# Australian Pest Animal Strategy Evaluation

FINAL REPORT

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Prepared for the

Evaluation Steering Committee – Vertebrate Pests Committee

By

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# Executive Summary

The Australian Government Department of Agriculture, Fisheries & Forestry (DAFF), on behalf of the Vertebrate Pests Committee, engaged Community Solutions to undertake independent evaluations of the Australian Weeds Strategy (AWS) and the Australian Pest Animal Strategy (APAS) between December 2012 and March 2013.

The terms of reference for the evaluations ask for an assessment of the successes and failings of the strategies; analysis of the role of stakeholders and their level of responsiveness to these roles in implementing the goals of the strategies; recommendations on the impact of changed policy circumstances for effective pest animal prevention and management, in particular, an assessment of the impact of the Intergovernmental Agreement on Biosecurity for future directions, and the identification of options and recommendations for the next version of the strategies and whether the strategies are still required.

Key observations from the APAS evaluation are:

- Pest animals create impacts across economic, environmental and social areas. The challenges created by pest animals will not go away and there is a need for well structured, integrated and resourced approaches to respond to these challenges. Pest animals impact across many stakeholder groups and are as pertinent today as they were when the APAS was established in 2007. There is a long-term role for governments at all levels and other stakeholders for pest animal prevention and management.
- Pest animal prevention and management sits within the full biosecurity continuum requiring tactical actions at pre-border, border and post-border areas. The improved biosecurity approach agreed to by the Australian Government and state and territory governments through the IGAB aligns with management and institutional areas observed as part of this evaluation as needing strengthening. If IGAB is implemented there are likely to be benefits for prevention and management of pest animals.
- The increasing scrutiny by the broader community regarding how animals are managed and treated will require active monitoring, updating of practices and demonstration to the public of humane practices being used into the future. Based on the trend within Australia and internationally this area will continue to emerge and will need proactive approaches to ensure that risks posed from limiting control options for some pest animals do not result in increasing impacts of pest animals on the economy, environment and other social values.
- Access to financial resources at all scales (national to local level actions) was reported to be a significant constraint and is increasing. Tactics to manage and further prioritise investment will be essential in any future Strategy.
- There is not a clear understanding of roles and responsibilities of stakeholders in relation to pest animals. This is playing a role in inhibiting stakeholders' capacity, motivation and ability to manage pest animals.
- Options available to manage pest animals were reported to have been improved over the last five years, in a large part due to the Invasive Animals CRC. Animal welfare requirements have changed some management options and are likely to require other practices in the future to be considered and improved on. Raising community awareness of credible and accepted management options to demonstrate responsible action is being taken will be required into the future.

- This evaluation identified the following findings across the biosecurity system in relation to pest animals:


## Achievements of the APAS

- The APAS is the first national strategy for pest animal management recognising the national importance of pest animal prevention and management. It also signals that there is a need for governments and other stakeholders to work together to respond to this challenge.

- The APAS formally recognises that Australian, state and territory governments agree on the challenges posed by pest animals and the need for strategic action and collaboration. The APAS represents a first step towards a more integrated approach to pest animal management in Australia. It provides an aspirational framework which incorporates the biosecurity system approach and is relevant today.
- The elements being sought within the APAS make sense and are key to forming an improved institutional setting, but value could be achieved by considering and communicating how these fit together to help stakeholders better understand what arrangements are being put in place. The APAS principles go part of the way in communicating how the future institutional environment for pest animals is envisaged. It would be helpful to further spell out this institutional environment and how the activities being worked on under the APAS, and the IGAB, fit together and play a role in improving pest animal management in Australia.

### Weaknesses or failings of the APAS

- Research, development and extension underpins key aspects of pest animal management. It is hard to see how the national biosecurity system will function effectively to reduce risks and impacts from pest animals without ongoing and continuous improvement for research, development and extension. There is a need to consider effective ways to establish long-term investment and institutional arrangements for research, development and extension to support the national biosecurity system and to reduce future risks and impacts of pest animals. This includes identifying ways to share costs and leverage public investment.
- The APAS has tried to trigger some logical actions to establish an improved institutional operating environment for pest animals. In some areas process is slow and thus the APAS is not a driver of change, particularly for stakeholders' outside of governments.
- Not having significant resources for implementing the agreed actions has slowed progress and resulted in the APAS being an overarching aspirational document. The reliance on existing budgets and programs of the Australian government and state and territory governments, particularly when both are rapidly declining, mean that the APAS has not been able to achieve all that it set out to over the last five years.
- Observations from the evaluation team note that even with resources many of the actions are either ongoing or would take significant time to achieve. Any future Strategy should consider identifying what might be able to be achieved over the next 2, 5 and 10 years and prioritise effort accordingly.
- Prioritisation of effort and resources is pertinent and needs further work.
    - The need to identify national interest pest animal priorities is high to guide investment.
    - A key conflict exists between stakeholders who wish to tackle existing and obvious populations of pest animals compared to those who seek a more strategic and long term path. Prevention of new pest animal populations has been shown to produce the best return on funds invested but is less apparent to those with existing pest animal problems.
- The APAS has identified the need for improving public awareness of pest animals and available knowledge. This has not occurred effectively. Effort needs to go into effectively clarifying roles and responsibilities and communicating this across the many stakeholder groups involved in pest animal management.
- The APAS as a strategic direction has strong ownership by governments. Stakeholders outside of governments do not see themselves as playing a role in helping to achieve the goals and objectives within the strategy. There may be opportunity to identify ways to help send clearer messages to some key stakeholder groups to encourage their actions in complementary areas.

### Stakeholder capacity to undertake pest animal prevention and management

- There is a lack of understanding of how the pest animal prevention and management fits within the biosecurity approach. There is a perception that biosecurity only relates to pre-border and border activities. Increased awareness raising is required.
- Clarity around roles and responsibilities, processes and investment priorities is needed. In particular, there is a need for greater clarity around early response approaches including identifying ways to coordinate, who has carriage under what circumstances and mechanisms to obtain resources quickly.
- Communication and awareness raising has been focused at a high level. The APAS has not delivered significantly in raising awareness of pest animal issues or response requirements.
- Many land managers lack the impetus to undertake the required actions to manage pest animals. The top six barriers reported by stakeholders impacting their ability to manage pest animals are (in prioritised order):
    1. Key partners are not taking responsibility for the management of the invasive species
    2. Costs of managing the invasive species do not create enough benefits to the person bearing the cost
    3. Lack of skills or knowledge of how to manage the invasive species
    4. Lack of options for managing the invasive species
    5. Lack of understanding of the invasive species, and
    6. Lack of access to information and knowledge.

### Implications of the IGAB

In January 2012, the Australian, state and territory governments, excluding Tasmania, signed the Intergovernmental Agreement on Biosecurity (IGAB), which aims to strengthen relationships between governments and identify improved ways of working together to enhance biosecurity arrangements in Australia. It was developed in response to the *One Biosecurity – A Working Partnership* report (Beale Review) released in 2008.

This APAS evaluation identifies that the IGAB has the potential to strengthen the commitment to improving arrangements across the biosecurity system for pest animals. The IGAB builds on what was being sought under the APAS and is a positive step.

The IGAB principles are consistent with that of the APAS. In particular, strengthening the biosecurity approach to be a nationally integrated system with clearer roles and responsibilities will have benefits for pest animal management.

Resourcing implementation of the IGAB will be challenging. It is important to be clear on which policy priorities under the IGAB are most important for pest animal management and the Vertebrate Pest Committee can play a leadership role in these areas.

## Recommendations for a future strategy

The major recommendations arising from this evaluation are as follows:

1) A national strategy to guide coordinated and effective pest animal management should be continued. The IGAB creates a useful framework for the establishment of a revised strategy creating opportunities for consistent approaches across the various sectors
2) The future strategy needs to have clearer information regarding the desired pest animal institutional arrangements being sought to reduce possible risks and impacts. This includes being clear on what institutional arrangements are required to be put in place to achieve the agreed principles.
3) There is a need to create greater ownership by stakeholders, in addition to government stakeholders, of the APAS. The approach used to garner stakeholder interest and ownership needs careful consideration as part of the development and implementation of a future strategy.
4) The Vertebrate Pests Committee should prioritise their actions aligned with the framework established and agreed on in the IGAB. A plan should be developed that enables the Vertebrate Pests Committee to identify clearly where priority effort is required, where effort for pest animals management differs to what is required for other sectors and where there is opportunity to collaborate effectively with other IGAB sectors, and
5) Use the strategy to demonstrate the need for managing pest animals in Australia and the humane approaches being used to manage pest animals.

Each recommendation is further outlined below.

### Recommendation 1: A national strategy to guide coordinated and effective pest animal management should be continued. The IGAB creates a useful framework for the establishment of a revised strategy creating opportunities for consistent approaches across the various sectors.

This evaluation identifies that there is a case for a future strategy for pest animals. The three key reasons for this are:

- The pest animal challenges and impacts will not disappear. Pest animals are not localised and as pest animals move and can spread across the country impacting production, the environment and other social values there is a need for consistent and effective arrangements that protect the national interest.
- Some useful institutional arrangements are in the process of being established which have the potential to strengthen pest animal prevention and management. The APAS, over the last five years, has helped to start on some key foundations required to support more effective pest animal management and further work is required. The IGAB helps to strengthen the commitment and approach that the APAS has been seeking.
- There is a lack of understanding by pest animal stakeholders of the IGAB and how it relates to pest animals. A strategy can play a role in helping to directly link how the IGAB relates to pest animals and establish priorities for pest animal prevention and management of institutional arrangements.

There are potential benefits and disadvantages that could be obtained from either a separate pest animal strategy or through combining with weeds to become an invasive species strategy. Stakeholders consulted as part of this evaluation leaned on the side of a separate strategy as they appear to have ownership of the pest animals theme and are concerned that key requirements for pest animals will be diluted if it were to be joined under an Invasive Species Strategy.

However, from a policy and risk management perspective there are opportunities to do either effectively and it is concluded in this evaluation that it is a choice for the Vertebrate Pests Committee, and whichever choice is made, there are a range of considerations that need to be incorporated to ensure pest animal prevention and management is undertaken actively.

The future strategy has three roles:

I. To identify practical and relevant actions and priorities for pest animals across all areas of the biosecurity system
   - Ensure pest animal unique characteristics are considered and incorporated into the national approach.
   - The approach should enable Vertebrate Pests Committee to drive action and leadership for key priority action areas related to pest animals.
   - Given the IGAB does not have set resources, it will be key for sector committees and jurisdictions to play active roles in achieving the desired outcomes. Considerations for the Vertebrate Pests Committee should include:
     - prioritising the priority reform areas relevant for pest animals
     - identifying areas where risks could emerge for pest animals and identify tactics and roles for progressing the priority reform areas, and
     - identify areas where joint effort would be valued (i.e. where are the areas of commonality with other sectors areas – weeds, marine invasive species, PHA, AHA ), and
     - help to identify risks for pest animal management if aspects of the national biosecurity system are not established effectively or are delayed.

II. Help send signals to stakeholders on what actions could contribute to improving pest animal management in Australia
   - Identify areas where there would be value in stakeholders outside of government to be playing active and lead roles in progressing improvements to pest animal management.
   - The goal is to encourage other stakeholders to invest time and resources into activities that can contribute to improving pest animal management. Currently, stakeholders outside of government reported that the APAS guided government effort but did not influence their own actions.

III. Enhance education and communications to help stakeholders to understand how the national biosecurity system applies to pest animals and their role
   - There was limited understanding of the IGAB and biosecurity more generally. Many stakeholders consulted did not seem to grasp the bounds of biosecurity and rather than the full biosecurity continuum many felt it was pre-border and border activity and felt unsure where the APAS main area of work fits.
   - There was significant concern from stakeholders that the IGAB approach could dilute actions, specifically pest animal management, and raise risks or impacts from pest animals.
   - Schedule 6 of IGAB focuses on establishing a National Engagement and Communication Framework. This evaluation has demonstrated the need to communicate the national biosecurity approach customised for particular sectors and for different stakeholder groups. The pest animal key stakeholders need customised information related to pest animals.

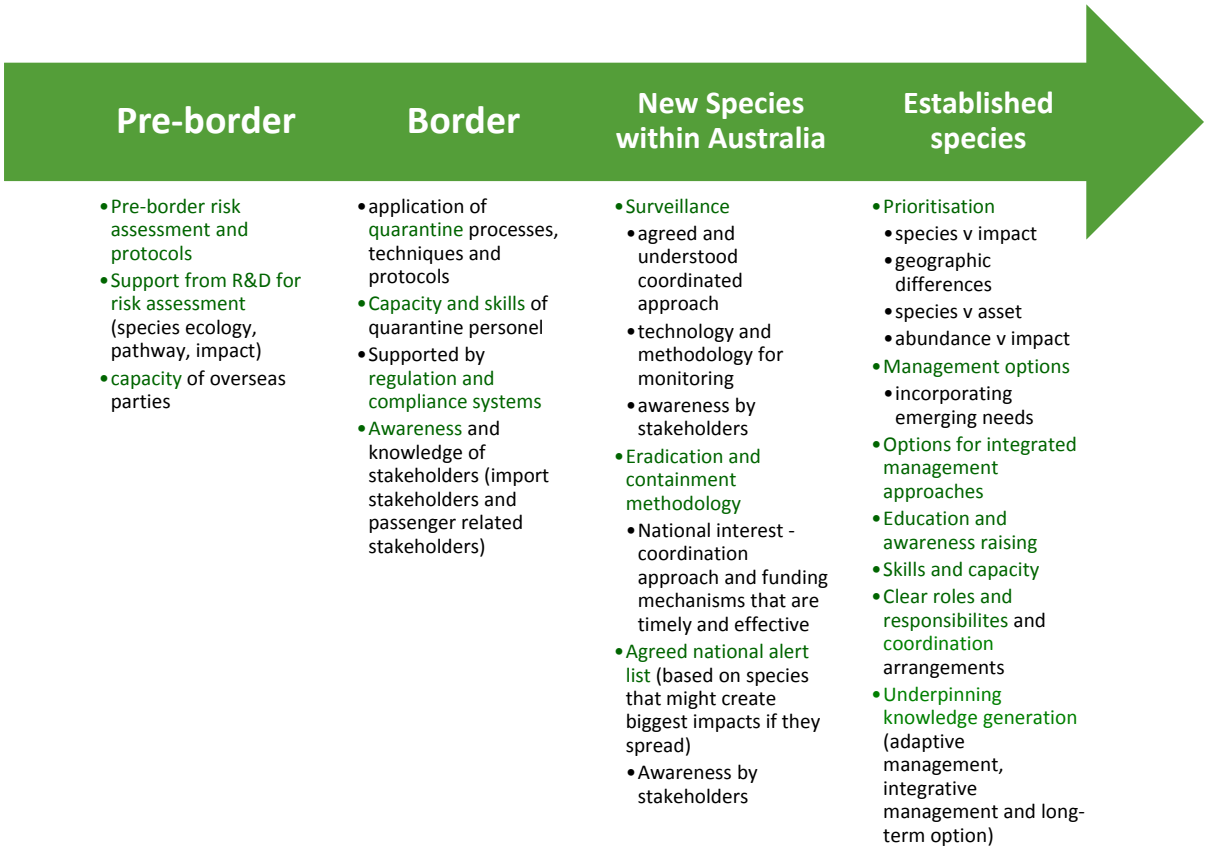
### Recommendation 2: Ensure there is a clear understanding of the required pest animal institutional arrangements to reduce possible risks and impacts.

There is a need to consider and communicate the institutional settings that are being sought for pest animals, independent of other sectors, i.e. what is really required to reduce risks, where do the opportunities lie and how do these differ from other areas? There is not a clear understanding of pest animal prevention and management across the biosecurity system and importantly what needs to happen to enable this institutional setting to be put in place.

The process of clearly mapping out the institutional requirements for pest animals should help to differentiate the needs of pest animal prevention and management from other relevant sectors and will enable identifying where there is value of coordinated effort versus separate effort.

For example, the biosecurity continuum presented in Figure 1 shows some of the key requirements for the institutional setting. Stakeholders consulted appeared to have a reasonable understanding of parts of the system, but not the system as a whole. What is required for pest animals against each of these requirements and where do the requirements differ from what is required for other sectors. Stakeholders then need to have clear messages with regards to key actions required for pest animal management.

FIGURE 1




Recommendation 1 identifies that there is a need to unpack what institutional arrangements are required to achieve each of the agreed principles. The principles were strongly supported throughout this evaluation. All 12 of the principles resonated across stakeholder consultations and appear relevant.

In Chapter 4 of this evaluation, some requirements for each principle to be achieved are noted. Observations against these requirements using stakeholder consultation feedback and desktop analysis suggest there are key things that are required to be put in place to achieve the principles. There is a need for the strategy to help clarify what is needed to achieve the principles and what actions are being committed to in relation to achieving the principles (i.e. being clear on the institutional arrangements and how these relate to achieving the principles and sharing these requirements with stakeholders).

Many stakeholders acknowledged the aspirations of the principles, and agreed with their sentiment, but were unclear on how they can be achieved. The link between the principles and actions being undertaken through any future Strategy would be useful to help stakeholders see the value of the effort from governments and other key parties.

Recommendation 3: There is a need to create greater ownership by stakeholders, in addition to government stakeholders, of any future APAS. The approach used to garner stakeholder interest and ownership needs careful consideration as part of the development and implementation of a future strategy. There is a need to create a better link between the high level areas that the strategy seeks to influence with on-ground actions.

Pest animal management is noted as a shared responsibility, but outside of government, the APAS provides minimal influence over actions. There was limited ownership of the strategy outside of government stakeholders.

There is a need for improved 'signals' (clarity of needs, impacts, incentives and compliance options and priorities in relation to pest animal management) to parties, in addition to governments, on what role they should be playing to enable improved pest animal management.

The current vision of the APAS - *Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals* - remains pertinent and relevant today.

The three goals of the APAS are also relevant under the IGAB and continue to be needed into the future:

1) Provide leadership and coordination for the management of pest animals
2) Prevent establishment of new pest animals, and
3) Manage the impacts of established pest animals

There needs greater clarification of the scope and purpose of the strategy itself. The APAS should focus on setting up the institutional arrangements that underpin how prevention and management of pest animals occurs in Australia.

For example, the Intergovernmental Agreement - National Water Initiative primarily seeks to reform the institutional arrangements that enable improved management of water. The focus of on-ground actions in relation to various water objectives are complementary and are supported by the changes being brought about by the National Water Initiative but not actually delivered through the National Water Initiative.

The scope of any future Strategy needs to be clear on what it is aiming to achieve. Many stakeholders have interpreted that the APAS should have done more at the grass-roots and on-ground level yet our interpretation is that effort is more being placed on setting up appropriate institutional arrangements, which has merit.

More may have needed to occur at the on-ground level to prevent impacts from pest animals; however, there is a sound case for government effort to focus on bedding down effective institutional settings that will enable improved management into the future.

There would be value in making this setting clearer and the role of the strategy clearer in relation to this. This would help manage stakeholder expectations on what government has established and agreed to deliver.

A development of a future strategy provides opportunities to consider ways to engage and motivate people outside of government to play more active roles in pest animal management into the future. There would be value in a future strategy considering a way to:

- provide an opportunity for high level engagement on pest animals and the strategic level requirements
- create an environment for further shaping of directions and requirements
- help motivate actions by a range of stakeholders (in addition to Australian, state and territory government stakeholders), and
- help to raise awareness of other facets or requirements for management.

### Recommendation 4: The Vertebrate Pests Committee should prioritise their actions aligned with the framework established and agreed on in the IGAB. A plan should be developed that enables the Vertebrate Pests Committee to identify clearly where priority effort is required, where effort for pest animals management differs to what is required for other sectors and where there is opportunity to collaborate effectively with other IGAB sectors.

This recommendation encourages the Vertebrate Pests Committee to map out the ideal requirements for pest animal management and how these requirements relate to the IGAB schedules and priority action areas. A plan should be developed to include:

- What actions are required to achieve the agreed institutional arrangements for pest animals
- What actions need to be completed independent of other IGAB sectors
- Where there is opportunity for leverage of effort and resources with other IGAB sectors
- Where risks could emerge for pest animal management if they are overlooked or approaches selected are higher-level or more generic covering many sectors, and
- Identify any actions that form foundations or inputs to other areas.

The plan developed should be used by the Vertebrate Pests Committee to manage their time and resources based on areas where most can be achieved and any priority areas. It should also help the Vertebrate Pests Committee to track and monitor any risks that the broader IGAB approach may pose for pest animal management and enable these risks to be actively managed.

This plan can play a role in helping the Vertebrate Pests Committee demonstrate leadership in pursuing agreed priority action areas under the IGAB.

The intention of the plan is to be a practical document that will help implementation of the IGAB and future pest animal strategic approach.

### Recommendation 5: Use the strategy to demonstrate the need for managing pest animals in Australia and the humane approaches being used to manage pest animals

The need to consider humane approaches for controlling pest animals has always been an underlying consideration but over recent decades society's expectations on how animals should be treated (whether they be a pest, an agricultural product or a household pet) is placing increased scrutiny and constraints on the options and approaches for managing pest animals.

Based on the trend within Australia and internationally animal welfare requirements will continue to emerge and will need proactive approaches to ensure that risks from the impacts that could be caused by pest animals are not increased.

It is recommended that at the national level, effort be placed in helping to demonstrating the need for managing pest animals and the needs in relation to managing and reducing impacts of pest animals on key natural and productive assets. There is also a need to demonstrate the humane approaches being used across many stakeholder groups.

The Codes of Practice that have been developed are useful and can play a role in helping to demonstrate approaches being applied across stakeholders.

There is a need for stakeholders to work together on being responsible for managing resources effectively and considering ways to continuously improve humane approaches being used to manage pest animals. It is thought that if a proactive approach is not used then there is a risk that management options for pest animals will be removed and the impacts on key natural and productive assets could increase which would not be in the national interest.

# Chapter 1 – Introduction

The Australian Government Department of Agriculture, Fisheries and Forestry, on behalf of the Vertebrate Pests Committee, engaged Community Solutions to undertake an evaluation of the Australian Pest Animal Strategy (APAS).

The APAS was endorsed by the Natural Resource Management Ministerial Council in 2007. It sets a vision that aspires to:

> *"Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals."*

It sets up a framework to guide the national management and cooperation for pest animal prevention and management in Australia. The APAS Implementation Plan identifies the need for an independent evaluation of the strategy after five years – this report provides the findings of this evaluation.

The APAS was modelled on the National Weeds Strategy, which was refined and endorsed as the Australian Weeds Strategy (AWS) in 2007. The APAS and AWS have a consistent structure, vision, goals, objectives and principles. Community Solutions has also been engaged to undertake an evaluation of the AWS, which is being undertaken in parallel using consistent methodology.

## Terms of Reference for the APAS Evaluation

I. Assessing qualitatively the achievements and failures under the APAS, including:
   - a) Details of the achievements and failures under the APAS.
   - b) Identification and analysis of factors/impediments influencing the implementation of the APAS.
   - c) Detail those uncompleted actions relating to the current APAS and make recommendations addressing these areas under the department's next pest animal strategy.

II. Analyse the role of stakeholders in implementing the APAS:
   - a) Detail and assess how effective the role of the APAS National Coordinator has been in raising awareness and facilitating strategic actions under the APAS.
   - b) Report on stakeholder awareness of their responsibilities in regards to ongoing management of pest animals.
   - c) Report on stakeholder willingness to accept their responsibilities and participate in a pest animal strategy.
   - d) Report on stakeholder accountability and uptake in the implementation of the APAS.
   - e) Analyse and assess stakeholder feedback regarding the current APAS and provide recommendations, incorporating this feedback, regarding the implementation of the next version of the pest animal strategy.
   - f) Provide recommendations on how to effectively engage with stakeholders in implementing a new pest animal strategy.

III. Identify, assess and provide recommendations on the impact of the signing of an Intergovernmental Agreement on Biosecurity (IGAB), and its national strategies, on the current APAS and any future pest animal strategy – does the APAS need to be rewritten (or exist) at all?

IV. Identify options and recommendations for the next version of the pest animal strategy; if you find that the strategy is still required, including:

a) Identify the vision/principles/goals/actions applicable to the APAS.
b) Identify and detail any shift in focus or priorities of the APAS.
c) Provide recommendations on strategies to improve accountability under the APAS.
d) Identify and provide recommendations to address gaps that have been overlooked under the current APAS.
e) Provide recommendations on the development/formulation and structure of a new APAS.
f) Are there any data gaps that need to be addressed to inform the next APAS?
g) Can linkage be found or formed between the APAS with other national and local strategies?

## Report Structure

The structure of this report is in seven chapters:

Chapter 1 –introduces the evaluation, including the terms of reference, and the approach used to evaluate the APAS

Chapter 2 – outlines the context of the pest animal challenge and includes more information on the APAS

Chapter 3 – provides a summary of pest animal impacts and challenges in Australia and key observations

Chapter 4 – summarises the evaluation findings against the foundational outcomes identified as required to achieve, and work towards, the APAS vision.

Chapter 5 – assesses the contribution the APAS has made towards the intermediate outcomes: prevention of new pest animals; minimise the spread of pest animals; and minimise the impacts of existing pest animals

Chapter 6 – considers the current and future directions for biosecurity and recommendations for APAS

Chapter 7 – synthesis chapter comparing the common findings with the Australian Weeds Strategy evaluation being conducted in parallel to this evaluation.

## Evaluation Approach

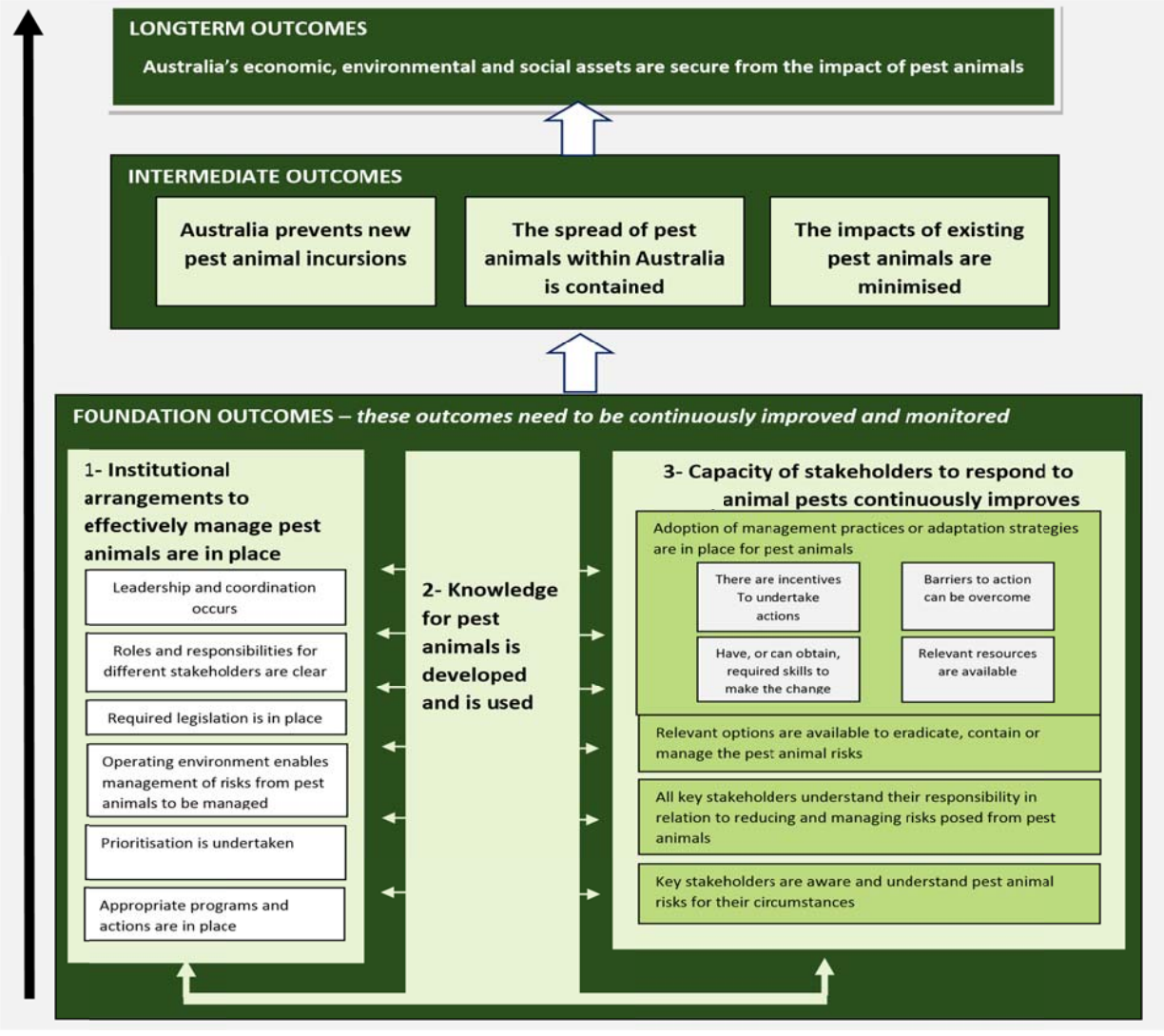
The evaluation was conducted between December 2012 and March 2013. An evaluation framework was developed at the outset which sought to document the short, intermediate and longer term outcomes that would be expected to be achieved, or contributed to, by the APAS. This evaluation framework aims to help unpack what might need to occur to contribute to the vision of the APAS - *"Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals."*

The evaluation logic is presented in Figure 2. The bottom of the logic illustrates three foundational outcome areas:

- Institutional arrangements to effectively manage pest animals are in place
- Knowledge of pest animals is developed and used, and
- Capacity of stakeholders to respond to pest animals continuously improves.

These three foundational outcome areas combined contribute to the intermediate outcomes:

- Australia prevents new pest animal incursions
- The spread of pest animals within Australia is contained, and
- The impacts of pest animals are minimised.



The foundational outcomes have been a significant focus for assessing performance of the APAS. They help to identify the rationale for strengths and weaknesses of the approach and identify areas requiring attention going forward.

Based on the attributes expected to be observed for each of the foundational outcomes, data was collected and analysed from:

- reports, websites, scientific literature and outputs resulting from, or influenced by, the APAS
- semi-structured in-depth interviews with key stakeholders from a range of relevant sectors whose roles were identified by the evaluation team, with suggestions provided from the Vertebrate Pests Committee of those to be interviewed, 17 responded to questions both about weeds and pest animals, 22 only on weeds and 12 only on pest animals, and
- an online survey collecting quantitative and qualitative data was open for one month for interested parties to provide feedback on the APAS (9 January 2013 to 8 February 2013). One hundred and eighty people from across Australia covering a variety of stakeholder roles related to pest animal management completed this survey.

Attribution of changes to pest animal management to the APAS is highly challenging because the strategy intends to influence approaches and actions for all stakeholders involved in pest animals, but there are other many influencing factors. The intention in this evaluation is to cautiously assess how the APAS has improved prevention and management of pest animals in Australia.

The definitions used, and areas considered, in this evaluation for each of the foundational outcomes is included below. It should be noted that the program logic developed for this evaluation is not a formally endorsed program logic for the APAS.

### Institutional arrangements to effectively manage pest animals are in place

The institutional setting is the operating environment that makes more effective pest animal prevention and management possible. This area considers the constitutional roles and responsibilities of various stakeholders and how governments are working together to achieve mutually desired outcomes that benefit Australia as a whole. The evaluation framework for the APAS identified six areas needing consideration for assessing APAS influence on institutional arrangements, these include:

- leadership and coordination
- roles and responsibilities for different stakeholders are clear
- required legislation is in place
- operating environment enables management of risks from pest animals to occur (this mainly focuses at the government level as on-ground is considered in the *Capacity of stakeholders* foundational outcome)
- prioritisation is undertaken, and
- appropriate programs and actions are in place.

### Knowledge for pest animals is developed and used

Knowledge plays an important role in decision making and adaptive management. Its development and use provide inputs to the other two foundational outcome areas.

Knowledge, in this context, is defined broadly to include:

- data and information
- understanding of particular aspects of pest animals and their characteristics, how they impact (or could impact) on different ecosystems, geographic areas and sectors, and an understanding of opportunities and strategies to respond to the range of impacts
- tools, systems and support practices, and
- methods and approaches required to develop data, information, understanding and/or tools.

The evaluation team also considered other aspects of knowledge development, such as whether:

- needs and gaps are identified and prioritised
- there is clear information for the research community to understand where knowledge development is desired
- the knowledge (information, data and tools) is in a format that is accessible for target stakeholders
- existing knowledge can be better synthesised for different stakeholders, and
- there is capacity within the research and other service provider community to support improved pest animal prevention and management.

### Capacity of stakeholders to respond to pest animals continuously improves

Capacity of stakeholders considers the attributes of people and groups of people (e.g. region, industry) to respond to pest animal issues. It includes awareness and understanding of the pest animal challenges and ownership of these challenges, whether they have access to suitable options for pest animal management and what the incentives and barriers there are for implementing relevant pest animal management options for their circumstances. As noted in the APAS, there are a wide range of stakeholders with responsibilities in pest animal management, those listed in the strategy include:

- Government stakeholders (Australian, state, territory and local)
- Individual land owners and land users
- Community and industry organisations
- Regional natural resource management (NRM) groups
- Keepers of exotic species, and
- The broader Australian community.

# Stakeholders participating in the evaluation

## In-depth Interviews

A total of 52 interviews were completed using a qualitative interview template, with a small number of additional interviews with key strategic providers providing other information.

Of those interviewed, 17 responded to questions both about weeds and pest animals, 22 only on weeds and 12 only on pest animals.

Stakeholders that participated in in-depth interviews came from the following stakeholder areas:

| Sector/Role | No. of respondents |
|---|---|
| Australian Government | 11 |
| State/Territory Government | 14 |
| Regional NRM body | 5 |
| Local Government[(1)] | 3 |
| Primary Industry | 8 |
| Research & Development | 8 |
| Other[(1),(2)] | 3 |
| Total | 52 |

Footnotes:

(1) Difficulties were encountered locating staff in agribusiness, environmental NGOs and the education and training sector who were willing and available to participate in the interview

(2) Other includes a small number interviews from each of the community-based environment/NRM sector and the education and training sector

Experience of people that participated in the in-depth interviews varied from 3 to 45 years, with a mean of 19.28 years.

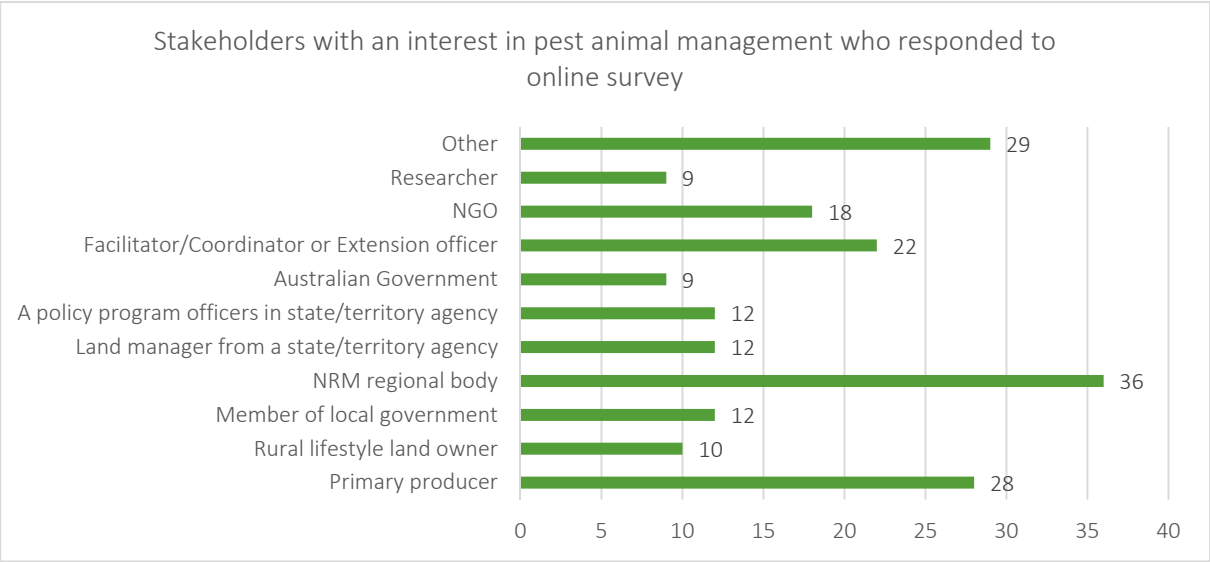
## Online survey

An online survey was undertaken for this evaluation and the evaluation of the AWS. It was conducted in January 2013.

- 268 people participated in the survey
    - 54 respondents main interest was pest animals
    - 144 respondents main interests covered both pest animals and weeds, and
    - 69 respondents main interest was weeds.

The stakeholders that had an interest in pest animals and both pest animals and weeds covered a good spread of key pest animal stakeholders (presented in Figure 3). Other stakeholders included indigenous land managers, hunters and many with multiple roles, i.e. producers and members of regional NRM bodies.

FIGURE 3




Stakeholders who participated in the online survey covered a range of time experience in the area of pest animals or weeds (Figure 4). There was a good age, gender and geographic distribution of the respondents (Figure 5, Figure 6 and Figure 7).

FIGURE 4

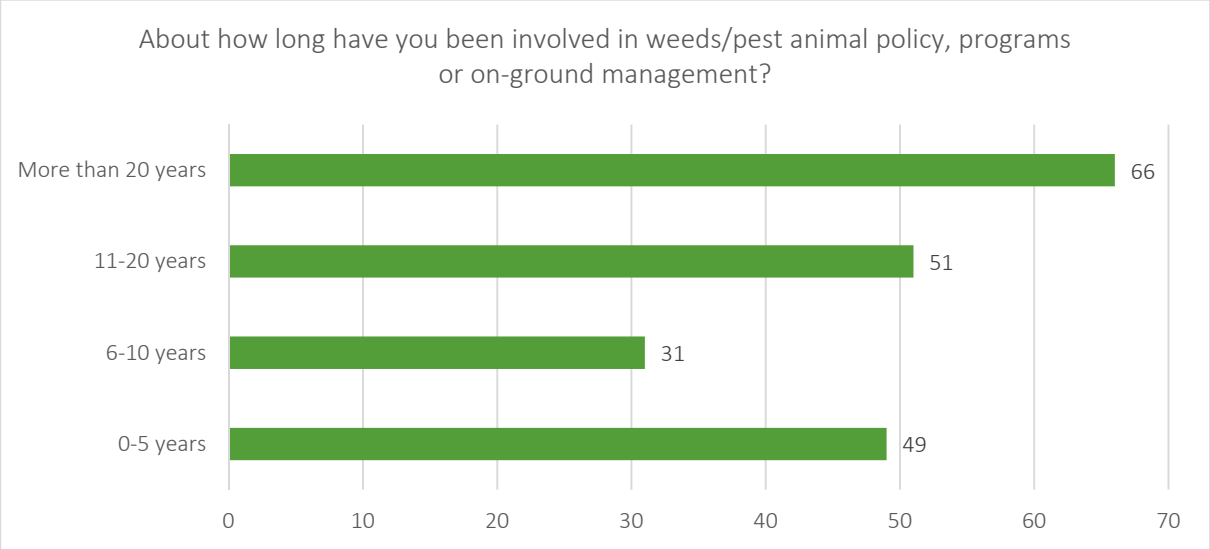



FIGURE 5

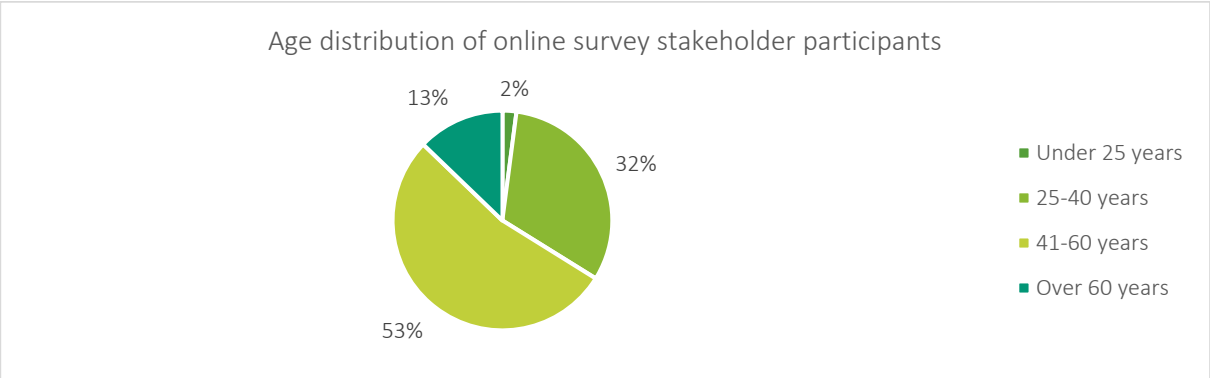


FIGURE 6

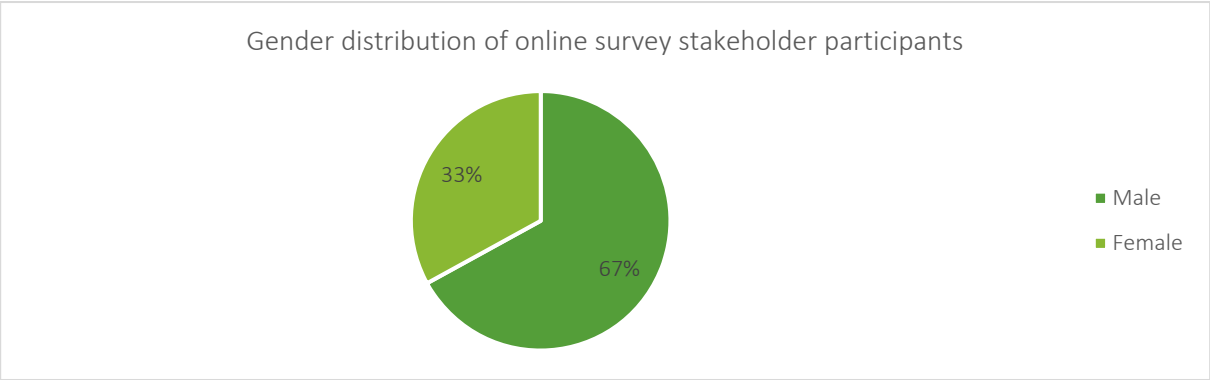
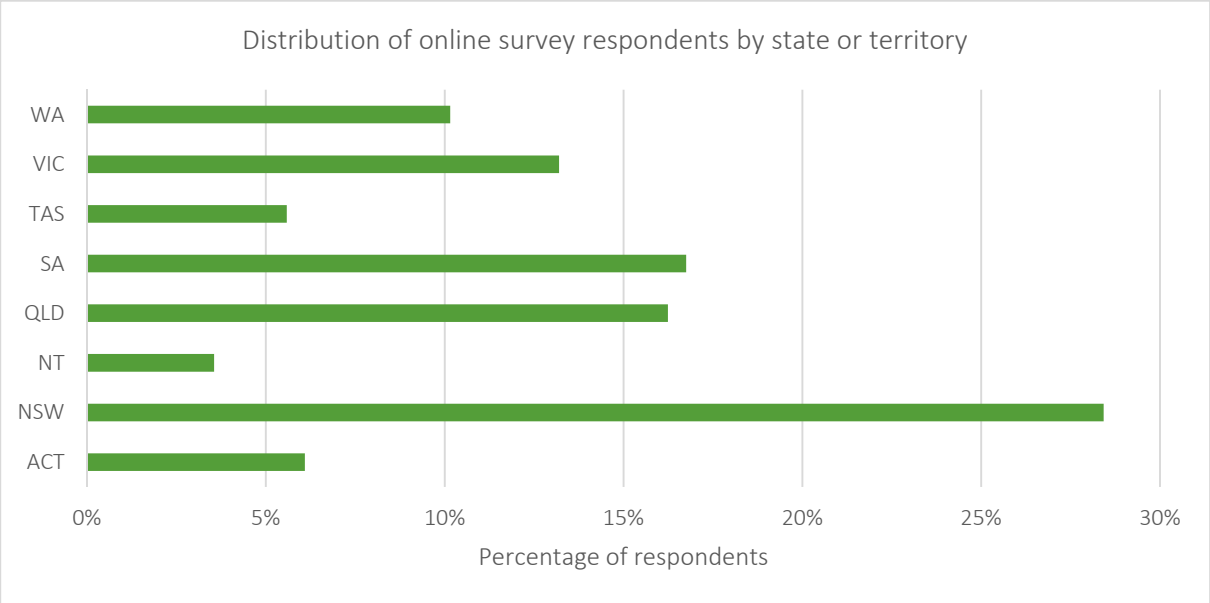



FIGURE 7



# Chapter 2 - The Australian Pest Animal Strategy and related strategic management arrangements

## Background of the APAS

The APAS was developed by the Vertebrate Pests Committee – an Australian Government, state and territory government committee, providing coordinated policy and planning solutions related to pest animals to the Council of Australian Governments (reporting via the Natural Resource Management Standing Committee and the Primary Industries Standing Committee). The Vertebrate Pests Committee has a range of observers who provide technical input and other perspectives that aid in managing animal pests in Australia.

It is the first national strategy for pest animals and models its approach and formatting on the Australian Weeds Strategy. The APAS, and the updated AWS were both endorsed by the Natural Resource Management Ministerial Council in 2007.

It was not set up with a resource funding stream, such as a program, rather the APAS was set up to guide plans, actions and investment for all stakeholders with a role in responding to the pest animal challenge. The APAS aims to help boost the integration, coordination for pest animal activities across Australia and where possible leverage resources to effectively reduce risks posed by pest animals across the biosecurity continuum.

It has three goals each with three objectives (Figure 8). The strategy identifies a range of actions for each of the objectives.

FIGURE 8 - GOALS AND OBJECTIVES OF THE APAS

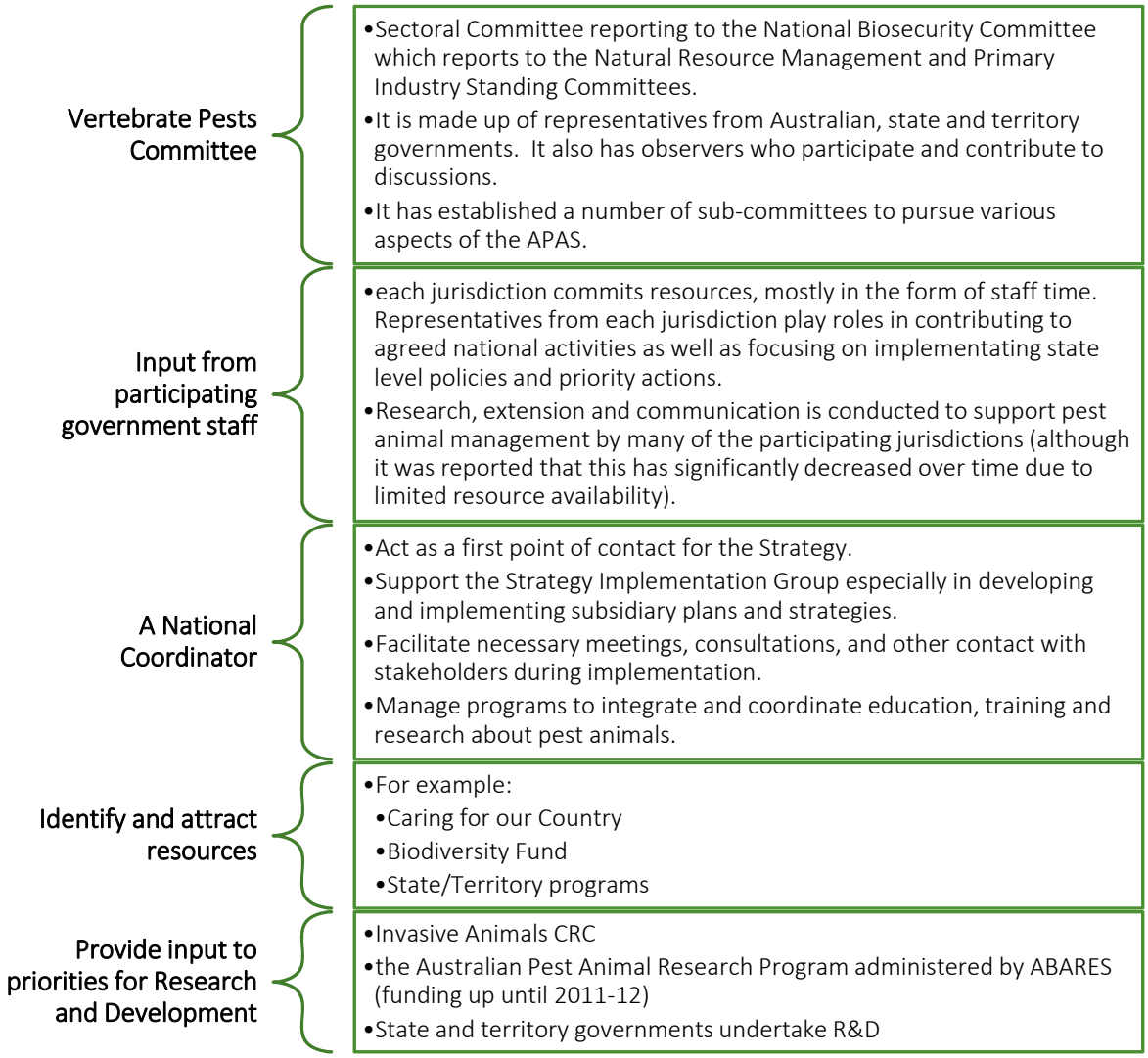
| | |
|---|---|
| Vision | Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals |
| Goal 1 | Provide leadership and coordination for the management of pest animals |
| Objectives for Goal 1 | 1.1 To develop the capacity and processes for effective delivery of pest animal management. |
| | 1.2 To ensure nationally consistent pest animal management approaches are in place at all scales of management. |
| | 1.3 To improve public awareness of pest animals, research coordination and its support for pest management at the national level, and adoption of best practice management methods. |
| Goal 2 | Prevent establishment of new pest animals |
| Objectives for Goal 2 | 2.1 To prevent the introduction of new animals with pest potential. |
| | 2.2 To ensure early detection of, and rapid response to, new incursions of exotic animals. |
| | 2.3 To reduce the spread of pest animals to new areas within Australia. |
| Goal 3 | Manage the impacts of established pest animals |
| Objectives for Goal 3 | 3.1 To identify established pest animals of national significance. |
| | 3.2 To identify and manage the impacts of pest animals on key assets. |
| | 3.3 To coordinate the management of established pest animals across Australia. |

## Implementation and oversight arrangements

Implementation arrangements for the APAS (illustrated in Figure 9) include:

- oversight from the Vertebrate Pests Committee, particularly by the sub-committee – the Strategy Implementation Group
- actions undertaken through existing resources of the Australian Government and state and territory governments (mostly through staff time)
- a National Coordinator to act as a point of contact for the APAS and who assists in aspects of implementation
- attracting suitable revenue to implement actions agreed in the APAS, and
- providing guidance on requirements to help shape R&D priorities and activities.

FIGURE 9




There are no additional resources allocated to the implementation of the APAS, thus part of the role of APAS is to guide and shape other investments and activities.

The Implementation Plan for the APAS identifies (2008):

> *"The role of the APAS should not be to attempt to address all pest animal management issues, given there are already in place a range of government and research agency processes and programs and national, state and regional pest management strategy documents*

*The focus of the APAS was therefore identified as being the coordination (and in some cases modification) of existing processes, and identification of national management priorities that are not adequately addressed."*

This focus will be considered as part of this evaluation and assessing where the APAS has contributed to coordination and influenced other activities.

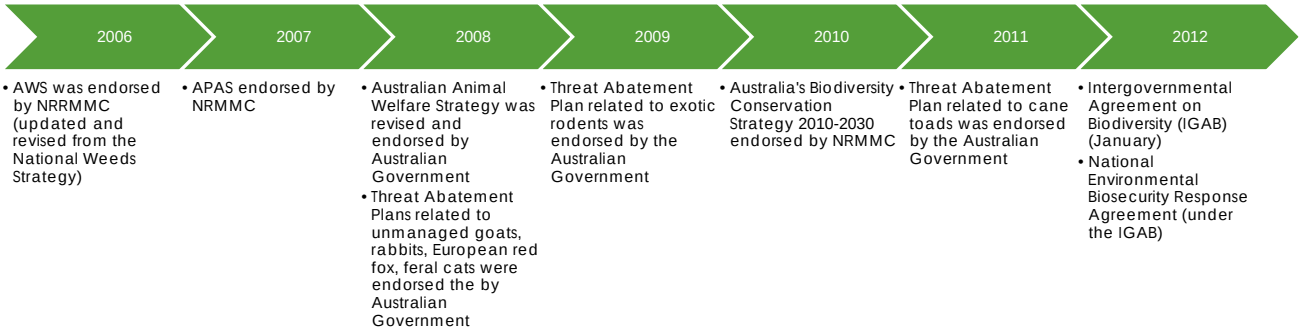
## Relationship with other strategies and policies

The APAS was set up as part of a broader approach to biosecurity – under the Australian Biosecurity System for Primary Production and the Environment (AusBIOSEC). Since the APAS was agreed upon there have been various changes to the operating environment which are taken into account as part of this evaluation and further outlined in the Future Directions and Considerations. A key change agreed by the Council of Australian Governments in January 2012 is the Intergovernmental Agreement for Biosecurity (IGAB).

The APAS is one of many initiatives that relates to other national strategies and commitments. In implementing activities for pest animal prevention and management, these other strategies and commitments need to be taken into consideration and at times will guide the approach or activities required. These key strategies include:

- AWS
- National Environment Biosecurity Response Agreement
- Australian Biodiversity Conservation Strategy 2010-2030
- Australian Animal Welfare Strategy
- Threat Abatement Plans, and
- Emergency Animal Disease Response Agreement.

The following presents a timeline of some activities in relation to other national strategies and approaches that were updated over the last 7 years.




| Related Strategies and Initiatives | Purpose | Relationship to the APAS |
|---|---|---|
| **AWS** | Vision: *"Australia's economic, environmental and social assets are secure from the impacts of weeds"*<br>Mission: *"To provide guidance for national leadership so all Australians can work together against the serious impact of weeds."*<br>Goals:<br>1. Prevent new weed problems<br>2. Reduce the impact of existing priority weed problems<br>3. Enhance Australia's capacity and commitment to solve weed problems. | The APAS was modelled on the national strategy developed for weeds and as a result the two strategies are similar in structure and content.<br><br>There are examples of activities identified within the APAS, which the Vertebrate Pests Committee has undertaken in collaboration with the Australian Weeds Committee due to common identified needs. |

| Related Strategies and Initiatives | Purpose | Relationship to the APAS |
|---|---|---|
| **Australian Biodiversity and Conservation Strategy 2010- 2030 (ABC Strategy)** | Vision*: "Australia's biodiversity is healthy and resilient to threats, and is valued both in its own right and for the essential contribution to our existence."*<br>The ABC Strategy intends to influence how governments, the community, industry and scientists manage and protect Australia's plants, animals and ecosystems over the next twenty years. Invasive species are listed as one of the six key threats to biodiversity. | Pest animals can have a significant impact on biodiversity and thus are an important consideration for protecting and managing biodiversity in Australia.<br>The ABC Strategy notes that it will provide a broad overarching framework for existing strategies, including the APAS, AWS and a National Framework for the Management and Monitoring of Australia's Vegetation.<br>One of ten targets identified in the ABC Strategy: "By 2015, reduce by at least 10% the impacts of invasive species on threatened species and ecological communities in terrestrial, aquatic and marine environments."<br>This is a significant commitment which will require reporting on. The APAS has a role in underpinning many actions that help to enable the target to be achieved. |
| **Australian Animal Welfare Strategy (AAW Strategy)** | Vision: *"The welfare of all animals in Australia is promoted and protected by the development and adoption of sound animal welfare standards and practices."*<br>It aims to provide Australian and international communities with an appreciation of animal welfare arrangements in Australia. | The control and management of pest animals must consider minimum standards expected for the welfare of animals. The AAW Strategy provides direction "for the development of future animal welfare policies, based on a national consultative approach and a firm commitment to high standards of animal welfare. It will facilitate the establishment of priorities that are consistent with agreed strategic goals and the revision of, and agreement on, acceptable standards. The Strategy clarifies the roles and responsibilities of key community, industry and government organisations."<br>The Codes of Practice being developed by the Vertebrate Pests Committee align with the AAW Strategy. |
| **Intergovernmental Agreement on Biosecurity (IGAB)** | The IGAB outlines how governments will work together to minimise the impact of exotic pests and diseases on Australia's economy, the environment and the community. It was agreed in January 2012.<br>It identifies opportunities for governments, industry, natural resource managers and the community to work together in view of shared responsibility for biosecurity. | The IGAB identifies eight schedules or action areas – all of which relate to pest animal risk prevention and management. Pest animals are one of several sectors that are incorporated into IGAB approach.<br>More details on this can be found in Chapter 6. |
| **Threat Abatement Plans** | Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the Australian Government may determine the requirement of a Threat Abatement Plan for a threatening process in the list of key threatening processes established by the Commonwealth.<br>Threat abatement plans provide for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. Implementing the plan should assist the long term survival in the wild of affected native species or ecological communities. | There are currently Threat Abatement Plans for cane toads, feral pigs, feral cats, European red fox, rabbits and unmanaged goats.<br>These Threat Abatement Plans identify objectives and actions, including priorities for actions, to reduce the threat and many of these cover themes similar to the goals established in the APAS. There are cross-link referrals to the APAS within the Threat Abatement Plans. The Threat Abatement Plans are species and impact specific. |

# Chapter 3 – Pest Animals in Australia

## Pest Animal Impacts

In Australia, pest animals have major economic, environmental and social impacts. Bomford (2008) identified that a suite of exotic species has established wild populations on Australia's mainland. This includes at least 25 mammals, 31 freshwater fish, 20 birds, four reptiles and one amphibian. Additional species have established on Australia's offshore islands. Many of these introduced species are now pests and have adverse impacts on the environment and agriculture. The level of impact of species varies significantly across Australia.

A snapshot of these impacts are:

| | |
|---|---|
| **Productivity** | • Many pest animals cause significant damage to crops and seriously affect Australia's livestock industries by preying on stock and competing for pasture. Pest animal control costs are a significant expense for land owners.<br>• It has been estimated that eleven of Australia's major pest animals (wild populations of foxes, pigs, rabbits, mice, goats, carp, dogs, cane toads, camels, cats and horses) have negative impacts in Australia, valued at over $720 million per annum (McLeod 2004).<br>• The cost of other significant pests, including exotic birds such as starlings, sparrows and Indian mynahs, as well as deer and donkeys, makes the overall economic impact much greater. |
| *Agriculture and horticulture* | • Based on five years of data ending in 2001-02, the agricultural losses resulting from four pest animals – foxes, rabbits, wild dogs and feral pigs – were estimated to be $284.9 million. This was for four agricultural sectors where $187.7 million was estimated for the beef industry, $71.3 million for the wool industry, $20 million lamb industry and $5.9 million for the grains industry (Gong et al, 2009).<br>• The overall loss resulting from pest animals for agriculture was reported to be $620.8 million per annum attributed from pests: birds, rabbits, wild dogs, mice, foxes and feral pigs (Gong et al, 2009). Management, administration and research costs for governments and landholders were estimated as $122.7 million. Gong and her colleagues concluded that the estimated national economic impact of pest animals on agriculture was $743.5 million per annum.<br>• Estimated impacts for horticulture were also made based on the losses of production plus the associated management costs resulting in losses totalling $313.1 million (wine/grape industry $120.8 million, pome fruit industry $85 million, stone fruit industry $58.4 million and nut industry $48.9 million) (Gong et al, 2009).<br>• Many pest animals compete with livestock for pasture. |
| **Environment** | • Pest animals cause land degradation by promoting soil erosion (e.g. burrowing rabbits and foxes), stream turbidity (e.g. bottom feeding carp) and the spread of weeds (nearly all vertebrate pests).<br>• Biodiversity in Australia is adversely affected through pest animal competition for resources, habitat destruction and predation.<br>• Pest animals pose a threat to nationally and internationally significant natural areas, including National and World Heritage areas and Ramsar-listed wetlands and to National Parks and Nature Reserves.<br>• In doing so, there is potential to impact on the growing numbers of both Australians and international visitors who rely on these areas for recreational activities. Interested individuals, tourism operators and the wider community relying on these natural areas for the provision of a diversity of ecosystem services are thus all affected.<br>• In areas where pest animals have been controlled, larger populations of small threatened native marsupials, birds, reptiles and invertebrates have resulted.<br>• Non-market valuation studies have shown that for every threatened species protected the community has an annual willingness to pay of at least $65,000 per species (Sinden and Griffiths 2005). |

| | |
|---|---|
| **Social** | • Pest animals act as reservoirs for diseases which can adversely affect human health. Relevant diseases include hydatid cysts, blue tongue, brucellosis and tuberculosis.<br>• In the event of an exotic disease outbreak, pest animals have the potential to act as vectors for the transmission of the disease to the human population, livestock and wild animals (e.g. Foot and Mouth, rabies).<br>• Other negative social impacts include damaging infrastructure, causing traffic accidents, as well as psychological effects on primary producers and their families.<br>• Pest animals provide positive as well as negative social values. Positive values include food, skins, and hunting and recreation opportunities often in remote areas where alternatives are not available. |
| **Cultural** | • Pest animals pose a threat to many of Australia's Indigenous lands and the original Australians who live there. Pest animals graze and diminish traditional medicine plants and bush tucker (e.g. goats in western NSW) yet also provide hunting opportunity for Aboriginal people (e.g. buffalo in the Top End, pigs in Cape York). These same buffalo and wild pigs degrade waterways and other places of cultural significance to Indigenous Australians. |
| **Other Risks** | • There are challenges associated with pest management solutions in that there are a range of public and private benefits and costs which can make public investment decisions in relation to accelerating the development and adoption of solutions difficult. |

## Pest Animal Management and Intervention

Pest animals enter Australia through:

- Legal imports
- Illegal imports, and
- Accidentally (as part of legal or illegal import living or hidden in something else).

Once in Australia and established, it is highly challenging to eradicate them and thus the emphasis is about reducing or managing the impacts or stopping a possible threatening pest animal from establishing. Hart and Bomford (2006) state:

> *"Despite many decades of intensive effort, no widespread introduced pest animal species has ever been eradicated from mainland Australia, and in the foreseeable future, these species are here to stay."*

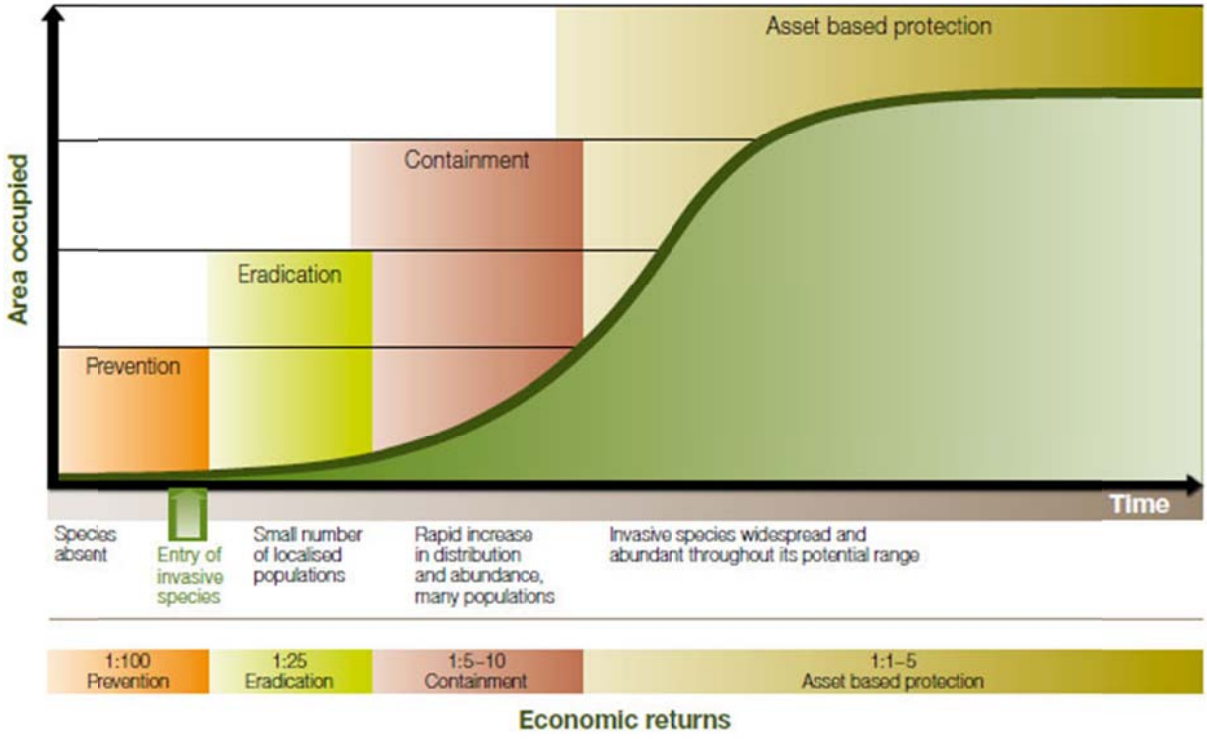
The reported pest animal challenge includes establishing tactics to intervene early to stop a new pest animal from establishing in Australia and to balance effort for the management of established pest animals and consider areas in which most achievements can be made. With increasing international movement of goods and people creating greater risks for new pest animals entering Australia, it is important that national collaborative approaches are in place.

Many stakeholders consulted as part of this evaluation noted early intervention as the better and more tactical option regarding pest animals. The Victorian Government's Invasive Plants and Animals Policy Framework (2010) states:

> "*Analyses of biosecurity programs generally shows that prevention provides a higher return on investment than eradication, eradication is better than containment and containment is better than managing impacts of widespread invasive species".*

This sentiment was further illustrated through a generalised invasive species curve showing actions appropriate at each stage (Figure 10).

FIGURE 10




Source: Victorian Government Invasive Plants and Animals Policy Framework, 2010

The increasing alignment of pest animal management within biosecurity approaches seems a sensible and tactical pathway. The biosecurity continuum pre-border, at border and post-border are all key areas of pest animal prevention and management and each require different tactics. In a simplified sense, the following table (Table 1) aims to illustrate some of the simple components of the biosecurity continuum related to pest animals.

TABLE 1

| Pre-border | Border | Post border |
|---|---|---|
| • Import Risk Analysis underpinned by science (process for determining what poses a pest animal risk and underpinning science required to inform the assessment process)<br>• Off-shore inspection to reduce risk of pest animal entering the country<br>• Overseas capacity building to reduce pest animals risks | • Application of quarantine protocols<br>• Quarantine | • Prevention and Eradication Strategies<br>• Monitoring and surveillance<br>• Management of pest animals to reduce impacts<br>• Emergency pest and disease arrangements and management |

There are many facets to the biosecurity system and many stakeholders, government and non-government, involved in making the system work effectively for Australia. In this evaluation, it became evident that many stakeholders, outside of government, had not fully grasped the concept of pest animals within the biosecurity framework. The evaluation team has interpreted this to be that many stakeholders saw biosecurity as only "pre-border" and at "border."

## The emerging challenge – animal welfare

The control methods used for eradicating, preventing the spread and minimising impacts of pest animals include:

- Killing or removal (baiting, shooting, trapping or mustering)
- Exclusion (e.g. fencing or netting)
- Biological or fertility control
- Habitat manipulation (e.g. removal of surface refuges), and
- Changes in land use, including agricultural practices (e.g. timing of lambing or planting different crops).

The need to consider humane approaches for controlling pest animals has always been an underlying consideration but over recent decade's society's expectations on how animals should be treated (whether they be a pest, an agricultural product or a household pet) is placing increased scrutiny and constraints on the options and approaches for managing pest animals. The Australian Government developed the Australian Animal Welfare Strategy to ensure the humane treatment of all animals in Australia and the relative humaneness of a range of pest animal control methods was assessed. The Australian Animal Welfare Strategy identifies the need for Codes of Practice for key animal species including pest animals.

The increasing scrutiny by the public, regardless of whether their requirements are based on reality or perceptions, requires active monitoring, updating of practices and demonstration to the public of their humaneness into the future. Based on the greater public scrutiny of animal welfare within Australia and internationally, animal welfare requirements will continue to emerge and will need proactive approaches to ensure that risks from the impacts that could be caused by pest animals are not increased.

## Pest animal challenge – key observations

1. Pest animals create impacts across economic, environmental and social areas.

2. The challenges created by pest animals will not go away and the need for well-structured, integrated and resourced approaches across many stakeholder groups is as pertinent today as it was when the APAS was established in 2007. There is a long-term role for governments at all levels of pest animal prevention and management.

3. Pest animal prevention and management sits within the full biosecurity continuum requiring tactical actions at pre-border, border and post-border areas.

4. Prevention and early intervention are well recognised as providing a better return on investment than management of more established pest animal species. There are increasing risks for new species entering Australia through increased world trade and people travelling.

5. The increasing scrutiny by the public, regardless of whether their requirements are based on reality or perceptions, require active monitoring, updating of practices and demonstration to the public their humaneness into the future. Based on the greater public scrutiny of animal welfare within Australia and internationally, animal welfare requirements will continue to emerge and will need proactive approaches to ensure that risks from the impacts that could be caused by pest animals are not increased.

*Achievements*

- The APAS is the first national strategy for pest animal management recognising the national importance of pest animal prevention and management and the need for governments and other stakeholders to work together.

- Codes of Practice being established by the Vertebrate Pests Committee are a positive step forward and will play an important role in the future.

*Weaknesses*

- There is a lack of understanding of how pest animal prevention and management fits within the biosecurity approach. There is a perception within the community that biosecurity only relates to pre- and at border activities. Increased awareness raising is required.

# Chapter 4 – Evaluation findings against the foundational outcomes

This chapter outlines the evaluation findings against the three foundational outcomes:

1. Institutional arrangements in place to effectively manage pest animals
2. Knowledge for pest animals is developed and used, and
3. Capacity of stakeholders to respond to pest animals continuously improves.

It draws on data obtained from desktop analysis, the online survey and stakeholder interviews.

## Foundational Outcome – Institutional arrangements to effectively manage pest animals

The institutional setting is the operating environment that makes more effective pest animal prevention and management possible. Six areas that make up the effectiveness of these institutional settings were reviewed:

- leadership and coordination
- roles and responsibilities for different stakeholders are clear
- required legislation is in place
- operating environment enables management of risks from pest animals to occur (this mainly focuses at the government level as on-ground is considered in the Capacity of stakeholders foundational outcome)
- prioritisation is undertaken, and
- appropriate programs and actions are in place.

Analysis for each area was undertaken and a summary of the findings is presented below.

### Leadership

Leadership is required to help guide and motivate action for responding to pest animals. It is particularly challenging in an area that has the potential to impact all stakeholders, the challenge differs geographically and by sector, and the response strategies need to take into consideration and balance many factors including animal welfare, the various impacts, the value of the assets being impacted and the costs of management.

The sorts of leadership attributes one could expect, related to the APAS, include:

- Helping to communicate the pest animal problem in Australia
- Communicating a clear direction and ideas of what is required to be achieved
- Setting clear principles, or essential characteristics, required for responding to the problem
- Developing and seeking to implement strategies and plans to address specific challenges and opportunities
- Influencing other stakeholders' activities and plans in relation to pest animal management
- Taking responsibility for key national areas and undertaking required actions responding to these areas
- Playing a lead role in the coordination of activities across jurisdictions and other stakeholders (where consistent action and responses are required), and

- Helping to leverage resources and effort.

### Communicating challenge and clear direction

The APAS sends a useful signal to governments, industry, natural resource managers and the broader community that the management and control of pest animals in Australia is needed and requires a cross-section of stakeholders to play a role.

The strategy helpfully puts the pest animal problem in context by:

- defining pest animals
- outlining key aspects of pest animal impacts – covering economic, environmental and social aspects
- providing an insight into management of pest animals and some control methods used (such as killing or removal, exclusions, biological or fertility control, habitat manipulation and changes in land use practices), and
- describing some of the challenges associated with pest animal management.

The APAS is well recognised by stakeholders consulted as a good first strategic step for a national approach to the management of pest animals. The establishment of the APAS appears to be valued and is seen as particularly useful to the Australian Government and state and territory governments.

The APAS outlines the need for a national pest animal strategy; however, on review of the strategy there is a lack of clarity around what role the APAS, as a government initiative or intervention, aims to achieve and how it aims to achieve it. Given the strategy has no significant funding resources attached to it, there is limited opportunity for providing incentives (or 'carrot' approaches) for various parties to participate and it also does not have compliance (or 'stick' mechanisms) built in. Thus, the APAS aims to help set up signals to usher people in a preferred direction for their respective roles related to pest animal management. It particularly aims to strengthen approaches where a common or consistent approach is merited for the national interest.

Interviews undertaken for this evaluation provided fairly even responses in relation to how much the strategy had influenced the roles and activities of those who used the strategy compared to those who did not. In comparison with the feedback provided for the AWS, almost all of the stakeholder groups consulted reported that the AWS had influenced their role or actions in relation to weeds management. For the APAS, this was not the case. Examples of typical feedback from those who reported that the Strategy influenced them are:

- *It was a springboard or framework which helped to drive arguments for revamping skills training on a strategic foundation and in a biosecurity context*
- *For R&D it has been very good. Researchers need to be led by the sector and its needs, while also introducing innovation. The Strategy has made R&D planning easier and has provided a shared focus and framework within which to work – the principles lock that in*
- *The Strategy also provides a reference point for responding to people both within and outside the sector*
- *The strategy has influenced us, but less strongly than for weeds. This is largely due to animal welfare issues causing political constraints on animal control.*

Examples of feedback from people reporting that the Strategy did not influence them include:

- *Local Government appear to be left out of the discussions associated with the APAS*
- *There are lots of principles in the strategy that we use day to day but these were known before it was developed*

- *We might have been able to add more value regarding policy and advocacy work for our members if we had known about the APAS, and*
- *It is not the main document – Threat Abatement Plans and other documents have a greater influence over our work.*

It has been the first strategy of its kind for pest animals and lays some foundations for further strategic steps to be taken. Many stakeholders consulted in this evaluation encouraged these further steps to be taken to help map out the required strategic approach for pest animal management – this included more detailed expectations of outcomes, priorities and performance indicators. This is not only about accountability and demonstrating performance, but it also is needed to help parties who are not actively involved in implementing the strategy, give a clearer signal about the expected role they should be playing to help to achieve the desired outcomes and how those outcomes could benefit them and the country. Feedback to stakeholders on progress in relation to the actions achieved and how this better positions Australia's ability for managing pest animals did not appear to occur and could be improved on.

An observation from the evaluation team was that the desired institutional and operating environment for pest animal management is not clear for most stakeholders' external to government and even those within government may have slightly different views.

The Beale Review (2008) identifies a lack of clarity of roles and responsibilities particularly between government parties and areas where consistent approaches are required to improve national biosecurity. The APAS was developed prior to the Beale Review. Many of the actions identified by the APAS align with areas identified in the Beale Review (2008). This shows the APAS has, and is, working towards improving relevant attributes of the institutional setting for pest animal management. At the time the APAS was developed in 2007, the government officials and pest animal stakeholders who participated in its development were observing areas where consistent and collaborative approaches would be valued and built these into the goals, objectives and outcomes. Many of the actions are complex, and require all jurisdictions to consider them for their circumstances and make the necessary changes where relevant – this takes time and resources.

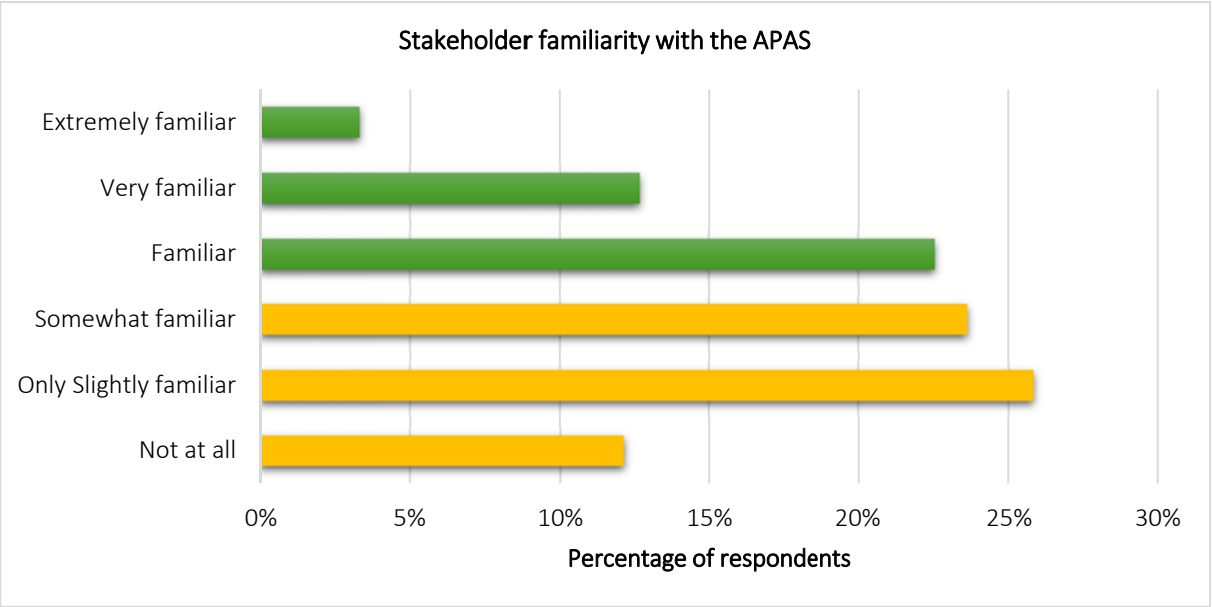
The IGAB responds to the Beale review and potentially can help fast track changes, or give greater national relevance to required changes relevant for pest animals, which will help enhance the national biosecurity system. It is noted that similar challenges lie ahead for the IGAB implementation as they do for the APAS – being limited resources and dealing with multiple government layers and processes.

A next step to strengthen any future strategies would be to clearly articulate how the institutional settings for pest animal management should look, how this relates to biosecurity and the foundations required to achieve this operating environment. Leadership provided in this area and communicating clear direction to stakeholders would be valued.

### Awareness of the APAS

There is mixed stakeholder familiarity with the APAS. The online survey conducted as part of this evaluation included 180 respondents for pest animals and the APAS with nearly 40 per cent of stakeholders reporting that they were either not familiar at all or only slightly familiar with the strategy, compared with 16 percent being very familiar or extremely familiar with the APAS. Figure 11 illustrates the spread of results.

FIGURE 11




It is not a core requirement that people know of the actual strategy, what is important is whether key messages and directions expressed in the Strategy are acknowledged and taken up by relevant stakeholders.

The APAS identifies the need for improving public awareness of pest animals and their management. Little public awareness and communication activity has occurred as part of implementation – this is in part due to the lack of available resources and was regularly cited as a weakness of the APAS.

### Principles

The APAS identifies 12 principles which state key requirements or characteristics expected in responding to pest animal management. These principles help put some context to response considerations.

The principles of the APAS appear to be valued by stakeholders and were reported as the most useful reference within the APAS. Some stakeholders noted that the documentation of the principles was a first (agreed in writing) and this has helped keep stakeholders, mostly governments, moving in a consistent direction for pest animal management.

Stakeholder interviews conducted as part of this evaluation rated their familiarity with the APAS principles as an average of 3.4 out of five which was a high score compared with those provided by these stakeholders for other attributes.

Stating the principles is useful as they set agreed goal posts to work towards but it acknowledged as the first step. Many of the principles require an effective implementation arrangement and investment plan. For example:

- pest animal strategies to be underpinned by good science require a long-term, consistent avenue of investment in required science (not only a commitment by governments but other stakeholders as well) (referring to Principle 3)
- setting priorities underpinned by a risk management approach requires agreement as to what poses a risk, when would those risks become a priority and who these risks would be a priority for. There are many ways that setting priorities could be achieved and different risk frameworks employed. Jurisdictional and industry preferences and priorities may differ, so identifying a way

to agree on national priorities that require common responses is highly challenging (referring to principle 4), and

- placing effort to address actual problems as opposed to perceived problems. To achieve this in a transparent manner requires tracking and monitoring of pest animal problems and then reporting these publicly. It also requires knowledge of effective management and control options and their costs. Politically it can be challenging when many people from the public cry for action in a particular area and then not being able to respond to that area and explaining rationale for undertaking actions in other areas. Monitoring pest animals requires agreed techniques, coordinated data collection, management and public reporting – all requiring investment to achieve effectively (referring to Principle 8).

Thus, for each of the 12 principles, the institutional arrangements need to play a role in helping to enable stakeholders to adopt and practise them.

Many of the challenges reported by stakeholders can be linked back to principles and tensions that exist about implementing them. The principles appear to get agreement from stakeholders that they are needed but at times appear not to have been followed or there needs to be supporting approaches and materials enabling them to be followed. This evaluation observed that parties are working towards improved arrangements but the significant body of work required to set up the required institutional settings is still a work in progress.

The evaluation approach and logic developed for this evaluation referred to likely foundations required to achieve each of these principles as well as the goals and vision of the APAS. Table 2 identifies some of the key underpinning requirements to achieve the principles. The performance in achieving these underpinning requirements has been analysed.

TABLE 2

| Principles | Key institutional requirements to achieve principle |
|---|---|
| 1. Pest animal management is an integral part of the sustainable management of natural resources for the benefit of the economy, the environment, human health and amenity. | • This principle sets the context of the pest animal challenge and encourages integration of pest animal management to other sustainable resource management approaches<br>• Institutionally – this creates a need for an obvious link and integration to natural resource management arrangements. Pest animal management also needs to be built into industry best practice approaches integrated with other issues/themes at the on-ground level |
| 2. Combating pest animal problems is a shared responsibility that requires all parties to have a clear understanding of their roles and responsibilities. | • Roles and responsibilities need to be set and clear<br>• Awareness and understanding of roles and responsibilities is required<br>• Stakeholders need to be willing and capable of taking on their role and responsibility<br>• Stakeholders also need to be motivated to act. This includes having appropriate 'signals' (incentives or compliance) |
| 3. The development, monitoring and review of integrated pest animal management strategies need to be underpinned by good science. | • There is a need for continued commitment and investment in science to achieve this principle<br>• Approaches to monitor and review integrated pest animal management need to be agreed on, invested in and implemented<br>• R&D needs to be prioritised and targeted to areas of need |
| 4. Setting priorities for, and investment in, pest animal management must be informed by a risk management | • Agreed risk management approaches in place, these approaches need to consider the risk approach for:<br>▪ pre-border/border, and |

| | |
|---|---|
| approach. | ▪ post border<br>• Identified areas where common prioritisation is required |
| 5. Prevention and early intervention are the most cost-effective techniques for managing pest animals. | • Frameworks which help to determine risks and merits of early intervention for different pest species<br>• Processes for enabling coordination of early intervention<br>• Clear roles and responsibilities for early intervention is required<br>• Funding mechanisms that can provide timely and effective responses enabling the early intervention to occur |
| 6. Pest animal management requires coordination among all levels of government in partnership with industry, land and water managers and the community, regardless of land tenure. | • Clear roles and responsibilities<br>• Leadership<br>• Collaboration and coordination approaches in place (that people are aware of and know how to interact) |
| 7. Effective pest animal management requires capacity-building across government, industry, land and water managers and the community. | • Relevant education and training capacity and accessibility<br>• Understanding of capacity needs for different stakeholders and planning to service these needs in the future |
| 8. Management of established pests should aim to address actual rather than perceived problems, and to reduce impacts rather than simply pest animal numbers. | • This principle's intent is widely acknowledged but in practice is challenging to manage – stakeholders treat/manage what they see as a problem<br>• Approaches that help decisions to be made on good information (requiring coordination, monitoring and science)<br>• Monitoring, surveillance and public reporting of pest animals<br>• Compliance considerations required here to consider rogue practices which play a role in negative perceptions that then in turn need responses |
| 9. Management should be strategic in terms of determining where management should occur, timing of management, being proactive and using appropriate techniques. | • Agreed management options<br>• Require knowledge of management practices and ways to optimise these (applied science and management)<br>• Processes to access resources and mobile effort in a timely way are required |
| 10. Where there is a choice of methods, there needs to be a balance between efficacy, humaneness, community perception, feasibility and emergency needs. | • Processes to continuously consider, and update, management options with emerging issues and current and future trends are required<br>• Transparent approaches that enable balancing of competing interests and perspectives need to be in place and these need to be publicly reported<br>• Codes of practice and guidance materials and periodic updating of these<br>• Communication – to illustrate best practice and rationale behind best practice (to help manage public perception) |
| 11. The benefits of management should exceed the costs of implementing control. | • Ability to assess the likely impact of control and management options and how this can be measured to assess the value of management (applied science/economics) |
| 12. As part of an integrated pest animal management program, commercial harvesting may offset management costs. | • Identifying appropriate market based approaches to help mitigate impacts and offset costs of pest animals is an ongoing challenge. |

### Implementation

Implementation appears to have been opportunistic and not effectively communicated.

More detailed outcomes and performance indicators are required. Although the APAS has aspirational goals and objectives, the APAS was nevertheless criticised for missing key outcomes and performance indicators. Any future strategy should build on this current strategy and take further steps to articulate more detailed outcomes and performance indicators. Many stakeholders were unclear of what had been achieved in relation to the actions identified in the APAS.

Appendix A provides a short summary of key activities against the Goals and Objectives of the APAS. These have been identified from the APAS implementation plan (2008), the APAS mid-term review (2010) and from progress reports completed by the National Coordinator of the APAS.

## Coordination

As noted, the APAS was viewed by stakeholders as providing a sound overarching goal and framework which has been useful for focusing and coordinating effort. The APAS Implementation Plan identifies that the main focus of effort for the APAS is in the "*area of coordination (and in some cases modification) of existing processes.*"

The APAS has helped strengthen coordinated effort of government and is seen to have significantly improve coordination across jurisdictions, resulting in more coherent and targeted approaches to pest animals. However, many activities were noted as complex and still underway.

The need for more regional, asset or species focused coordination at the grass roots, or on-ground level, was reported to be needed. The Invasive Animals CRC was reported to play a role in this area but a more strategic and long-term approach is required and it needs to integrate with similar issues – weeds, natural resource management practices and ecosystem management and conservation.

A clear message from all stakeholders consulted is that there is a significant need for national coordination for pest animals. Reported areas where national coordination was required (or could be improved) include:

*Communication, education and awareness raising*

- Communication and awareness raising of the importance of pest animal management and prevention
- Responding to animal welfare challenges for pest animal management
- Strategic approach to education and training (considering ways to maintain the capacity of training providers), and
- Customised communication and support approaches (facilitator/coordinators, communication and knowledge resources).

*Information management and research and development*

- Encouraging national research, development and extension (RD&E) which is strategic, takes a longer term approach, builds the capacity of researchers and coordinates research activities
- National data and knowledge management
- Enabling continuity in collaborative research, development and extension – ensure research is focused, aligned and communicated effectively
- Monitoring and reporting, and
- Supporting and ensuring capacity for effective risk assessments.

*Early intervention and risk management*

- Pest prevention and detection
- Identifying agreed approaches and funding mechanisms for responding to new pest animal challenges, and
- Surveillance technology and coordination that addresses border interception, detection in the wild and illegal keeping of potential pest animals.

*On-ground management and coordination of effort*

- National coordination of those species that are widespread, mobile and across state borders, while leaving other species management to state or regional levels
- On-ground coordination where collective action will achieve more effective results
- Enabling integration, consistency and leveraging effort with other challenges (e.g. weeds, marine pests, disease management), and
- Prioritisation for investment in on-ground action.

*Legislative and institutional settings*

- Legislation consistency and harmonisation across jurisdictions, and
- Clearer understanding of the institutional settings and how these relate to different stakeholders.

In many areas listed above, the Vertebrate Pests Committee or the National Coordinator for the APAS have been active, including positioning and responding to animal welfare concerns and consequences through liaison with the Animal Welfare Committee and working on codes of practice for the management of different species. Another good example is the development, in collaboration with the AWS, of the National Categorisation System for Invasive Species.

There are opportunities for improving coordination and helping to leverage effort and resources. A combination of options is required and these need to be planned and well integrated.

The Vertebrate Pests Committee was supported by stakeholders as essential for progressing improved arrangements for pest animals. Many stakeholders encouraged greater resources be provided to this group to enable the establishment of the required foundations. Much of the sentiment expressed by stakeholders on ways to improve national coordination appear to exist, many strengthened through the recent IGAB, such as the need for COAG support, improved coordination with the AWC, stronger and more outcome-focused working groups, greater feedback to stakeholders on progress and rationale for actions.

## National Coordinator Role

The National Coordinator was identified within the Strategy to:

- Act as a first point of contact for the Strategy
- Support the Strategy Implementation Group especially in developing and implementing subsidiary plans and strategies
- Facilitate necessary meetings, consultations, and other contact with stakeholders during implementation, and
- Manage programs to integrate and coordinate education, training and research about pest animals.

The Terms of Reference for this evaluation seek an assessment on the effectiveness of this role.

This evaluation has clearly identified a need for coordination at many levels. The National Coordinator, engaged in 2010, has played a role across many areas where coordination is required. Reported areas of effort include (National Coordinator of APAS, 2012):

- Activities to support progressing a particular activity or output of the APAS, and
- Ongoing tasks such as promoting and maintaining stakeholder awareness of the APAS, participating in and providing support to APAS Working Groups.

Stakeholders were asked to rank the importance of the National Coordinator in influencing sound pest management in Australia. Respondents considered the National Coordinator in recent years as 'somewhat important' or an average score of 1.9 out of a rating of 0 to 5 in the online survey. Stakeholders interviewed reported a slightly higher ranking with an average of 2.5 out of 5. Comments on the role suggest:

- there are high and varying expectations on what the role should be undertaking
- the terms of reference and way the role is set up is limiting, and
- timeframe in the job has had an impact on effectiveness – only 2 years compared with the National Weeds Facilitator who has been around for over a decade.

A key finding in previous evaluations of the natural resource management facilitators and coordinators in Australia conducted by Hassall & Associates in 2003, and Mark Fenton 2007 identified the need for clearer roles and responsibilities for facilitators and coordinators at all scales (national, state and regional). There were links between the success of a facilitator/coordinator where the roles were clear and tangible outputs could be identified and observed.

In the case of the National Coordinator, the scope and terms of reference provided for the task appear too broad. This opens up challenges to meet varying stakeholders' expectations and the likelihood that these expectations will never be met. There are many interpretations regarding the roles of a national facilitator and coordinator and these need to be focused and managed or there is potential that the position will constantly be questioned and viewed as underperforming.

The clarity of roles and responsibilities enables enhanced identification of required skills and capability. Any future national coordinator role should carefully consider what the role is aiming to deliver. Facilitators/Coordinators tend to have certain technical and social skills and depending on their role will help to facilitate the strategic actions deemed required to achieve the desired outputs.

The current National Coordinator was reported to have predominantly technical skills and a track record in pest animal research. Some suggested that at this time the skills required differed and

that technical skills for supporting the Vertebrate Pests Committee could be provided by Vertebrate Pests Committee members and other groups such as the Invasive Animals CRC. The National Coordinator role has focused on providing high level strategic guidance, goals setting, planning and helping to support the work of the Vertebrate Pests Committee. For this role the following skills may be worth considering:

- ability to understand and contribute to policy development
- ability to understand and form partnerships with research and development stakeholders and ability to disseminate this information to key stakeholder groups in a suitable format
- understanding, interpreting and communicating technical and policy information
- strategic and 'big picture' planning and goal setting, and
- good communication and public relation skills.

The National Coordinator was tasked with helping to progress and provide advice on a range of areas that the Vertebrate Pests Committee identified as important. What does the position bring to the table that the other participants don't have:

- technical skills and understanding?
- R&D background?
- time?

The position has no decision making authority and has no mechanism to progress outcomes apart from undertaking some of the hard work and providing technical advice where beneficial.

Given many of the members of the Vertebrate Pests Committee have technical backgrounds and capability regarding pest animal management it is questionable whether this is required. The focus of the APAS in trying to coordinate and fast track institutional changes and the required underpinning to support these institutional settings indicate that the primary skill need is in ability to help coordinate the foundations that will enable the principles in the APAS to be implemented. Many of these require technical knowledge at a high level but a large portion of this role reported to this evaluation has been identifying commonalities and differences between jurisdictions and other stakeholders and identify ways to overcome differences and progress the required action.

The lack of time and resources available to the Vertebrate Pests Committee was regularly cited as a challenge and thus the coordinator does bring time and energy to pursue agreed tasks.

The resources available for national coordination are limited in the order of $200,000 per annum. Accordingly, it is worth considering other models for coordination that could have been used:

| | |
|---|---|
| *Facilitated events/ workshops to progress areas* | • Host facilitated workshops or events on key issues being considered by the Vertebrate Pests Committee which could help bring in technical and policy skills and focus on identifying next steps for progressing the task.<br>• About ten events/workshops could be held (10 x $20,000).<br>• The events could help raise awareness and understanding of particular aspects of key themes or issues that need progressing. They could play a role in encouraging other stakeholders to play a role. |
| *Additional resources within Australian Government* | • Rather than having an out-sourced role, the resources could be kept within the Australian Government team to enable further action and follow up on agreed actions. More hands on action to achieve the agreed products and activities. |
| *Sub-coordination roles* | • Rather than one national role, smaller more targeted roles could be identified. Given the feedback on the value of more focused facilitators or project managers – if there are clear areas that the Vertebrate Pests Committee agree |

| | |
|---|---|
| | need progressing, a coordinator could be engaged specific to that area. Note this is not intended to mean species specific, rather there could be a coordinator to progress for particular stakeholders or specific objectives of the APAS. This focusing would enable tangible and clear deliverables. The limitation of this type of approach would be limited flexibility for the Vertebrate Pests Committee to change focus or areas that they want the coordinator to work. |
| *Resources for components of implementing a communication strategy* | • This could be sourcing communication expertise and sourcing help to communicate key aspects of pest animal prevention and management to stakeholders. |

These examples are not intended to imply that this should have been completed instead of a national coordinator, but rather illustrate other models could be considered to help progress activities that require coordinated effort in the future.

*Assessment*

The National Coordinator role has provided limited specific outputs and due to mixed interpretation and expectations of a national coordinator for pest animals it is a difficult role to achieve well; particularly with a short timeframe contract.

Facilitators and coordinators are a challenge to resource and have proven to be a vexed issue for governments for many years. The trend is to identify less embedded long term roles for people-support functions and identify ways that governments could "catalyse" actions without being there for ever.

The reduction in 'extension officers' often reported from state government agencies as a negative and causing capacity impacts on the ground for many issues, including pest animals, presents a good example of the challenge of resourcing long-term people-support positions.

Caution is encouraged for any future support role to be clear of its terms, roles and responsibilities and the skills required to service those roles and responsibilities.

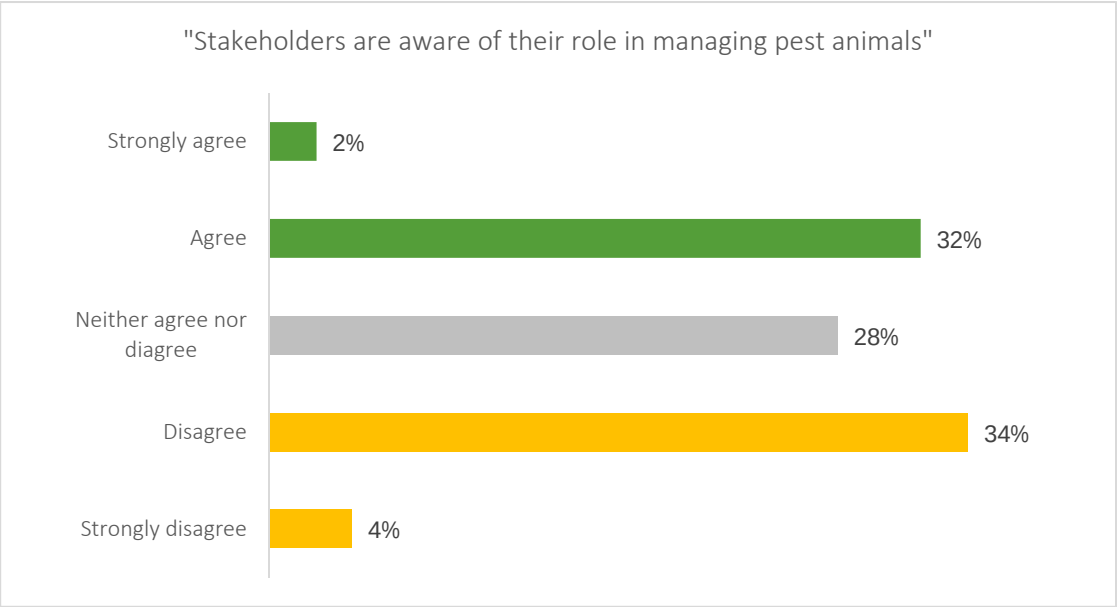
## Roles and Responsibilities

The APAS provides a summary of the agreed roles and responsibilities for pest animal management but it appears that there remains some confusion around aspects of the roles and resourcing.

The online survey identified that there are mixed views on the clarity of roles and responsibilities for pest animal management. Only a third of respondents reported they agree or strongly agree that "stakeholders are aware of their role in managing pest animals" and at the other end about a third report that they disagree or strongly disagree, with about a third who remained neutral (Figure 12).

The Beale Review in 2008 also notes the lack of clarity between stakeholders, in particular some confusion between the role of the Australian, state and territory governments. Several stakeholders commented that improved clarity is being worked through as part of the IGAB; however progress in some areas was reported as likely to be slow without a boost in resources.

FIGURE 12




## Required legislation is in place

In several areas of the APAS objectives and actions, there are references to the need for consistent legislation. The evaluators were informed of significant changes to related legislation over the last five years and in particular as a result of the IGAB.

The Vertebrate Pests Committee established a Legislation Working Group to consider areas for harmonising legislation across jurisdictions. The Vertebrate Pests Committee has endorsed an output from this Legislative Working Group *Principles to maximise national consistency and effectiveness of legislation*, which aims to provide guidance to jurisdictions regarding their respective legislation. It is unclear how these principles are being actioned or applied within jurisdictions.

State and territory governments, under the Australian Constitution, are responsible for animal welfare arrangements within their jurisdictions. The states and territories set and enforce animal welfare standards through animal welfare or prevention of cruelty to animals' legislation (DAFF, 2013). The main achievement in this area relates to the drafting, consultation and progression of seven Codes of Practice for the humane capture, handling or destruction of pest animals. These seven Codes of Practice have been endorsed by the Vertebrate Pests Committee and the Animal Welfare and Product Integrity Taskforce. It was reported that additional consultation was in progress and it was expected that they would go to the Primary Industry Standing Committee for endorsement soon.

## Operating environment enables management of risks from pest animals to occur

The operating environment refers to the relationships and willingness of the varying parties to make decisions that contribute to pest animal prevention and management. This includes political influence (positive or negative), relationships between the Australian, state and territory governments (positive or negative) and any other parties who play a role in enabling or inhibiting effective pest animal management.

The Vertebrate Pests Committee was highly regarded as a vehicle to share information, coordinate activities and leverage effort where possible for governments (and observer stakeholders). It is hard

to say whether this committee would have worked towards the relevant actions without the APAS. However, the APAS was reported to provide the framework or reference for all activities (at a high level). This forum was seen as useful for establishing an effective operating environment for pest animal prevention and management. It should be noted that resources for all participants of the Vertebrate Pests Committee were tight and declining, influencing capacity and timeliness of APAS and related outputs.

A significant tension exists on how to operationalise early intervention and prevention of pest animal management and ensure investment is sought at the appropriate time and in the relevant area. This was also a significant theme for the AWS. For example, questions arose as to how to invest more strategically in early intervention to make a difference and prevent long term significant impacts rather than allocate significant resources into the management of established pests. Communities reported that they want governments to do something about this.

The lack of understanding of the range of institutional arrangements and how they should work together to enable effective pest animal management was observed and reported by many stakeholders. Very few people consulted as part of this evaluation could clearly communicate the operating framework and approaches used and how an improved approach could work.

## Prioritisation of effort and resources is undertaken

The key need for prioritisation was to enable the most effective use of limited available resources. There were mixed views on the current effectiveness of the prioritisation approach for pest animals. It was reported to be inconsistent and needing the application of a more rigorous framework. However, there appear to be varying perspectives about what this rigorous framework should consider.

The early-intervention principle within the APAS was strongly supported in helping to shape decisions around prioritisation but many commented on the complexity of getting right the balance between prevention, eradication and management.

The 'National Categorisation System for Invasive Species' developed by the Vertebrate Pests Committee and the Australian Weeds Committee was reported by some as an achievement which plays a role in helping to identify species for highest priority action. This system was endorsed by the National Biosecurity Committee in July 2012. It is understood that pest animals are being applied using the National Categorisation System approach and will help progress the agreed need 'to identify established pest animals of national significance'. Progress in applying pest animals to this categorisation appears to be slow and there still seems to be some uncertainty around the approach being used – this could be due to people not being aware of the 'National Categorisation System for Invasive Species' approach or that those who do know about it are not fully committed.

Prioritisation approaches that can remove the application of judgment must be progressed. These are areas where risk management and prioritisation can be based on science and facts which consider a range of practical and well considered criteria. There is a need to reduce political decisions as these create tensions and in some cases less than ideal outcomes (i.e. it may be better to put money into another area where greater progress could be achieved resulting in reduced impacts).

For effective risk management and to help encourage early intervention, many stakeholders commented on the need for a pest animal 'alert' list as well as a list that helps prioritise 'nationally significant' species for ongoing management and control.

Several stakeholders reported an interest in setting up an approach to prioritisation equivalent to the Weeds of National Significance – some reported it as the avenue to attract significant investment,

others reported the need as more around how to focus their energy and resources. Findings as part of this evaluation were that the Weeds of National Significance have played a useful role in attracting investment, coordinating effort, raising the profile of the species to the broader public, focusing R&D effort and achieving on-ground actions. However, there were differing views around the effectiveness of the prioritisation approach with limitations or complex trade-off decisions required in areas such as:

- Species versus impacts
- Geographic differences, and
- Environmental assets versus other productive assets.

These challenges would equally apply to pest animal prioritisation and thus should be considered in further developing ways to effectively prioritise the limited available resources and potentially be used to attract additional resources for pest animal management.

## Appropriate programs and actions are in place to respond to pest animal risks

APAS implementation is limited by resources availability. It was reported that the intention was not to set up APAS as a program by a particular government; rather as a national strategy to guide activities, actions and enable improved coordination. Some have criticised the lack of resources to help implement the strategy and the opportunistic approach required to attract investment for key implementation activities.

Attracting resources for strategic action is a key and ongoing challenge for pest animal management. The APAS was reported as having helped to attract investment and was useful for framing applications for investment. Researchers also noted that the APAS was useful for preparing research proposals and relevant projects.

Examples of where funding was sourced include:

| R&D | Funding for on-ground and other strategic level actions |
|---|---|
| • Invasive Animals CRC<br>• Australian Pest Animal Research Programs<br>• State and Territory governments<br>• Universities<br>• Research and Development Corporations | • Australian Government - Caring for our Country<br>• Australian Government - Biodiversity Fund<br>• State and territory agency initiative |

Cost sharing with industry stakeholders for an emergency pest animal outbreaks needs further consideration. The signing of the IGAB, and agreement to the NEBRA, provides scope for emergency pest animal incursions impacting the environment or having social impacts to be responded to in an efficient and timely manner. This approach is yet to be tested for an emergency response for a pest animal. It is unclear how emergency responses could be activated if the likely impacts of the pest animal is predominantly a production impact. It was suggested by one stakeholder that the EADRA provided a cost sharing arrangement for animal diseases and there was potential scope to expand its role to enable cost sharing for an emergency response to a pest animals that would impact primary industries. The early intervention of pest animals and mechanisms to coordinate and fund was a theme reported by many stakeholders.

## Institutional – Key Observations

Achievements

1. The APAS formally recognises for Australian, state and territory governments the agreed challenges posed by pest animals and the need for strategic action and collaboration.

2. The APAS represents a first step towards a more integrated approach to pest animal management in Australia. It provides an aspirational framework which aligns with the biosecurity continuum approach and is relevant today.

3. The actions being sought within the APAS make sense and are key to forming an improved institutional setting, but value could be achieved by considering and communicating how these fit together.

    - In a way, communicating how the future institutional environment will look and the elements required to get there would be particularly valuable for many stakeholders outside of government. This may also help to consider how components of the institutional system work and which components are foundations for others.

    - Communicating this to stakeholders outside the Vertebrate Pests Committee would play a role in helping people better understand how pest animals fit within the biosecurity system.

Weaknesses or failures

4. The APAS has tried to trigger some logical actions to establish an improved institutional operating environment for pest animals but it is not a driver of change.

    - Not having significant resources for implementing the agreed actions has slowed progress and resulted in the APAS being an overarching aspirational document rather than a driver of change.

    - The reliance on existing budgets and programs of the Australian, state and territory governments, particularly when they are rapidly declining in terms of resource allocation for pest animal management, mean that the APAS has not been able to achieve all that it set out to over the last five years.

    - Observations from the evaluation team note that even with resources, many of the actions are either ongoing or would take significant time to achieve, therefore the APAS was a little optimistic.

5. Prioritisation of effort and resources is pertinent and needs further work.

    - The need to identify nationally significant pest animal species and priorities is high.

    - A key conflict exists between stakeholders who wish to tackle existing and obvious populations of pest animals compared to those who seek a more strategic and long term path. Prevention of new pest animal populations has been shown to produce the best return on funds invested but is less apparent to those with existing pest animal problems.

6. Clarity around roles and responsibilities, processes and investment priorities is required.

    - There is a need for greater clarity around early response approaches including identifying ways to coordinate, who has carriage under what circumstances and mechanisms to obtain resources quickly.

    - There is also a need to consider funding rationale and approaches that could improve effectiveness of the pest animal prevention and management approach. The longer term national interest activities that underpin the system need to be able to be resourced to maintain the system. For example, a strong and clear message from the majority of stakeholders consulted was the need for nationally coordinated and strategic research, development and extension.

7. Communication and awareness raising has been focused at a high level.

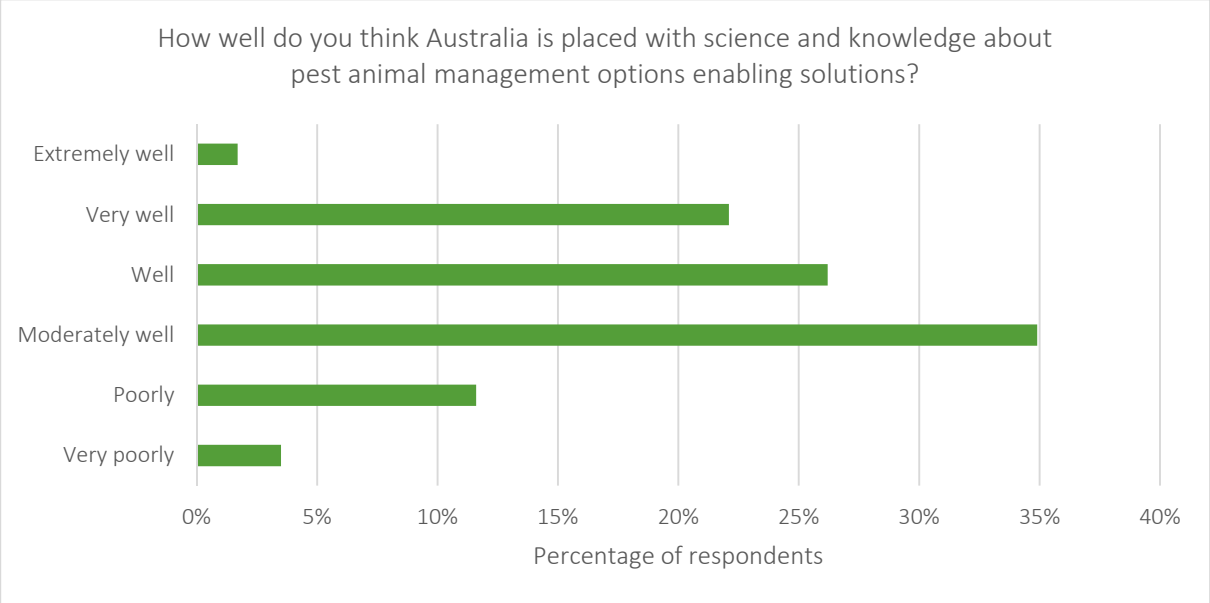
    - Getting the institutional arrangements established and well considered is a first step which would then be followed by communication to broader stakeholders.

## Foundational Outcome – Knowledge of pest animals is developed and used

Science, knowledge, new techniques, management options, tools and their accessibility for pest animal prevention and management is crucial. Across the biosecurity continuum, science and knowledge forms a key input that ultimately seeks to support the institutional approaches and management of pest animals.

Stakeholders consulted reported that science-based knowledge for managing pest animals is generally good. This is supported by the online survey respondents who reported that Australia is well placed with science and knowledge for pest management (illustrated in Figure 13).

FIGURE 13




Stakeholders reported significant achievements in pest animal preparedness and management driven by the Invasive Animals CRC. The Invasive Animals CRC was highly regarded throughout all consultations and was reported to be doing significant work that benefits Australia's approach to pest animal management. Representatives from the Invasive Animals CRC and researchers reported that the APAS provided direction for their research, development and extension effort. Research achievements reported included:

- new and refined options and approaches were developed for many pest animal species
- enabling longer term strategic considerations being incorporated into option development, including considering ways to improve humane management of pest animals
- improved extension and communication for some pest species
- examples of improved relationships between researchers and landholders/land managers, and
- improved coordination (between researchers, between researchers and policy and between researchers and on-ground actions).

The reviews undertaken for the Invasive Animals CRC identified a significant return on investment: for every Australian Government dollar invested, estimated benefits to the broader community are $5.70 (Triple Helix Consulting, 2011). The extension of the Invasive Animals CRC for a further five years is important for Australia's preparedness and capacity to respond to pest animal challenges now and in

the future – this extension has been valued by stakeholders. Concern was expressed regarding what would happen when the extension lapsed in 2017.

Respondents to the online survey identify that science and knowledge is available for land managers (Figure 13). Caution is advised for interpreting the feedback from stakeholders from the online survey, as one of the highest reported barriers to effective pest animal management during the stakeholder interviews was a lack of knowledge and the accessibility of that knowledge.

Stakeholders interviewed reported that information was not flowing to operational levels. It was also reported that if you knew what you were looking for, then usually you could find the information, but many stakeholders who need to access the information would not necessarily know what they wanted when they started to look for data. This is where coordinators for species or within particular regions and industries were reported to be playing a valuable role by connecting land managers with knowledge.

Ensuring publicly available information is accessible and meets the needs of land managers is important and is an areas that could be improved. Many commented on the need for a central repository of information and further customising of the available information for use by various stakeholders. A 'one size fits all' approach was not recommended with many stating that their needs varied and these needs should be considered in how the information is presented and accessed. The PestSmart Toolkit developed and maintained by the Invasive Animals CRC was regularly cited as a step in the right direction and needed to be taken further.

The top five suggestions on ways to increase awareness of science and other information to help improve pest animal management provided by online survey respondents are:

| | |
|---|---|
| **1) Improve online resources for pest animals (24%)** | •These need to be developed from a user perspective (and this may mean multiple access points to the same sort of information)<br>•Consider social media and latest communication technology for pest animals (this included examples of phone applications that could help monitor surveillance of pest animals).<br>•Improved monitoring information on distribution and impacts of pest animals |
| **2) Educate and raise awareness of the broader public (23%)** | •Enhancing school education regarding pest animals<br>•Better use of media - tv, radio, newspaper<br>•Proactively respond to animal welfare concerns |
| **3) R&D Information sessions and field days were supported (14%)** | •Information sessions for landholders at field days<br>•Opportunities for practical demonstrations or visual examples |
| **4) Group coordinated action and support targets for information (13%)** | •Coordinated action at local and regional level was noted as required as pest animals do not recognise boundaries thus action in multiple areas is likely to achieve favourable results<br>•Consider cluster of properties and land managers<br>•local planning and regional action and awareness and education |
| **5) Continue extension and local/regional support people (11%)** | •extension officers and facilitators<br>•The community helps play a role in targeting information, educating and coordinating action |

The APAS objective 1.3 identified an action to "produce a shared research and development plan to improve the development and adoption of best practice pest animal control methods, and facilitate adoption of this plan by all stakeholders." It was reported that given the scope and other parties

involved in research and development and planning that was going into these approaches and limited time and resources available to the Vertebrate Pests Committee it was not necessary to develop an additional research and development plan.

## Knowledge - Key Observations

1. Research, development and extension underpins key aspects of the biosecurity continuum approach to reduce the risks and impacts of pest animals. It is hard to see how the national biosecurity system will function effectively to reduce risks and impacts from pest animals without ongoing and effective research, development and extension.

2. There was wide recognition of the Invasive Animals CRC and previous research initiatives. Overall, the contributions made by the research community to pest animal management over the last five years dominated feedback received on achievements as part of this evaluation. Achievements included:
   - new and refined management options and approaches were developed for many pest animal species
   - longer term strategic considerations being incorporated into option development including considering ways to improve humane management of animals
   - improved extension and communication for some pest species
   - examples of improved relationships between researchers and landholders/land managers, and
   - improved coordination (between researchers, between researchers and policy and between researchers and on-ground actions).
3. Future contributions from R&D were identified as key for effective risk assessments and prioritisation and in establishing longer term approaches for managing pest animals, for example:
   - developing bio control pest management options
   - improving and developing integrated ecosystem and production management options, i.e. incorporating pest animal management into broader land manager management approaches
   - improving the understanding of human dimensions of pest animal management, and
   - helping to identify cost effective techniques to monitor pest species and measure the impacts of these species.
4. There is a need to consider effective ways to establish long-term investment and institutional arrangements for research, development and extension to support the national biosecurity system and to reduce future risks and impacts of pest animals. This includes identifying ways to share costs and leverage public investment.

5. The Invasive Animals CRC is playing a highly valued role in developing R&D, facilitating knowledge transfer and also providing key pieces of research that is supporting the policy development activities. This development of research plays an important role inputting to pest animal management and the achievement of the goals set out in the APAS.

6. The emerging challenges associated with animal welfare mean that consideration should be given to many of the strategies and refined options for the management of some pests. There is a need to monitor approaches and demonstrate their uptake to the broader community.

*Achievements*

7. The APAS has played an overarching role that has helped guide research direction and research proposals were linked back to the APAS goals and principles.

*Weaknesses and Failures*

8. The extension of the Invasive Animals CRC was seen as good, but a longer term approach to R&D is required. Research and Development underpins the main facets of the three areas of the biosecurity system and to not invest strategically in this area will result in increased risks in the pest animal prevention and management area. Identifying a way to resource and commit key stakeholders over a longer timeframe is crucial.

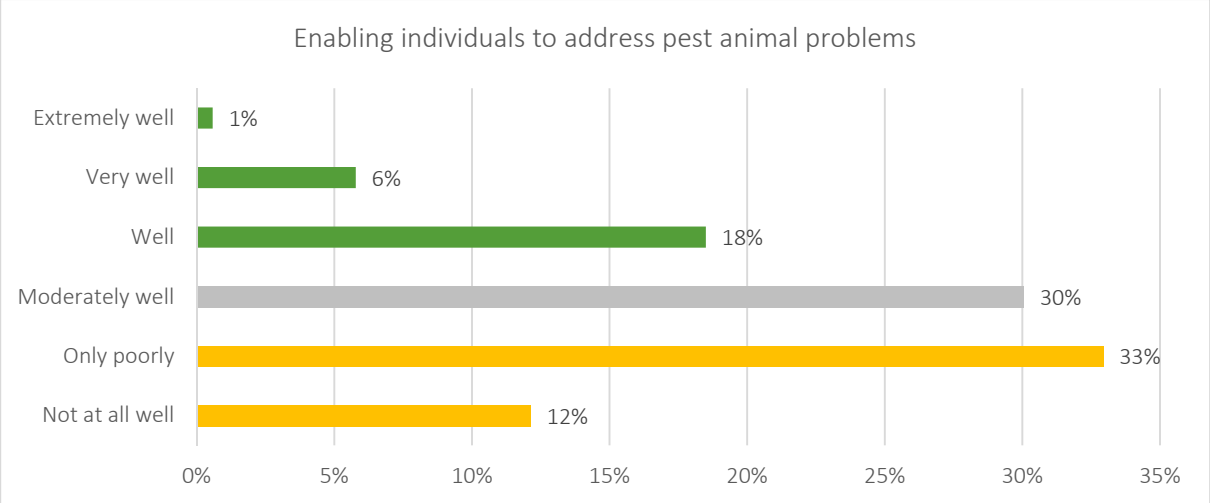
## Foundational Outcome – Capacity of stakeholders to respond to pest animals continuously improves

In this section, the evaluation considers whether stakeholders, as a group, have the capacity, motivation and required resources to undertake pest animal management actions. The main focus is on practical on-ground pest animal actions (as opposed to institutional arrangements that have been previously discussed). The areas considered in this evaluation include:

- recognition of the need involvement of for various stakeholders in pest animal management and who the key stakeholders are
- key stakeholders are aware and understand pest animal risks for their circumstances
- all key stakeholders understand their responsibility in relation to reducing and managing risks posed from pest animals
- relevant options are available to eradicate, contain or manage pest animal risks, and
- adoption of management practices or adaptation strategies are in place for pest animals.

Overall, respondents to the online survey did not rate Australia's capacity for enabling individuals to address pest animal problems well. Forty-five percent of respondents provided an "only poorly" or "not at all well" ranking for enabling individuals to address pest animal problems (Figure 14). Interviews with stakeholders rated Australia's capacity to enable individuals to address pest animal problems slightly more favourably with the average respondent rating moderate to sound (2.78 out of a possible score of five where 1 ranking is slight and 5 is extremely strong contribution).

FIGURE 14




## Recognition of required stakeholders

The APAS identifies that pest animal management involves a wide range of stakeholders including:

- governments
- individual landowners and land users
- community and industry organisations
- regional natural resource management groups
- keepers of exotic species, and
- the broader community.

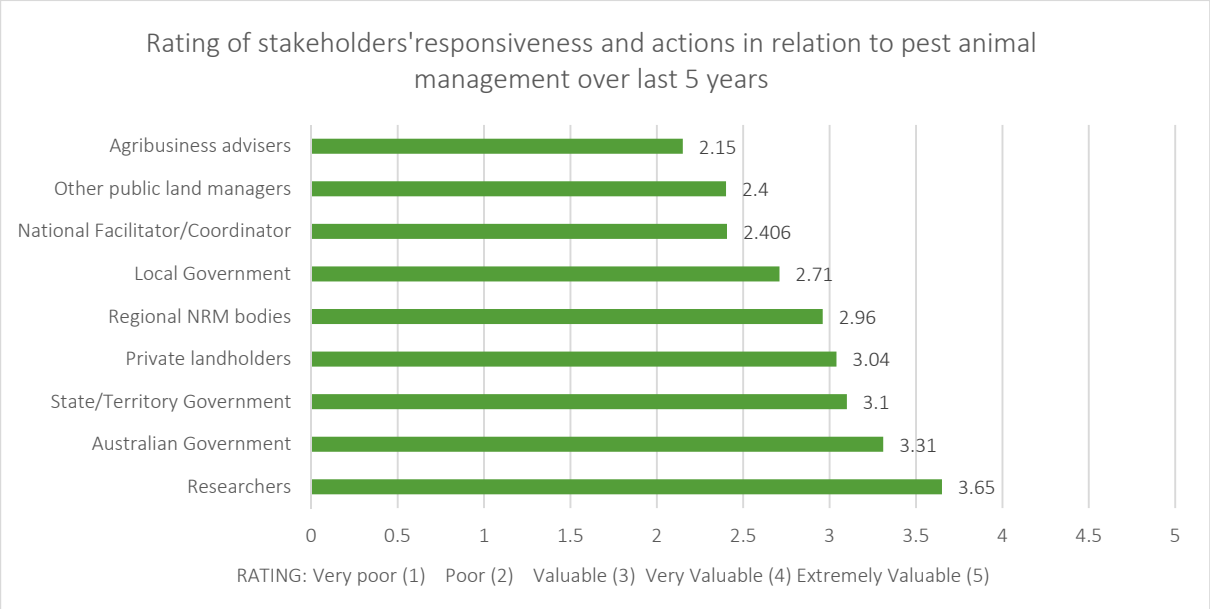
Other stakeholders could be further differentiated due to their current and potential roles, key ones include environment and animal welfare organisations and hunting industry and recreational groups.

Online survey respondents reported on the stakeholders who have an important role to play in pest animal management and not surprisingly 99 percent of respondents identified landholders as having an important role in their prevention and management. 85 percent report the important role of state and territory governments and approximately 80 percent of respondents identified regional Natural Resource Management bodies, Landcare and community groups, local governments and industry groups as having important roles to play. The Australian Government were acknowledged as important by 71 percent of respondents. Other stakeholder most commonly reported as important included:

- Aboriginal organisations
- hunters (industry and recreational hunters and hunting clubs)
- conservation and animal welfare groups
- rural chemicals sector
- private contractors (providing pest management services)
- home owners – all types of residents in both urban and rural settings)
- pet shops and pet owners
- transport industry, and
- community groups.

As part of the interviews, stakeholders were asked to rate the responsiveness and actions of the various stakeholder groups in managing weeds and pest animals in Australia over the past five years and rated researchers the highest, followed by the Australian Government and state and territory governments. Figure 15 illustrates the spread and ratings across the stakeholder groups. Private land holders rated as valuable (average rating of 3 out of 5 with 1 being very poor and 6 being extremely valuable).

FIGURE 15



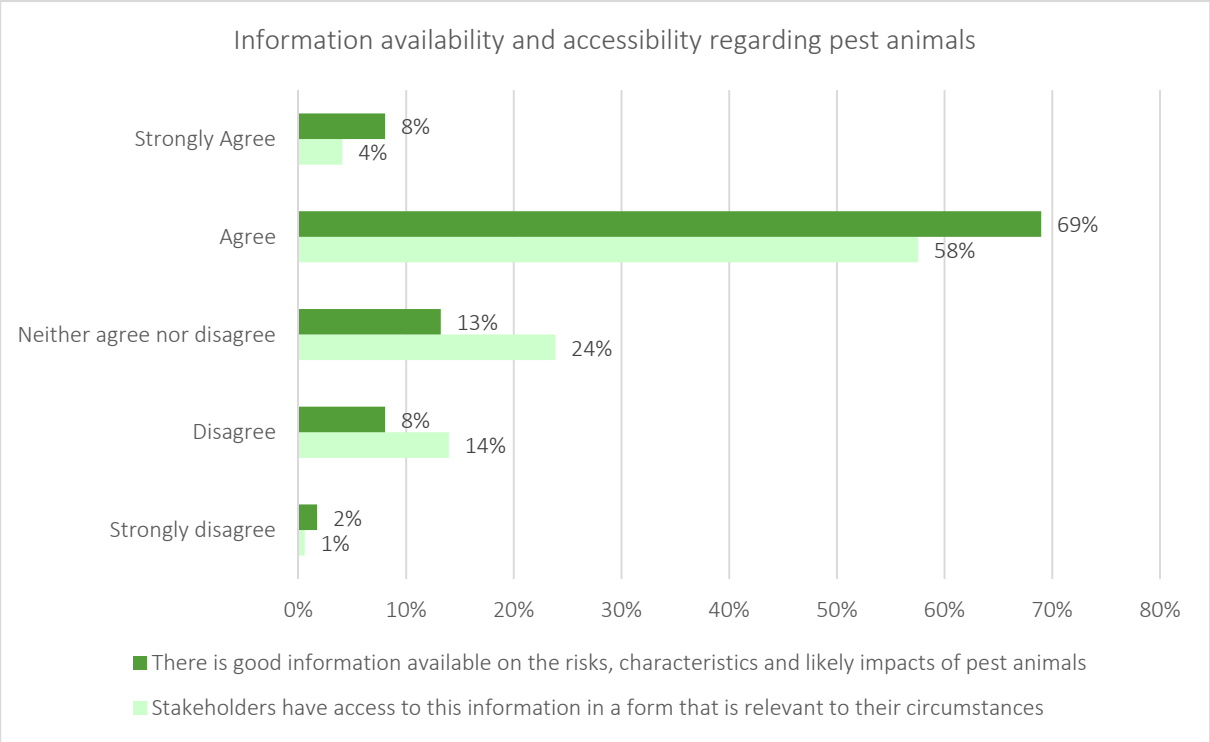
## Key stakeholders are aware and understand pest animal risks for their circumstances

In order to respond to pest animal challenges there needs to be an awareness and understanding of pest animals. To achieve awareness and understanding, it is identified that there needs to be:

- good information on pest animals – their risks, characteristics and likely impacts
- accessible information
- evidence of pest animals that can be observed or demonstrated, and
- an ability to apply and understand pest animal challenges for the individual's circumstances.

Stakeholders in the online survey identified that they thought good information is available on the risks, characteristics and likely impacts of pest animals and this information was accessible with 77 percent either agreeing or strongly agreeing that there is good information available on the risks, characteristics and likely impacts of pest animals and only 10 percent either disagreeing or strongly disagreeing (Figure 16). Sixty-two percent of respondents agreed or strongly agreed that there was accessibility of this information for stakeholders in a suitable format.

FIGURE 16




The level of impact, or ability to observe pest animal issues, for an individual plays a big role in likelihood of these stakeholders seeking out information and knowledge on pest animals. Stakeholders reported the importance of land managers and farmers for pest animal management and there was a wide variation in their level of awareness of pest animal issues. There are also issues where some land managers do not see how pest animals impact their livelihood or how it impacts the ecosystems that they are managing, for example:

> *"Some land managers don't see their real problem because they get fixated about one obvious particular aspect of management and can't see that it is wedded to a wider problem affecting their productivity/ returns."*

Ohlmer et al. (1998) undertook a study into farmers' decision making behaviour and processes and identified four main phases – problem detection, problem definition, planning and evaluating and choosing.

In the context of farmers' detecting and defining the pest animal problem for their circumstances most stakeholder feedback suggests a huge variation exists. Awareness raising activities were identified in the APAS but have not been undertaken in any significant manner. This is an area that will need targeted and well considered communication to raise stakeholder awareness of pest animal challenges, how they relate to them and impacts beyond their circumstances.

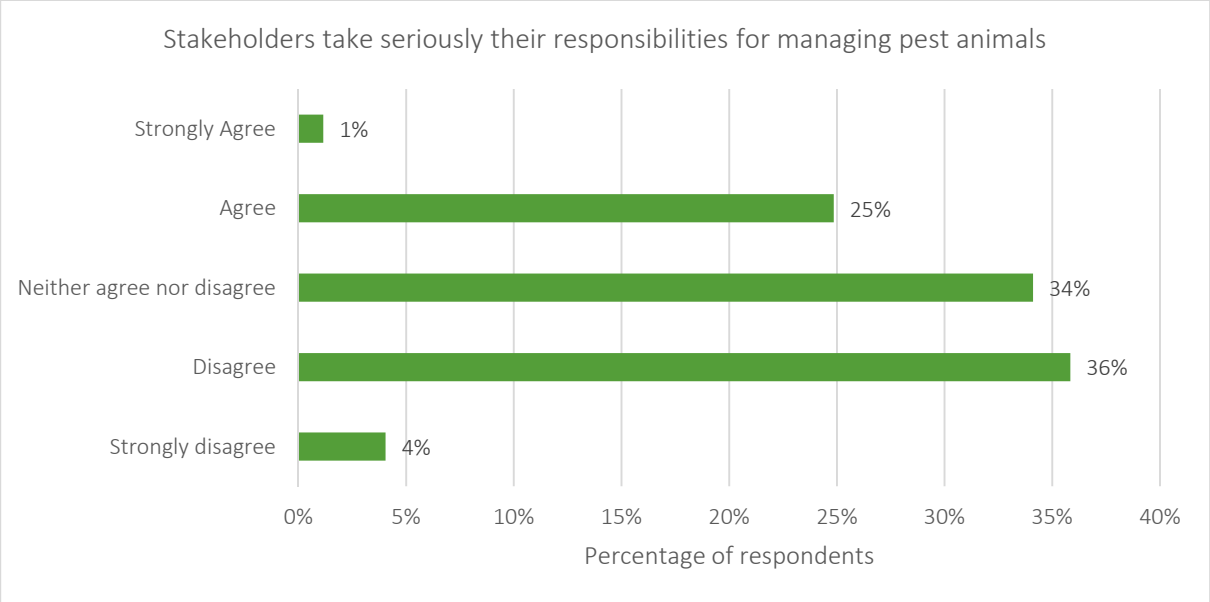
At a national or state scale, there were observations about lack of monitoring and evaluation to understand the extent of some pest animal's spread and abundance and for many species a lack of understanding of the scale of the impacts. This impacts the level of awareness and at times it was reported that perceptions about the issues and impacts tended to get a focus.

For broader public stakeholders and the community, there were a lot of feedback relating to their perceptions regarding pest animals and the influence these views and perspectives (whether based on fact or perception) had on influencing public policy investment and directions. Identifying ways to inform and improve knowledge by the broader community was seen as important and is likely to be increasingly important with increasing scrutiny on pest animal control practice that may escalate with animal welfare concerns.

## All key stakeholders understand their responsibility in relation to reducing and managing risks posed from pest animals

As noted in the institutional section of this evaluation report, there is confusion regarding roles and responsibilities, with wide ranging views on the level of awareness of stakeholders' roles in managing pest animals. Building on from this there were varying views on whether stakeholders take responsibility for their role with 40 percent of stakeholders nominating that they either "disagreed" or "strongly disagreed" that stakeholders were taking responsibility for their respective roles (Figure 17).

FIGURE 17



In general, there was a view that land managers and landholders were complacent or lacked motivation to manage pest animals. There was a reported lack of understanding of an individual's role in managing pests and it was reported that "somebody else's problem" is an issue at all levels. Specific feedback in relation to landholders included:

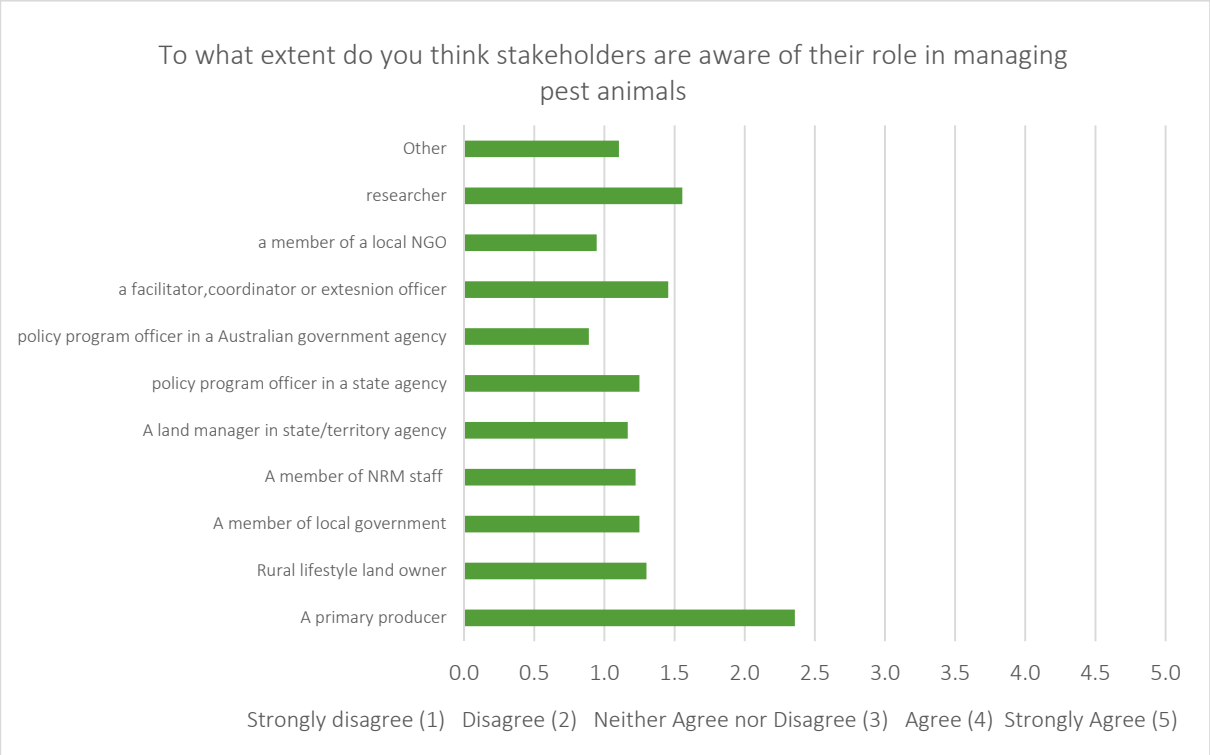
- *"Mostly landholders will manage it if it becomes a big enough problem. In my experience they understand their responsibilities. Sometimes they will simply blame Public Land Managers and sometimes this criticism is valid"*
- *"Many stakeholders don't want to know about pest animal problems as they cost money and do not give any returns."*

There was also feedback about the lack of compliance arrangements for all land managers related to pest animal management – some suggested that this had diminished since the decrease in on-ground extension type services previously delivered by state and territory departments and in some cases by local governments and that this lack of compliance activities was sending the wrong signals to land managers.

Many stakeholders made observations on some of the challenges in managing pest animals and how these were perceived or viewed at the grass roots level. They identified that pest animals' move so managing them in one area and not in the surrounding was seen as pointless and was a waste of time and financial resources.

Interestingly, of the cross section of stakeholders who responded to the survey, the primary producers appeared to rank level of extent they felt stakeholders were aware of their role in managing pest animals higher than the other stakeholders (Figure 18).

FIGURE 18

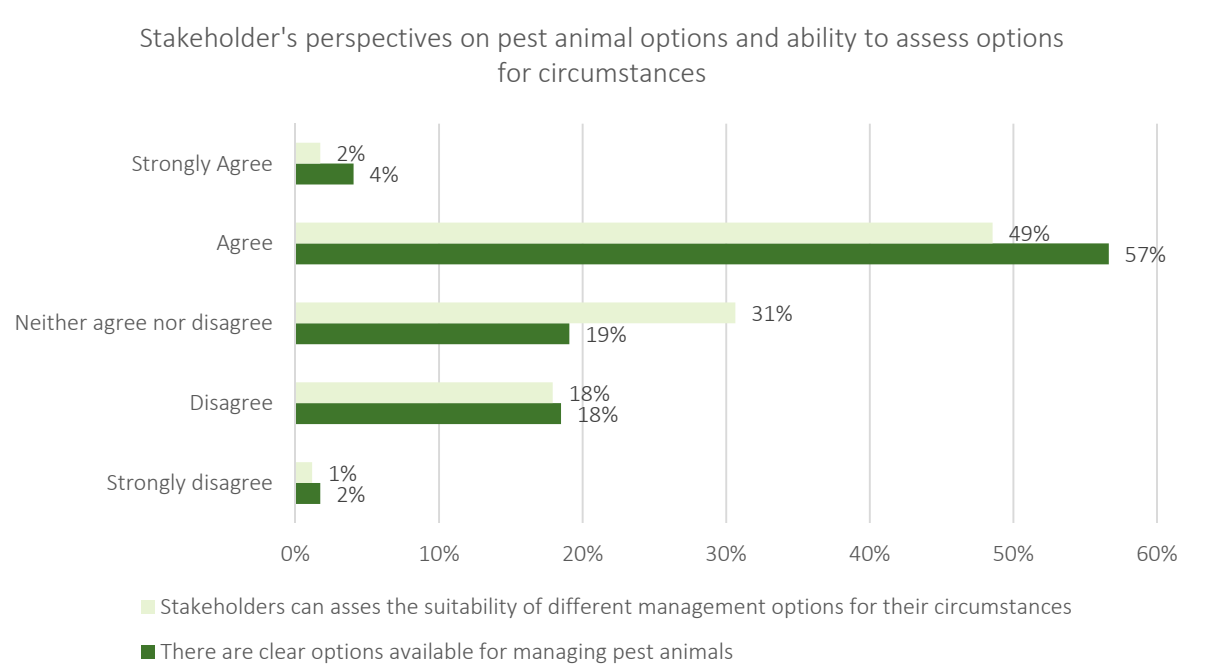


## Relevant options are available to eradicate, contain or manage pest animal risks

There were reports that options had improved over the last five years and people generally thought that there were good options available for the management of pest animals. Fifty-seven per cent of stakeholders surveyed identified that they agreed that there were clear options for pest animal management. Half of the stakeholders surveyed thought that the options could be assessed for individual circumstances with a third of respondents reporting a neutral response (Figure 19).

There were suggestions that leaders within the region or community, or facilitators/ coordinators, played a key role in helping to identify options that suited a particular regional area and species. Although, transferring that understanding and strategic guidance of options required for action was seen as a significant challenge in how to get a cross section of land managers (public and private) to invest and play a role in managing the pest animal. Linking leadership and coordination with incentives for action and ways to off-set the costs of the management become increasingly important for successful regional pest animal management.

FIGURE 19




There were reported restrictions on some use or accessibility for some pest animal management options such as:

- access or restrictions over chemical usage
- existing arrangements removed and reported as no longer acceptable (mostly driven by animal welfare requirements), and
- minimum qualification requirements for some management options preventing their practice by some participants.

The friction and frustration around what some stakeholders reported as constraining their ability to manage pest animals required effective communication and management. In some circumstances the stakeholder seemed to think it resulted from bureaucracy not performing their role effectively or because of poor public understanding. For all three of the above examples the evaluators identified

sound rationales and reasons for the changed arrangements and these needed to be better communicated to stakeholders responsible for managing pest animals.

Future reported challenges about management options included:

- animal welfare constraints and need to continuously improve humane treatment of animals in management approaches
- the need for longer term approaches such as bio-controls and the need for available effective bio-controls, and
- the need to identify ways to get coordinated action at the local and regional level where this is required to effectively control or manage a species (or groups of species).

## Adoption of management practices or adaptation strategies are in place for pest animals

Adoption of management practices for pest animals requires a range of factors to be considered. David Pannell in conjunction with colleagues covering a cross section of academic disciplines – social, economic and biological sciences (2006) identified that adoption of conservation management practices or practices outside of the actual production driven practices depended on a range of personal, social, cultural and economic factors and the characteristics of the management practice. Building on these concepts and applying them to pest animal management, this evaluation has considered the:

- level or motivation of a land manager for action
- land managers' skill levels or ability to obtain skills or relevant services
- resource availability, and
- incentives and signals to undertake actions.

The assessment of these attributes in relation to pest animals has been sought from stakeholders through consultation. It is beyond the scope of this evaluation to undertake a more detailed analysis against each of these. However it is clear that there are challenges across all these adoption areas in relation to pest animals. There is a need to think through the clear messages that the institutional settings send and identify areas where barriers can be overcome.

### Level of motivation for action

A recurring theme presented by stakeholders across all sectors was the lack of motivation from some land managers (both public and private) to undertake required pest animal management actions.

Many reported that pest animal management did not rank highly amongst the many other factors and tasks that compete for attention of the land manager – some suggesting that the problem or their perceived ability to influence resolving the problem did not rank high enough. Some of the comments include:

- *"Time availability to manage pest animals is the big issue"*
- *"There is a lack of awareness of how many pest animals they have on their property – so out of sight out of mind",* and
- *"Landholders are too busy – time poor. Pest animals need to move to crisis situation before landholders act".*

There were repeated reports on the need to gain a better understanding of the human dimensions or social research aspects of pest animal management and build these into management options.

### Resource availability

In stakeholder consultation, resource availability was reported across the board, from high level strategic required actions to on-ground management, as the biggest factor limiting effective prevention and management of pest animal risks and impacts. This is reported for public money for activities such as R&D, surveillance, monitoring, education, coordination requirements and awareness raising.

It was also reported at the land manager level which related to both time and financial resources. In Figure 21 below, the costs of managing the invasive species do not create enough benefits to the person bearing the cost with 63 percent of respondents ranking this either their first or second most significant barrier.

For on-ground action resources are spread very thin. The need for public and private investment and action is important. However, given the scale of the challenge and the cost of ongoing management of pest animals prioritisation is essential. As one stakeholder put it "there are *unlimited wants in relation to pest animal management but very limited resources."*

Many stakeholders commented on the contraction of funds across all jurisdictions and the impact this is causing. Several also commented that more and more was being sought from Australian Government programs, such as Caring for our Country.

### Have or can obtain the skills

Skills and access to skills was rated as the third most significant barrier for pest management. There are several themes that emerged in relation to whether land managers can obtain the relevant skills to undertake effective pest animal management, these included:

- minimum safety requirements for different management techniques
- access to training and skill development
- extension officers and other on-ground support to help and advice, and
- availability of required education and training courses lacking and declining.

Several people reported that they felt training institutions across Australia that are providing relevant training for pest animal management are declining and at all levels were not adequately training to the principles of the Strategy or were not equipped to do so. There was also concern about the decline in service providers and skills trainers in this area and that this was likely to continue. There were examples of how this reduction in training capacity has the potential to impact future capacity to deliver required pest animal management actions at the ground level.

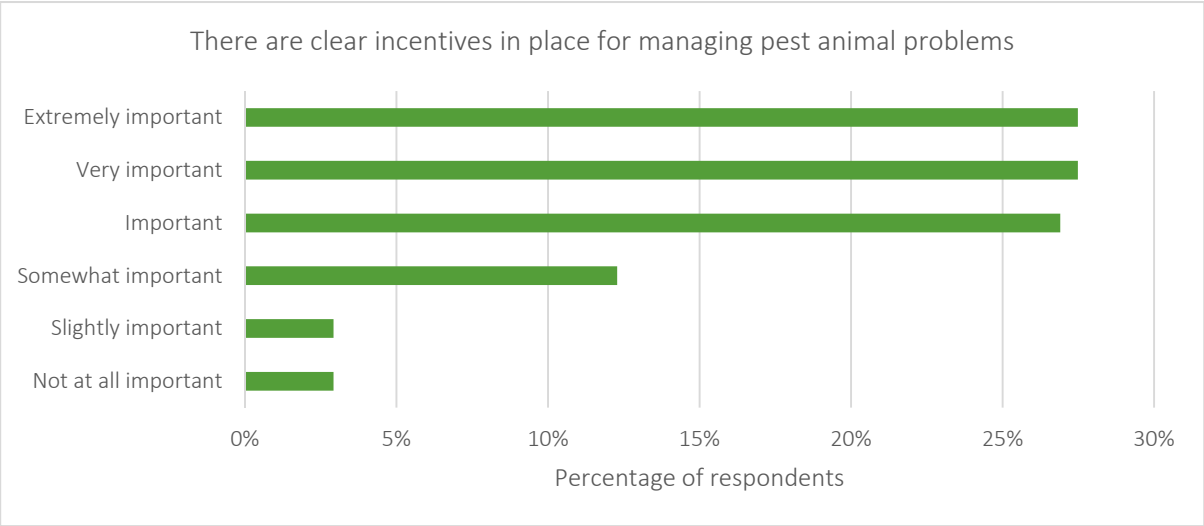
Active coordinators or project managers for some species (e.g. for camels and wild dogs) were highlighted as a relatively low-cost and effective way to coordinate and disseminate information.

There were reports about reduced extension and on-ground assistance which has reportedly impacted accessibility of advice and services for pest animal management.

### There are incentives to undertake actions

Incentives for land managers to undertake on-ground work appear to be absent. It was reported that costs, both time and financial resources, for management of pest animals in general seemed to outweigh the benefit that would be received by the individual. Stakeholders identified 'clear incentives' as important across all stakeholder groups.

FIGURE 20




For the APAS, in this context, it is worth considering the role of government and thus the role a national strategy can play. Government intervention should where possible (CIE, 2008):

- provide assistance to activities that are in the national interest, that are not being addressed or not being sufficiently addressed from within the relevant industry or by another level of government
- promote efficient allocation of resources and full accounting of all costs and benefits to individuals and communities, and
- increase the capacity of individuals, industries and communities to help themselves and encouraging self-reliance.

The APAS principles flag directions and preferred response considerations but it is weaker in identifying incentives that may need to be in place to trigger land managers, public and private to manage pest animals. APAS principle 11 states "The benefits of management should exceed the costs of implementing control." For many land managers, the benefits are beyond farm gate, or perceived to be, and to achieve the benefits rely on other parties also implementing management actions.

Historically, governments at national, state and territory levels have provided significant resources which have helped provide incentives or signals for action, these include:

- resources for implementation of on-ground actions
- extensions officers, facilitators and coordinators to help raise awareness of pest animal issues, identify response options and where possible coordinate response activities, and
- provided grants to local Landcare and other community groups to undertake locally relevant actions.

Government resources for activities appear to have declined significantly and thus people are reporting to this evaluation that there is lack of resources to support on-ground activities which is of concern. Governments have also sent signals to NRM bodies in their planning process noting that pest animals, their impacts and need for management in their catchments should be included in the management plan.

The theme of compliance came up frequently in the interviews and survey responses. There was a view that it is acceptable not to manage pest animals. The perceptions regarding other parties and their activities in relation to pest animal is impacting individuals' incentives or motivations for action.

For example, neighbours and public land managers were often reported as not effectively managing pest animals and there did not seem to be anyone doing anything about it.

## Overcoming barriers

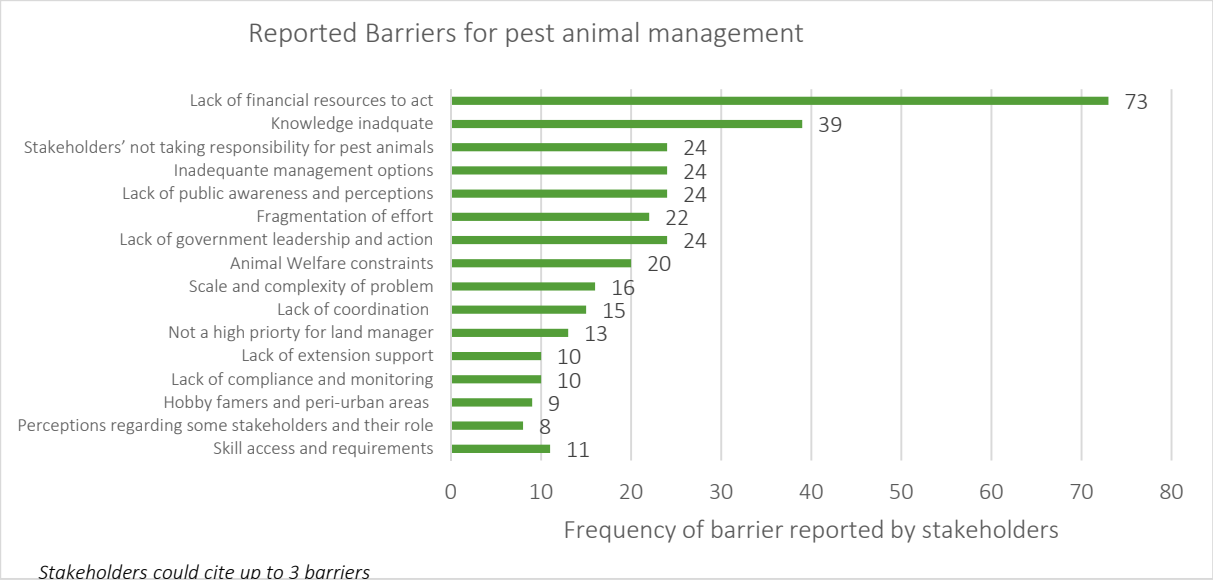
Stakeholders were asked in the online survey to rate in order of significance the main barriers to effective pest animal management. Figure 21 illustrates the order identified by respondents. It notes the barrier of key parties taking responsibility for management of invasive species the highest, the costs of managing them second and thirdly the challenge in obtaining skills or accessing skilled personnel to conduct pest animal management as third.

FIGURE 21

| | |
|---|---|
| 1) Key partners are not taking responsibility for the management of the invasive species | 43% of respondents ranked it as the top barrier and 29% as second top barrier |
| 2) Costs of managing the invasive species do not create enough benefits to the person bearing the cost | 35% of respondents ranked it as the top barrier and 28% as second top barrier |
| 3) Lack of skills or knowledge of how to manage the invasive species | 7% of respondents ranked it as the top barrier and 19% as second top barrier |
| 4) Lack of options for managing the invasive species | 6% of respondents ranked it as the top barrier and 15% as second top barrier |
| 5) Lack of understanding of the invasive species | 7% of respondents ranked it as the top barrier and 6% as second top barrier |
| 6) Lack of access to information and knowledge | Only 1% of respondents ranked it as the top barrier and 3% as second top barrier. 67% of respondents ranked this as the lowest barrier to responding to pest animals |

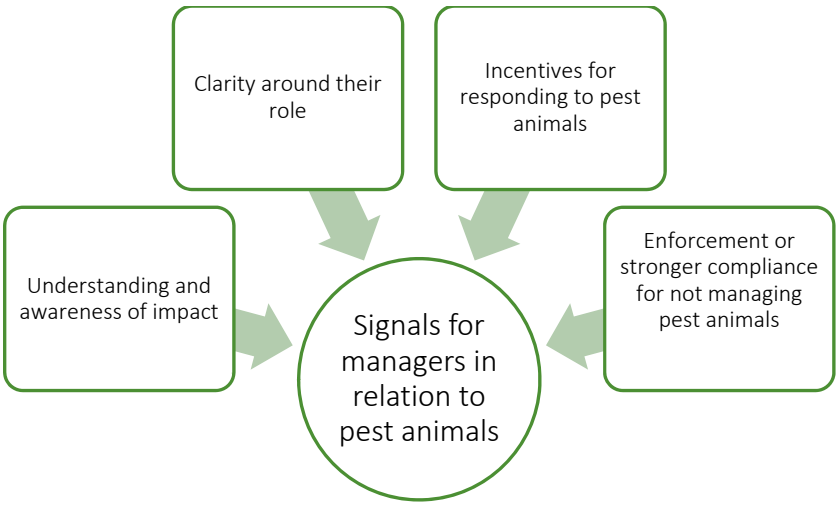
In addition to the above rating of predefined areas, stakeholders were separately asked to nominate the top three barriers for pest management. Responses were qualitative and on analysis of the themes that emerged the top ten barriers reported are presented in Figure 22.

FIGURE 22



Overall, the signals for land managers in relation to pest animals do not appear to be strong or clearly recognised and in general the significant barriers need careful consideration on tactics that could be established into the future to overcome them.

FIGURE 23




The interaction between understanding and awareness of impacts, lack of clarity of roles and responsibilities, lack of incentives for managing pest animals and reported minimal compliance occurring indicate that in most cases unless the impact of the pest animals are high there is likely to be minimal action or responses by stakeholders (Figure 23).

## Stakeholder capacity key messages and observations

1. The two most significant challenges inhibiting stakeholders' capacity to manage pest animals are – financial resource availability and a lack of stakeholders taking responsibility for their roles in pest management.

    - Financial resources at all levels (national to local level actions) was reported to be a significant constraint and is likely to continue.

    - There is not a clear understanding of roles and responsibilities of stakeholders in relation to pest animals. This is playing a role in inhibiting stakeholders' capacity, motivation and ability to manage pest animals.

2. Adoption of available practices is not occurring for many reasons – including lack of motivation, lack of coordinated approaches, skills capacity and the ability to access relevant services for pest animal management.

3. There are not effective 'signals' either incentives or regulation and compliance enforcement that will result in wide-scale adoption of appropriate pest animal management.

Achievements

4. Stakeholders reported that there is good information and knowledge regarding pest animals and there is reasonable accessibility to this information. However the level of awareness across stakeholders varies significantly.

5. Options available to manage pest animals were reported to have improved over the last five-years, in part due to the Invasive Animals CRC.

Weaknesses and failures

6. The APAS has identified the need for improved public awareness of pest animals and available knowledge. This has not occurred effectively. Effort needs to go into effectively clarifying roles and responsibilities and communicating this across the many stakeholder groups.

7. The APAS does not have effective 'signals' to help it to drive stakeholder adoption of pest animal management.

8. The APAS as a strategic direction has strong ownership by governments but non-government stakeholders do not see themselves as playing a role in helping to achieve the goals and objectives within the Strategy. There may be opportunity to identify ways to help send clearer messages to some key stakeholder groups to encourage action in complementary areas.

# Chapter 5 – Evaluation Assessment against intermediate outcomes

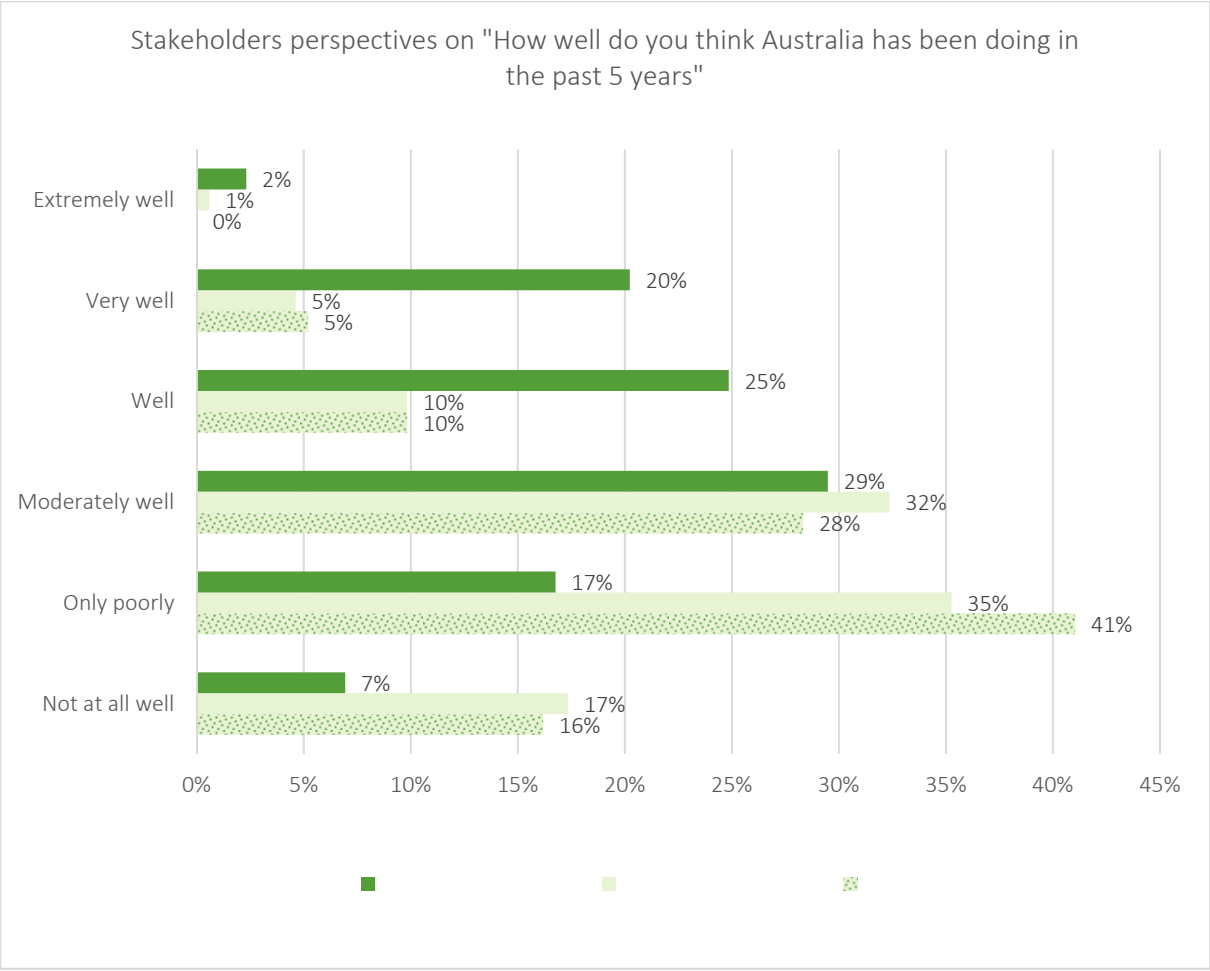
As part of this evaluation, the evaluation team has sought input from stakeholders on how Australia has performed over the last five years across the three intermediate outcome areas identified for this evaluation:

- Preventing new pest animals
- Preventing the spread of existing pest animals, and
- Reducing the impact of established pest animals.

These observations provide useful information on how the system is performing, or perceived to be performing, from stakeholders' perspectives. Preventing new pest animal problems ranks the highest with preventing the spread of pest animals and reducing the impact of establish pest animals ranking similar (Figure 24).

Overall, the trends indicate that there is a long way to go in improving the performance of the system and raising stakeholder awareness of the performance of the system.

FIGURE 24



At this point, the evaluators want to reiterate the complexity of the challenge that is being responded to. Pest animals are not only a problem in Australia, they are internationally recognised as having profound impacts on biodiversity. The approach used in Australia aligns with international efforts and areas identified in the APAS, and other areas noted by stakeholders during consultations, suggest that effort and tactics being sought will improve prevention and management of pest animals in Australia.

There are a couple of key factors that influence the pace of being able to adopt the action areas identified. Firstly, financial resources are a major contributing factor which if available can help trigger actions. The availability of resources for governments to establish and continuously improve and implement institutional arrangements for pest animals are relatively small and reported to have declined significantly over the last five years and likely to continue to decline into the future. This is and will create challenges for improving pest animal prevention and management across the biosecurity continuum.

Secondly, the consequences of the Commonwealth system of government in relation to issues that impact across state and territory borders. Under a federal system, powers are divided between a central government and individual states. In this case, states and territories have primary legislative responsibility for pest animals with the Australian Government having a key role in border protection and quarantine. The consequences are that desired change takes time and needs to take into consideration historical legislative approaches and jurisdictional preferences. On this basis, the APAS has been an invaluable tool in helping link the Australian, state and territory governments and to agree on a desired path to improve pest animal management. It has helped to coordinate where there is agreed value for this coordination and leveraging of effort.

## Australia prevents new pest animal incursions

Goal two of the APAS is to "prevent the establishment of new pest animals". Overall, stakeholders reported that the approach to reducing risks and preventing new pest animal species was good. Stakeholders interviewed rated Australia's effectiveness in preventing new pest problems over the last five years as sound to strong (rated an average of 3.7 out of 5). This was the highest rating from interviewed stakeholders against the three areas (prevent new, reduce spread of existing and, minimise impact from established) for both weeds and pest animals.

It was noted that the risk assessment approach and quarantine system was highly regarded internationally. Significant progress was reported to have been made in this area with some risk areas being reduced. Some stakeholders cited that this had resulted from some underpinning research into risk assessment models (completed by the Invasive Animals CRC).

Risks were reported to be higher for species of ornamental fish, birds and reptiles. Risks were reported to be due either to the risk assessment rankings or through the control process application at the border (either limited techniques to detect risks or capacity of border personnel were cited). The Vertebrate Pests Committee was reported to be working with the Ornamental Fish Management Implementation Group to review fish species being imported to Australia and to identify where the risks actually lay and identify ways to reduce these risks. This was reported as a work-in-progress.

There was a reported limited understanding on the ground of the strategic national approach to preventing new pest animals from entering Australia. Many did not understand the risk assessment approach used. This mixed understanding is confirmed with 56 percent of online survey respondents ranking their awareness of the risk assessment approaches used in Australia as 2 or less when rated out of 5. This correlates with the observed lack of understanding by stakeholders outside of

government of where pest animals fit within the biosecurity system. It is clear that helping people understand the biosecurity system and its key components and how these relate to pest animal prevention would be of merit.

A recurring theme during the stakeholder interviews was the lack of confidence in the monitoring of pest animal species and the lack of understanding of approaches to mobilise action to respond to a new pest animal incursion. Two key areas were regularly cited. One relates to institutional arrangements regarding how to access resources within a required timeframe for effective eradication and the lack of certainty of the leadership role and other parties' roles and responsibilities for a nationally relevant eradication task. The other area relates to the lack of surveillance and monitoring and the need for a greater coordinated effort which involved many parties on the ground playing a role.

Achievements that contribute to preventing new pest animal incursions:

- The risk assessment approach for preventing new pest animals entering Australia appears to have the confidence of most stakeholders
- Quarantine controls are playing a role in reducing incidences of new pest animals entering Australia with many stakeholders citing that they had not heard of any in the last five years and others citing a small number of cases, and
- A first step in improving the scientific underpinning for risk assessment and surveillance for pest animals is the "*National Categorisation System for Invasive Species";* however this relies on key stakeholders being able to apply this categorisation system in a timely manner and then using the alert lists to help focus effort.

Weaknesses or failures that could be overcome:

- The need for improving the national coordinated approach to monitoring and surveillance includes being clear on roles and responsibilities, funding arrangements and data capture and sharing approaches. It is understood that this is being progressed under the IGAB.

## The spread of pest animals in Australia is contained

Under APAS Goal 2 and Goal 3 there are objectives that aim to improve the capacity of Australia to reduce the spread of pest animals. Both weed and pest animal stakeholders reported a disappointing performance in reducing the spread of existing invasive species. Many identified that there are some successes but overall it is poor.

As noted in the previous section, surveillance and monitoring was regularly reported as an area that was not being performed well and as such the capacity to reduce the spread of pest animals was not viewed as being as good as it could be. Surveillance and monitoring approaches were reported to be challenging for pest animals (both in technique and resourcing) and there was a need to identify and agree on improved ways to coordinate in the event of a new pest or an existing pest emerging. Canadian Geese were regularly cited as an example of a pest that exposed the inadequacies of the monitoring and response approach to eradicate or stop the spread of a pest animal. The evaluators' interpreted comments related to this example are that the monitoring was not effective enough to catch it early and there was uncertainty about who took the lead for required actions.

Stakeholders identified that there were opportunities to learn from recent experiences, some commented that there could be value in drawing on feedback from recent eradication examples and identifying successes and failures. There was a view that the same inadequacies were being repeated rather than learning from them and improving the system. This may be a perception issue as this was

not reported from any participating member of the Vertebrate Pests Committee and thus could have been undertaken but not communicated widely.

It is noted that monitoring and surveillance for pest animals has different challenges than for weeds – mobility cited as a key challenge for surveillance. It was identified that science and technology was the likely path for identifying cost effective surveillance options but investment to allow this to occur would be required.

Achievements that contribute to preventing new pest animal incursions:

- The agreement to the "*National Categorisation System for Invasive Species"* noted in previous outcome area.

Weaknesses or failures that could be overcome:

- There is a lack of clarity around roles and responsibilities in relation to early intervention and reported need to consider ways to access resources within the required timeframe
- There is no national Alert list agreed for pest animals. It is understood this is being developed.
- Monitoring and surveillance to detect pest animal risks could be improved.
- Awareness by stakeholders low
- Prioritisation between early intervention and management of established (politically sensitive)
- Uncertain roles and responsibilities for cross border issues
- Lack of resources

## The impacts of existing pest animals are minimised

Goal 3 of the APAS seeks to manage the impacts of established pest animals. This is highly challenging and complex. As noted in the APAS (2007), of the over 70 exotic vertebrate pests which have established populations in Australia only a few are required to be eradicated and as a result they either need containment, control or no management.

Key activities that the Vertebrate Pests Committee appear to have prioritised from the APAS tend to focus on establishing effective institutional arrangements that will enable declining resources to be allocated in nationally agreed areas of need (through processes to prioritise effort), improve risk assessment approaches to prevent new risks and development of national Codes of Practice for humane treatment and handling of the seven pest animals.

The APAS was highly criticised by a cross section of stakeholders during this evaluation for not providing actual on-ground outcomes. The evaluators, however can see logic behind the focus of effort. At times it is debatable whether further effort should have been achieved but overall the main focus of activity on establishing improved institutional arrangements has merit. It is viewed that the catalytic effect of these foundations on the prevention and management of pest animals is likely to be valuable. The Invasive Animals CRC has played an active and key role in establishing new knowledge, developing new or improved management options and communicating management options to stakeholders. The APAS identified the need for improving public awareness and understanding of pest animals. This is an area that does not appear to have occurred in a way that is making a difference and needs addressing if Australia is to increase its capacity to respond to established pest animals.

Managing public perceptions regarding pest animal management is an issue. Two areas in particular create tensions and challenges for pest animal management. Firstly perceptions around management approaches and animal welfare practices are challenging and create conflicts for land managers. At their scale they can see the devastation of ecosystems or land degradation first hand and understand the consequences of this devastation for biodiversity and production and feel frustrated that someone else can determine the practice approach that they are permitted to use is a negative issue. That is not to say they do not consider humane management of animals, rather they see practices viewed as humane as being removed from their permitted use options. Similar 'social licence' type issues emerge with other practices and some chemical usage. Demonstrating proactive performance and management of public perception is therefore an area that needs to be considered as core business as it will continue to shape future approaches.

Stakeholders reported that pest animals are an extensive challenge and even though many reported some successes with different species, and in particular locations, overall the impacts of pest animals were reported to be growing.

Reducing the impacts of existing pest animals was seen as highly challenging and a significant ongoing tasks. Species that people felt Australia were controlling effectively included camels and rabbits (although many commented that the emerging resistance to Calici virus required further attention) and foxes. Wild dogs, feral cats and cane toads were reported as species where we were not doing well.

Interview stakeholders reported the mean score for effectiveness in reducing the impacts of existing animals was 2.3 (out of a possible 5).

Achievements that contribute to preventing new pest animal incursions included:

- The research community were reported to have significantly contributed to the options available for pest animal management over the last five years. This achievement is not attributable to the APAS but was completed in parallel to APAS activities.
- Codes of practice – have the potential to be a significant achievement once endorsed. It is crucial that they are well communicated to land managers and any tools or mechanisms that can help their adoption will be important. There will be a role in monitoring and demonstrating these codes – to help manage public perceptions around treatment of animals.

Weaknesses or failures that could be overcome

- Lack of resources for strategic action has limited the ability to manage plant animals at both the national strategic level and on-ground. It is important to note that resources should not only be sourced from government. Finding ways to get continued investment from other parties is crucial for future management of pest animal impacts.
- Not having developed a national list of pest animal species was criticised widely by stakeholders. Many issues were reported about the complexity and challenges in establishing a list but it was widely recognised as required.

## Chapter key messages and observations

### Prevent new pest animals (Pre-border and Border)

- Pre-border risk assessment and protocols highly regarded.
- Need to ensure science that underpins risk assessment approach is retained and focused
- Higher risks were reported for ornamental fish, some aviary species and for reptiles. These were reported to result from a combination of ineffective quarantine process and the risk assessment/protocols could be improved)
- Need to ensure Australia retains capacity for risk assessment and application of quarantine protocols.

### Preventing new pest animal species and existing species from spreading

- Monitoring and surveillance to detect pest animal risks could be improved.
- Eradication and containment leadership, coordination and funding approach needs improving
- National significance and alert lists required (some foundations are developed but still varying views on approach)
- Attracting investment in a timely manner for eradication is challenging
- Awareness by stakeholders is low
- Prioritisation between early intervention and management of established pests (politically sensitive)
- Uncertain roles and responsibilities for cross border issues
- Lack of resources.

### Established species

- Resource constraints and continued decline is a big factor for the level of success or otherwise for the management of pest animals. This requires effective prioritisation
- Prioritisation not well agreed for investment and other actions
- Pest animal management was reported to have improved over the last five years
- Education and awareness raising for all stakeholders is required
- Skills and capacity decline, particulary by training providers
- Roles and responsibilites and coordination arrangements still unclear
- Underpinning knowledge generation (adaptive management, integrative management and long-term option).

# Chapter 6 – Future Directions and impacts of the IGAB

This Chapter aims to explore the Intergovernmental Agreement on Biosecurity (IGAB) and its relationship to the APAS and implications for future arrangements for pest animals. It also identifies future recommendations for an APAS strategy responding to Terms of Reference III and IV.

In January 2012, the Australian, state and territory governments, excluding Tasmania, signed the IGAB which aims to strengthen relationships between governments and identify improved ways of working together to enhance biosecurity arrangements in Australia. It was developed in response to the *One Biosecurity – A Working Partnership* report (Beale Review) released in 2008.

The Beale Review (2008) identified that Australia had an effective biosecurity system, but one that was far from perfect with a range of opportunities to be strengthened. Key relevant areas identified as needing strengthening included (Beale et al., 2008):

- Moving emphasis away from *quarantine* which was thought to have negative defensive connotations, to biosecurity, suggested to be a more *"pro-active concept, aligned with the pre-border, border and post-border continuum, a shift from zero risk to managed risk, and from barrier prevention to border management"*
- The need to continue to emphasise that biosecurity is a shared responsibility involving many layers and stakeholders, and
- The need to establish a clearer partnership between the Australian Government and the state and territory governments in relation to biosecurity, hence making roles and responsibilities clearer across the biosecurity continuum. Key areas where this partnership was identified to require strengthening included:
    - the legal framework that underpins a national approach to responding to invasive pests
    - enforcing import permit decisions
    - enhance traceability based on a risk basis so that animal and plant matter of greater biosecurity could be tracked
    - managing emergency responses where required
    - harmonising requirements for interstate trade to better manage plant, animal or disease risks, and
    - ways to share information across jurisdictions.

## Comparison and links between APAS and the IGAB

### Goals, objectives and principles

The goals, objectives and principles outlined and agreed in the IGAB align and build on that expressed and agreed on in the APAS (Figure 25). The IGAB, covering beyond pest animals, has broadly the same aspiration of enabling flow of goods and people whilst protecting Australia's natural, production and social assets.

This evaluation identifies that the IGAB has the potential to strengthen the commitment to improving arrangements across the biosecurity continuum for pest animals. Many aspects of what is sought to be achieved under the IGAB were identified five years before in the APAS. The recommitment, made at the Council of Australian Governments demonstrates the maturing and continued need for governments to work together across a range of sectors in similar and consistent ways. Given the personnel involved as part of the Vertebrate Pests Committee and other sectoral committees such as

the Australian Weeds Committee and Australian Animal Welfare Committee have played formal or informal roles in informing the development and shaping of the IGAB, there has been useful synergies and demonstration of application of learning over the last five years.

The IGAB principles are consistent with that of the APAS. In particular, strengthening the biosecurity approach to be a nationally integrated system with clearer roles and responsibilities will have benefits for pest animal management given this area was identified as a weakness impacting stakeholder capacity to respond to pest animal problems. Many of the other principles within the APAS would fit under the IGAB and it is important that their sentiment is not lost as there was reasonable recognition by stakeholders of these principles. The IGAB commits to strengthening institutional arrangements required to implement and achieve the principles agreed in the APAS, such as nationally consistent risk assessment and decision making processes, coordinated data collection and management, national approach to surveillance and diagnostics.

FIGURE 25

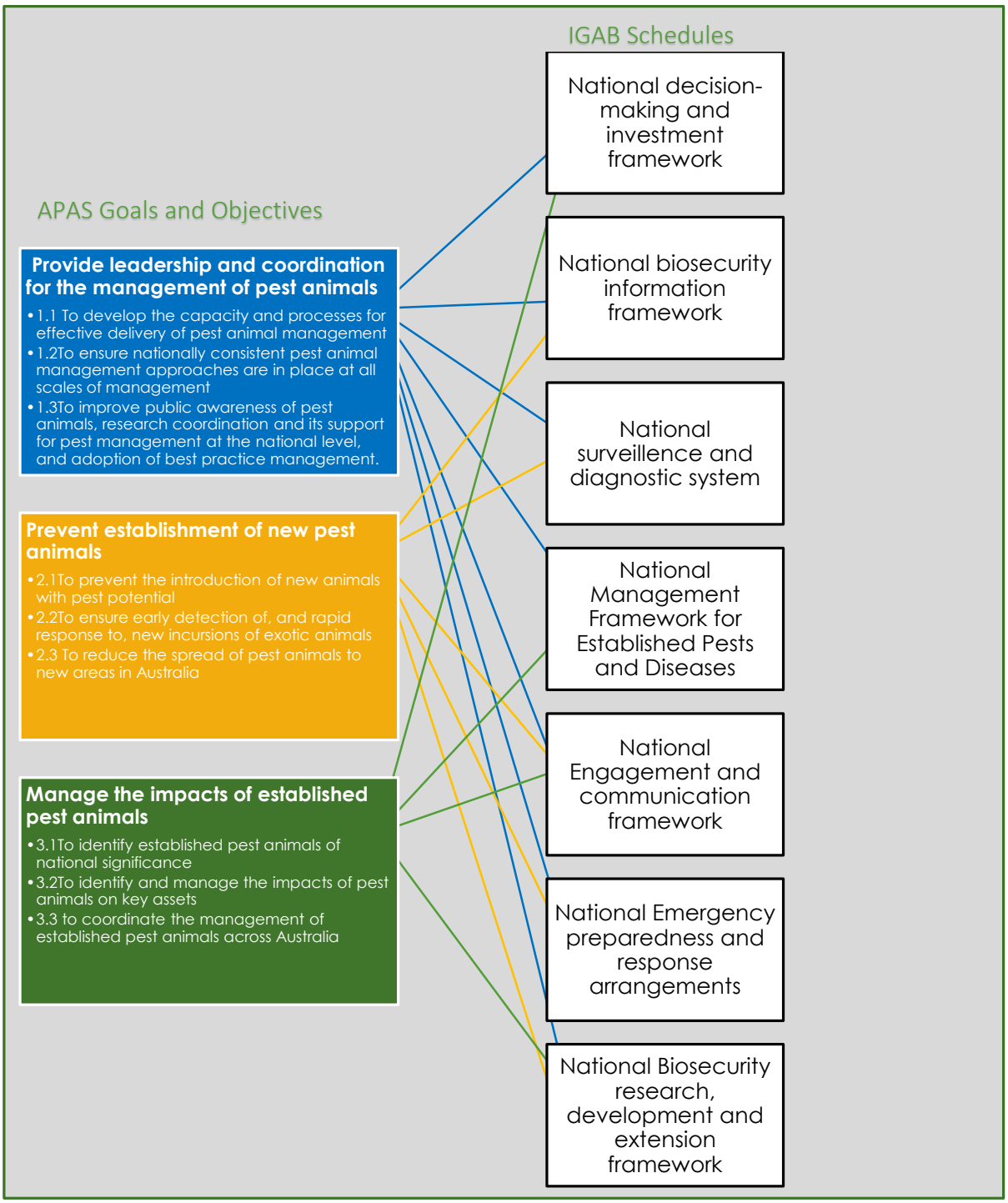
| Features of the IGAB | Features of the APAS |
|---|---|
| *Goal:* The goal of a national biosecurity system is to minimise the impact of pests and diseases on Australia's economy, environment and the community, with resources targeted to manage risk effectively across the continuum, while facilitating trade and the movement of animals, plants, people, goods, vectors and vessels to, from and within Australia. | *Vision:* Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals |
| *Objectives*<br>1. Reduce the likelihood of exotic pests and diseases, which have the potential to cause significant harm to the economy, the environment, and the community (including people, animals and plants), from entering, becoming established or spreading in Australia;<br>2. Prepare and allow for effective responses to, and management of, exotic and emerging pests and diseases that enter, establish or spread in Australia; and<br>3. Ensure that, where appropriate, significant pests and diseases already in Australia are contained, suppressed or otherwise managed. | *Goals and Objectives*<br>1. Provide leadership and coordination for the management of pest animals<br>2. Prevent establishment of new pest animals<br>3. Manage the impacts of established pest animals |
| *Principles*<br>• Biosecurity is a shared-responsibility between all governments, industry, natural resource managers, custodians or users, and the community.<br>• In practical terms, zero biosecurity risk is unattainable.<br>• The pre-border, border and post-border elements of the biosecurity continuum are managed to minimise the likelihood of biosecurity incidents and mitigate their impacts.<br>• The biosecurity continuum is managed through a nationally integrated system that recognises and defines the roles and responsibilities of all sectors and sets out cooperative activities. | *Principles*<br>• Pest animal management is an integral part of the sustainable management of natural resources for the benefit of the economy, the environment, human health and amenity.<br>• Combating pest animal problems is a shared responsibility that requires all parties to have a clear understanding of their roles and responsibilities.<br>• The development, monitoring and review of integrated pest animal management strategies need to be underpinned by good science.<br>• Setting priorities for, and investment in, pest |

| | |
|---|---|
| • Activity is undertaken and investment is allocated according to a cost-effective, science-based and risk-management approach, prioritising the allocation of resources to the areas of greatest return.<br>• Relevant parties contribute to the cost of biosecurity activities:<br>a. Risk creators and beneficiaries contribute to the cost of risk management measures in proportion to the risks created and/or benefits gained (subject to the efficiency of doing so); and<br>b. Governments contribute to the cost of risk management measures in proportion to the public good accruing from them.<br>2. Governments, industry, and other relevant parties are involved in decision-making, according to their roles, responsibilities and contributions.<br>3. Australia's biosecurity arrangements comply with its international rights and obligations. | animal management must be informed by a risk management approach.<br>• Prevention and early intervention are the most cost-effective techniques for managing pest animals.<br>• Pest animal management requires coordination among all levels of government in partnership with industry, land and water managers and the community, regardless of land tenure.<br>• Effective pest animal management requires capacity-building across government, industry, land and water managers and the community.<br>• Management of established pests should aim to address actual rather than perceived problems, and to reduce impacts rather than simply pest animal numbers.<br>• Management should be strategic in terms of determining where management should occur, timing of management, being proactive and using appropriate techniques.<br>• Where there is a choice of methods, there needs to be a balance between efficacy, humaneness, community perception, feasibility and emergency needs.<br>• The benefits of management should exceed the costs of implementing control.<br>• As part of an integrated pest animal management program, commercial harvesting may offset management costs. |

## Comparing activities

The activities identified as being sought and delivered under the IGAB are strongly related to what had been agreed and shaped the activities sought to be undertaken under the APAS. Figure 26 illustrates the overarching relationship between the Goals and objectives of the APAS and the IGAB schedules. The linkages could potentially be made from each of the APAS Goals to each of the agreed schedules under the IGAB.

FIGURE 26




*Note – Schedule 1 from the IGAB which identifies governance and administrative arrangements has not been included in the above diagram.*

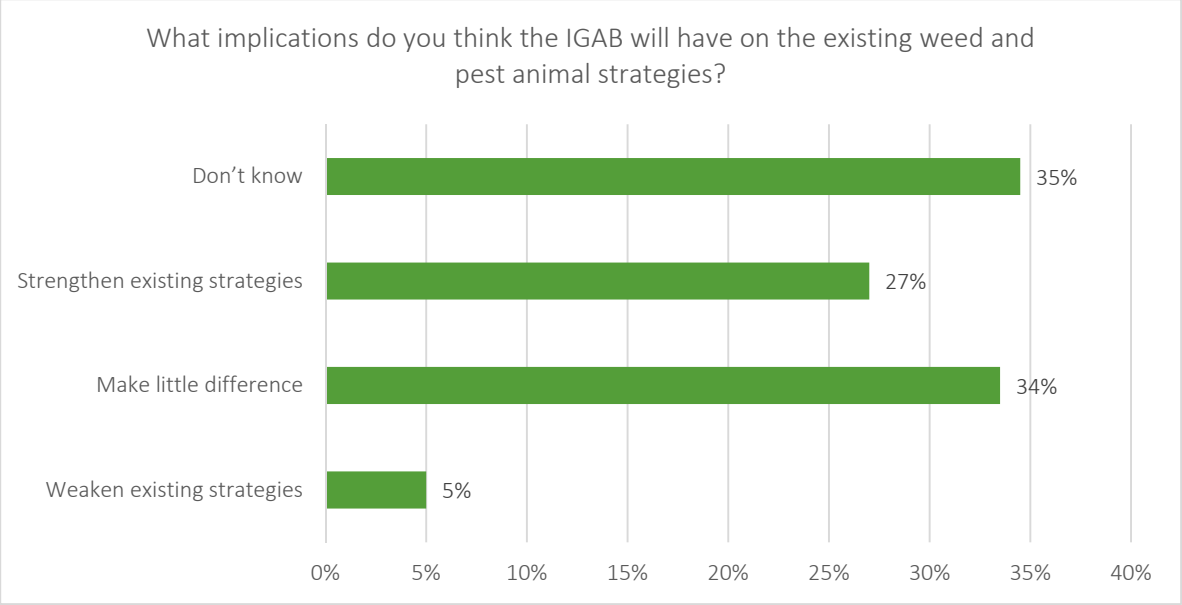
## Stakeholder's perspective on the IGAB and impacts for pest animals

Overall, there was limited awareness of the IGAB and limited understanding of what it seeks to achieve. This is important to be considered as a caveat for interpreting feedback from stakeholders related to the IGAB and how it may impact on any future strategy for pest animals.

It is also important to note an earlier observation in this evaluation is that many stakeholders consulted did not fully grasp what biosecurity included and some seemed confused that pest animal management was being grouped into this area. The connotations regarding biosecurity appeared to be pre-border and border activities and anything post-border was not understood by many to be part of biosecurity. This is an area that requires good communication and information for stakeholders to understand and engage where relevant.

Thirty-five percent of stakeholders responding to the online survey did not know the implications the IGAB would have on the pest animal strategy (Figure 27). Thirty-four percent did not think the IGAB would make much difference, whilst 27 percent thought it would strengthen the APAS and AWS.

FIGURE 27




A desktop review of the IGAB, as noted earlier, identifies the potential of the IGAB, assuming it is implemented, to strengthen aspects of biosecurity that will ultimately benefit pest animal prevention and management. A key challenge exists in bringing stakeholders up to speed on areas that is relevant for them to enable them to engage and commit to relevant roles.

Comments from stakeholders vary significantly in relation to the IGAB, some comments from the more optimistic report:

- *"It is a good leadership signal which if governments implement will lead to improvements to biosecurity, and will have benefits across many sectors of Australian society",* and
- *"If the IGAB results in improved collaboration then that is a good thing which has benefits."*

Those who were not as positive about the potential of the IGAB reported the following types of comments:

- *"Funding is a real constraint and without it the IGAB is meaningless"*
- *"It is likely to hold things up and have governments taking more time to achieve outcomes"*

- *"There is a concern that the overarching strategic activities will shadow and influence the actual on-ground activity that needs to occur to prevent and manage pest animals", and*
- *"State and territory jurisdictions will continue to do what they want."*

Overshadowing actual management of pest animals on the ground, or not implementing much needed action on the ground, was a continuous and recurring theme reported during this evaluation and many lacked an understanding of how the IGAB sought to influence on-ground actions. One of the more forthcoming direct comments in relation to this from an online stakeholder is *"Will they kill anything or just talk about it. Plans do not actually do anything unless you get out there in the real world."*

This type of comment expressed by a significant portion of stakeholders in various ways demonstrates the need to help people to understand the key components of the biosecurity continuum and what the elements of the IGAB are seeking to achieve and how that links to on-ground activities or how it strengthens prevention of new pest animals. This is also true of the APAS where many expressed that it is a high level document with little relevance to on-ground activities.

## Pest Animal Strategy or combined Invasive Species strategy

A key question continued to emerge as part of this evaluation – should there be a single strategy for pest animals and weeds or should they be merged to form an invasive species strategy.

Stakeholders consulted as part of this evaluation noted a preference for separate updated strategies. Key differences were noted by stakeholders as:

- technical expertise and science – there are a different range of experiences and issues for pest animals and weeds requiring different knowledge and skills
- the impacts of pest animals and weeds differ, and
- there are differences in ecology and influences e.g. speed of spread, modes of spread.

Some stakeholders reported that the challenges for pest animals were the same as for weeds and these key challenges were funding and governance. Some examples of the concerns expressed by stakeholders provided through the online survey in relation to merging the strategy are:

- *"I see a total loss of focus by both areas. They are both large and complex and cannot be mixed even though many guiding principles are common"*
- *"Weeds often receive more money, interest and staff (with knowledge) than pest animals do and if they were combined I would be worried that targets and actions would be weed focused and pest animals would not be concentrated on as much."*
- *"One could be overshadowed by the other depending on preferences of management. Becomes 'political' rather than science based."*
- *"Loss of focus on animal welfare"*
- *"Too many issues to be addressed, therefore progress may be limited. A one size fits all approach may not be suitable to apply to the different issues. States have different priorities on issues given the status of each weed and pest animal within their area."*
- *"Both are very important. The risk I see is that one may be overshadowed by the other and inappropriate or insufficient funding may strangle the "weaker" brother."*
- *"You cannot combine these two program areas as one strategy. There will be skill dilution and avoidance in critical knowledge areas of both distinct program areas. The strength of both program areas, both pest animals and weeds will require dynamic knowledge on each topic."*

- *"The 'harder to deal with' issue will not have the focus of management and more resources will be put towards the 'easier' issue."*

The noted differences from stakeholders' perspectives between pest animals and weeds were:

*Pest Animals*

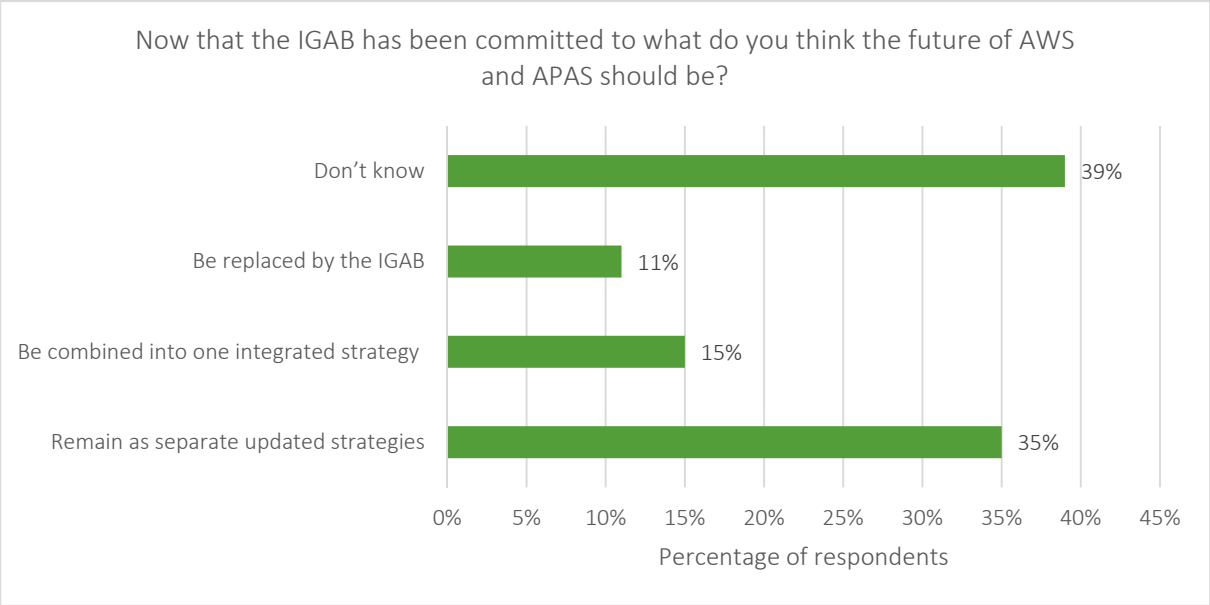
- Mobility of pest animals
- The scale of emotion associated with pest animal management due to animal welfare concerns
- Issues around conflict species and animal welfare are much more passionate for pest animals than for weeds

*Weeds*

- There are far greater number of weeds than pest animals
- The dimensions of weed impacts are far greater than that of feral animals

Nearly 40 percent of survey participants did not know what the future AWS and APAS should be, 35 percent identified that they felt the strategies should be updated as separate strategies and 15 percent thought the future APAS and AWS strategies should be merged (Figure 28). Eleven percent of respondents identified that the IGAB should replace the individual strategies.

Figure 28




Some possible benefits and disadvantages of moving to a single 'Invasive Species' strategy using the IGAB key elements (the IGAB schedules) are presented in Table 3. This table has been prepared by considering input from stakeholders, desktop assessment and judgment from the evaluators (Table 3).

TABLE 3

| Elements considered | Desired outcome (from IGAB) | Possible benefits for moving to a single strategy | Disadvantages of moving to a single Strategy |
|---|---|---|---|
| **National decision-making & investment** | A consistent approach to biosecurity risk prioritisation and investment to address economic, environmental and social objectives across the biosecurity continuum | 'Weeds' and 'Pest animals' are part of 'biosecurity' system – often same policy staff involved – there are significant opportunities in enhancing efficiencies of joint decision-making. | There is a risk that under one strategy and administered by one committee the unique needs and key requirements of one (either weeds or pest animals) is overlooked.<br>There is scope to have one committee overseeing two strategies – the role of the strategies to set direction and required activities, differentiate key requirements between pest animals and weeds and play a role in communicating to stakeholders. |
| | | Consistency and transparency of approaches to prioritisation across biosecurity spectrum. The 'National Categorisation System for Invasive Species' has already been developed and agreed on by Vertebrate Pests Committee and AWC.<br>Questions from some stakeholders arose around whether national significance lists in the future need to be an 'invasive' list i.e. a list which ranks plants and animals on the same list. | Prioritisation is complex and is already challenging in both weed and pest animal areas. Pest animals are being assessed using the 'National Categorisation System for Invasive Species' was reported to be slow. Grouping the two areas could further slow prioritisation for pest animals. |
| | | Lessons from science and other disciplines can be better shared across weeds and pest animals. | Underpinning science required as an input for risk assessment differs and needs to be supported independently. There is a risk losing specialist expertise available to science-based decision making. |
| | | There is the potential to increase opportunities to access the total pool of 'biosecurity' funding and continue to leverage resources in common areas. | Many stakeholders commented on the grouping of invasive species versus separate pest animals and weeds, increasing the likelihood of reduced resources to cover both areas. |
| **National information framework** | A collaboration approach to collecting, collating, analysing, storing and sharing biosecurity information to improve decision making and enhance operation efficiency | Understanding information needs across both pest animals and weeds is of value and there are significant opportunities to streamline and ensure the national information system is effective across both areas.<br><br>Significant opportunity to leverage resources across sectors of the biosecurity continuum. | Sharing data is already an issue – different techniques and approaches being used making pooling data nationally highly challenging – combining pest animals and weeds has the potential to exacerbate or further enhance complexities in agreeing on a common framework and data collection techniques. |
| **National surveillance & diagnostic system** | Early detection and accurate, timely diagnosis of pests and diseases of concern to reduce economic, environmental and community impacts using an integrated coordinated and | Weeds and pest animal surveillance, detection and early action processes are currently under resourced and serviced at post-border level. There is potential to enhance and improve the systems through a shared system between pest animals and weeds (and other relevant sectors).<br>There are likely differences in actual surveillance techniques but the role of stakeholders on the ground would be consistent and thus a single approach has appeal. | The different requirements to undertake appropriate surveillance for pest animals or weeds may result in simplified common techniques being applied, possibly increasing risks for some species.<br><br>Some stakeholders also reported a risk of loss of profile or priority for pest animals and weeds to higher profile 'disease' issues and thus not being provided adequate support for surveillance. |

| Elements considered | Desired outcome (from IGAB) | Possible benefits for moving to a single strategy | Disadvantages of moving to a single Strategy |
|---|---|---|---|
| | comprehensive approach | | |
| **National management for established pest animals** | A strategic, consistent, scientific, risk-based approach to managing the impacts of established pests and diseases | Significant opportunities for sharing resources and leveraging effort in key areas. Opportunities for shared improvements in areas such as<br>• risk-based prioritisation processes and landscape-scale approaches<br>• monitoring, reporting and evaluation against outcome measures<br>• coordinated action at the regional-local level<br>• enhanced opportunities to integrate pest animals and weeds into broader best practice management systems, and<br>• shared communications and awareness raising activities. | Impacts and responses unique enough to warrant separate considerations.<br>The likely drivers of change for types of management options differ. In particular for pest animal management the need to update practices to continuously improve humane treatment of animals and need to demonstrate performance to the public on pest animal management is required.<br>The noted opportunities (left) could also equally be risks if not effectively considered and managed. |
| **National engagement and communication** | Improved cooperation between the Parties to increase stakeholder and beneficiaries awareness, and enhance the effectiveness, of biosecurity activities through communication and engagement | Single Strategy with a sound Implementation Plan provides a strong national focus and 'one stop shop' avoiding duplication of effort. There is an opportunity to share resources for communication and awareness raising.<br><br>There are potential benefits for targeting specific higher risk stakeholders, such as, different landowner trends emerging in peri-urban areas and the risks they can pose for both pest animal and weed management. | Risk that under the 'biosecurity' or 'invasive species' labels the key messages related to pest animals and/or weeds will be lost.<br><br>There are overlapping stakeholders but there are also unique differences which require difference communication. For example, animal welfare interests create a need to be able to demonstrate practices to the public and continue to obtain the 'social licence' to implement management of pest animals. |
| **National emergency preparedness & response arrangements** | An enhanced level of preparedness and consistent response arrangements across jurisdictions to assist in the effective and timely management of biosecurity incidents and emergencies | Risk management approaches already well developed for weeds readily extendable to pest animals, enabling timely decisions and action.<br><br>The NEBRA has been established to enable improved responses to emergency national interest disease or pest incursions. | Possible downplaying of pest animal and weeds priorities in the face of health-risk related disease incursions.<br><br>Determining what species are a national interest risk has yet to be tested for pest animals. |
| **National research, development & extension** | A robust and integrated national biosecurity research and development capability and infrastructure to collaboratively support the management of biosecurity risks | Possibilities for strengthening of collaborative R&D particularly in areas such as social/human dimensions research, impact assessments and technology required for surveillance.<br><br>Cross-fertilisation of innovations and new technology applications.<br><br>On-ground staff often involved in both weeds and pest animal issues. | Research scientists are generally specialist in pest animals or weeds.<br><br>At present roles of local government and regional NRM bodies differ for weeds and pest animals in some jurisdictions. |

## Recommendations for future strategy

In summary, the major recommendations arising from this evaluation are as follows:

1) A national strategy to guide coordinated and effective pest animal management should be continued. The IGAB creates a useful framework for the establishment of a revised strategy creating opportunities for consistent approaches across the various sectors
2) The future strategy needs to have clearer information regarding the desired pest animal institutional arrangements being sought to reduce possible risks and impacts. This includes being clear on what institutional arrangements are required to be put in place to achieve the agreed principles.
3) There is a need to create greater ownership by stakeholders, in addition to government stakeholders, of the APAS. The approach used to garner stakeholder interest and ownership needs careful consideration as part of the development and implementation of a future strategy.
4) The Vertebrate Pests Committee should prioritise their actions aligned with the framework established and agreed on in the IGAB. A plan should be developed that enables the Vertebrate Pests Committee to identify clearly where priority effort is required, where effort for pest animals management differs to what is required for other sectors and where there is opportunity to collaborate effectively with other IGAB sectors., and
5) Use the strategy to demonstrate the need for managing pest animals in Australia and the humane approaches being used to manage pest animals.

Each recommendation is further outlined below.

### Recommendation 1: A national strategy to guide coordinated and effective pest animal management should be continued. The IGAB creates a useful framework for the establishment of a revised strategy creating opportunities for consistent approaches across the various sectors.

This evaluation identifies that there is a case for a future strategy for pest animals. The three key reasons for this are:

- The pest animal challenges and impacts will not disappear. Pest animals are not localised and as pest animals move and can spread across the country impacting production, the environment and other social values there is a need for consistent and effective arrangements that protect the national interest.
- Some useful institutional arrangements are in the process of being established which have the potential to strengthen pest animal prevention and management. The APAS, over the last five years, has helped to start work on some key foundations required to support more effective pest animal management and further work is required. The IGAB helps to strengthen the commitment and approach that the APAS has been seeking.
- There is a lack of understanding by pest animal stakeholders of the IGAB and how it relates to pest animals. A strategy can play a role in helping to directly link how the IGAB relates to pest animals and establish priorities for pest animal prevention and management of institutional arrangements.

There are potential benefits and disadvantages that could be obtained from either a separate pest animal strategy or through combining with weeds to become an invasive species strategy. Stakeholders consulted as part of this evaluation leaned on the side of a separate strategy as they

appear to have ownership of the pest animals theme and are concerned that key requirements for pest animals will be diluted if it were to be joined under an Invasive Species Strategy.

However, from a policy and risk management perspective there are opportunities to do either effectively and it is concluded in this evaluation that it is a choice for the Vertebrate Pests Committee, and whichever choice is made, there are a range of considerations that need to be incorporated to ensure pest animal prevention and management is undertaken actively.

The future strategy has three roles:

I. To identify practical and relevant actions and priorities for pest animals across all areas of the biosecurity system
   - Ensure pest animal unique characteristics are considered and incorporated into the national approach.
   - The approach should enable Vertebrate Pests Committee to drive action and leadership for key priority action areas related to pest animals.
   - Given the IGAB does not have set resources, it will be key for sector committees and jurisdictions to play active roles in achieving the desired outcomes. Considerations for the Vertebrate Pests Committee should include:
     - prioritising the reform areas relevant for pest animals
     - identifying areas where risks could emerge for pest animals and identify tactics and roles for progressing the priority reform areas, and
     - identify areas where joint effort would be valued (i.e. where are the areas of commonality with other sectors areas – weeds, marine invasive species, PHA, AHA ), and
     - help to identify risks for pest animal management if aspects of the national biosecurity system are not established effectively or are delayed.

II. Help send signals to stakeholders on what actions could contribute to improving pest animal management in Australia
   - Identify areas where there would be value in stakeholders outside of government playing active and lead roles in progressing improvements to pest animal management.
   - The goal is to encourage other stakeholders to invest time and resources into activities that can contribute to improving pest animal management. Currently, stakeholders outside of government reported that the APAS guided government effort but did not influence their own actions.

III. Enhance education and communications to help stakeholders to understand how the national biosecurity system applies to pest animals and their role
   - There was limited understanding of the IGAB and biosecurity more generally. Many stakeholders consulted did not seem to grasp the bounds of biosecurity and rather than the full biosecurity continuum many felt it was pre-border and border activity and felt unsure where the APAS main area of work fits.
   - There was significant concern from stakeholders that the IGAB approach could dilute actions, specifically pest animal management, and raise risks or impacts from pest animals.
   - Schedule 6 of IGAB focuses on establishing a National Engagement and Communication Framework. This evaluation has demonstrated the need to communicate the national biosecurity approach customised for particular sectors and for different stakeholder

groups. The pest animal key stakeholders need customised information related to pest animals.

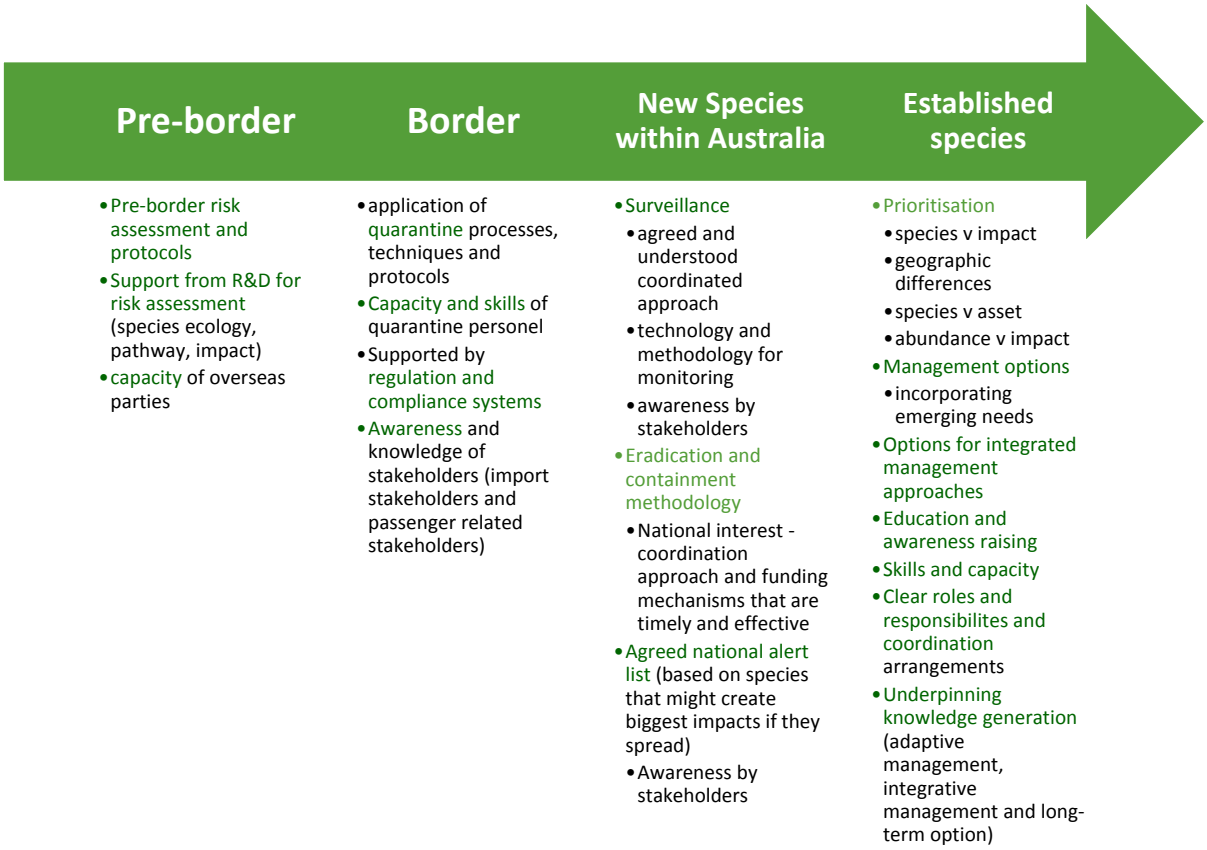
### Recommendation 2: Ensure there is a clear understanding of the required pest animal institutional arrangements to reduce possible risks and impacts.

There is a need to consider and communicate the institutional settings that are being sought for pest animals, independent of other sectors, i.e. what is really required to reduce risks, where do the opportunities lie and how do these differ from other areas? There is not a clear understanding of pest animal prevention and management across the biosecurity system and importantly what needs to happen to enable this institutional setting to be put in place.

The process of clearly mapping out the institutional requirements for pest animals should help to differentiate the needs of pest animal prevention and management from other relevant sectors and will enable identifying where there is value of coordinated effort versus separate effort.

For example, the biosecurity continuum presented in Figure 29 shows some of the key requirements for the institutional setting. Stakeholders consulted appeared to have a reasonable understanding of parts of the system, but not the system as a whole. What is required for pest animals against each of these requirements and where do the requirements differ to what is required for other sectors. Stakeholders then need to have clear messages with regards to key actions required for pest animal management.

FIGURE 29



Recommendation 1 identifies that there is a need to unpack what institutional arrangements are required to achieve each of the agreed principles. The principles were strongly supported throughout this evaluation. All 12 of the principles resonated across stakeholder consultations and appear relevant.

In Chapter 4 of this evaluation, some requirements for each principle to be achieved are noted. Observations against these requirements using stakeholder consultation feedback and desktop analysis suggest there are key things that are required to be put in place to achieve the principles. There is a need for the strategy to help clarify what is needed to achieve the principles and what actions are being committed to in relation to achieving the principles (i.e. being clear on the institutional arrangements and how these relate to achieving the principles and sharing these requirements with stakeholders).

Many stakeholders acknowledged the aspirations of the principles, and agreed with their sentiment, but were unclear on how they can be achieved. The link between the principles and actions being undertaken through any future Strategy would be useful to help stakeholders see the value of the effort from governments and other key parties.

Recommendation 3: There is a need to create greater ownership by stakeholders, in addition to government stakeholders, of any future APAS. The approach used to garner stakeholder interest and ownership needs careful consideration as part of the development and implementation of a future strategy. There is a need to create a better link between the high level areas that the strategy seeks to influence with on-ground actions.

Pest animal management is noted as a shared responsibility, but outside of government, the APAS provides minimal influence over actions. There was limited ownership of the strategy outside of government stakeholders.

There is a need for improved 'signals' (clarity of needs, impacts, incentives and compliance options and priorities in relation to pest animal management) to parties, in addition to governments, on what role they should be playing to enable improved pest animal management.

The current vision of the APAS - *Australia's biodiversity, agricultural assets and social values are secure from the impacts of vertebrate pest animals* - remains pertinent and relevant today.

The three goals of the APAS are also relevant under the IGAB and continue to be needed into the future:

1) Provide leadership and coordination for the management of pest animals
2) Prevent establishment of new pest animals, and
3) Manage the impacts of established pest animals

There needs greater clarification of the scope and purpose of the strategy itself. The APAS should focus on setting up the institutional arrangements that underpin how prevention and management of pest animals occurs in Australia.

For example, the Intergovernmental Agreement - National Water Initiative primarily seeks to reform the institutional arrangements that enable improved management of water. The focus of on-ground action in relation to various water objectives are complementary and are supported by the changes being brought about by the National Water Initiative but not actually delivered through the National Water Initiative.

The scope of any future Strategy needs to be clear on what it is aiming to achieve. Many stakeholders have interpreted that the APAS should have done more at the grass-roots and on-ground level yet our interpretation is that effort is more being placed on setting up appropriate institutional arrangements, which has merit.

More may have needed to occur at the on-ground level to prevent impacts from pest animals; however, there is a sound case for government effort to focus on bedding down effective institutional settings that will enable improved management into the future.

There would be value in making this setting clearer and the role of the strategy clearer in relation to this. This would help manage stakeholder expectations on what government has established and agreed to deliver.

A development of a future strategy provides opportunities to consider ways to engage and motivate people outside of government to play more active roles in pest animal management into the future. There would be value in a future strategy considering a way to:

- provide an opportunity for high level engagement on pest animals and the strategic level requirements
- create an environment for further shaping of directions and requirements
- help motivate actions by a range of stakeholders (in addition to Australian, state and territory government stakeholders), and
- help to raise awareness of other facets or requirements for management.

Recommendation 4: The Vertebrate Pests Committee should prioritise their actions aligned with the framework established and agreed on in the IGAB. A plan should be developed that enables the Vertebrate Pests Committee to identify clearly where priority effort is required, where effort for pest animals management differs to what is required for other sectors and where there is opportunity to collaborate effectively with other IGAB sectors.

This recommendation encourages the Vertebrate Pests Committee to map out the ideal requirements for pest animal management and how these requirements relate to the IGAB schedules and priority action areas. A plan should be developed to include:

- What actions are required to achieve the agreed institutional arrangements for pest animals
- What actions need to be completed independent of other IGAB sectors
- Where there is opportunity for leverage of effort and resources with other IGAB sectors
- Where risks could emerge for pest animal management if they are overlooked or approaches selected are higher-level or more generic covering many sectors, and
- Identify any actions that form foundations or inputs to other areas.

The plan developed should be used by the Vertebrate Pests Committee to manage their time and resources based on areas where most can be achieved and any priority areas. It should also help the Vertebrate Pests Committee to track and monitor any risks that the broader IGAB approach may pose for pest animal management and enable these risks to be actively managed.

This plan can play a role in helping the Vertebrate Pests Committee demonstrate leadership in pursuing agreed priority action areas under the IGAB.

The intention of the plan is to be a practical document that will help implementation of the IGAB and future pest animal strategic approach.

### Recommendation 5: Use the strategy to demonstrate the need for managing pest animals in Australia and the humane approaches being used to manage pest animals

The need to consider humane approaches for controlling pest animals has always been an underlying consideration but over recent decades society's expectations on how animals should be treated (whether they be a pest, an agricultural product or a household pet) is placing increased scrutiny and constraints on the options and approaches for managing pest animals.

Based on the trend within Australia and internationally animal welfare requirements will continue to emerge and will need proactive approaches to ensure that risks from the impacts that could be caused by pest animals are not increased.

It is recommended that at the national level, effort be placed in helping to demonstrating the need for managing pest animals and the needs in relation to managing and reducing impacts of pest animals on key natural and productive assets. There is also a need to demonstrate the humane approaches being used across many stakeholder groups.

The Codes of Practice that have been developed are useful and can play a role in helping to demonstrate approaches being applied across stakeholders.

There is a need for stakeholders to work together on being responsible for managing resources effectively and considering ways to continuously improve humane approaches being used to manage pest animals. It is thought that if a proactive approach is not used then there is a risk that management options for pest animals will be removed and the impacts on key natural and productive assets could increase which would not be in the national interest.

# Chapter 7 – Synthesis of findings from AWS and APAS evaluations

## Common findings for APAS and AWS

- Both the APAS and the AWS were viewed to be useful high level reference points, particularly for governments, but also in guiding R&D investment and encouraging cross-sectoral collaboration.
- The strategies were aspirational and lacked necessary practical links to outcomes. This partly reflected in a lack of performance indicators and public priorities for the strategies objectives and actions and also in reflecting on implementation.
- Resourcing is a major challenge for both pest animal management and weeds – not just availability of resources, but also continuity, given the long-term nature of the problems.
- Many stakeholders commented on the lack of dedicated resources for pest animals or weeds, referring to a government program specifically for pest animals and weeds. In a resource-constrained operating environment, the 'funder fatigue' associated with long-term weeds and pest animals problems is seen to be at a disadvantage when compared with other programs in which shorter-term, more persistent gains can be made.
- Knowledge and information are essential for effective future pest animal and weed management. R&D is required and without it the future capacity of reducing risks and impacts would be challenged.
- Stakeholder awareness of weeds and pest animals at ground level is not strong. While Australia is seen as being well placed with sound, science-based information, there is a disconnect between this information and its timely provision in formats targeted to specific end-user needs.
- The capacity of education and training sectors was reported to be declining and concerns exist that further decline will impact on the ability to manage both pest animals and weeds. Noting many practices (e.g. use of chemicals, guns for control) require minimum education and training qualifications – if land owners and managers cannot access training then this could pose a problem.
- There is a role for coordination at many levels:
    - National – between governments, and high level industries. This national coordination role is about getting the foundations right and having information to support decision making. Harmonising of legislation presents a challenge but one that needs to be addressed. Coordination is required to find the balance in effort between early detection and action and a focus on managing and containing established pests or weeds which have shown to have significant impacts.
    - Regional/local – there needs to be coordinated action for some species integrated with other aspects of the ecosystem.

## APAS

- The increasing scrutiny by the broader community regarding how animals are managed and treated will require active monitoring, updating of practices and demonstration to the public of humane practices being used into the future. Based on the trend within Australia and internationally this area will continue to emerge and will need proactive approaches to ensure that risks posed from limiting control options for some pest animals do not result in increasing impacts of pest animals on the economy, environment and other social impacts.

- Lacking effective 'signals' either incentives or enforcement that will result in wide-scale adoption of appropriate pest animal management.
- Options available to manage pest animals were reported to have been improved over the last five years, in a large part due to the Invasive Animals CRC.
- Lack of national prioritisation for pest animals emerged as an issue. Some stakeholders report this as a weakness for pest animals as compared with weeds i.e. Weeds of National Significance enabling resources to be attracted. Because there are not agreed pest animal priorities some reported that this limited access to resources.
- Current system higher risks were reported for ornamental fish, some aviary species and for reptiles. (These were a combination of ineffective quarantine process and risk assessment/protocols could be improved).
- Monitoring and surveillance to detect pest animal risks could be improved. Surveillance was reported to be highly challenging for pest animals (they move and hide and cross state borders).
- There is significant confusion around roles and responsibilities. There are mixed views on whether stakeholders understand their roles and responsibilities.
- The Invasive Animals CRC was regularly cited as playing a highly valued role for pest animal management.

## AWS

- The scale, persistence, diversity and number of species to be addressed.
- Declining investment in biological control – a long-term investment but with high returns on investment when successful, part of an overall decline in longer-term funding that provides necessary continuity to R&D projects.
- Australia is a leader in weed risk assessment processes and strength in this area should be maintained and expanded to sectors not yet engaged.
- The identified gaps in R&D are bio control, lack of coordination point and absence of significant social research.
- WoNS Coordinators – highly viewed and valued, providing focused coordination/ information transfer role across all key stakeholder sectors involved in weed management.
- WoNS – good at attracting revenue but many question the approach for the future (need to think about how to improve prioritisation approach).
- Coordinator – more valued than for APAS, but the National Weeds Management Facilitator has been in the role for much longer than for APAS.

# References

Australian Government (2008), *Monitoring, Evaluation, Reporting and improvement Framework*, Canberra

Beale R, Fairbrother J, Inglis A & Trebeck D (2008) – *One Biosecurity – a working partnership*, Independent Evaluation on behalf of the Australian Government, Canberra, 30 September 2008.

Bomford M (2008). *Risk assessment models for establishment of exotic vertebrates in Australia and New Zealand*. Invasive Animals Cooperative Research Centre, Canberra.

CIE, *Evaluation of Envirofund*, for the Australian Government joint NRM team, 2008.

Fenton M (2007) – *Evaluation of the Regional Facilitators and Coordinators* independent evaluation for the Australian Government joint NRM team.

Gong W, Sinden J, Braysher M and Jones R (2009). *The economic impacts of vertebrate pests in Australia*. Invasive Animals Cooperative Research Centre, Canberra.

Hart Q and Bomford, M (2006) – *Science for Decision Makers – Australia's Pest Animals: New approaches to old problems*, Revised Edition, Bureau of Rural Sciences, Canberra.

Hassall & Associates (2003) – *Natural Heritage Trust Facilitator and Coordinator Evaluation*. Independent Evaluation for the Australian Government Department of Environment, Heritage and the Arts and Agriculture, Fisheries and Forestry Australia.

Ohlmer B, Olson K, Brehmer B (1998). Understanding farmers' decision making processes and improving managerial assistance*, Agricultural Economics*, vol 18. No.3, pp 273-290.

Pannell DJ, Marshall GR, Barr N, Curtis A, Vanclay F & Wilkinson R (2006).Understanding and promoting adoption of conservation practices by rural landholders, *Australian Journal of Experimental Agriculture,* vol 46, pp 1407-1424.

Victorian Government (2010) *Invasive Plants and Animals Policy Framework*, Victoria http://www.dpi.vic.gov.au/agriculture/pests-diseases-and-weeds/protecting-victoria-pest-animals-weeds/invasive-plants-animal-policy

# Appendix A - A short summary of progress against the APAS Objectives

This appendix provides a short summary of key activities against the Goals and Objectives of the APAS. These have been identified from the APAS implementation plan (2008), the APAS mid-term review (2010) and from progress reports completed by the National Coordinator of the APAS.

| | Goals and Objectives | Summary of key activities |
|---|---|---|
| Objectives for Goal 1 | **1. Provide leadership and coordination for the management of pest animals** | *Context*<br>• In 2008, the Australian Government commissioned independent experts to review national biosecurity and quarantine arrangements. This review referred to as the 'Beale Review'[1] identified a number of institutional changes.<br>• As part of the Australian Government and state and territory government response to the Beale Review there was a commitment to an Intergovernmental Agreement on Biosecurity (IGAB) which was agreed by all jurisdictions (except Tasmania) in January 2012. One of the elements to improve emergency responses to incursions of invasive species (National Environmental Biosecurity Response Agreement – NEBRA) of the IGAB was also agreed in January 2012.<br>• The Vertebrate Pests Committee reports to the National Biosecurity Committee.<br>• Animal welfare has increasingly driven changes required in pest animal management – both in options, agreed management practices and in communications to the broader public. The Australian Animal Welfare Strategy. |
| | **1.1** To develop the capacity and processes for effective delivery of pest animal management | • The APAS Implementation Plan was completed by November 2008 and revised in 2010. It noted other strategic documents to be completed as part of the implementation, these included: communication plan; research and development plan, and Species and Asset lists.<br>• A National Coordinator for the APAS was employed in 2010.<br>• A stakeholder engagement mechanism identified as required in the APAS included presentations, establishment of apas.net.au as a communication and delivery point, development of a National Feral Camel Action Plan, and customised meetings to engage with specific stakeholders such as the Animal Welfare Committee, the Zoo Aquarium Association, the National Wild Dog Management Advisory Group and the Cane Toad Advisory Group.<br>• Regarding responding to potential conflicts between environmental, economic and social values – it was agreed that the breadth of conflicts was so large across the biosecurity continuum and sectors that this issue should be dealt with by the National Biosecurity Committee across sectors rather than by the Vertebrate Pests Committee. |
| | 1.2 To ensure nationally consistent pest animal management approaches are in place at all scales of management | • Principles to maximise national consistency and effectiveness of legislation were agreed by the Vertebrate Pests Committee in 2011. Through IGAB processes, the jurisdictions reported making significant changes to their biosecurity legislation.<br>• National coordination and liaison has occurred between other government committees and the Vertebrate Pests Committee (key committees include the Animal Welfare Committee, and the Australian Weeds Committee)<br>• Seven Codes of Practice have been developed for the humane capture, handling or destruction of feral animals in Australia. The redrafting of the Regulatory Impact Statement for each of the Codes of Practice was undertaken with enhanced consultation. Five pest control methods were identified during the development of the Codes of Practice as unacceptable in terms of humaneness and these will be recommended to the Primary Industry Standing Committee in 2013 as methods that should be discontinued.<br>• The Pest Fish Working Group has developed a National Fish Priority List. They have commenced preparation of a comprehensive Freshwater Pest Fish Strategy. |
| | 1.3 To improve public awareness of pest animals, research coordination and its support for pest | • The APAS Communication Strategy 2010-2012 was developed and agreed on in October 2010. It included nine key tasks – 'Standard words' for Vertebrate Pests Committee and APAS communications, APAS website, Cross-referencing of APAS in agency documents, stakeholder database, stakeholder information and dissemination, direction stakeholder interactions, documentary materials, conferences and meeting presentations and |

[1] One Biosecurity: A Working Partnership, 2008

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|---|---|---|
| | management at the national level, and adoption of best practice management. | monitoring effectiveness of communication activities. No evidence of implementation of the Communication Strategy was provided to this evaluation.<br>• Given the scope and other parties involved in research, development and extension for pest animals, it was identified that strategic level guidelines document be developed rather than a prescriptive R&D plan. Draft guidelines were endorsed by the Vertebrate Pests Committee in November 2011 subject to further consultation. The IGAB under schedule 8 identifies research and development requirements as a task to be completed.<br>• The Training Working Group (a subcommittee of the Vertebrate Pests Committee) undertook analysis and future training needs and provided advice to the Vertebrate Pests Committee. |
| Objectives for Goal 2 | **2. Prevent establishment of new pest animals** | *Context*<br>• Many of the actions items identified under Goal 2 were noted in the mid-term review as being *"beyond the scope of the APAS-related activities, particularly where these relate to practical activities that are responsibilities of jurisdiction"*. Some of the nationally coordinated actions relevant to this Goal are sought to be progressed under the IGAB. |
| | 2.1To prevent the introduction of new animals with pest potential | • A Vertebrate Pests Committee Working Group has focused on approaches for assessing the risks of new animal imports and resolving issues between jurisdictions.<br>• Work on minimising risks of escapes from legally held captive/pet exotic species. A revision was noted as being progressed for 'Guidelines for the Import, Movement and keeping of Non-indigenous Vertebrates in Australia.'<br>• A Vertebrate Pests Committee Working Group is working closely with the Ornamental Fish Management Implementation Group to review fish species being imported to Australia and identify where negative impacts and risks could be reduced.<br>• There were reported strong linkages with the Zoo Aquarium Association. |
| | 2.2To ensure early detection of, and rapid response to, new incursions of exotic animals | • The 'National Categorisation System for Invasive Species' developed by the Vertebrate Pests Committee in conjunction with the Australian Weeds Committee was endorsed by the National Biosecurity Committee in July 2011.<br>• A task for development of a pest animal incursion response plan was noted as being progressed which needed to be consistent with the NEBRA processes. This task is part of broader IGAB commitments. |
| | 2.3 To reduce the spread of pest animals to new areas in Australia | • The Vertebrate Pests Committee provided advice to the National Biosecurity Committee on the Release of Game and Feral Animals to prevent the introduction and/or spread of new animals with pest potential. This advice received support from the National Biosecurity Committee in June 2010. |
| Objectives for Goal 3 | **3. Manage the impacts of established pest animals** | |
| | 3.1To identify established pest animals of national significance | • The 'National Categorisation System for Invasive Species' was endorsed in July 2011. This is a foundation for identifying a national list of Established Pest Animals of National Significance.<br>• The National Feral Camel Action Plan was developed as the first management plan for an animal expected to be on the national significance list. The Natural Resource Management Ministerial Council approved the plan in November 2010. |
| | 3.2To identify and manage the impacts of pest animals on key assets | • The Vertebrate Pests Committee noted in 2010 that 'impacts of pest animals on key assets' should be incorporated into the development of management plans for Established Pest Animals of National Significance rather than a separate plan. |
| | 3.3 To coordinate the management of established pest animals across Australia | • A Vertebrate Pests Committee Working Group developed a National Pest Fish Priority List and has commenced the preparation of a comprehensive Freshwater Pest Fish Strategy |