeland goat enterprises	Whole region	Publications Media activities Land manager workshops	Western Local Land Services, land managers, NSW DPI, MLA, researchers





5.8 Species - Wild deer

Cervus spp. (red, sambar and rusa)

Land manager expectations

- Report numbers and location of wild *Cervus spp.* deer to Western Local Land Services wherever found.
- Using [best practice techniques](#), actively control, and keep controlled wild *Cervus spp.* deer on properties managed by the land manager.
- Actively participate in coordinated group control programs for wild *Cervus spp.* deer.
- Prevent the release of wild or captive *Cervus spp.* deer on properties managed by the land manager.

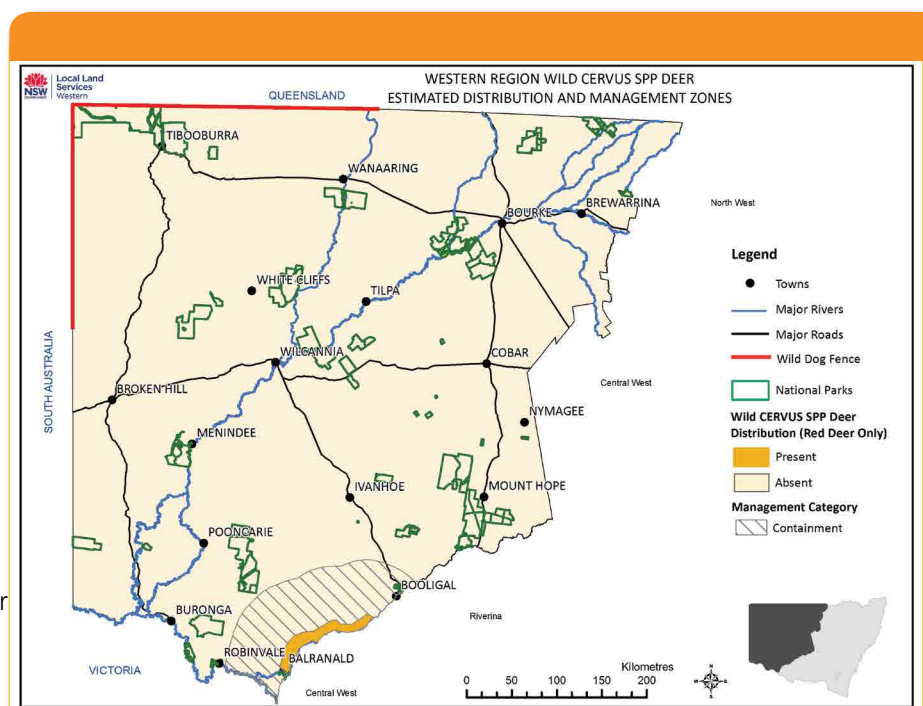
Deer were introduced to Australia in the 1870's by the acclimatisation societies for release into the Australian landscape, primarily as game species for recreational shooting. A farmed deer industry has also since developed; of the three cervus deer species considered here, red deer (*Cervus elaphus*) are regularly farmed, and sambar deer (*Cervus unicolor*) and rusa deer (*Cervus timorensis*) are rarely farmed.

Populations of wild red deer have been confirmed to the east and north-east of Balranald and unconfirmed reports have been received of wild sambar and rusa deer in the same areas. Given there are no known current or former deer farms in the Western region that stocked these species, these populations are likely to be the result of deliberate releases, or escapes from deer farms located in adjoining regions.

While all three species have established in the wild in Australia, red deer has the largest geographical distribution and is best suited climatically to the Western region; based on climatic modelling carried out by CSIRO. The same modelling has established that sambar deer have some potential to establish in the region, while rusa deer are more suited to northern Australia.

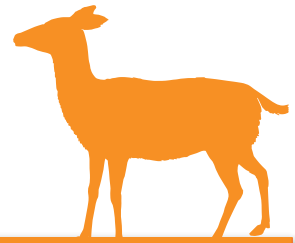
Based on the relatively small size and discrete locations of wild *Cervus spp.* deer populations in the Western region, and difficulties associated with accessing the riverine habitats where they are currently located, the appropriate management category for both species is containment. This position takes into account the potential for these deer populations (particularly red deer) to expand from their current locations and pose increased threats to both biosecurity and biodiversity of the region. Social impacts will also occur through increased unauthorised recreational shooting on properties and increased risks of road accidents.

Evidence suggests that all wild deer pose significant threats to social, cultural and environmental assets and biosecurity issues in the Western region if wild deer populations become well established. To facilitate control programs for wild deer, the Western RPAC will seek suspension of regulations relating to deer hunting under the *Game and Feral Animal Control Act 2002*, for the whole of the Western Local Land Services region.



General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
Wild populations of <i>Cervus spp.</i> deer are prevented from spreading from existing locations The impact of <i>Cervus spp.</i> deer on primary production and the natural environment and public safety and Aboriginal cultural assets is reduced	Whole region	Containment	Threatened and endangered flora and fauna species Domestic livestock enterprises Horticultural enterprises Forestry Human health and safety Aboriginal cultural assets	Coordinated group monitoring and control programs; including: Aerial shooting Ground shooting	Western, Riverina and Murray Local Land Services, NPWS, local pest control groups
Increased awareness of the abundance and location of <i>Cervus spp.</i> deer populations	Whole region	Containment	As above	Regular ground and aerial monitoring of existing populations Investigate reports of accidental or deliberate releases Community meetings Targeted surveys	Western, Riverina and Murray Local Land Services, NPWS, land managers Western Local Land Services, land managers, local community members Western Local Land Services, land managers, local community members



5.9 Species - Wild deer (chital)

Land manager expectations

- Report numbers and location of wild chital deer to Western Local Land Services wherever found.
- Using [best practice techniques](#), actively control, and keep controlled wild chital deer on properties managed by the land manager.
- Actively participate in coordinated group control programs for wild chital deer.
- Prevent the release of wild or captive chital deer on properties managed by the land manager.

Chital deer (*Axis axis*) were introduced to Australia in the 1870's from Sri Lanka by the acclimatisation societies for release into the Australian landscape, primarily as game species for recreational shooting.

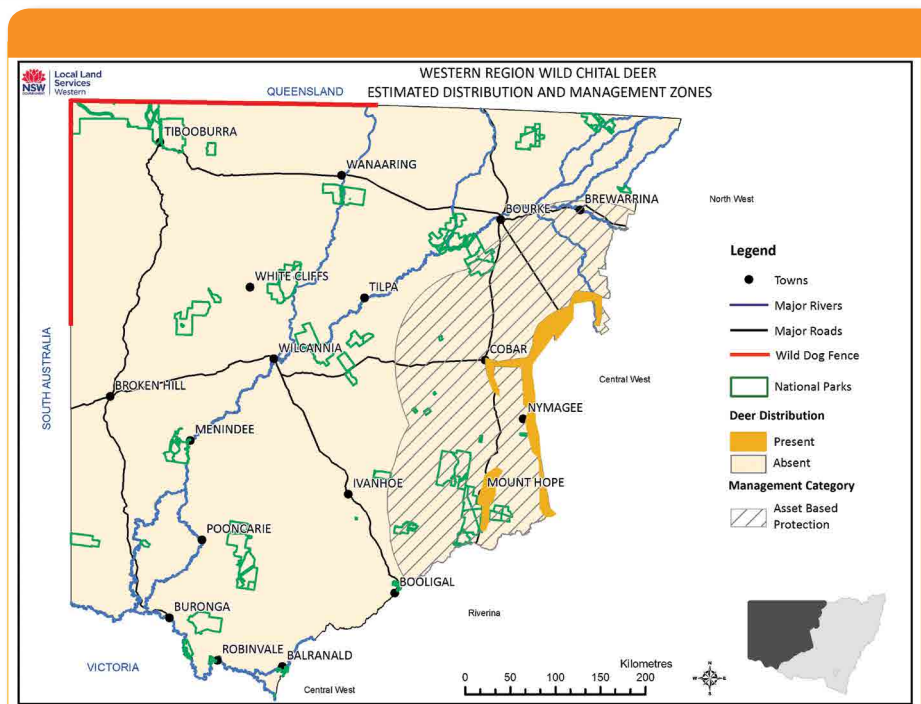
In the Western region a number of wild chital deer populations have established in areas to the south and east of Cobar bordering the Central West Local Land Services region, most likely from a deliberate releases in both regions. Any strategy to control and contain these populations will require a joint Local Land Services approach.

While climatic modelling carried out by CSIRO indicates that chital deer are more suited to northern Australian environments, the current distribution of this species clearly indicates that there is potential for its further spread in the Western region.

Based on the relatively limited and defined part of the Western region that wild chital deer populations currently occupy, the appropriate management category for this species is containment.

This position takes into account the potential for chital deer populations to expand from their current locations and pose increased threats to both biosecurity and biodiversity of the region. Social impacts will also occur through increased unauthorised recreational shooting on properties and increased risks of road accidents. Given the grazing habit and habitats favoured by deer it is likely that they will impact on Aboriginal cultural assets in riparian areas.

To facilitate control programs for wild deer, the Western RPAC will seek suspension of regulations relating to deer hunting under the *Game and Feral Animal Control Act 2002*, for the whole of the Western Local Land Services region.



General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
<p>Wild populations of chital deer are prevented from spreading from existing locations</p> <p>The impact of chital deer on primary production and the natural environment and public safety and Aboriginal cultural assets is reduced</p>	Whole region	Containment	<p>Threatened and endangered flora and fauna species</p> <p>Domestic livestock enterprises</p> <p>Horticultural enterprises</p> <p>Forestry</p> <p>Human health and safety</p> <p>Aboriginal cultural assets</p>	<p>Coordinated group control programs; including:</p> <p>Aerial shooting</p> <p>Ground Shooting</p>	Western and Central West Local Land Services, NPWS, local pest control groups
Increased awareness of the abundance and location of chital deer populations	Whole region	Containment	<p>Threatened and endangered flora and fauna species</p> <p>Domestic livestock enterprises</p> <p>Horticultural enterprises</p> <p>Forestry</p> <p>Human health and safety</p> <p>Aboriginal cultural assets</p>	<p>Regular ground and aerial monitoring of existing populations</p> <p>Investigate reports of accidental or deliberate releases</p> <p>Community meetings</p> <p>Targeted surveys</p>	<p>Western and Central West Local Land Services, NPWS, land managers</p> <p>Western Local Land Services, land managers, local community members</p> <p>Western Local Land Services, land managers, local community members</p>



5.10 Species - Wild deer (fallow)

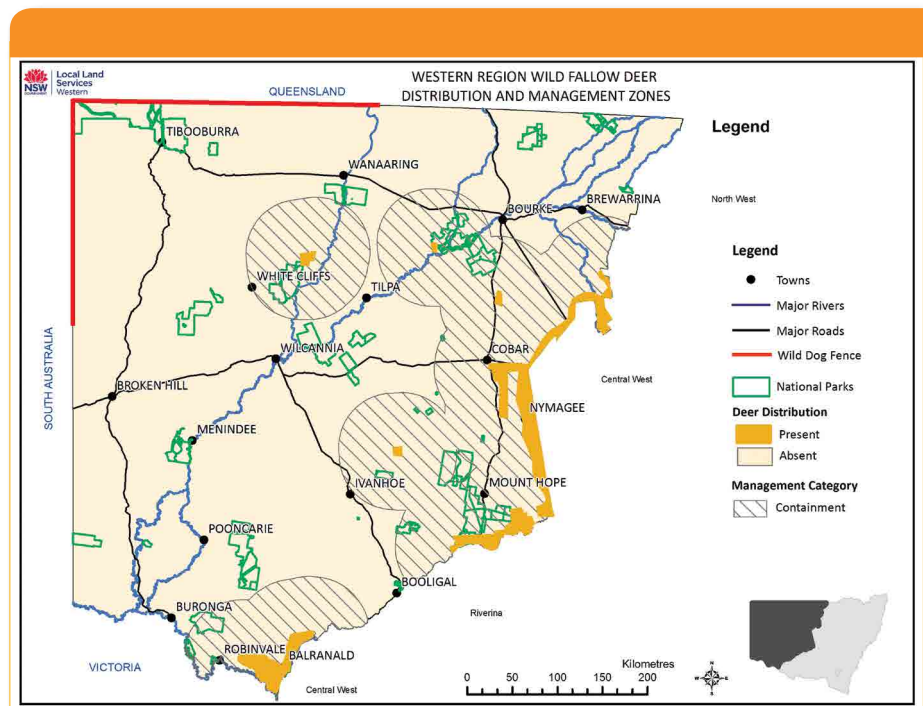
Land manager expectations

- Report numbers and location of wild fallow deer to Western Local Land Services wherever found.
- Using [best practice techniques](#), actively control, and keep controlled wild fallow deer on properties managed by the land manager.
- Actively participate in coordinated group control programs for wild fallow deer.
- Prevent the release of wild or captive fallow deer on properties managed by the land manager.

Fallow deer (*Dama dama*) were introduced to Australia in the 1870's by the acclimatisation societies for release into the Australian landscape, primarily as a game species for recreational shooting. The majority of Australia's farmed deer industry is now also based on this species.

In the Western region, fallow deer are the most widespread of the deer species and wild populations have resulted from either deliberate introductions or escapes from unprofitable commercial deer farms.

Based on modelling carried out by CSIRO, it would appear that the wild fallow deer populations found in the Western region have considerable scope for expansion if no management strategies are applied. As a result the appropriate management category should be containment of known populations.



This management strategy will require those properties that have fallow deer to make every effort to prevent these animals escaping to adjoining properties and the wider landscape and, where necessary, implement control measures.

The browsing habit and behaviour of fallow deer would also suggest that Aboriginal cultural assets could be at risk in riparian environments.

To facilitate control programs for wild deer, the Western RPAC will seek suspension of regulations relating to deer hunting under the *Game and Feral Animal Control Act 2002*, for the whole of the Western Local Land Services region.

Increased community awareness and education programs are required to advise communities about the legalities and dangers associated with releasing fallow deer into the environment in the Western region. There also needs to be more awareness around the associated issues of illegal hunting by recreational shooters trespassing on those properties which have fallow deer populations.

There is a paucity of reliable information on the distribution and abundance of fallow deer in the Western region. This could be improved greatly by working with landholders and other land management agencies to undertake regular ground and aerial surveillance to inform coordinated control programs.

Better understanding of the damage to the environment, cultural assets, health and condition of the fallow deer population would also provide valuable information that would allow biosecurity staff to assess the risks to domestic livestock, native fauna and flora, Aboriginal cultural assets and to human health from wild populations.

General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impact of fallow deer on primary production, the natural environment and Aboriginal cultural assets is reduced	Whole region	Containment	Threatened and endangered flora and fauna species Domestic livestock enterprises Horticultural enterprises Forestry Human health and safety Aboriginal cultural assets	Control of animals that escape from existing populations including: Aerial shooting Ground Shooting	Western Local Land Services, NPWS, local pest control groups, land managers
Increased awareness of the abundance and location of fallow deer populations	Whole region	Containment	Threatened and endangered flora and fauna species Domestic livestock enterprises Horticultural enterprises Forestry	Regular ground and aerial monitoring of existing populations Investigate reports of accidental or deliberate releases Targeted surveys Community meetings	Western Local Land Services, adjoining Local Land Services regions, NPWS, land managers Western Local Land Services, NSW DPI Western Local Land Services Western Local Land Services, land managers, local community members



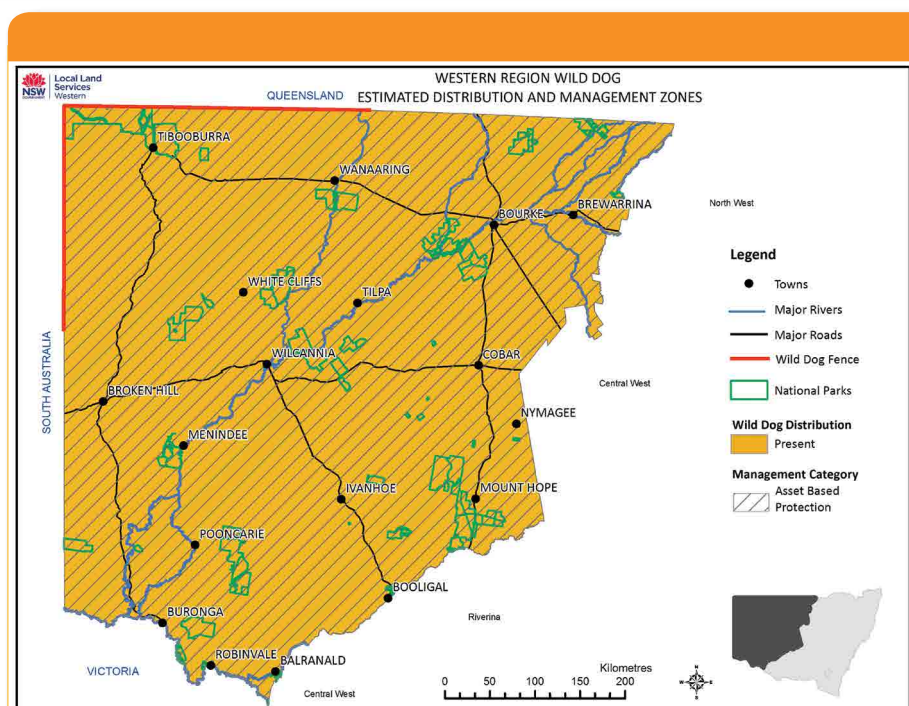
5.11 Species - Wild dog

Land manager expectations

- Using [best practice techniques](#), actively control wild dogs wherever found on properties managed by the land manager, aiming to keep numbers to minimal levels.
- Actively participate in coordinated group control programs for wild dogs.
- Regularly report numbers and locations of wild dogs, and damage/losses believed to be caused by wild dogs to local pest control group and/or Western Local Land Services.
- Monitor and report results of wild dog control programs to local pest control group and/or Western Local Land Services.

For the purposes of this plan, wild dog (*Canis familiaris*) include domestic breeds of dog gone wild, pure strains of dingo and hybrids between the two.

The distribution and abundance of wild dogs in the Western Local Land Services region shows a distinct north – south divide. In the northern two-thirds of the region, wild dogs are present in most areas in varying densities. They are far less common in the southern third of the region, although resident populations have been long established in certain areas. There is evidence that wild dogs are expanding their range in the southern part of the region, partly through the gradual southward movement of northern populations and partly through cross – border incursions of wild dogs from South Australia, from populations that reside south of that state's dog fence. Landholders in the north-east of the region have also noted wild dog incursions along the Queensland border.



Wild dogs can cause significant losses to livestock enterprises in the region, with consequent economic and social impacts. The participation of many land managers in coordinated control programs for wild dogs is making significant inroads into mitigating these losses. These pest groups also provide great support for landholders dealing with the psychological trauma caused by wild dog predation on livestock. However, the impact of wild dogs on endangered native fauna is less well understood. The hybridisation of existing strains of wild dog with pig hunting dogs is seen as an emerging threat to human safety in parts of the region.

The established network of local pest control groups in the northern part of the region is working well in relation to the promotion and execution of effective coordinated control of wild dogs and is making good use of the resources and guidance provided through regional, state and national strategies. The effectiveness of these coordinated control efforts is being compromised in some areas by individual land managers who, for various reasons, have decided not to participate. There is clear potential for, and increasing support amongst land managers to, establish new local pest control groups in the southern part of the region.

Given the widespread distribution of wild dogs in the Western Local Land Services region (albeit at varying densities) and the need to protect the region's livestock industries, the appropriate management category for this species on a region wide basis is Asset Based Protection. This approach anticipates the expansion of current control efforts and does not prevent individual land managers or local pest control groups aiming to achieve eradication or containment at the local level. This approach is consistent with the NSW Wild Dog Management Strategy 2017-2021.

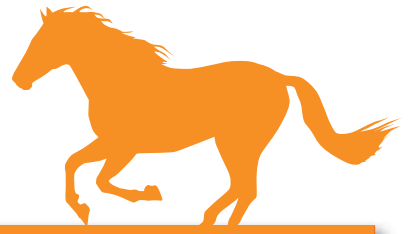
General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
Losses in domestic livestock enterprises from wild dogs are reduced	Whole of region	Asset Based Protection	Domestic livestock enterprises	Coordinated group control programs; including: Aerial baiting (spring and autumn) Ground baiting (spring and autumn) Trapping Shooting Maintain State Wild Dog Barrier Fence	Western Local Land Services, NPWS, local pest control groups Western Local Land Services, NPWS, local pest control groups, land managers Land managers Border Fence Maintenance Board, land managers
The distribution and number of wild dogs in the southern third of the region has not increased from 2018 levels	Southern third of region	Asset Based Protection	Domestic livestock enterprises	Coordinated group control programs; including: Ground baiting (spring and autumn) Trapping Shooting Interstate liaison	Western Local Land Services, NPWS, local pest control groups Western Local Land Services, NPWS, local pest control groups, land managers Land managers Western Local Land Services, Border Fence Maintenance Board interstate authorities

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Maintain existing local pest control groups	Northern two-thirds of region	Community meetings Local control program planning	Western Local Land Services, local pest control groups
Establish at least three new local pest control groups	Southern third of region	Community meetings Local control program planning (August 2018 – June 2020)	Western Local Land Services, land managers

5.12 Species - Wild horse



Land manager expectations

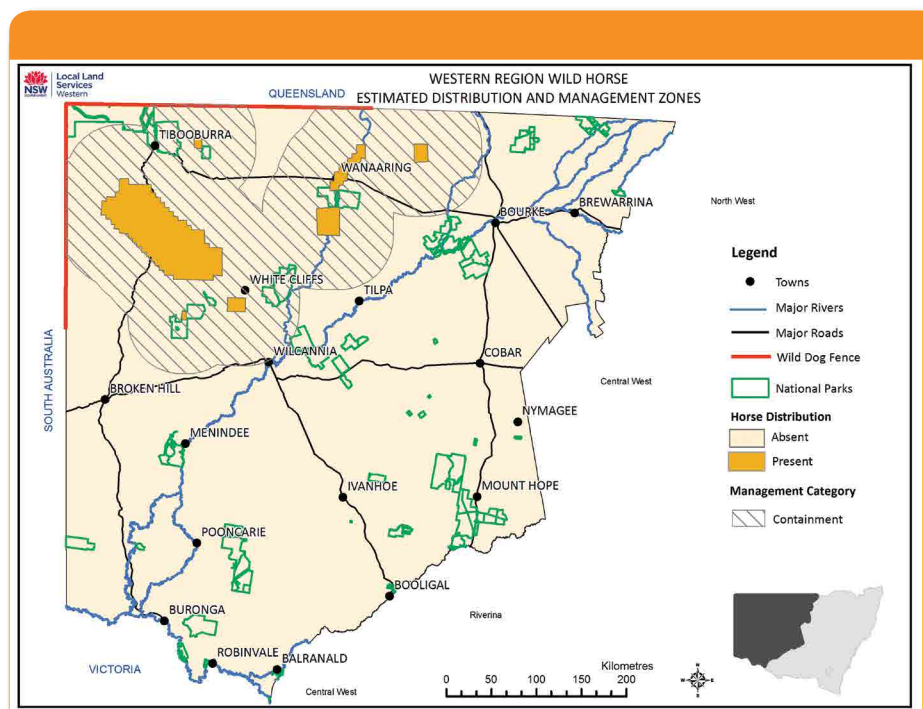
- Report numbers and location of wild horses to Western Local Land Services wherever found.
- Using [best practice techniques](#), actively control, and keep controlled wild horses on properties managed by the land manager.
- Actively participate in coordinated group control programs for wild horses.

Wild horses (*Equus caballus*) can be found throughout much of the northern half of the Western Local Land Services region, tending to be more prevalent in the north-west.

While there is currently a degree of uncertainty in relation to the number and distribution of wild horses in these parts of the region, most properties are believed to have at least a residual population, generally in small mobs. Collectively however, these populations would run into the many thousands. There is clear potential for wild horses to increase their numbers and range in the region.

There have been relatively few examples of wild horses causing significant damage in the region in recent times. However, they have clearly demonstrated their ability to cause serious damage in similar environments in other states (for example QLD and WA), particularly on or near rivers, creeks and other water bodies. Wild horses are also involved in serious injury or fatal vehicle accidents from time to time.

There is a degree of reluctance amongst some land managers and the general community for wild horse control to be undertaken in the region. This is partly because, in most cases, they don't currently appear to be causing significant damage and partly because, for many, the wild horse or brumby is seen as an iconic part of Australian "bush culture".

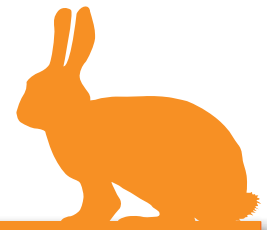


General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
<p>The impact of wild horses on the natural environment, primary production and cultural assets is reduced</p> <p>The likelihood of wild horses being involved in serious vehicle accidents is reduced</p> <p>The potential for wild horses to increase their numbers and distribution in the Western Local Land Services region is reduced</p>	Whole region	Asset Based Protection	<p>Riparian ecosystems</p> <p>Threatened / endangered flora and fauna species</p> <p>Domestic livestock enterprises</p> <p>Cultural assets</p> <p>Human health & safety</p>	<p>Coordinated group monitoring and control programs; including:</p> <p>Mustering</p> <p>Ground shooting</p>	<p>Western Local Land Services, NPWS, Local pest groups, land managers</p> <p>Western Local Land Services, local pest groups, land managers</p>
Knowledge of the extent of the wild horse problem in the region has increased	Whole region	Asset Based Protection	<p>Riparian ecosystems</p> <p>Threatened and endangered flora and fauna species</p> <p>Domestic livestock enterprises</p> <p>Cultural assets</p> <p>Human health & safety</p>	<p>Landholder reporting of wild horse numbers</p> <p>Ground surveys</p> <p>Aerial surveys</p>	<p>Land managers, local pest groups, Western Local Land Services (from 2019 onwards)</p> <p>Western Local Land Services, NPWS (opportunistic)</p>

Community engagement activities

Objective	Program name/area	Activities and timeframe (where relevant)	Participants
Increased participation of land managers in, and community support for, wild horse control activities	Whole region	<p>Engage with existing local pest groups</p> <p>Targeted education programs</p>	<p>Western Local Land Services, local pest groups</p> <p>Western Local Land Services, land managers, general community, NPWS</p>



5.13 Species - Wild rabbit

Land manager expectations

- Using [best practice techniques](#), actively control wild rabbits on or immediately adjacent to high value agricultural, environmental or cultural assets.
- Cooperate with programs to release biocontrol agents.

The wild rabbit (*Oryctolagus cuniculus*) is widely distributed across the Western Local Land Services region and is well established in all environments suited to the species.

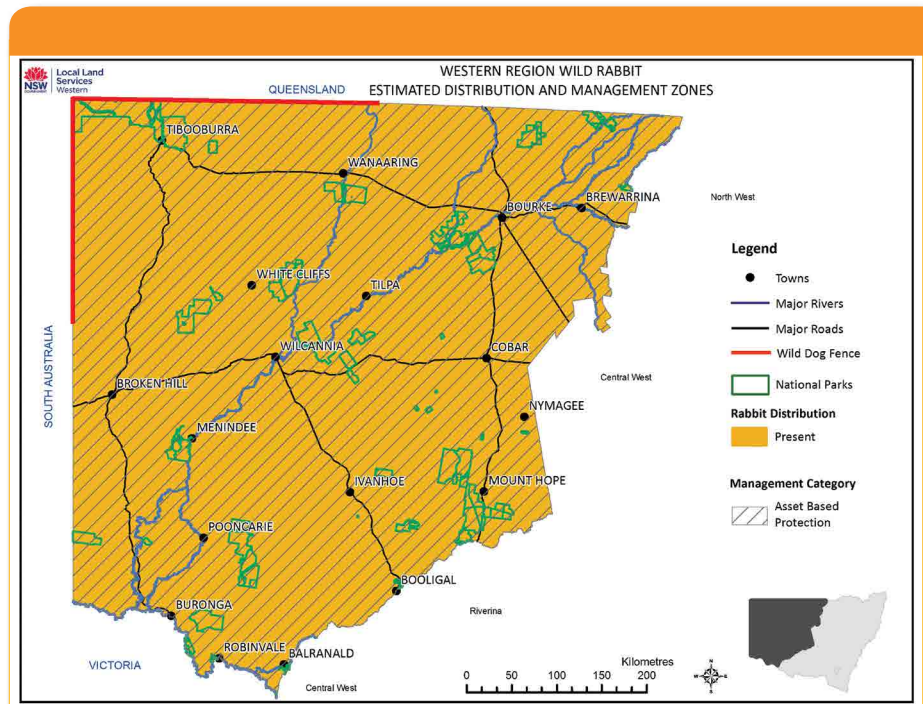
Numbers vary markedly according to seasonal conditions and the level of activity of established biocontrols (myxomatosis and calicivirus).

Through their contribution to total grazing pressure, rabbits can have significant impacts on grazing enterprises in the region, particularly when their numbers are high. They can cause economic damage to cropping enterprises in the southern and eastern most parts of the region.

Their effect on native plant biodiversity is generally moderate, although some sites can be heavily impacted when rabbit numbers are high. Some significant endangered flora species can be seriously impacted by rabbits at low densities (one rabbit per 2.5 ha) and can prevent regeneration. Significant Aboriginal and European cultural sites can be damaged from time to time by the burrowing activity of rabbits.

Land managers do not see rabbits as being a big issue in most seasons, although there is likely to be a general lack of awareness of the impact of rabbits at even low to moderate numbers.

Control of rabbits in the Western region is heavily reliant on established biocontrols. Implementation of other control measures tends to be targeted to limited areas, for the specific protection of high value assets. The large size of most properties and the costs involved make large scale control programs impractical.



General program

Objective	Program name/area	Management category	Assets (where relevant)	Activities and timeframe (where relevant)	Participants
The impact of rabbits on primary production, the natural environment and cultural assets is reduced	Whole region	Asset Based Protection	Domestic livestock enterprises Cropping enterprises (dryland, irrigated) Threatened species and ecological communities Cultural assets	Biocontrols Baiting (late summer/early autumn) Warren destruction (prioritise poor seasons)	Land managers, NPWS Land managers, NPWS
The number of land managers in the region implementing rabbit control activities has increased	Whole region	Asset Based Protection	Domestic livestock enterprises Cropping enterprises (dryland, irrigated) Threatened species and ecological communities Cultural assets	Targeted education programs (from 2019 onwards) Development of case studies (from 2019 onwards)	Land managers, Western Local Land Services, NPWS, NSW DPI
Rabbit control activities are targeted to high priority areas	Whole region	Asset Based Protection	Improved collection of data on rabbit numbers at/near high value assets	Ground surveys of targeted assets (from 2019 onwards) Aerial surveys of warrens in specific areas (opportunistic)	Western Local Land Services, NPWS



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 have been set to ensure practices are effective and achieving outcomes. These are focussed at a regional scale to ensure the implementation of programs deliver effective outcomes for the pest animals outlined in the plan. Statewide 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 statewide 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.

6.1.1 Statewide KPIs

Providing a coherent story about the impact of the regional strategic pest animal management plans 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 which 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

6.1.2 Species KPIs

Common carp

Objective	Indicator	Timeframe
Australian and NSW Government control initiatives are supported	One or more plan stakeholders participate in at least one Australian and/or NSW government carp control initiative	From 2019 onwards

European red fox

Objective	Indicator	Timeframe
The impact of foxes on primary production and the natural environment is reduced	Number of reports of significant environmental and primary production losses attributable to foxes Results of case studies looking at damage levels to environmental assets, pre and post control program	July 2018 to June 2023 (annual review) July 2018 to June 2023 (opportunistic)
Community awareness of the purpose of and management of risks associated with fox baiting programs has increased	Improvements in knowledge, awareness skills and aspirations (KASA) metrics post meetings / education programs Number of reports and investigations into possible off target impacts linked to fox control programs	July 2018 to June 2023 (individual event and overall trend) July 2018 to June 2023 (annual review)

Feral camel

Objective	Indicator	Timeframe
The impact of feral camels on primary production, the natural environment and cultural assets is reduced	Number of reports of significant damage to environment, primary production and cultural assets attributable to feral camels	July 2018 to June 2023 (annual review)
The potential for feral camels to increase their numbers and distribution in the Western Local Land Services region is reduced	Number of domestic herds being managed in accordance with a valid permit Changes in mapped distribution in the region Reported/estimated numbers	From July 2018 onwards (annual review) July 2018 to June 2023 (annual review) July 2018 to June 2023 (annual review)

Feral cat

Objective	Indicator	Timeframe
The impact of feral cats on the region's natural environment and Aboriginal cultural assets is reduced	Number of reports of significant damage to environmental and Aboriginal cultural assets attributable to feral cats	July 2018 to June 2023 (annual review)
The effectiveness of feral cat control programs in the region is improved	Results of case studies looking at effectiveness of individual feral cat control programs	July 2018 to June 2023 (opportunistic)

Feral donkey

Objective	Indicator	Timeframe
The impact of feral donkeys on the natural environment and primary production is reduced	Number of reports of significant damage to environmental and primary production assets attributable to feral donkeys	July 2018 to June 2023 (annual review)
The potential for feral donkeys to increase their numbers and distribution in the Western Local Land Services region is reduced	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review) July 2018 to June 2023 (annual review)

Feral pig

Objective	Indicator	Timeframe
The impact of feral pigs on primary production, the natural environment and cultural assets is reduced	Number of reports of significant damage to environmental, primary production and cultural assets attributable to feral pigs	July 2018 to June 2023 (annual review)
The number of landholders participating in coordinated feral pig control programs has increased	Number and total area of properties involved in coordinated feral pig control programs	July 2018 to June 2023 (annual review)

Unmanaged rangeland goat

Objective	Indicator	Timeframe
The impact of unmanaged rangeland goats on areas of high biodiversity and or cultural value is reduced	Number of reports of significant damage to areas of high biodiversity and or cultural value attributable to unmanaged rangeland goats Results of case studies looking at effectiveness of individual goat control programs	July 2018 to June 2023 (annual review) July 2018 to June 2023 (opportunistic)
Numbers of goats in key refuge/source areas are reduced	Numbers of unmanaged rangeland goats in identified key refuge/source areas	July 2018 to June 2023 (annual review)
A shift in landholder attitudes to favour "managed" goat enterprises	Improvements in knowledge, awareness skills and aspirations (KASA) metrics post meetings / education programs Number of "managed" goat enterprises (compared to "unmanaged") being operated	July 2018 to June 2023 (annual review) July 2018 to June 2023 (annual review)

Wild deer - *Cervus spp.*

Objective	Indicator	Timeframe
Wild populations of <i>Cervus spp.</i> deer are prevented from spreading from existing locations	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review)
The impact of <i>Cervus spp.</i> deer on primary production and the natural environment and public safety is reduced	Number of reports of significant damage to environmental and primary production assets attributable to wild <i>Cervus spp.</i> deer	July 2018 to June 2023 (annual review)

Wild deer - chital

Objective	Indicator	Timeframe
Populations of wild chital deer are prevented from spreading from existing locations	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review)
The impact of wild chital deer on primary production and the natural environment is reduced	Number of reports of significant damage to environmental and primary production assets attributable to wild chital deer	July 2018 to June 2023 (annual review)

Wild deer - fallow

Objective	Indicator	Timeframe
The impact of wild fallow deer on primary production and the natural environment is reduced	Number of reports of significant damage to environmental and primary production assets attributable to wild fallow deer	July 2018 to June 2023 (annual review)
Increased awareness of the abundance and location of wild fallow deer populations	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review)

Wild dog

Objective	Indicator	Timeframe
Losses in domestic livestock enterprises from wild dogs are reduced	Reports of stock losses and injuries attributable to wild dogs	July 2018 to June 2023 (annual review)
The distribution and number of wild dogs in the southern third of the region has not increased from 2018 levels	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review) July 2018 to June 2023 (annual review)

Wild horse

Objective	Indicator	Timeframe
The impact of wild horses on the natural environment, primary production and cultural assets is reduced	Number of reports of significant damage to environmental, primary production and cultural assets attributable to wild horses	July 2018 to June 2023 (annual review)
The potential for wild horses to increase their numbers and distribution in the Western Local Land Services region is reduced	Changes in mapped distribution in the region Reported/estimated numbers	July 2018 to June 2023 (annual review) July 2018 to June 2023 (annual review)

Wild rabbit

Objective	Indicator	Timeframe
The impact of rabbits on primary production, the natural environment and cultural assets is reduced	Number of reports/observations of significant rabbit damage to priority assets	July 2018 to June 2023 (annual review)
The number of land managers in the region implementing rabbit control activities has increased	Number of land managers recorded as actively implementing rabbit control measures (other than biocontrols)	July 2018 to June 2023 (annual review)

6.2 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 statewide collaboration and reporting on pest animal indicators across NSW. Improved intelligence on key pest animals will lead to more efficient management tools and outcomes.

6.3 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).

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 3: 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.

E.g. You are discharging your GBD if you are implementing an on-farm biosecurity plan

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. Phylloxera 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 an individual's 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)
- NSW Department of Primary Industries
- The Centre for Invasive Species Solutions
- 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 non-indigenous 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.

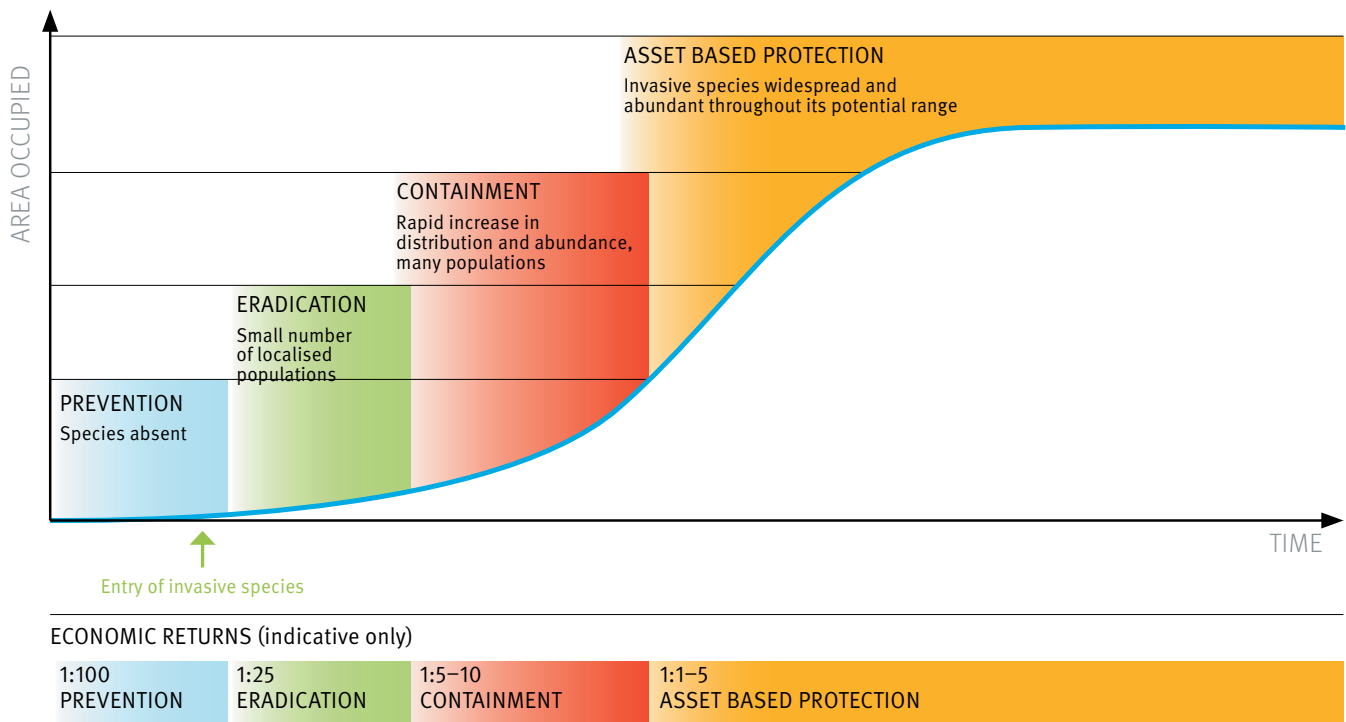
Appendix 1: Prioritisation process

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 4).
- 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).

Figure 4: The 'Invasion Curve', showing the importance of allocating resources to prevent the establishment of new pests. Sourced from Biosecurity Victoria, Department of Primary Industries, Victoria.

Generalised invasion curve showing actions appropriate to each stage



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.

