

Northern Tablelands Regional Strategic Pest Animal Management Plan **2018 - 2023**





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Northern Tablelands Regional Strategic Pest Animal Management Plan 2018-2023

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing in 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 Northern Tablelands 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 Northern Tablelands 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 Northern Tablelands Regional Strategic Pest Animal Management Committee represents major land uses and relevant economic, environment and community interests 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 Northern Tablelands region has a high occurrence of vertebrate pest species such as Wild Dogs, Feral Pigs, Wild Rabbits and the European Red Fox with widespread economic, environmental and social impacts. The damaging impacts from these established pest species, as well as emerging threats from pest animals such as Wild Deer require active, cooperative and coordinated management.

The Northern Tablelands Regional Strategic Pest Animal Management Plan has been developed in consultation with various stakeholders and provides the overall strategic direction for managing pest animals in the region in order to protect the region's agricultural sector, natural environment and community. Having a regional Pest Plan in place will ensure that best practice pest animal management action and investment is tailored to the needs and impacts experienced in the Northern Tablelands region.

This plan aligns with the NSW Invasive Species Plan 2018–2021 and the NSW Biosecurity Strategy 2013-2021 and it supports the regional implementation of the NSW *Biosecurity Act 2015*. Together, these strategic plans aim to achieve the following overall goals for pest animal management:

- Increase community awareness of pest animals and their impact.
- Promote best practice management for the control of pest animals.
- Improve community engagement and participation in the delivery of coordinated pest animal management activities for improved outcomes.
- Reduce the impacts of pest animals across the landscape.
- Improve reporting of pest animals to gather more accurate distribution and impact trends.
- Identify alert species that could become established in the Northern Tablelands region.
- Provide clarity for landholders and the community on their obligations under the NSW *Biosecurity Act 2015*.

What is the Pest Plan?

This plan aims to provide general guidance on how landholders, Government agencies, industry groups and the community can work together and share responsibility to prevent, eradicate, contain and manage the impacts of pest animals within the Northern Tablelands region through prioritised strategic activities.

It provides information on priority pest animals present in the region, what is expected of landholders to manage these pest animals and considers the best practice control options for each of these.

The priority pest animals addressed for the Northern Tablelands:

- Feral Pig.
- Wild Dog.
- Wild Horse.
- Wild Deer (Rusa, Chital, Red, Fallow).
- Wild Rabbit.
- Feral Goat.
- European Red Fox.
- Feral Cat.

Pest animals that are not known to be present in the region, but have the potential to become established and therefore present a threat have also been identified in the plan as 'Alert Species'. These Alert Species are:

- Cane Toad.
- Mozambique Tilapia
- Sambar Deer.

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

Who Will Implement the Plan?

The Northern Tablelands Regional Pest Animal Committee will provide strategic oversight of pest animal management at a regional level. The Committee will be supported by the Northern Tablelands Local Land Services to monitor the implementation of this plan.

Key stakeholders and the community will play an important role in the implementation of the plan through their participation. Working together with Government agencies, landholders, industry groups and the community as well as neighbouring regions will be crucial for the effective management and prevention of pest animals in the Northern Tablelands region.

1. Introduction

1.1 Overview

The economic impact of Wild Rabbits, Carp, Feral Pigs, Foxes, Wild Dogs, Feral Goats and introduced birds has been estimated at \$170 million in NSW.

The Northern Tablelands Regional Strategic Pest Animal Management Plan (hereafter referred to as the Pest Plan) outlines how Government, industry and the community can work together and share the responsibility to eradicate, contain or manage vertebrate pest animals in terrestrial and freshwater aquatic environments across the region.

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 Pest Plan is to outline a strategy for stakeholders 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 the NSW Biosecurity Strategy.

The Pest Plan is reflective of key aligning themes in biosecurity including:

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

This plan is one of eleven regionally focused Pest Plans across NSW. It presents a vision for pest animal management by identifying regional priorities and initiatives to prevent, eradicate, contain and manage the impacts of pest animals across all tenures.

The Pest Plans provide guidance on how both public and private landholders can meet their general biosecurity duty and identify key commitments for pest animal management activities over the life of the plans.

1.3 What is Considered a Pest Animal?

Under the NSW *Biosecurity Act 2015*, pest animals are not defined by species. Pest animals 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 (e.g. 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 outlines mandatory measures for pest animal management in NSW.

General control and management of pest animals outlined in this plan can be considered as mechanisms for individuals to discharge their general biosecurity duty. Moreover, 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 Pest Plan. Issues associated with managing the impacts of native species (such as kangaroos, wallabies, wombats or cockatoos) should be addressed separately in consultation with the 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 Invasive Species in NSW

The Northern Tablelands Pest Plan is part of an extensive planning framework for biosecurity in Australia. The relationship of this plan to the State and National framework for pest animal biosecurity management is shown in Figure 1.

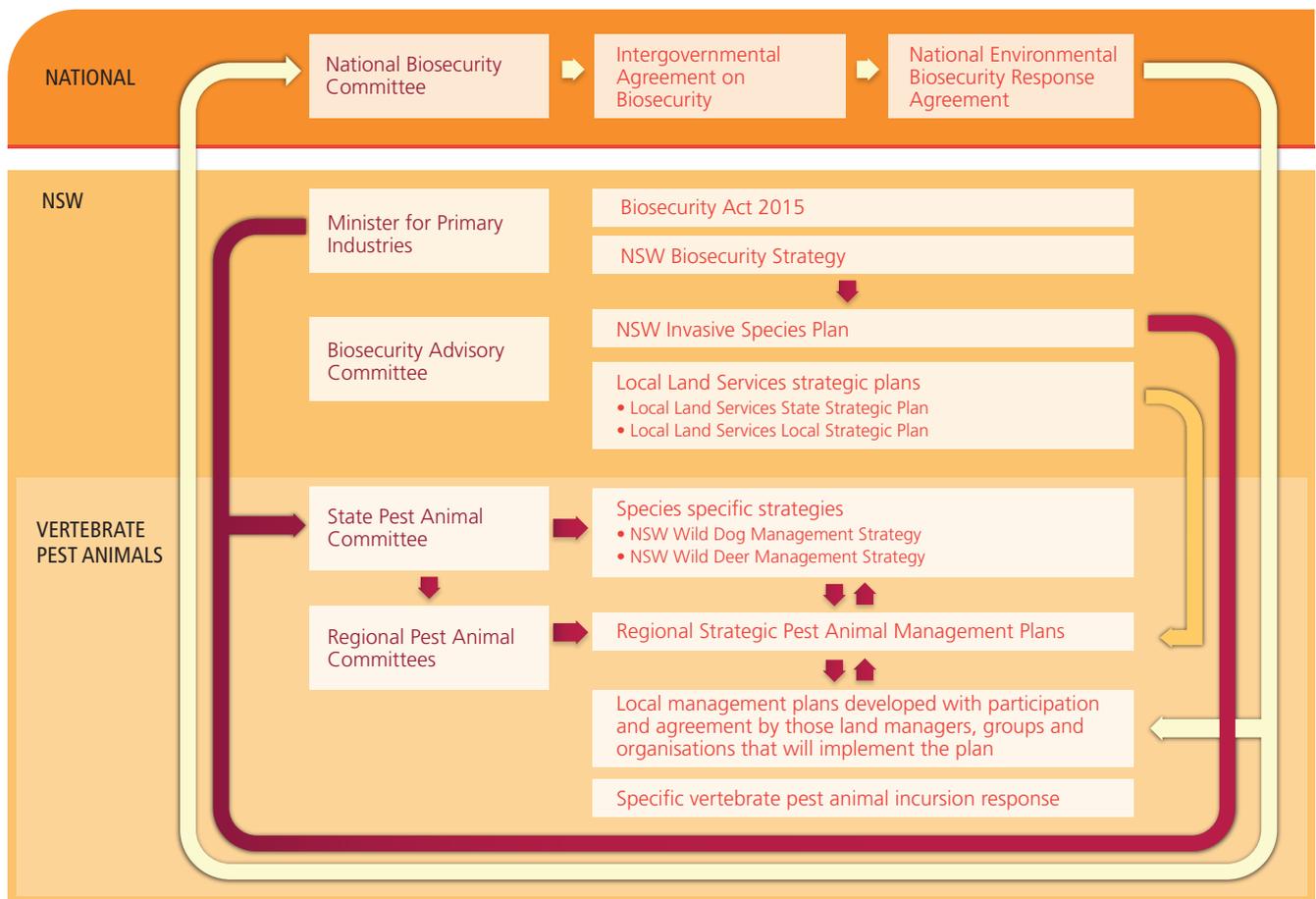


Figure 1. The Biosecurity framework for Pest Animals in NSW

1.6 Roles and Responsibilities

Under the *Biosecurity Act 2015* framework, biosecurity is a shared responsibility, meaning:

- Public, private and Aboriginal landholders, as well as Government and industry all have a shared and equal responsibility to eliminate and minimise biosecurity risks across land in NSW.
- A key focus of the Pest Plan 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 Department of Primary Industries (DPI) have a lead role in managing terrestrial and freshwater aquatic pest incursions. Local Land Services (LLS) 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 State and Regional Pest Animal Committees in the delivery of the Pest Plan.

State Pest Animal Committee

The State Pest Animal Committee (SPAC) is responsible for overseeing a consistent approach to the ongoing operation of Regional Pest Animal Committees and for the development of tenure neutral Pest Plans across the State. SPAC oversees key policy and strategy documents to guide pest animal management outcomes across NSW.

Regional Pest Animal Committees

Regional Pest Animal Committees (RPAC) facilitate tenure neutral strategic planning and coordination for priority pest animal management programs in each LLS region. The RPAC has an important role to play in the delivery of the Pest Plan through promoting landholder 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. The RPAC is also pivotal in the ongoing periodic review and adaptation of the Pest Plan as required.

For more information on key roles and responsibilities in pest animal management, please refer to the *Invasive Species Plan 2018-2021*.



2. Guiding Principles of Pest Animal Management

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

Be alert

Monitor and *report sightings* of any species you have not seen in your area before. Prevention and early intervention from landholders, industry and 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 landholders, 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, landholders, industry and Government 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.

Best practice pest management recognises a strategic pest management approach. This approach recommends the use of the following:

- Integrated control techniques.
- Coordination with neighbours.
- Evaluating management options.
- Detailed monitoring and measurement of the effectiveness of management decisions in reducing a pest problem, pest numbers and/or the damage they cause¹.

¹NSW Department of Primary Industries, 2018. "Ecology and Management of Vertebrate Pests in NSW".

3. The Northern Tablelands Region

The Northern Tablelands Local Land Services region is situated in northern inland New South Wales, spanning 40,000 square kilometres in area. The region has a diverse climate, ranging from temperate to sub-tropical, with considerable differences in climate between the east and the west and great variety in its landforms, hydrology, vegetation, and soils.

A major catchment divide, coastal flowing rivers of the Clarence, Macleay and Manning have their headwaters on the eastern escarpment while inland flowing rivers have their confluence with the Gwydir, Namoi and Macintyre river systems of the Murray-Darling Basin. Topography ranges in elevation from 1,536 metres at Round Mountain near Ebor, down to 257 metres above sea level at Yetman in the northwest and average rainfall ranges from 650mm per annum on the western slopes to over 1,200mm on the eastern fall.

Sheep and cattle grazing enterprises dominate as the major agricultural land use. Cropping occurs in the northwest of the region with mixed farming, horticulture, viticulture and other agricultural enterprises adding to the regional diversity. The east of the Northern Tablelands has significant areas of public land, established for conservation and the region retains 39% native woody vegetation cover across the landscape. Major industries and town viability are centred around agricultural production, with the region maintaining the highest livestock carrying capacity in NSW.

The favourable livestock production and habitat conditions in the region and proximity to Queensland, the coast and plains are also highly conducive to the establishment and migration of vertebrate pests.

Consequently, the Northern Tablelands experiences high pest population densities which can impact on the productivity of farming without consistent and ongoing control programs. Wild Dogs remain a key threat to livestock production enterprises along with Feral Pigs, Rabbits, Foxes and emerging threats such as Deer. These species require active and coordinated management due to the densities of the pest populations and the nature of the landscape. Wild Dogs present significant social, economic, and environmental impacts and will continue to be prioritised in the region with broad scale collaborative programs.

The Pest Plan provides an opportunity to reinvigorate control programs for Foxes, Feral Pigs and Rabbits and investigate how emerging threats from Deer would benefit from better planning. Like many agricultural areas, participation in pest management programs is impacted by shifting demographic patterns in the population and engaging landholders remains an important challenge. Surveillance and reporting of new incursions must be maintained and improved through strategic actions.

Nine socio-ecological landscapes – areas distinguished by their unique integration of biophysical and socio-economic characteristics have been identified for the Northern Tablelands region as a planning tool, consistent with the Northern Tablelands Local Strategic Plan and Investment Plan 2025. These are referenced in Figure 2 to show the variation (and similarity) in pest priorities across the Northern Tablelands landscape.



Northern Tablelands Region

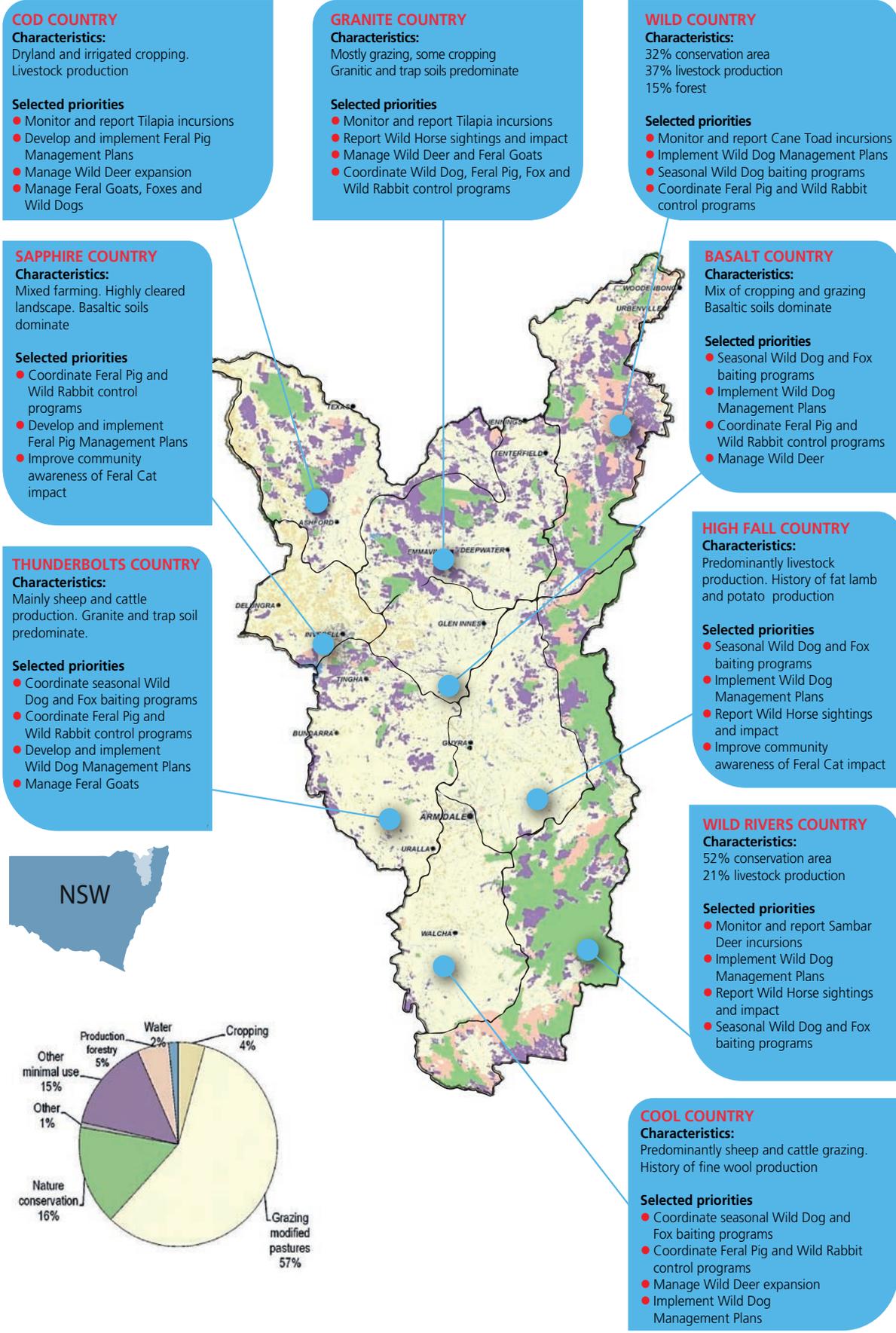


Figure 2. Northern Tablelands Local Land Services region with an overview of the nine socio-ecological landscapes and the selected priorities for pest species management

4. Managing Our Pest Animals

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

Collaborative programs working with producers, industry and established landholder groups and organisations will be important in leveraging better 'value for money'. In the biosecurity context of managing pest animals, significant returns will be achieved through effective surveillance and rapid response.

With a significant vertebrate pest burden and extensive livestock production, the Northern Tablelands Pest Plan has adopted the 'Invasion Curve' (Prevention, Eradication, Containment, Asset protection) as a guiding principle, which highlights the return on investment for different phases of invasive species management (refer to Appendix 1).

The Northern Tablelands RPAC conducted a review of the 64 possible pest species that could either be present in, or a risk to the region in the context of the 'Invasion Curve'. From this process 18 species were shortlisted and translated to meet agreed terminology in place for NSW. A further assessment of whether those shortlisted species had environmental, economic or social impacts was considered, resulting in their categorisation as outlined in Table 4.1

| Invasion Curve Management Category | Definition |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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: Recognise and report any sightings of alert species. |
| Eradication | <ul style="list-style-type: none"> • GOAL: To permanently remove the species and 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 to other parts of the state or region. • RESPONSIBILITY: To participate in coordinated programs, stay up-to-date and apply best practice pest animal management. |
| 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. Ensure practices are coordinated with the wider community. |
| Limited Action | <ul style="list-style-type: none"> • GOAL: To monitor over time and be responsive to any change in pest animal threat. • RESPONSIBILITY: Stay up-to-date with current information. 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. |

Table 4.1 Invasion Curve Management Categories assigned to Pest Animals

4.1 Local and Sub-Regional Management Plans

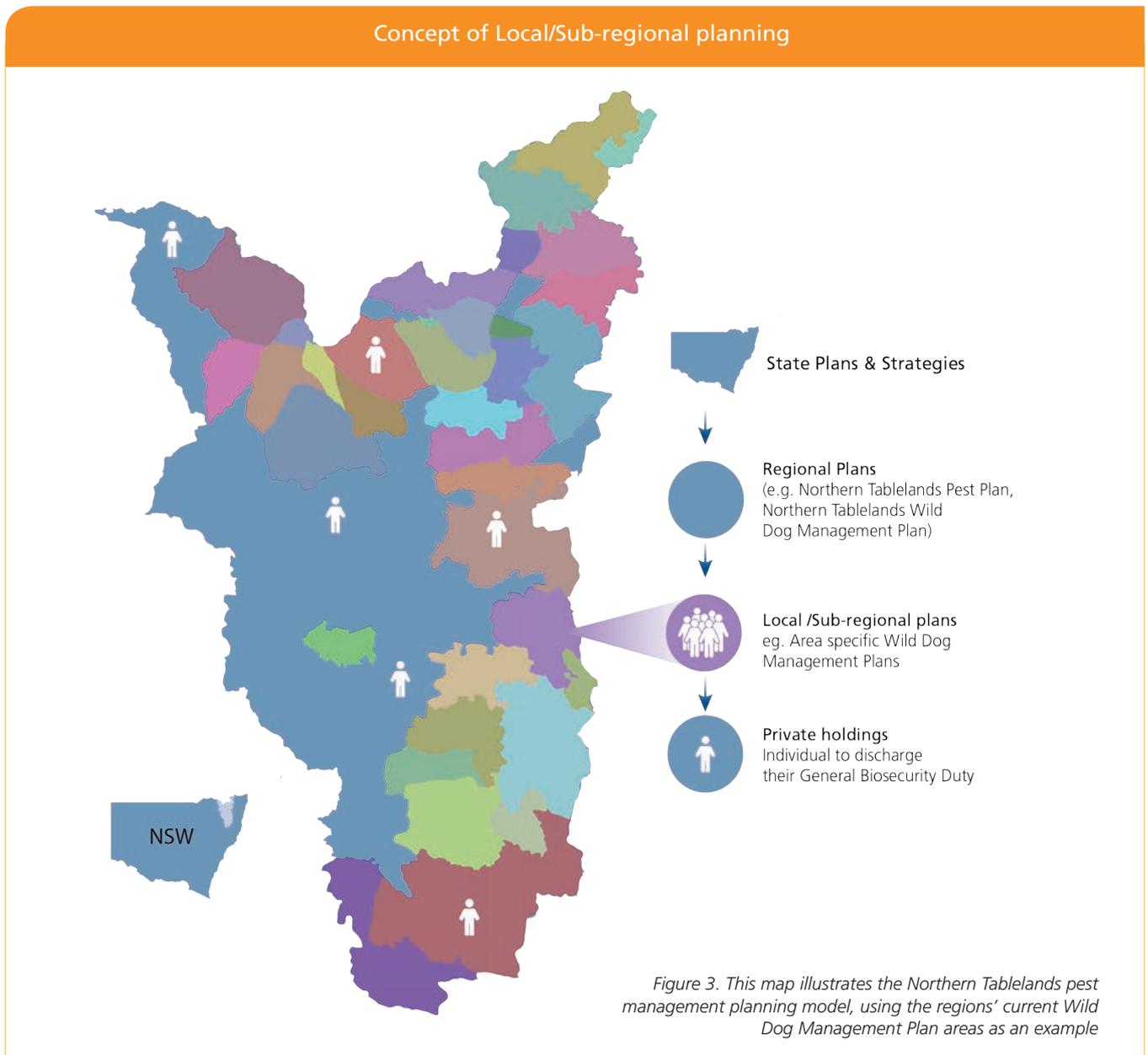
An important aspect of the Northern Tablelands Pest Plan is the development of practical, locally relevant pest planning and operations.

This Pest Plan provides a framework for the Northern Tablelands region that informs the more detailed development of local and sub-regional management plans to address one or more of the priority pest species defined in Section 6. These plans developed at the local or sub-region scale will help determine management priorities, identify primary and supplementary control activities, support collaborative nil tenure control and enable landholders to meet their general biosecurity duty.

The Wild Dog planning framework is an example of a successful local planning approach that is currently in place across the Northern Tablelands.

Local and sub-regional management plans need to support the objectives of the Pest Plan and comply with the requirements under the NSW *Biosecurity Act 2015*. Where required, local pest management groups will contribute to the development and implementation of a local management plan and underpin a nil tenure approach to pest animal management in the Northern Tablelands.

The structured model as represented in Figure 3 underpins the future strategic management of pest animals in the Northern Tablelands region.



5. Incursion Management and Alert Species

Community awareness and early detection of new incursions and alert species is critical to ensure an effective management response and to protect against new pests becoming established in the Northern Tablelands region.

The Alert Species listed for the Northern Tablelands are the Cane Toad (*Bufo marinus*), Mozambique Tilapia (*Oreochromis mossambicus*) and Sambar Deer (*Rusa unicolor*).

Cane Toads are extremely adaptive animals and are poisonous during all life stages making them lethal to native birds and predators. While much of the Northern Tablelands region does not provide conditions suitable to toad establishment, the north east of the region in particular contains potential habitat. With proximity to Queensland where Cane Toads are well established, toads can be accidentally transported to new locations via the Northern Tablelands transport network.

Tilapia are listed in the top 100 of the world's worst introduced species and are declared a notifiable species in NSW under the Biosecurity Regulation 2017. It is illegal to possess, buy, sell or move this pest in NSW and heavy penalties apply for non-compliance. Populations of Tilapia have been identified in Queensland and the far North Coast of NSW and due to the aggressive nature of Tilapia and extent of the threat it poses to native fauna and the environment, this pest must be dispatched immediately and must not be returned to the water.

Sambar are the largest of the Deer species in Australia and not known to be present in the region. Herbivory and environmental degradation caused by feral deer are listed as a key threatening process by the NSW Scientific Committee but it is the size, adaptability and potential grazing impact of the Sambar that have warranted listing as an Alert Species. Sambar Deer are considered 'game' under the *Game and Feral Animal Control Act 2002*.

The NSW *Biosecurity Act 2015* outlines species that are prohibited from being kept in NSW and all landholders and community members must remain vigilant in reporting any unusual sightings of pest animals in the region.

Alert species for the Northern Tablelands region are:

Cane Toad
(*Bufo marinus*)



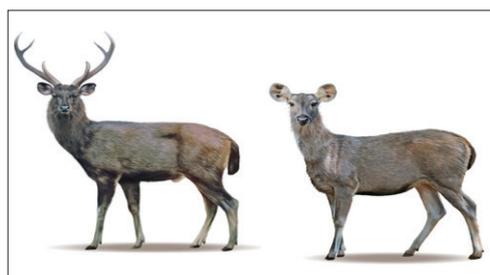
J Pumpars - FeralScan

Mozambique Tilapia
(*Oreochromis mossambicus*)



Department of Agriculture & Fisheries - QLD

Sambar Deer
(*Rusa unicolor*)



Game Management Authority, Victoria.

The following mechanisms can be used to report unusual pest animal sightings in the region:

- Complete the "Report an Unusual Sighting Form" through the following website: <https://www.dpi.nsw.gov.au/biosecurity/forms/report-an-unusual-animal-sighting>
- Call the Invasive Plants and Animals Enquiry Line: **1800 680 244**, or
- Send an e-mail to: invasive.species@dpi.nsw.gov.au

Pest animals can also be reported through FeralScan: <https://www.feralscan.org.au>. The Northern Tablelands Local Land Services can provide information on using the FeralScan App.

For species that are yet to become widely established in NSW, the initial response to incursion reports is managed through consultation between NSW, DPI, LLS and Office of Environment and Heritage (OEH).

Where species are widely established in NSW but have spread into a new region, LLS and the RPAC will consider whether local eradication or containment should be attempted.

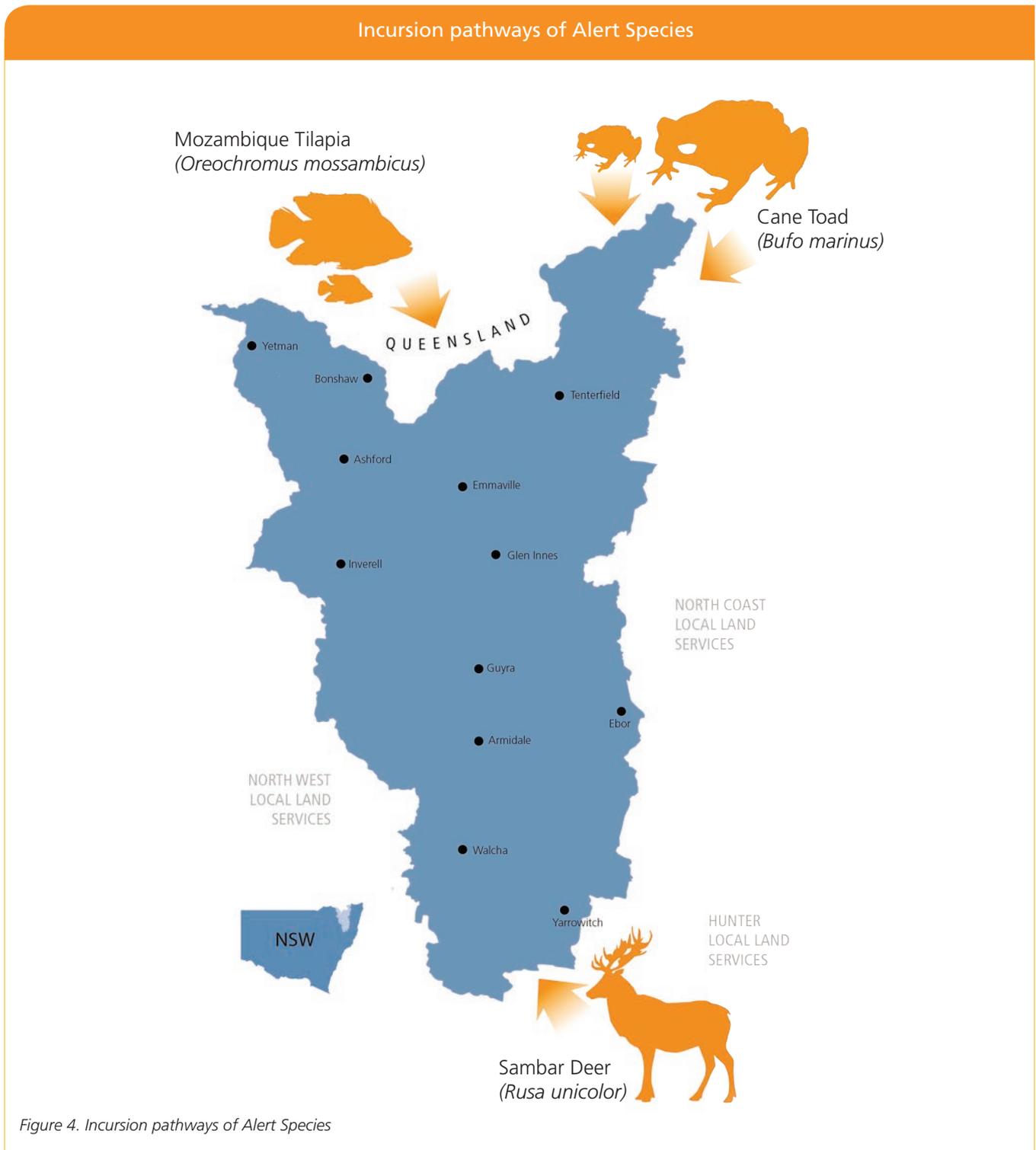


Figure 4. Incursion pathways of Alert Species

6. Priority Pest Species

Pest animals for the Northern Tablelands region have been prioritised based on level of risk and feasibility of control assessed through the South Australian Pest Animal Risk Management Guide and prioritisation tool (refer to Appendix 1).

Priority species listed below have been categorised into the 'Invasive Curve' management categories and further strategies and actions are detailed for each species. All species listed have equal priority under this plan and are not listed in any particular order.

| Common Name | Management Category | Section in Plan | Objectives |
|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feral Pig  | Asset based protection | 6.2 | <ul style="list-style-type: none"> P1 - Suppress and destroy Feral Pigs on private and public land to reduce impacts on agriculture and the environment. P2 - Establish integrated and coordinated control programs to effectively reduce Feral Pig populations. P3 - Improve knowledge of Feral Pig population density and distribution to inform planning and control programs. |
| Wild Deer (Rusa, Chital, Red, Fallow)  | <ul style="list-style-type: none"> Asset based protection (Private lands) Containment (Conservation lands) | 6.3 | <ul style="list-style-type: none"> D1 - Engage community and stakeholders in Wild Deer management planning to ensure ownership by all parties. D2 - Manage Wild Deer on public and private land to reduce impacts on agriculture and the environment. D3 - Improve knowledge of deer population density and distribution to inform planning and control programs. |
| Wild Dog  | Asset based protection | 6.4 | <ul style="list-style-type: none"> WD1 - Suppress and destroy Wild Dogs on private and public land to reduce stock losses and the impact of predation. WD2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Dog populations. WD3 - Improve data, information and mapping capability to inform Wild Dog control programs. |
| Wild Rabbit  | Asset based protection | 6.5 | <ul style="list-style-type: none"> R1 - Suppress and destroy Wild Rabbits on private and public land to reduce impacts on agriculture and the environment. R2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Rabbit populations. |
| European Red Fox  | Asset based protection | 6.6 | <ul style="list-style-type: none"> F1 - Suppress and destroy European Red Foxes on private and public land to reduce impacts on agriculture and the environment. F2 - Expand participation by landholders in coordinated control programs to effectively reduce European Red Fox populations. F3 - Expand control options to improve efficacy of control programs. F4 - Improve data, information and mapping capability to inform European Red Fox control programs. |
| Wild Horse  | Eradication | 6.7 | <ul style="list-style-type: none"> H1 - Manage Wild Horses by lawful means to reduce impact on the environment. H2 - Gain agreement to implement approved Wild Horse management procedures. H3 - Prevent further incursions to contain known populations. H4 - Improve data, information and mapping capability to inform Wild Horse eradication programs. |
| Feral Goat  | Containment | 6.8 | <ul style="list-style-type: none"> G1 - Manage Feral Goats to reduce the impacts on agriculture and the environment. G2 - Manage Feral Goats to account for the existence of the commercial goat industry. |

| | | | |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feral Cat  | Containment | 6.9 | <ul style="list-style-type: none"> • C1 - Manage Feral Cats to reduce the impact on threatened species and ecological communities. • C2 - Improve awareness of the impact of Feral Cats to support responsible cat ownership. |
| Feral Cattle Feral Sheep Black Rat Mouse* European Brown Hare Indian Myna Common Carp | <ul style="list-style-type: none"> • Limited action: refer to Section 6.10 * triggers NSW DPI and LLS response during plague situations. | | |
| Cane Toad Mozambique Tilapia Sambar Deer | <ul style="list-style-type: none"> • Alert/Prevention: refer to Section 5 Incursion Management and Alert Species. | | |

Table 6.1 Summary of Priority Pest Species in the Northern Tablelands.

6.1 Distribution Maps of Priority Pest Species

The pest animal distribution maps in this plan are based on state wide data compiled in 2016 from reports submitted and gathered by DPI. The maps are at a coarse scale and provide general guidance only with regard to relative pest animal distribution. A key priority for future implementation of this Pest 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 decisions.



6.2 Species – Feral Pig

Impact

Feral Pig (*Sus scrofa*) populations are becoming increasingly common in the region. With the close proximity to Queensland and the North West region of the state where Feral Pigs are endemic, the Northern Tablelands is seeing increased densities, particularly in the west and south of the region.

Feral Pigs are significant environmental and agricultural pests where they are widespread and abundant. They cause damage to crops, pasture and the environment through wallowing, rooting for food and nesting, creating significant soil disturbance, altering drainage, increasing turbidity and sedimentation and assisting the spread of weeds. They also prey on a wide range of native animals including frogs, reptiles, birds and small mammals, as well as livestock such as lambs. Feral Pigs can carry disease and parasites that affect stock and pose a disease risk to humans including Brucellosis (*B. suis*), Leptospirosis (*L. pomona*) and Q Fever. They can be a major potential host and vector of a number of exotic diseases such as foot-and-mouth disease. The social and economic costs of foot and mouth disease in Australia would be extreme, as meat, dairy and wool export markets would be closed until the outbreak was eradicated. Individual farmers would be severely impacted as herds and flocks would be destroyed and domestic markets for animals and animal products would be heavily restricted.

The risk assessment process for Feral Pigs highlighted their potential for significant social, economic and environmental impact in the region.

Landholder Expectations and Management Options

All landholders (private and public lands) are required to participate fully in Feral Pig management programs in their area by using best practice, legal methods of control. Group coordination is encouraged where possible in order to achieve the most effective control during a program.

Control options for landholders are widely available including baiting, trapping, aerial and ground shooting. To be effective, the control options require full participation from the community. This remains a critical barrier to implementing effective control across the landscape. Quality information about species distribution and movements is a priority for current research. Such data would also assist with planning more strategic control programs.

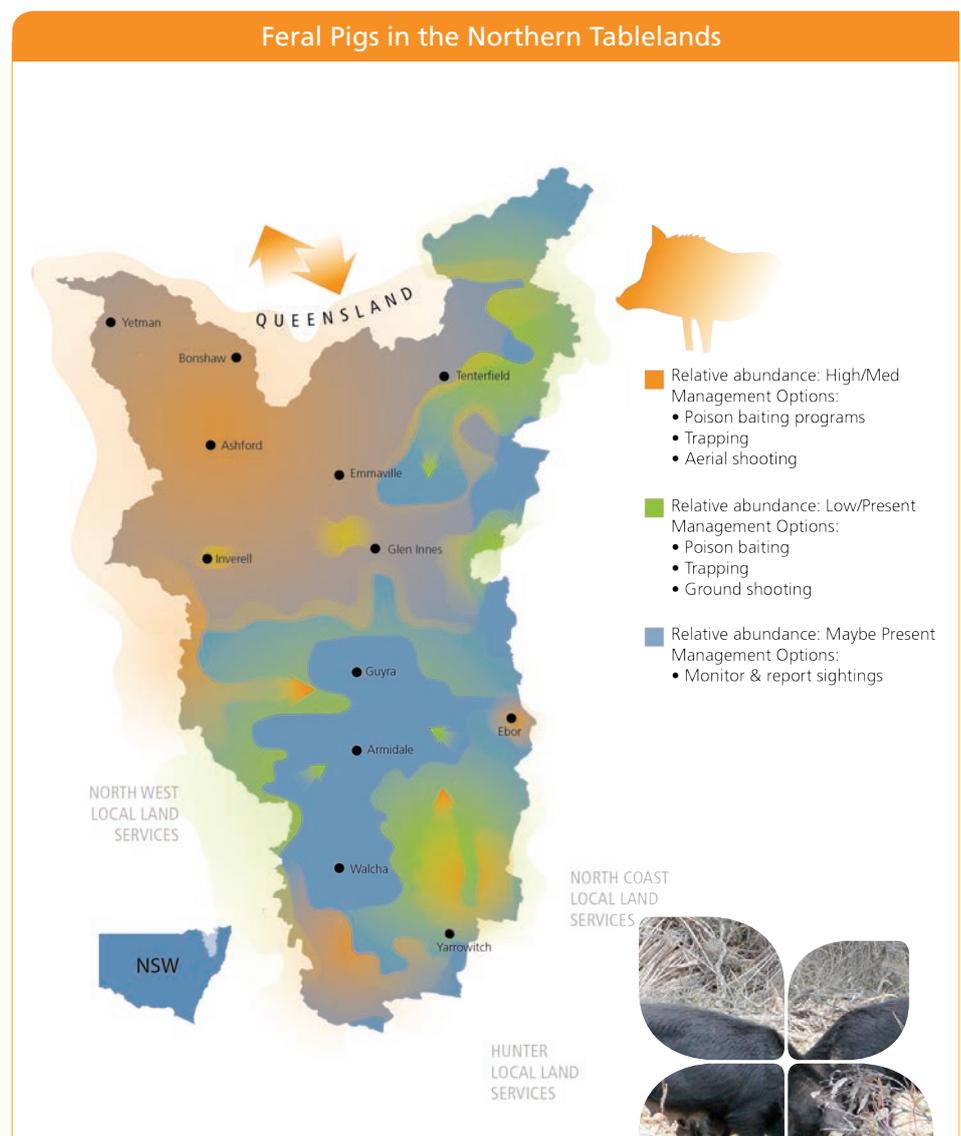
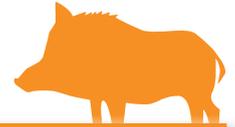


Figure 5. Relative abundance of Feral Pigs in the Northern Tablelands region and management options



Feral Pig

| All landholders are expected to: | | What success looks like: | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <ul style="list-style-type: none"> Implement best practice control strategies to suppress and destroy Feral Pigs on their land Participate in coordinated programs when required Report sightings and impact | | <ul style="list-style-type: none"> Landholders working together in control programs Improved knowledge about density and distribution through reported sightings Integrated control methods are used Control methods are aligned with best practice | | | | | |
| Primary control | | Supplementary control | | Seasonal control | | | |
| <ul style="list-style-type: none"> Poison baiting Trapping Aerial shooting | | <ul style="list-style-type: none"> Ground shooting / Hunting | | All year round | | | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants | | |
| P1 - Suppress and destroy Feral Pigs on private and public land to reduce impacts on agriculture and the environment | Northern Tablelands Region | Asset Based Protection | Livestock, cropping and forestry production systems | Require compliance of public and private landholders with control outlined in management plans <i>Implement with new Biosecurity regulations</i> | NT LLS* Public and private landholders | | |
| | | | | Collaborate to progress research and development of control options <i>Ongoing role</i> | NT LLS NSW DPI NPWS FC NSW* | | |
| | | | | Communication, extension and advisory programs regarding management and control options <i>Ongoing role</i> | NT LLS NSW DPI NPWS FC NSW | | |
| P2 - Establish integrated and coordinated control programs to effectively reduce Feral Pig populations | Priority Areas | | | Asset Based Protection | Threatened species and ecological communities | Collaborate on targeted pig control programs as outlined in agreed management plans <i>By 2020</i> | NT LLS NPWS FC NSW Public & private landholders |
| | | | | | | Develop management plans for integrated pig control in high density areas <i>By 2020</i> | NT LLS Public & private landholders |
| | | | | | | Coordinate regular seasonal programs and encourage growth of Feral Pig group membership <i>Seasonal and responsive</i> | NT LLS Public & private landholders |
| P3 - Improve knowledge of Feral Pig population density and distribution to inform planning and control programs | Northern Tablelands Region | Asset Based Protection | Riparian and wetland ecosystems | | | Participate in ongoing research to understand distribution and movement of species Require mandatory reporting to LLS or through FeralScan*** Regular surveying to gather data about pig distribution and impact <i>Ongoing responsive role</i> | NT LLS NSW DPI NPWS FC NSW Public & public landholders |

*NT LLS refers to Northern Tablelands Local Land Services

** FC NSW refers to Forestry Corporation NSW

***FeralScan is a pest mapping resource through a community website or free Smartphone App

6.3 Species – Wild Deer (Fallow, Red, Rusa & Chital)

Impact

Wild Deer have expanded their range in many areas of the Northern Tablelands, with the species adapting extremely well to the tablelands environment. Fallow deer (*Dama dama*) are the most widespread and common species in the region, with interspersed populations of Red Deer (*Cervus elaphus*), Rusa (*Rusa timorensis*) and their hybrids occurring throughout, predominantly in the east. With source populations in Queensland, the Chital (*Axis axis*) are also becoming established along the border region.

Wild Deer are classified as 'game' animals under the *Game and Feral Animal Control Act 2002* (G&FAC Act) and Regulation 2012, legislation enacted to manage and regulate hunting in NSW. In June 2017 the deer hunting regulations under the G&FAC Act were suspended in the Glen Innes-Severn and Tenterfield Local Government Areas of the Northern Tablelands in recognition of the increasing impact.

Wild Deer are recognised as part of the Pest Plan due to their increasing impact on pastures, cropping and farm infrastructure. Deer have been assessed by the RPAC for containment on conservation land and asset based protection when on private lands. The impact of Wild Deer through grazing pressure is considerable and they can be a potential reservoir and vector of endemic and exotic disease. Due to their physical size and free range capability, public safety for road users is becoming an emerging issue.

Landholder Expectations and Management Options

Licensed shooting remains an integral tool for managing Wild Deer, particularly when conducted as night time operations using spotlights or related vision enhancement devices. Active hunting of Wild Deer by day may form part of a control program where it is focused on the principles of population reduction, not recreation. Other low input, but potentially effective methods such as toxins are not legally available.

The focus of the Pest Plan complements the NSW Wild Deer Management Strategy and aims to limit further establishment by the species in the region through education, awareness and facilitating a coordinated approach to management.

All landholders who experience Wild Deer populations are expected to take reasonable steps to contain that population on their land and limit the impact of that population on their neighbours. A key activity arising from the Pest Plan is to seek to have G&FAC Act hunting regulations suspended for all local government areas in the Northern Tablelands region.



Figure 6. Relative abundance of Wild Deer in the Northern Tablelands region and management options



Wild Deer

| All landholders are expected to: | | | What success looks like: | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <ul style="list-style-type: none"> Control Wild Deer populations on their land Limit the impact of any known populations of Wild Deer on neighbouring land Report Wild Deer sightings Participate in Wild Deer working groups when required | | | <ul style="list-style-type: none"> Minimised negative impacts from Wild Deer on their land and neighbouring land Improved knowledge about density and distribution Wild Deer working group and management plans established and implemented | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Aerial shooting Shooting from vehicle at night | | <ul style="list-style-type: none"> Hunting (Licenced) | | <ul style="list-style-type: none"> All year round for Rusa & Chital 1 March to 31 October for Fallow & Red (where G&FAC* Act regulations apply) | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| D1 - Engage community and stakeholders in Wild Deer management planning to ensure ownership by all parties | Northern Tablelands Region | | | Facilitate consultation groups in key affected areas <i>By June 2019</i> Establish Wild Deer working group & management plan(s) <i>By July 2020</i> | NT LLS Public & private landholders |
| D2 – Manage Wild Deer on public and private land to reduce impacts on agriculture and the environment | Priority areas | Containment (Conservation and private lands) Asset based protection | Conservation land | Apply to have G&FAC Act 2002* & deer hunting regulations suspended in all Local Government Areas (LGA) within the region <i>By July 2019</i> | NT LLS NSW DPI |
| | | | Livestock production systems | Require compliance of public and private landholders with control outlined in management plans <i>Implement in conjunction with Biosecurity regulations</i> | Public & private landholders NT LLS |
| | | | Cropping production systems | Collaborate to progress research and development of additional control options <i>Ongoing responsive role</i> | NSW DPI NT LLS |
| | | | Threatened species and ecological communities | Increase resourcing for integrated control programs <i>By January 2019</i> | NT LLS |
| D3 - Improve knowledge of Wild Deer population density and distribution to inform planning and control programs | Northern Tablelands Region | | | Provide a facility to record data and surveys obtained from stakeholders <i>By January 2020</i> Communication strategy and social media campaign <i>By January 2019</i> | NSW DPI NT LLS |

*G&FAC refers to the Game and Feral Animal Control Act 2002

6.4 Species – Wild Dog

Impact

Wild Dogs are considered to be widespread in the Northern Tablelands region, with higher populations occurring in the eastern fall country.

In NSW, the term 'Wild Dog' refers to all wild living dogs: dingoes, feral domestic dogs and the hybrid descendants of these, all of which are currently considered as the single species (*Canis familiaris*).

Wild Dog attacks on livestock and domestic pets can have significant financial and emotional impacts on landholders. Sheep, lambs and calves may be killed or maimed, requiring the landholder to humanely destroy any injured animals. Attacks on native wildlife may have detrimental impacts on populations, especially for threatened and endangered species. The NSW Wild Dog Management Strategy 2017-2021 promotes a balance between managing Wild Dogs in areas where they have negative impacts and preserving the ecological role of dingoes.

Any management strategies outlined in the Pest Plan are carried out in accordance with the accepted planning framework for Wild Dogs in NSW.

Landholder Expectations and Management Options

Landholders are required to report sightings of Wild Dogs and any predation of livestock and actively suppress and destroy any populations of Wild Dogs in accordance with control programs outlined in local management plans.

There are approximately 40 Wild Dog Control Associations (WDCA) in the Northern Tablelands region and each has a local management plan established, or is in the process of developing such a plan. (See map section 4.1)

Management options for landholders where there is no management plan in place include the integration of the various control tools – baiting, trapping and shooting. The use of camera traps is also a particularly useful tool in monitoring and planning control.

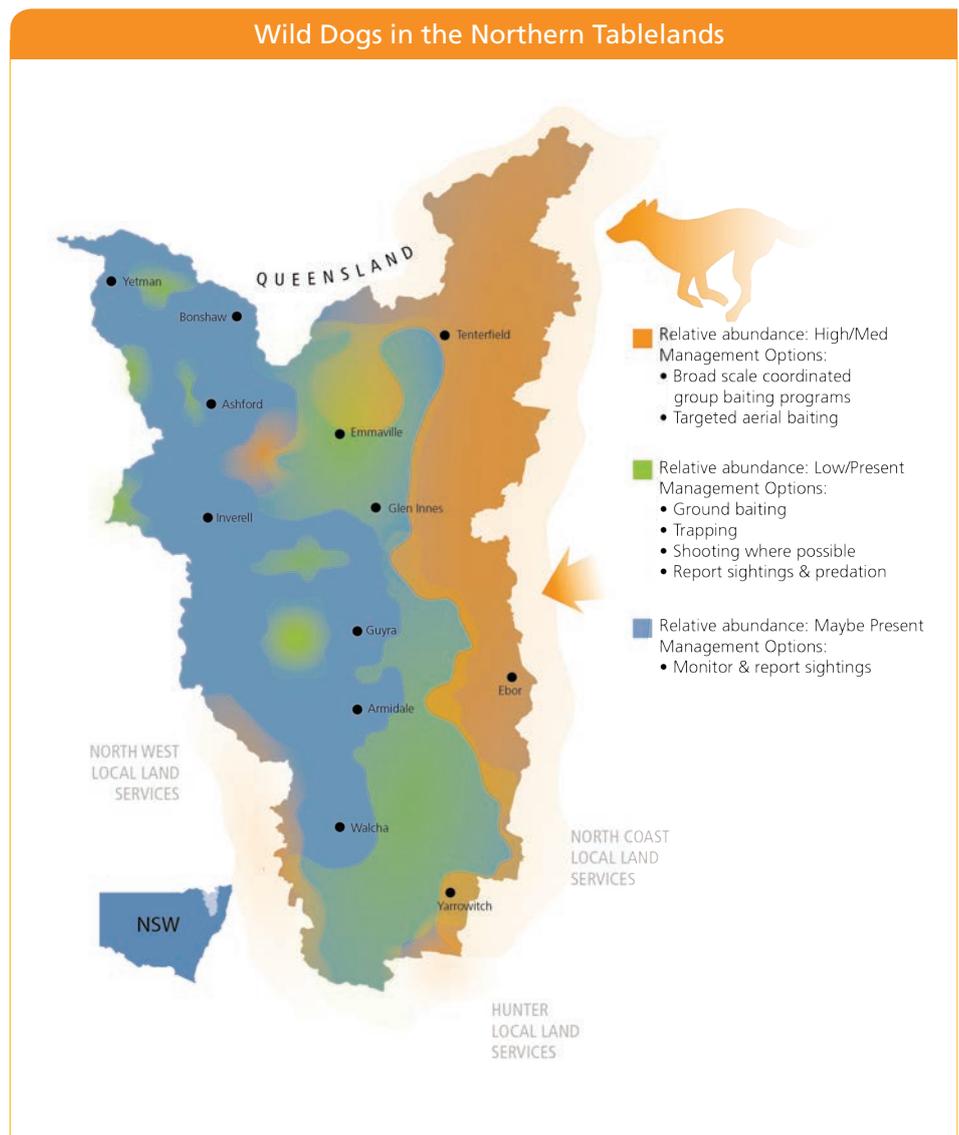


Figure 7. Relative distribution of Wild Dogs in the Northern Tablelands region and management options



Wild Dog

| All landholders are expected to: | | | What success looks like: | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Report sightings, stock losses & Wild Dog attacks to the LLS Implement control strategies on their land Participate in local Wild Dog control group efforts | | | <ul style="list-style-type: none"> Landholders working together in targeted control programs Community actively involved in reporting attacks and sightings Reduced impacts on native species preyed by Wild Dogs | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Aerial & ground baiting Fencing | | <ul style="list-style-type: none"> Trapping Ground shooting | | <ul style="list-style-type: none"> Autumn, spring & ongoing | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| WD1 - Suppress and destroy Wild Dogs on private and public land to reduce stock losses and the impact of predation | Wild Dog Control Associations (WDCAs) | Asset based protection | Livestock production systems | Annual aerial and ground baiting programs <i>Annual programs conducted in Autumn & Spring and responsive throughout year</i> | WDCAs (landholders) NT LLS NPWS FC NSW |
| | | | | Resourcing deployed to support nil tenure strategic programs <i>By January 2019</i> | NSW DPI NPWS NT LLS and neighbouring regions |
| | Attract resourcing from industry bodies for additional seasonal programs & monitoring <i>By July 2019</i> | | | NT LLS NPWS regions | |
| | Require compliance with control outlined in management plans <i>Ongoing</i> | | | WDCAs (landholders) NPWS FC NSW NT LLS | |
| | Advocate for a single canid bait to be developed <i>Ongoing and as required</i> | | | NSW DPI NPWS NT LLS | |
| | WD2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Dog populations | | | Wild Dog Control Associations | Management plans completed in all Wild Dog Control Association areas <i>By January 2019</i> |
| Landholders required to participate in control programs outlined in management plans <i>Ongoing</i> | | NT LLS, NSW DPI NPWS, FC NSW AWI, WDCAs (landholders) | | | |
| WD3 - Improve data, information and mapping capability to inform Wild Dog control program | | Northern Tablelands Region | Mandatory reporting required by landholders FeralScan/FARMS** data linked <i>By July 2019</i> | | All participants (as above) |

* AWI refers to the Australian Wool Innovation

**FARMS is the NSW DPI and LLS database

6.5 Species – Wild Rabbit

Impact

The Wild Rabbit (*Oryctolagus cuniculus*) is widely established and endemic in many parts of the Northern Tablelands region. Rabbits may occupy a wide range of habitats including grasslands, riverbanks, woodlands and forests and can achieve high densities in some grazing and peri-urban areas.

Rabbits can have severe environmental and economic impacts by overgrazing native and sown pastures which leads to a loss of plant biodiversity, reduced yields and promotion of weed spread. They compete with native animals and livestock for feed, increasing the grazing pressure and lowering carrying capacity. Rabbit warrens cause land degradation and erosion and selective grazing prevents and inhibits the regeneration of native shrubs and trees.

Wild Rabbits also act as a food source for introduced predators, thereby supporting Red Fox and Feral Cat populations, which can lead to increased lamb losses and disease prevalence and a decrease in small mammal diversity.

Biological control through historical releases of Myxomatosis and Calicivirus has suppressed numbers with pockets of Rabbit populations fluctuating over time.

Rabbits have an extensive history of being regulated in NSW and many landholders are familiar with the need to keep numbers under control for the benefit of farm productivity and soil conservation. A key focus of the Pest Plan is to educate peri-urban communities regarding management responsibilities.

Landholder Expectations and Management Options

Landholders are required to take all reasonable steps to suppress and destroy populations, and are to participate fully in coordinated programs on warren and harbour destruction in their area.

Control options and assistance are readily available and include toxins, biological control, trapping, shooting, and harbour destruction.

The Pest Plan aims to reinvigorate control programs and encourage landholders to become more active in control methods each year. It is vital that more peri-urban areas participate in controlling this species on an annual basis and that control options are developed to better support peri-urban programs.

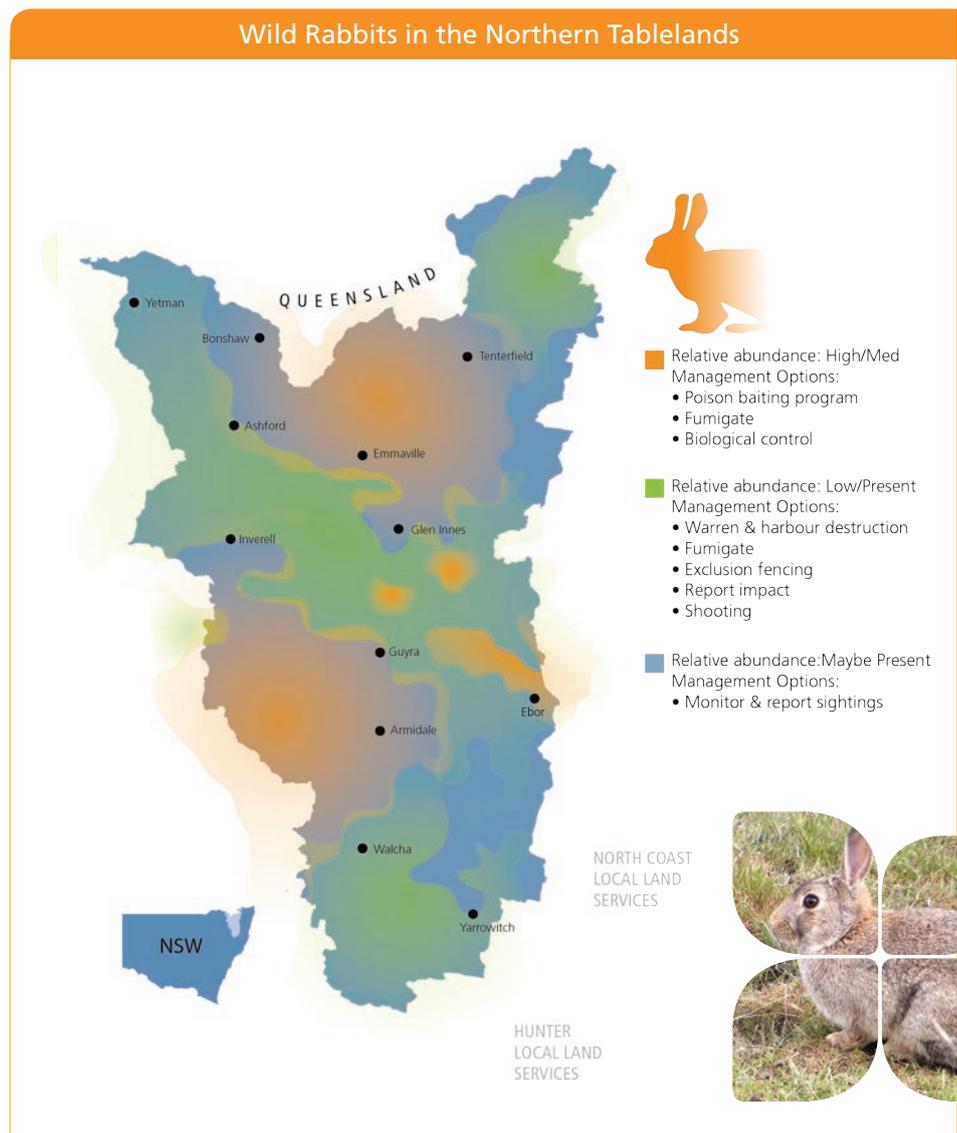
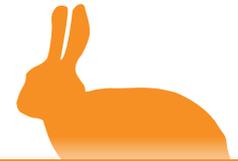


Figure 8. Relative abundance of Wild Rabbits in the Northern Tablelands region and management options



Wild Rabbit

| All landholders are expected to: | | What success looks like: | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <ul style="list-style-type: none"> Implement control strategies on their land Participate in local targeted control group efforts Report rabbit activity, impact and populations Report Myxomatosis and RHDV* outbreaks Remove Rabbit harbour | | <ul style="list-style-type: none"> Minimised impact of Rabbits on own land and neighbouring lands Increase in the number of coordinated rabbit control programs Increased landholder and community awareness Integrated best practice control methods are used | | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Poison baiting Harbour & warren destruction Biological control | | <ul style="list-style-type: none"> Fumigate active warrens Exclusion fencing Ground shooting | | <ul style="list-style-type: none"> During the non-breeding season for poison baiting and when feed is scarce Supplementary control all year | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| R1 - Suppress and destroy Wild Rabbits on private and public land to reduce impacts on agriculture and the environment | Capacity Building | Asset based protection | Livestock, crop and forestry production systems Threatened species and ecological communities | Facilitate additional peri-urban based programs <i>By Dec 2019</i> | NT LLS |
| | | | | Skills training and awareness for landholders as an annual program <i>Annually</i> | NT LLS Landcare Public landholders |
| | Prioritise additional biological control and research projects <i>By 2020</i> | | | NSW DPI NT LLS | |
| | Increase property inspection programs <i>By January 2019</i> | | | NT LLS | |
| | Introduce mandatory reporting required by public & private landholders <i>By July 2019</i> | | | NT LLS Public & Private landholders | |
| R2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Rabbit populations | Priority areas | | | Develop Peri-Urban Management Plan <i>By December 2019</i> | NT LLS LGA Landcare |
| | | | | Communication strategy to target increased participation <i>By June 2019</i> | NT LLS |

*RHDV - Rabbit haemorrhagic disease virus (calicivirus)

6.6 Species – European Red Fox

Impact

The European Red Fox (*Vulpes vulpes*) is widespread and abundant throughout the Northern Tablelands region.

Foxes can severely impact sheep and goat enterprises through predation, especially at lambing and kidding times. Predation by Foxes is listed as a key threatening process to native fauna, particularly small mammals, frogs, birds and reptiles. Studies in the Northern Tablelands have shown that 96% of nests of the threatened Bell's Turtle are raided by Foxes. Their impact has also been noted in contributing to weed spread through ingestion of fruit such as blackberry. Foxes also pose a health threat to humans through transmission of diseases, including distemper, parvo virus, mange and potential exotic diseases such as rabies.

Subject to regulation since 2014, the European Red Fox has been prioritised for asset based protection as part of the Pest Plan, with the dominant assets being sheep enterprises and conservation lands.

Landholder Expectations and Management Options

Landholders must take all reasonable steps to suppress and destroy populations of European Red Foxes and must participate in strategic programs in their area.

Control of Foxes is generally undertaken prior to lambing events, with strategic baiting events in autumn and spring. Control methods for Foxes include baiting, trapping, shooting and harbour destruction. As canids, European Red Fox and Wild Dog control may be complementary.

Programs that target Fox control are well established and accessible in the Northern Tablelands region. The Pest Plan aims to improve participation and grow awareness of the production and environmental impacts of Foxes in the landscape. Development of additional coordinated Fox groups and management plans to support those groups is a key outcome of the Pest Plan.

The reporting of Fox predation to either Local Land Services or through FeralScan is encouraged.

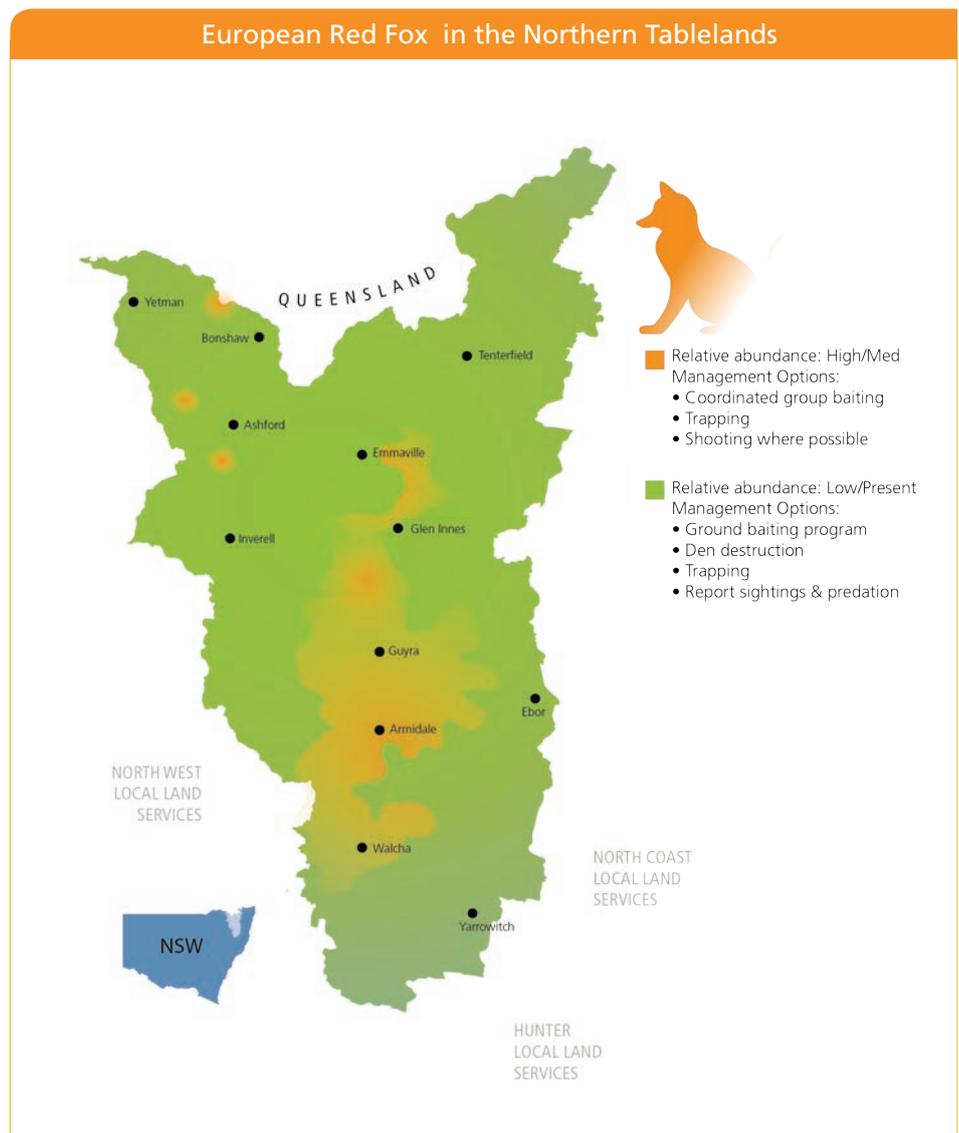


Figure 9. Relative abundance of European Red Fox in the Northern Tablelands region and management options



European Red Fox

| All landholders are expected to: | | What success looks like: | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------|
| <ul style="list-style-type: none"> Implement best practice control strategies to strategically target Foxes Participate in local control group efforts Report sightings and Fox predation | | <ul style="list-style-type: none"> Landholders working together in control programs Integrated best practice control methods are used Improved abundance in native species populations predated by Foxes | | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Poison baiting | | <ul style="list-style-type: none"> Trapping Ground shooting | | <ul style="list-style-type: none"> Autumn, spring & ongoing | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| F1 - Suppress and destroy European Red Fox on private and public land to reduce impacts on agriculture and the environment | Northern Tablelands Region | Asset Based Protection | Livestock production systems Threatened fauna | Conduct coordinated annual programs <i>Seasonal and ongoing</i> | Private & public landholders NT LLS |
| F2 - Expand participation by landholders in coordinated control programs to effectively reduce European Red Fox populations | Priority areas | | | Increase control group coverage including conservation lands <i>By June 2019 and ongoing</i> | |
| | | | | Develop management plan(s) at group or sub-regional level <i>By December 2019</i> | |
| | | | | Compliance with control outlined in management plans <i>By January 2020 and ongoing</i> | |
| F3 - Expand control options to improve efficacy of control programs | Northern Tablelands Region | | | Increase participation in high risk areas outlined in management plan <i>By July 2020</i> | |
| F4 - Improve data, information and mapping capability to inform European Red Fox control programs | Northern Tablelands Region | Provide facility and promote the value of recording data from landholders and the community <i>By July 2019</i> | | NT LLS | |

6.7 Species – Wild Horse

Impact

Known isolated populations of Wild Horses (*Equus caballus*) exist in small areas of National Park estate and private land in the vicinity of the Torrington State Conservation Area, Guy Fawkes and Oxley Wild Rivers National Parks. While the impact of Wild Horses on threatened species and ecological communities is well known, the presence and management of horses in the wild is a contentious issue in the general community.

The prioritisation process determined that the species can cause considerable damage to conservation areas and waterways through grazing pressure and physical impact and landholders should eradicate Wild Horses via lawful means in those sites where conservation values are impacted.

Further, all landholders have a responsibility to ensure that the species does not impact on neighbouring lands. Neighbouring land managers to the established populations should report sightings and ensure that the populations do not spread.

Landholder Expectations and Management Options

The prioritisation process undertaken by the Northern Tablelands RPAC determined that landholders should take steps to minimise the adverse ecological impacts from the species on conservation and private lands through eradication by lawful means.

The Office of Environment & Heritage has principal responsibility for managing Wild Horse populations on National Park estate and there are management plans in place for those locations. Private landholders are able to take steps to remove the species from their holdings.

Both public and private landholders have a responsibility to report the presence of Wild Horse populations.

An outcome of the Pest Plan is to create awareness of the species as a risk and provide guidance for landholders in dealing with the species under approved horse management procedures. These procedures include the trapping and removal/relocation of horses from the areas at risk.

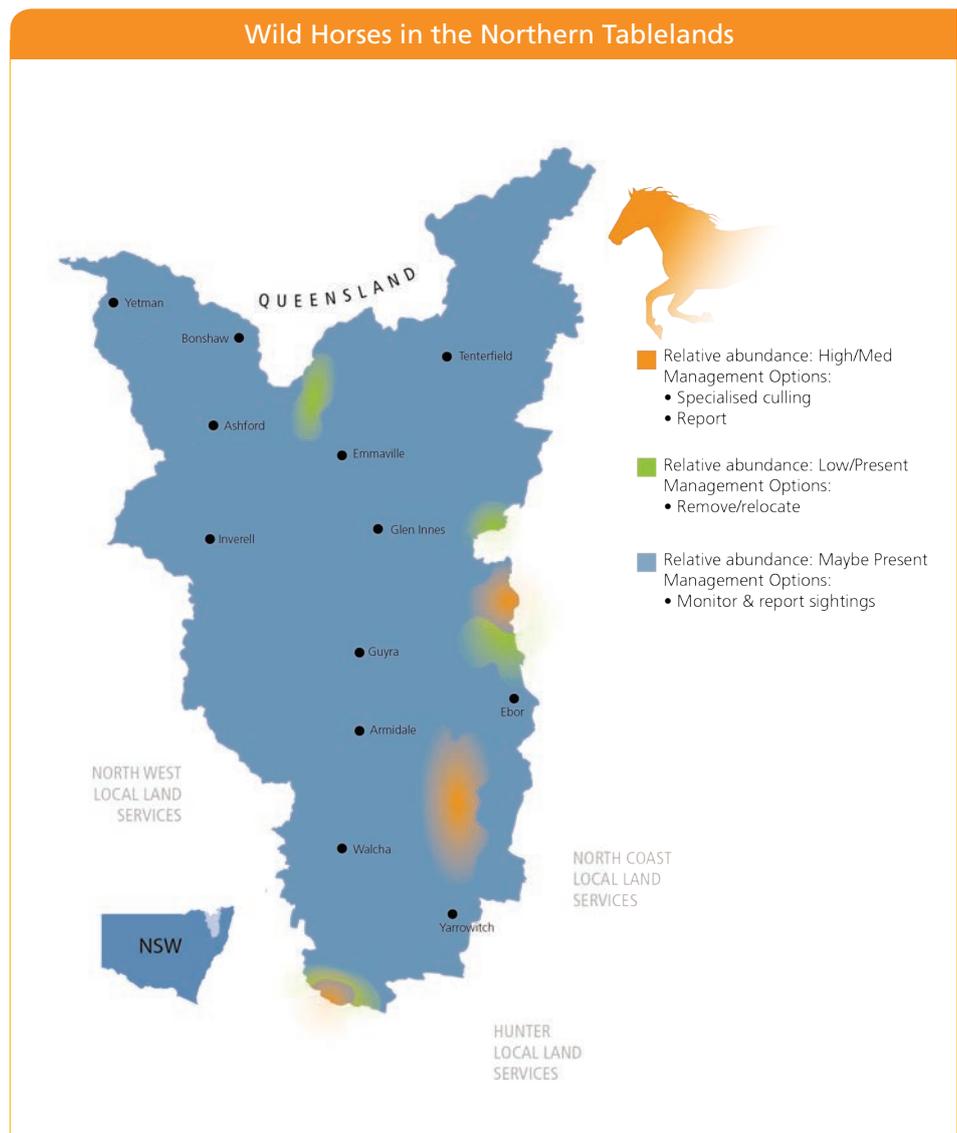


Figure 10. Relative abundance of Wild Horses in the Northern Tablelands region and management options



Wild Horse

| All landholders are expected to: | | What success looks like: | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <ul style="list-style-type: none"> Report sightings of Wild Horse incursions Control new incursions on their land | | <ul style="list-style-type: none"> Reduced impacts of Wild Horse Decrease in population density over time Improved knowledge about density and distribution through reported sightings Northern Tablelands horse management plan developed | | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Specialised trapping Remove/relocate | | <ul style="list-style-type: none"> Specialised cull | | <ul style="list-style-type: none"> All year round | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| H1 - Gain agreement to implement approved Wild Horse management procedures | Guy Fawkes; Torrington; Oxley Wild Rivers | Eradication | Threatened species and ecological communities Riparian and wetland ecosystems | Establish a Northern Tablelands horse management plan and educate the community <i>By June 2020</i> | NT LLS NPWS FC NSW NSW DPI Private landholders |
| H2 - Manage Wild Horses by lawful means to reduce impact on the environment | | | | Conduct annual management program <i>Annually as required</i> | NPWS NT LLS |
| H3 - Prevent further incursions to contain known populations | | | | Require mandatory reporting to NPWS or NSW DPI <i>By January 2020</i> | NSW DPI FC NSW NPWS NT LLS Public & private landholders |
| H4 - Improve data, information and mapping capability to inform Wild Horse eradication programs | | | | Conduct regular population surveys <i>Annually and as required</i> Develop communication tools <i>By December 2019</i> | OEH/NPWS NSW DPI NT LLS |



6.8 Species – Feral Goat

Impact

Feral Goats (*Capra hircus*) are prominent in the northern areas of the region and are an agricultural and environmental pest, but also a commercial resource, providing income to farmers who manage populations for production. Feral Goats compete with livestock for feed, contribute to land degradation through grazing and browsing, and impact on biodiversity by damaging the vegetation and competing with native animals. They are also a potential reservoir and vector of endemic and exotic disease.

There is limited information about the population numbers within the Northern Tablelands region and gathering this data is a priority for effective management in the future.

The mustering of goats for consumption remains a viable opportunity although this market fluctuates significantly. Without an incentive to harvest, goat populations can roam and overpopulation results.

Unmanaged populations of Feral Goats pose a considerable risk to the environment.

Landholder Expectations and Management Options

Landholders with populations of Feral Goats are required to limit the impact of those populations on neighbours.

Landholders trading in goats within NSW are expected to comply with the requirements under the National Livestock Identification Scheme (NLIS) for identification and movement documents. Feral Goats moving directly to abattoirs are exempt from identification requirements. Control options available include fencing, mustering for sale, trapping and shooting.

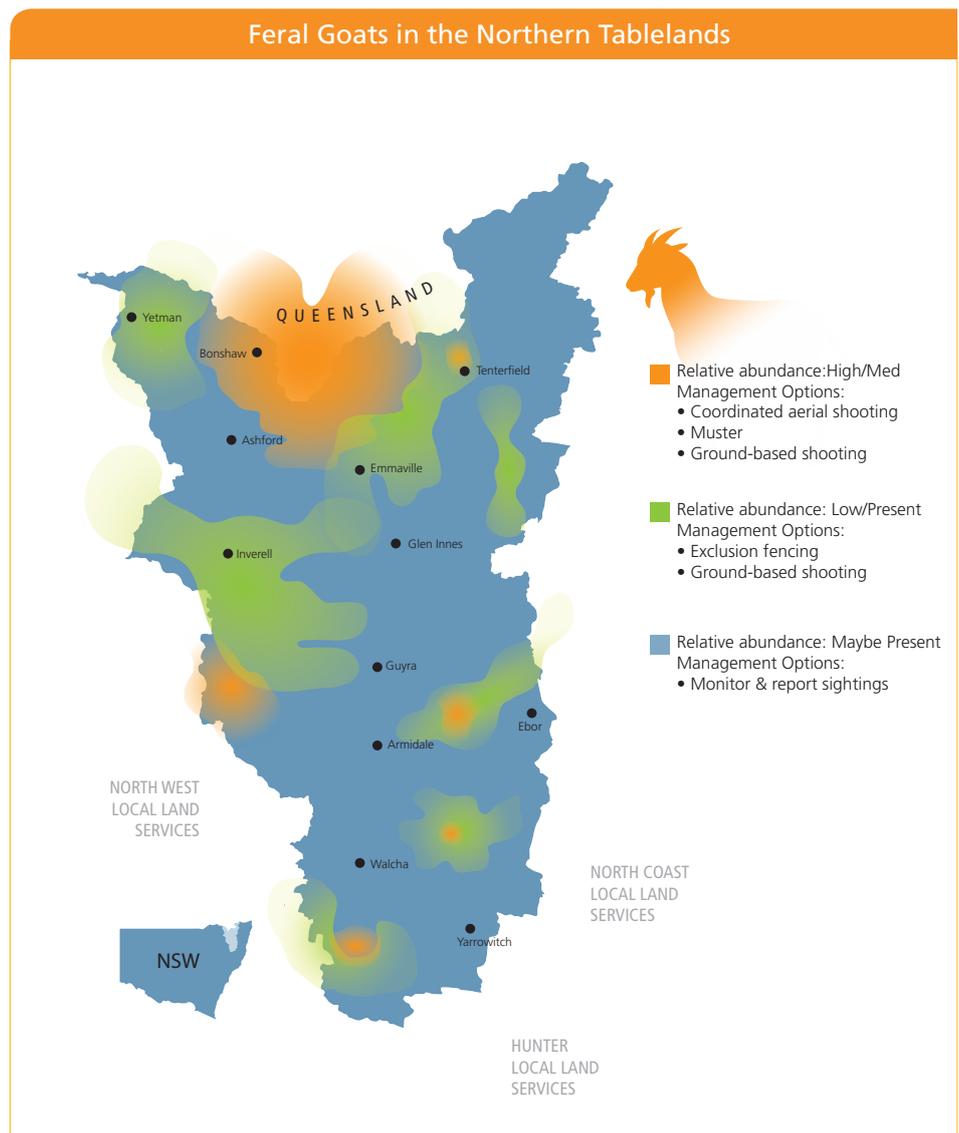


Figure 11. Relative abundance of Feral Goats in the Northern Tablelands region and management options



Feral Goat

| All landholders are expected to: | | What success looks like: | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <ul style="list-style-type: none"> Control unmanaged Feral Goat populations Participate in local control group efforts Report unmanaged Feral Goats | | <ul style="list-style-type: none"> Feral Goats are actively harvested Improved knowledge about density and distribution through reported sightings Management plans are developed Integrated best practice control methods are used | | | | |
| Primary control | | Supplementary control | | Seasonal control | | |
| <ul style="list-style-type: none"> Muster Coordinated aerial shooting | | <ul style="list-style-type: none"> Ground shooting Exclusion fencing | | <ul style="list-style-type: none"> All year round | | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants | |
| G1 - Manage Feral Goats to reduce the impacts on agriculture and the environment | Northern Tablelands Region | Containment | Conservation lands | Develop management plan and introduce requirement for landholders to limit impact of Feral Goat population on neighbours <i>By June 2019</i> | NT LLS NPWS Public & private landholders FC NSW LGA | |
| | | | | Incorporate species information into pest management communication strategies <i>By June 2019</i> | NT LLS NSW DPI NPWS | |
| G2 - Manage Feral Goats to account for the existence of the commercial goat industry | Northern Tablelands Region | | Livestock production systems | Manage compliance with NLIS for commercial flocks <i>As required and ongoing</i> | NSW DPI NT LLS | |
| | | | | Threatened species and ecological communities | Implement coordinated aerial shooting programs in collaboration with landholders <i>By December 2020</i> | NSW DPI NT LLS NPWS FC NSW Public & private landholders |
| | | | | | Provide a facility to record Feral Goat population data <i>By January 2019</i> | NSW DPI NT LLS |

6.9 Species – Feral Cat

Impact

Feral Cats (*Felis catus*) are likely to occupy the entire Northern Tablelands region as they are adaptive to a range of habitats, with more significant populations expected to be centred on towns and villages across the region. While known to be widespread in the environment, reporting by the community is relatively limited.

The species poses significant risks to threatened species and ecological communities due to its ability to adapt to the environment and become an effective predator. Feral Cats also pose a significant health risk in the spread of disease to humans and livestock (toxoplasmosis).

Landholder Expectations and Management Options

Landholders with populations of Feral Cats are expected to undertake opportunistic control. At present, control options are limited and this means that landscape scale control is both expensive and limited in effectiveness. Shooting and trapping are currently the most available control tools and there is no approved toxin.

The species requires a collaborative approach with Local Government in order to progress preventative strategies. An objective of the Pest Plan is to raise awareness of the impact of cats on the environment and encourage the community to embrace responsible cat ownership.

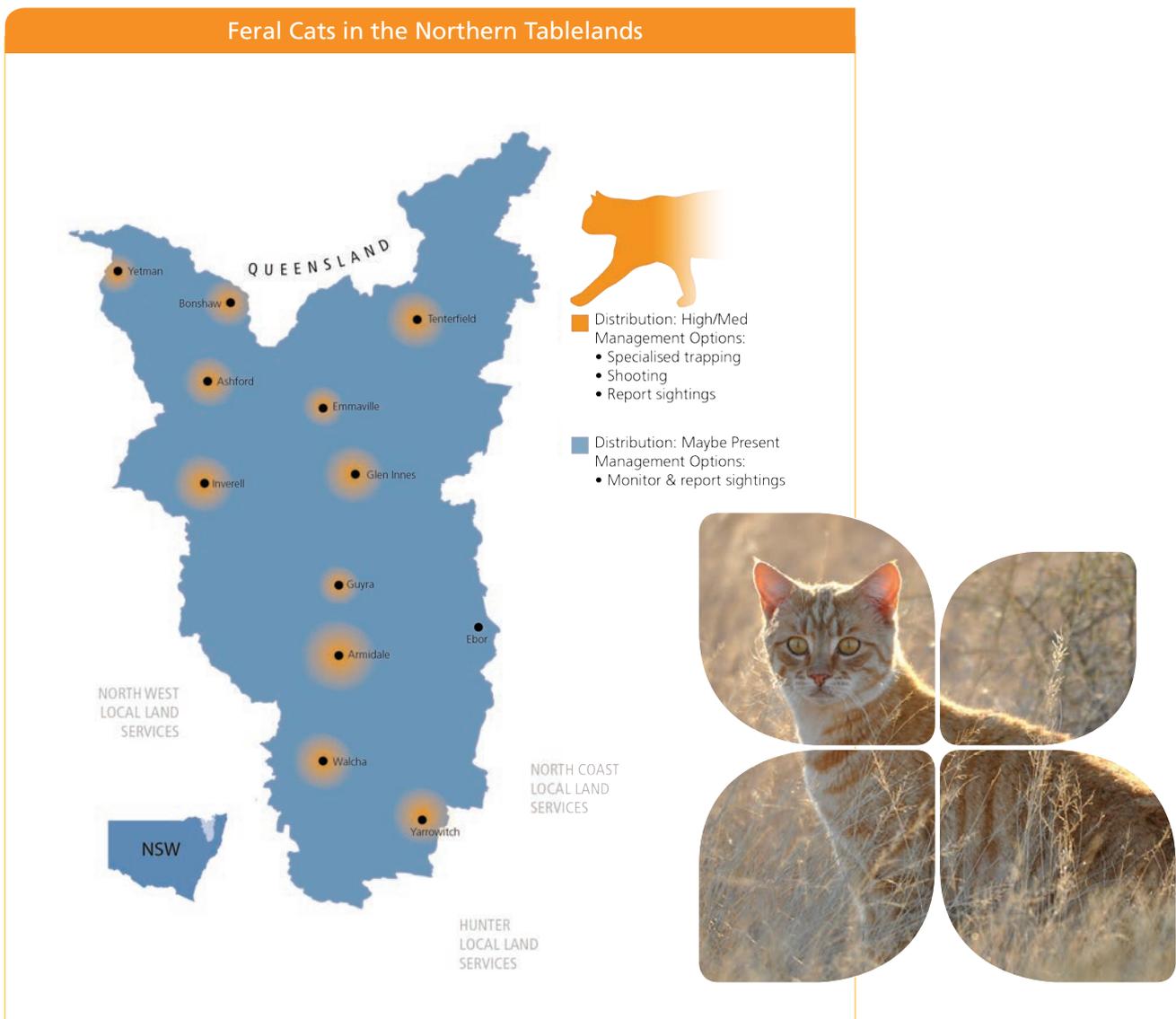


Figure 12. Relative distribution of Feral Cats in the Northern Tablelands region and management options



Feral Cat

| All landholders are expected to: | | What success looks like: | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <ul style="list-style-type: none"> Embrace responsible cat ownership Control Feral Cats on their land Report Feral Cat sightings and impact | | <ul style="list-style-type: none"> Improved knowledge about density and distribution through reported sightings Management plans are developed Integrated best practice control methods are used | | | |
| Primary control | | Supplementary control | | Seasonal control | |
| <ul style="list-style-type: none"> Ground shooting Trapping | | <ul style="list-style-type: none"> Exclusion fencing | | <ul style="list-style-type: none"> All year round | |
| Objective | Program name/area | Management category | Assets | Activities & timeframe | Participants |
| C1 - Manage Feral Cats to reduce the impact on threatened species and ecological communities | Northern Tablelands Region | Asset Based Protection | Threatened species | Work with LGAs to implement a range of management strategies <i>As required and ongoing</i> | NT LLS NSW DPI NPWS LGA |
| | | | | Advocate for specific Feral Cat control tools <i>Ongoing</i> | NSW DPI LGA |
| C2 - Improve awareness of the impact of Feral Cats to support responsible cat ownership | Northern Tablelands Region | | | | Work with LGAs to limit access to tip sites <i>By June 2021</i> |



6.10 Species - Limited action

There are several pest animal species that are known to be present in the region and may cause negative impacts to agriculture or the environment, however are not prioritised for specific action following risk assessment by the RPAC.

Feral livestock, particularly cattle and sheep, Black Rat, European Brown Hare, Indian Myna and Mouse may all cause localised impacts with mice triggering a NSW Government response in plague situations.

Carp are a major environmental pest that have impacted on a wide range of native species and have contributed to reductions in water quality and degradation of waterways and riverine ecology. Almost all pest fish species are difficult to control once established, but species specific biological control offers some hope in controlling widespread aquatic pest species in the same way that Calicivirus has in rabbits. The strategy and focus for management of Carp in the region will support any state-wide biological control programs.

7. 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, their current and potential distribution as well as their current and potential impacts.
- Raise community awareness of current and potential problems and opportunities for prevention and control.

State-wide KPIs and the objectives and performance indicators set for each of the priority pest species in the Northern Tablelands are outlined within this section.

7.1 Key Performance Indicators

KPIs have been set to ensure practices are effective and achieving outcomes. These are focused at a regional scale to ensure the implementation of programs delivers effective outcomes for the pest animals outlined in the Pest Plan. State-wide objectives and metrics for key species and goals will be formulated over year one of the Plan to ensure a collaboration of regional planning efforts. These state-wide objectives will align with overarching goals and objectives set across all 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 by the RPAC 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 of the plan for continuous improvement.

7.1.1 State-wide KPIs

Providing a coherent story about the impact of the Pest Plans across the State will require a coordinated Monitoring, Evaluation, Reporting and Improvement (MERI) framework. Regional MERI programs will focus evaluations on important outcomes which will be aggregated to a State level to provide information on pest animal density and distribution and their impact on the economy, community and environment.

| Objective | Indicator | Timeframe |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------|
| Develop consistent State-wide pest animal data metrics | Metrics are developed and RPAC are reporting on the metrics consistently | Implemented by July 2019 |
| Develop a consistent MERI process for the Pest Plans | MERI process established to guide monitoring and management of pest animals in NSW for oversight by SPAC | Implemented by July 2019 |

7.1.2 Northern Tablelands Priority Species KPIs

The KPIs established for each priority species in the Northern Tablelands will be monitored by the RPAC as *indicators* of success against each objective. It is recognised that the KPIs do not necessarily demonstrate the full picture, but they are readily measurable and *indicative* (or surrogates) of progress and success for each objective.

Feral Pigs

| Objective | Indicator | Timeframe |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| P1 - Suppress and destroy Feral Pigs on private and public land to reduce impacts on agriculture and the environment. | P1.1 - Number of landholders deploying bait products as part of control programs. P1.2 - Area of land treated with bait products as part of control programs. P1.3 - Number of community engagement, extension and training products or activities. | Years 1 to 5 |
| P2 - Establish integrated and coordinated control programs to effectively reduce Feral Pig populations. | P2.1 - Number of Local Management Plans developed and implemented for priority areas impacted by Feral Pig populations. P2.2 - Number of groups undertaking coordinated control programs. | Years 1 to 5 |
| P3 - Improve knowledge of Feral Pig population density and distribution to inform planning and control programs. | P3.1 - Model for consistent landholder and community reporting is communicated and systems for managing the data deployed. P3.2 - Landholder survey to assess population and impact. | Year 1 Years 1, 3 and 5 |

Wild Deer

| Objective | Indicator | Timeframe |
|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| D1 - Engage community and stakeholders in Wild Deer management planning to ensure ownership by all parties. | D1.1 – Wild Deer working group established. D1.2 – Wild Deer Management Plan(s) developed. | Year 1 Year 2 |
| D2 – Manage Wild Deer on public and private land to reduce impacts on agriculture and the environment. | D2.1 - Number of landholders engaged in implementing Wild Deer Management Plan activities. D2.2 - Number of community engagement, extension and training products or activities. | Years 2 to 5 |
| D3 - Improve knowledge of Wild Deer population density and distribution to inform planning and control programs. | D3.1 – Wild Deer density and distribution data assessed for the region. | Year 3 |

Wild Dog

| Objective | Indicator | Timeframe |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| WD1 - Suppress and destroy Wild Dogs on private and public land to reduce stock losses and the impact of predation. | WD1.1 - Number of landholders deploying bait products as part of control programs. WD 1.2 - Number of community engagement, extension and training products or activities. | Years 1 to 5 |
| WD2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Dog populations. | WD2.1 - Increased number of landholders participating in coordinated Wild Dog control programs. WD2.2 - Management plans developed and maintained for 100% of areas covered by Wild Dog control groups. | Years 1 to 5 |
| WD3 - Improve data, information and mapping capability to inform Wild Dog control programs. | WD3.1 - Model for consistent landholder and community reporting is communicated and systems for managing the data deployed. | Year 1 |

Wild Rabbit

| Objective | Indicator | Timeframe |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| R1 - Suppress and destroy Wild Rabbits on private and public land to reduce impacts on agriculture and the environment. | R1.1 - Number of landholders deploying bait products as part of control programs. R1.2 - Number of property scale compliance inspections undertaken. R1.3 - Number of community engagement, extension and training products or activities. | Years 1 to 5 |
| R2 - Expand participation by landholders in coordinated control programs to effectively reduce Wild Rabbit populations. | R2.1 - Number of landholders participating in coordinated Wild Rabbit control programs. R2.2 - Peri-urban Wild Rabbit Management Plan developed. | Years 1 to 5 Year 2 |

European Red Fox

| Objective | Indicator | Timeframe |
|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| F1 - Suppress and destroy European Red Fox on private and public land to reduce impacts on agriculture and the environment. | F1.1 - Number of landholders deploying bait products as part of control programs. F1.2 - Number of community engagement, extension and training products or activities. | Years 1 to 5 |
| F2 - Expand participation by landholders in coordinated control programs to effectively reduce European Red Fox populations. | F2.1 - Number of Local Management Plans developed and implemented for priority areas impacted by European Red Fox populations. F2.2 - Number of landholders participating in regionally coordinated spring control program. | Years 1 to 5 |
| F3 - Expand control options to improve efficacy of control programs. | F3.1 - New canid bait option available. | Year 4 |
| F4 - Improve data, information and mapping capability to inform European Red Fox control programs. | F4.1 - Model for consistent landholder and community reporting is communicated and systems for managing the data deployed. | Year 1 |

Wild Horse

| Objective | Indicator | Timeframe |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------|
| H1 - Manage Wild Horses by lawful means to reduce impact on the environment. | H1.1 - Management strategy and associated communications developed. | Year 2 |
| H2 - Gain agreement to implement approved horse management procedures. | | |
| H3 - Prevent further incursions to contain known populations. | H3.1 - Model for consistent landholder and community reporting is communicated and systems for managing the data deployed. | Years 1 to 5 |
| H4 - Improve data, information and mapping capability to inform Wild Horse eradication programs. | | |

Feral Goat

| Objective | Indicator | Timeframe |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------|
| G1 - Manage Feral Goats to reduce the impacts on agriculture and the environment. | G1.1 - Management Plan developed. G1.2 - Number of community engagement, extension and training products or activities. | Year 2 Years 3 to 5 |
| G2 - Manage Feral Goats to account for the existence of the commercial goat industry. | G2.1 - Management Plan developed. G2.2 - Number of community engagement, extension and training products or activities. | Year 2 Years 3 to 5 |

Feral Cat

| Objective | Indicator | Timeframe |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|
| C1 - Manage Feral Cats to reduce the impact on threatened species and ecological communities. | C1.1 - Number of community engagement, extension and training products or activities. | Years 3 to 5 |
| C2 - Improve awareness of the impact of Feral Cats to support responsible cat ownership. | C2.1 - Strategy(s) developed in collaboration with Local Government. | Year 3 |

7.2 Measuring Performance

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

7.3 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).

8. The NSW Biosecurity Act 2015

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

A fundamental principle of the *Biosecurity Act 2015* is that biosecurity is everyone's responsibility. All landholders, regardless of whether on private or public land, have the same responsibilities. Likewise, the general community has 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 is required of them in their daily practices.

Further information on the NSW Biosecurity legislation can be found at the NSW DPI website - <http://www.dpi.nsw.gov.au/biosecurity/biosecurity-legislation>

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 |

Figure 13. Regulatory tools of the NSW Biosecurity Act 2015.

9. Further Information

Plan to manage biosecurity risks

This Pest Plan can be used by landholders and community members to understand, manage and mitigate risks associated with 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**, should also be considered by landholders and the general community.

This plan may be used as a guide to mitigate risks and inform on-farm biosecurity plans to ensure landholders are 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.

Individuals are encouraged to utilise the following resources as well as contact their Local Land Services office for further information. A wide range of pest management resources are available including those developed by:

- Local Land Services
- Office of Environment and Heritage (National Parks and Wildlife Service)
- Department of Primary Industries
- 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 feral 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.
- 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 landholders 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 fund ongoing management of established species (see Figure 14).
- For established species, resources should focus on managing the pest animals and areas where there is the greatest impact on a valued 'asset' (e.g. protecting an endangered native animal from fox predation or a sheep production area from Wild Dogs) – this is known as 'Asset Based Protection'.
- The feasibility of management needs to be considered and this will depend on the availability of approved cost-effective control techniques and any biogeographic limitations (e.g. difficult terrain or potential impact of control techniques on non-target species).

Generalised invasion curve showing actions appropriate to each stage

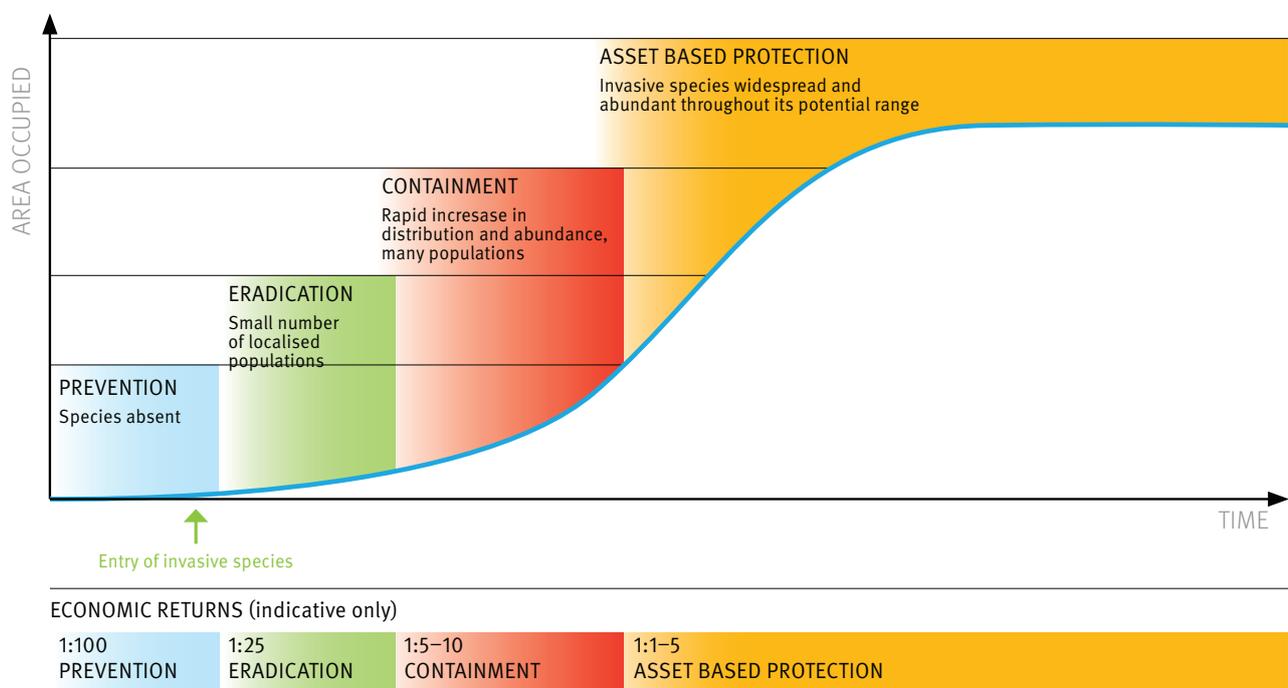


Figure 14. Invasion Curve sourced from NSW Invasive Species Plan 2018-2021 and Department of Primary Industries, Victoria

In developing lists of priority pest animals and management areas, Pest Plans 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 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 are in the 'Limited Action' category and the focus of Pest Plans is on a much smaller list of high priority pest animals.

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