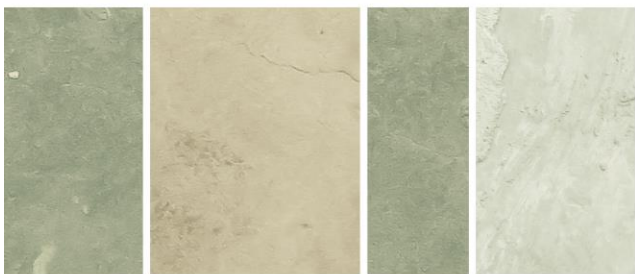


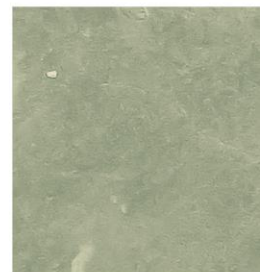
# National Incursion Prevention and Response Strategy for Potentially Invasive Vertebrates

Supporting the Australian Pest  
Animal Master Strategy

2019-2024

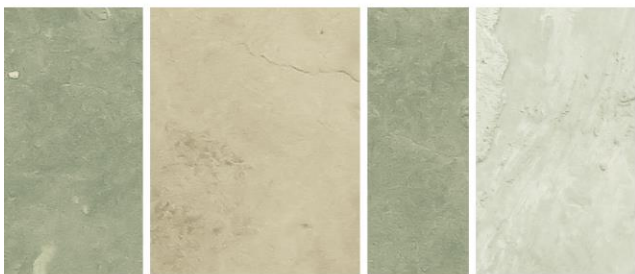
Written by Dr Michelle Christy on behalf of  
Environment and Invasives Committee (EIC)





# Contents

Acknowledgements .....	iv
Executive Summary.....	3
Alignment with the National Framework.....	5
Purpose .....	5
Scope .....	6
Incursion Prevention and Response .....	7
Incursion Prevention .....	7
Surveillance .....	7
Emergency Assessment and Response .....	8
Guiding Principles.....	10
Roles and Responsibilities .....	11
Strategic Goals, Objectives and Actions .....	13
Goal 1 - Develop Practical Management Structure .....	13
Objective 1.1: Develop Efficient IV Management Program.....	13
Goal 2 - Build Capability and Expertise .....	16
Objective 2.1: Establish and Enact Research Priorities.....	16
Objective 2.2: Improve Prevention Proficiency and Capacity .....	17
Objective 2.3: Review and Enhance Surveillance Systems .....	18
Objective 2.4: Improve Response Proficiency and Capacity .....	19
Objective 2.5: Develop and Conduct Training .....	21
Goal 3 - Improve Stakeholder/Community Support and Engagement .....	22
Objective 3.1: Develop Partnerships .....	22
Objective 3.2: Enhance Communication .....	23
Objective 3.3: Facilitate Involvement .....	25
Implementation, Governance and Delivery .....	26
References .....	27
Appendix A Goals, Objectives, Actions .....	29
Appendix B Glossary of Terms and Abbreviations .....	38



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- Department of Agriculture and Fisheries (DAF), Queensland
- Department of Primary Industries, Parks, Water and Environment (DPIPWE), Tasmania
- Department of Primary Industries (NSW DPI), New South Wales
- Department of Agriculture and Water Resources (DAWR)
- Department of Environment and Energy (DoEE)
- Environment and Invasives Committee (EIC)<sup>3</sup>
- Invasive Plant and Animal Committee Vertebrate Pest Incursion Expert Group (IPAC VPIEG)<sup>4</sup>
- Environment and Invasives Committee Freshwater Vertebrates and Invertebrates Working Group (EIC FVIWG)<sup>5</sup>
- Environment and Invasives Committee Terrestrial Vertebrates Working Group (EIC TVWG)
- Environment and Invasives Committee Environmental Biosecurity Advisory Group (EIC EBAG)
- University of Adelaide
- Interested individuals and groups through public consultation

Strategy compiled by Dr M. Christy on behalf of Environment and Invasives Committee (EIC)

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<sup>1</sup> formally Department of Agriculture and Food, Western Australia (DAFWA)

<sup>2</sup> Department of Economic Development, Jobs, Transport and Resources (DEDJTR)

<sup>3</sup> formally Invasive Plant and Animal Committee (IPAC)

<sup>4</sup> Terminated February 2018

<sup>5</sup> Formally Invasive Plant and Animal Committee Freshwater Fish Expert Group (IPAC FFEG)

## Creating a Compatible and Functional Strategy

*Because the NIR Strategy is intended to be nationally implemented, it has been developed in line with national and state/territory strategic directions, policies, and legal drivers. It incorporates or aligns with the following frameworks, strategies and plans:*

### NATIONAL

[Australian Pest Animal Strategy \(2017-2027\)](#)

[Intergovernmental Agreement on Biosecurity \(2012\)](#)

[Intergovernmental Agreement on Biosecurity - Review \(2016\)](#)

[National Environmental Biosecurity Response Agreement \(2012\)](#)

[National Environmental Biosecurity Response Agreement - Five Year Review \(2017\)](#)

[National Surveillance and Diagnostic Framework \(2014\)](#)

[National Environment and Community Biosecurity Research, Development and Extension Strategy \(2016 to 2019\)](#)

[National Biosecurity Engagement and Communication Framework \(2013\)](#)

[Invasive Plants and Animals Policy Framework \(2013\)](#)

[Freshwater Pest Fish Strategy - draft \(2013\)](#)

[AHA AUSVETPLAN](#)

[PHA PLANTPLAN](#)

[WHA Wildlife Biosecurity Guidelines \(2018\)](#)

### STATE/TERRITORY

[ACT Biosecurity Strategy \(2016-2026\)](#)

[NSW Biosecurity Strategy \(2013-2021\)](#)

[NSW Invasive Species Plan \(2018-2021\)](#)

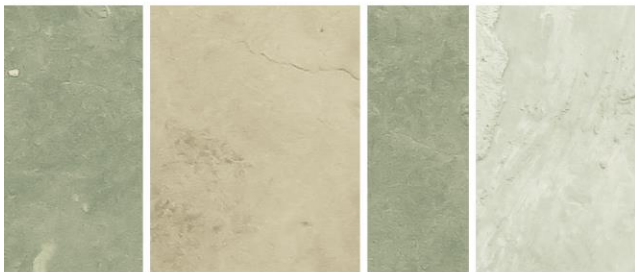
[NT Biosecurity Strategy \(2016-2026\)](#)

[QLD Biosecurity Strategy 2018-2023](#)

[QLD Weed and Pest Animal Strategy - consultation draft \(2018\)](#)

[SA State Biosecurity Policy \(2017-2021\)](#)

[TAS Biosecurity Strategy \(2013-2017\)](#)



TAS Invasive Animals Incursion Response Strategy and Framework (2013)

VIC Invasive Plants and Animals Policy Framework (2012)

VIC Protecting Victoria's Environment: Biodiversity 2037 (2017)

VIC High Risk Invasive Animals Response Plan - consultation draft (2012)

WA Biosecurity Strategy (2016-2025)

WA Invasive Species Plan (2015-2019)

WA Surveillance and detection plan for invasive species in Western Australia - draft (2015)



## Executive Summary

Controlling established pests is a significant aspect of invasive species management, however it is important that prevention and early response to new incursions are recognised as cost-effective alternatives to long-term control of pests. This necessitates an integrated approach to incursion management that identifies and prioritises risks, threats and response actions across all sectors.

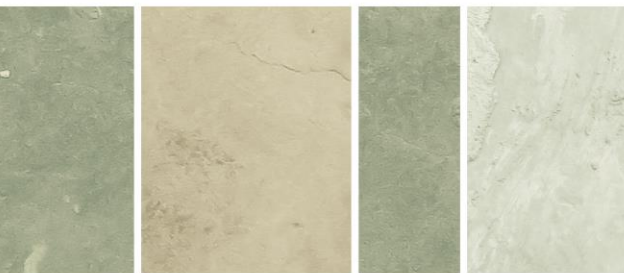
Australian governments, through the Environmental and Invasives Committee (EIC) and the National Biosecurity Committee (NBC), have agreed to a comprehensive national strategy which aims to strengthen Australia's ability to further prevent and respond to new incursions of vertebrate pests.

This National Incursion Prevention and Response strategy (the strategy) is a program-level strategy that has been developed to establish a planning structure to provide clear direction to government, community, industry and individual stakeholders for the management of new or potential vertebrate pest incursions across Australia. It will help ensure an ongoing decline in the rate of new vertebrates establishing in Australia and forms an important part of the prevention and eradication stages of pest animal management.

The strategy is overseen by EIC and supports the master strategy: the Australian Pest Animal strategy (APAS). Its use is primarily aimed at jurisdictional stakeholders with biosecurity responsibilities.

The strategy aims to:

- enhance and create a reliable vision for consistently managing potentially invasive vertebrate incursions across jurisdictions and sectors;
- outline the principles that support Australia's approach to vertebrate incursion management;
- describe and prioritise goals and actions outside the existing multi-jurisdictional arrangements for government, industry and community to minimise adverse economic, environmental and social impact of vertebrate incursions;
- provide guidance to assist decision-makers to make wise and timely investment decisions;
- encourage collaboration and coordination between governments, landholders, industry, and community groups, encourage partnerships, and maximize the extent to which the current capacity for partnership is leveraged to meet common goals;
- identify gaps and clarify where national effort, leadership, coordination, and collaboration have the potential to reduce invasive vertebrate risks and/or adverse impacts; and
- maximise public benefit from public investment.



Goal	Objective	Action
1 Develop Practical Management Structure	1.1 Develop efficient IV management program	1.1.1 Improve national leadership and coordination for consistent incursion management
		1.1.2 Improve NEBRA decision-making for incursion response
		1.1.3 Ensure accurate and timely incursion communications
		1.1.4 Explore incursion management processes across government/non-government
		1.1.5 Investigate options for improving ongoing resourcing arrangements
2 Build Capability and Expertise	2.1 Establish and Enact Research Priorities	2.1.1 Prioritise, undertake and adopt research to develop and improve capability and capacity
	2.2 Improve Prevention Proficiency and Capacity	2.2.1 Establish a continuum approach to incursion prevention
	2.3 Review and Enhance Surveillance Systems	2.3.1 Develop processes and capacity for taxonomic identification
		2.3.2 Develop and implement surveillance tools and techniques for new incursions
	2.4 Improve Response Proficiency and Capacity	2.4.1 Develop and collate preparedness documentation 2.4.2 Maintain and enhance response capability through existing structures
3 Improve Stakeholder/Community Support and Engagement	2.5 Develop and Conduct Training	2.5.1 Assess capabilities and training needs
		2.5.2 Create and implement accredited training and education modules
	3.1 Develop Partnerships	3.1.1 Identify and promote effective incursion management relationships 3.1.2 Assist non-government to participate in incursion management
	3.2 Enhance Communication	3.2.1 Develop awareness extension materials and tools
	3.3 Facilitate Involvement	3.3.1 Generate and streamline engagement plans, reporting protocols and applications





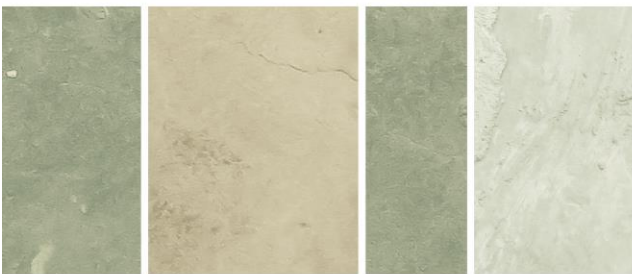
## Alignment with the National Framework

The strategy is a program-level deliverable of the master strategy: [Australian Pest Animal strategy](#) (APAS). It supports and expands on the APAS Goal 1 (improved leadership and coordination) and Goal 3 (prevention of new species establishment). The development of the strategy is guided by the EIC, a sectorial subcommittee under NBC. EIC is responsible for implementing the IGAB for invasive plant, vertebrate and invertebrate species that adversely impact the environment, economy and community (EIC 2018). The goals, actions and outcomes specified in the strategy are consistent with the APAS, IGAB, current NEBRA agreements, and the committees of NBC and EIC.

## Purpose

The existing national biosecurity approach principally includes disease and pests of plants and animals that impact agri-business, and marine pests (e.g., Animal Health Australia (AHA), Plant Health Australia (PHA), Wildlife Health Australia (WHA)). The growing number of potentially invasive vertebrates (IV), particularly those considered to primarily impact the environment and social amenity, are currently inadequately covered.

Presently, there is no national incursion prevention or emergency response frameworks in place that directly targets IV, except where industry/economic loss is threatened. State/territory jurisdictions are obligated to prevent the spread of incursions, including IV within their borders under normal biosecurity commitments. If the incursion cannot be managed by the impacted jurisdiction, then pre-existing cost-sharing arrangements defined in NEBRA or the EPPRD can be sought. Within the animal, aquatic and plant health sectors, frameworks such as [AUSVETPLAN](#), [AQUAVETPLAN](#) and [PLANTPLAN](#) outline the nationally agreed approach for responses to pest and disease incursions. Augmenting current national incursion management and strengthening Australia's ability to further prevent and respond to new vertebrate incursions is central to the strategy.



## Scope

The strategy enhances the current national approach by creating a nationally recognised and implementable framework that fills gaps in the current system and prevents IVs entering and/or establishing in Australia. Once implemented, the strategy should provide a roadmap of guiding principles, goals and objectives that can, outside the existing Commonwealth and multi-jurisdictional arrangements:

- enhance and create a reliable vision for consistently managing IV incursions;
- outline principles that support Australia's approach to IV incursion management;
- present goals and actions to minimise the adverse economic, environmental and social impact of IV incursions;
- outline an intention to better gather and use information to inform policies and actions with regard to impending biosecurity threats;
- provide guidance to assist decision-makers to make wise and timely investment decisions;
- encourage collaboration and coordination between stakeholders, cultivate partnerships, and maximise the extent to which the current capacity for partnership is leveraged to meet common goals;
- identify gaps and clarify where national effort, leadership, coordination, and collaboration have the potential to reduce IV risks and/or adverse impacts; and
- maximise public benefit from public investment.

### *What is an incursion?*

An incursion is an isolated population of a non-native organism recently detected in an area (e.g., country, jurisdiction, region or even a site) not known to be established, but expected to survive for the immediate future. Note that re-invasion of a species that has already been eradicated or controlled is considered a new incursion.

Modified from ICPM (2003) and MAFBNZ (2008)



# Incursion Prevention and Response

## Incursion Prevention

The most efficient and cost-effective strategy is to prevent arrival or establishment of new species (Kaiser and Burnett 2010; Vander Zanden et al. 2010). Across entire landscapes, removal of newly emerging populations has been demonstrated a better alternative than reduction of well-established species (e.g., MAFBNZ 2008; Moody and Mack 1988; Ruiz and Carlton 2003).

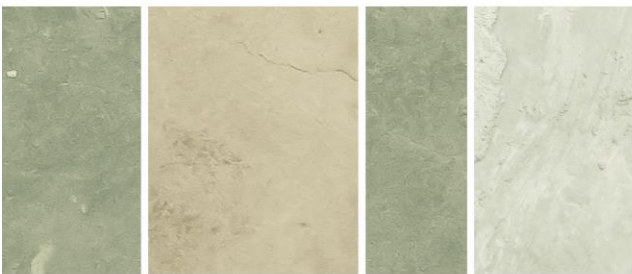
Australia has in place a range of incursion prevention tools and programs which are important for anticipating threats and managing risks before a species arrives at the border. Presently, mitigation of incursion risk is largely a border function undertaken by the Commonwealth. The Commonwealth also plays a major role in pre-border incursion prevention, engaging in off-shore and border quarantine inspections and screening, certification, and permitting.

Although the current national biosecurity systems are effective at preventing border incursions, introductions continue to increase the cumulative number of species establishing (EIC, unpublished data). No matter how good the biosecurity system, incursions will continue because the development of a no-risk system is not possible. Further, not all incursions occur exclusively at government-controlled ports and checkpoints, and therefore government-only border incursion prevention programs will not fully address the problem. To facilitate coverage and decrease risk, enhancement of collaborative incursion management is necessary.

It is important to think beyond individual species when identifying incursion management needs (Carlton 2003; McGeoch et al. 2016). For unintentional introductions, the identification of major pathways, activities, and high risk sites is a productive approach because each is a potential conduit for a suite of species. The current border biosecurity programs use some pathway and commodity-based surveillance and intervention to determine risk. There is potential to enhance and grow this approach, particularly post-border.

## Surveillance

The importance of pre- to post-border surveillance and monitoring is widely acknowledged as imperative for incursion management (COAG 2012; Epanchin-Niell et al. 2012; NBC 2014). Surveillance allows us to determine if a new incursion has occurred, and the success of detection and eradication programs. Effort and cost of surveillance must be balanced against effort and cost of eradications (Epanchin-Niell



and Hastings 2010; Holden et al. 2016). Accounting for these trade-offs should influence optimal levels of surveillance and is dependent on underlying invasion process, assumptions and the decision-making environment.

A well-structured surveillance program should incorporate multiple stages that build on each other (e.g., Figure 1). Each stage relies on its own suite of skills, tools, and procedures to ultimately inform an appropriate management response (Kean et al. 2008). The [National Surveillance and Diagnostics Framework](#) is the mechanism through which a coordinated and integrated approach to incursion surveillance is addressed.

## Emergency Assessment and Response

Despite best efforts, incursions will occur. Early detection, prompt assessment and timely response are a critical second level of protection against the establishment of invasives. A successful emergency response program should identify potential threats in time for environmentally responsible decisions to be made and risk-mitigation measures taken. Responses can increase the effectiveness of eradication, slow range expansion, and avoid the need for costly long-term control efforts. Well-structured processes for emergency response exist, particularly for diseases and pests of plants and animals. [Biosecurity Emergency Management - Biosecurity Incident Management System](#) (BIMS; DAFF 2012) is the current emergency response management system most programs use.

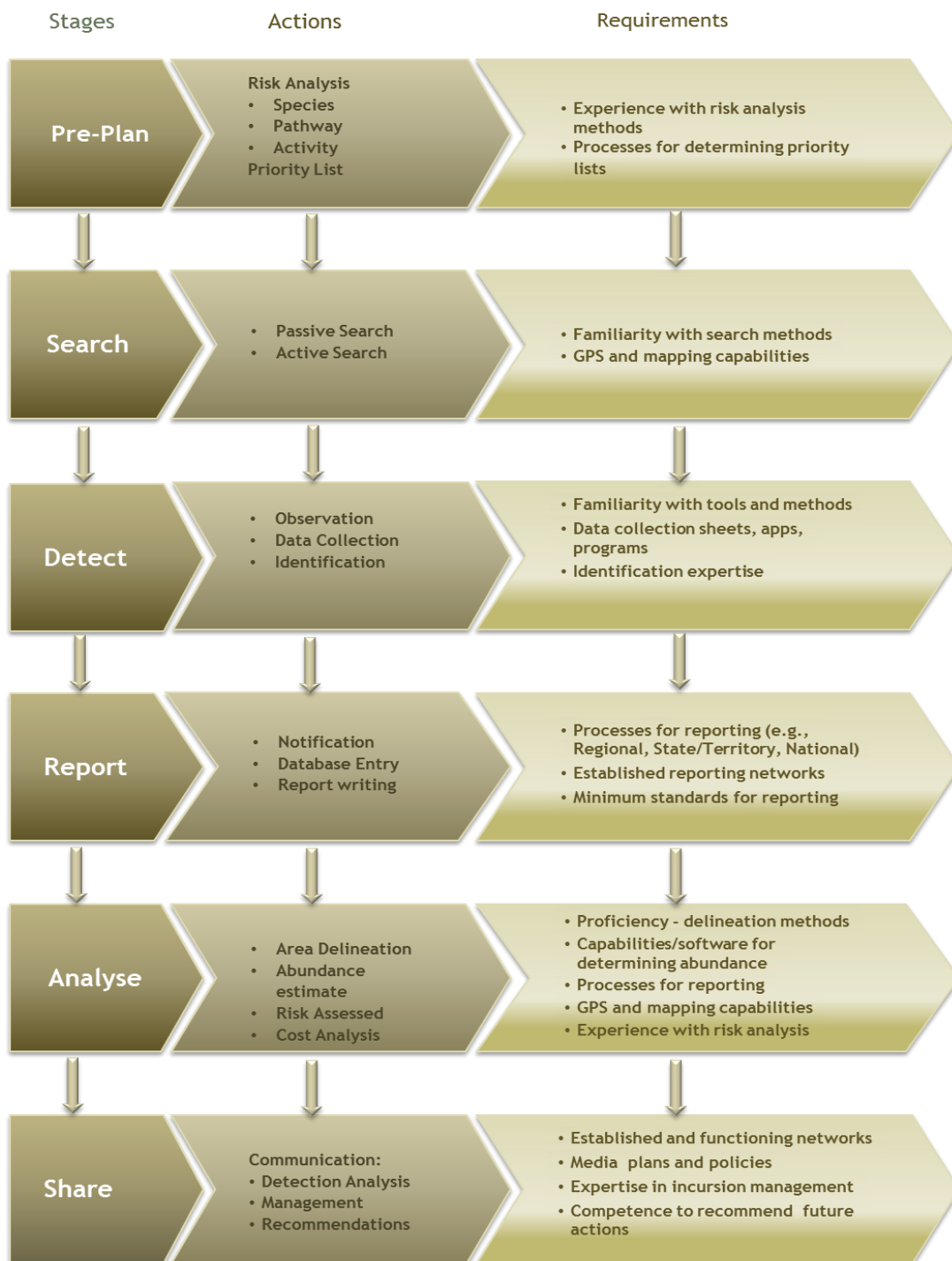
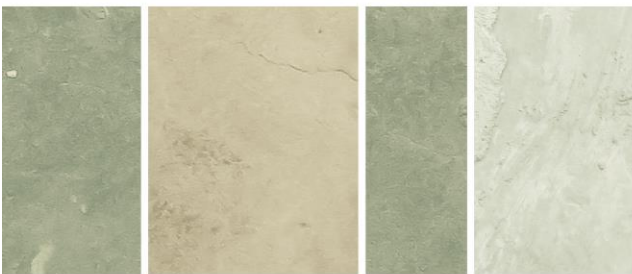


Figure 1. A well-structured surveillance program should incorporate multiple stages from pre-planning to dissemination of information. Each stage requires specific requirements and actions. Source: MAFBNZ (2008) and Sheehan (2013).



## Guiding Principles

Guiding principles for IV incursion management are:

1. **Incursion management is integral** to sustainable management of natural resources for the benefit of the economy, the environment, human health and amenity.
2. **Prevention and early eradication** is more effective and economical than ongoing management of established populations.
3. Incursion threats **recognise no political boundaries**, and can occur **without warning**.
4. Incursion management is a **shared responsibility** between landholders, community, industry and government that requires all parties to have a **clear understanding of their roles and responsibilities**.
5. Resource managers have an **obligation to prevent incursions** in their area of control.
6. **Evidence-based decision making underpinned by science** is necessary to develop innovative and cost effective solutions that support strategy, policy and operations.
7. Setting priorities for, and investment in, incursion management is informed by a **risk management approach**, facilitated by clear, transparent and consultative processes for decision making and investment.
8. Governments may **invest** in incursion management where there is a **net public benefit** from any such intervention.
9. **Feasibility, cost effectiveness, and social licence are key** to strategic incursion management.
10. Incursion management **requires coordination** among government and non-government, regardless of tenure and resourcing.
11. **Best practice** will balance efficacy, humaneness, sustainability, community perceptions, feasibility and emergency needs, and ensure incursion management is timely, professional and effective.
12. Incursion management **complies with** animal welfare and work health safety standards.



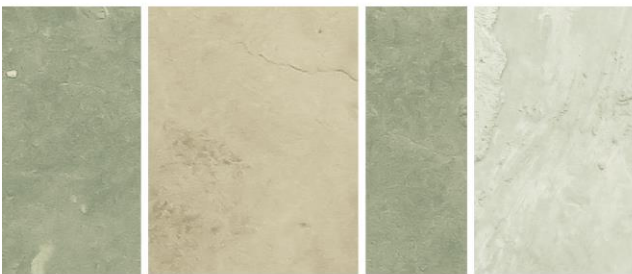
## Roles and Responsibilities

Collectively, all Australians and organisations from local to national, government and non-government have a part to play in preventing and managing IV incursions. Broad roles and responsibilities differ between stakeholders, jurisdictions, location and capability. However, everyone is responsible for ensuring their actions do not introduce new, or cause the establishment of, IV into or within Australia.

### Australian Government

- responsibly lead and administer effective incursion management pre-and at-border, and post-border on Australian Government land, collaborating with adjoining landowners and land users where appropriate
- deliver pre- and at border enforcement actions and regulatory interventions when necessary to support sustained incursion management
- provide oversight and coordination for post-border emergency responses to incursions of national significance
- deliver effective legislative framework (biosecurity and environmental) to minimise the risk pre- and at- border incursions including undertaking enforcement actions and regulatory interventions when necessary
- develop national incursion management strategies, plans, policies and programs for ‘nationally significant’ species and support jurisdictional policies/programs for the management of post-border incursions
- support research, development and extension for improved incursion management which benefits the public good
- facilitate the adoption of risk management measures as part of normal business practices for people and/or organisations that have the potential to impact pre- and at-border incursion risk
- contribute to, and support, the collection, collation and curation of national incursion data and information
- provide leadership, coordination and resources to build public awareness and knowledge of national incursion management
- promote the development of ongoing partnerships between governments, industry, community and scientists
- honour international treaties and contribute to global and environmental initiatives





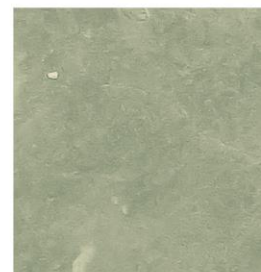
## **State and Territory Governments**

- lead and coordinate emergency responses to post-border incursions that occur within their jurisdiction, in co-operation with other landowners and stakeholders where appropriate
- undertake enforcement actions and regulatory interventions with respect to individuals or organisations (e.g., illegal trade) when necessary to support sustained incursion management
- facilitate responsible post-border incursion management by providing suitable legislative and regulatory frameworks, developing and implementing effective strategies, policies and programs, and where appropriate, providing support to stakeholders
- provide leadership, coordination and resources for research, evaluation, advisory services and education programs about incursion prevention and early detection
- facilitate the adoption of risk management measures as part of normal business practices for people and/or organisations that have the potential to impact post-border incursion risk
- build incursion management coordination and collaboration at local, regional and state/territory levels, and promote and develop partnerships between governments, industry, community and scientists
- continue to share incursion information with other jurisdictions/stakeholders, collaborate in the development/updating of relevant documentation, and contribute to the collection of incursion data that can be collated nationally

## **Non-Government Stakeholders (industry, community groups, individuals)**

- understand and act upon legislated responsibilities to improve IV incursion management, and recognise that collaboration and multiple approaches may be necessary to prevent IV establishment
- recognise steps necessary to identify IV incursions, what to do, when/how to inform authorities, and what evidence to collect
- take reasonable steps to minimise the possibility of introducing or moving IV into new areas (including seeking correct approvals and permits and reducing the risk of captive animal escape)
- cooperate with, plan, and implement incursion management activities jointly with other local government and non-government stakeholders where appropriate





## Strategic Goals, Objectives and Actions

Following are the strategic goals, objectives and associated actions for IV incursion management. It sets out the overarching adaptive management framework to facilitate national and jurisdictional planning and implementation. See [Appendix A](#) for a full summary table.

The three goals of the strategy 2019 to 2025 are to:

- **Goal 1** develop a practical management structure
- **Goal 2** build capability and expertise
- **Goal 3** improve stakeholder/community support and engagement

### Goal 1 - Develop Practical Management Structure

#### Objective 1.1: Develop Efficient IV Management Program

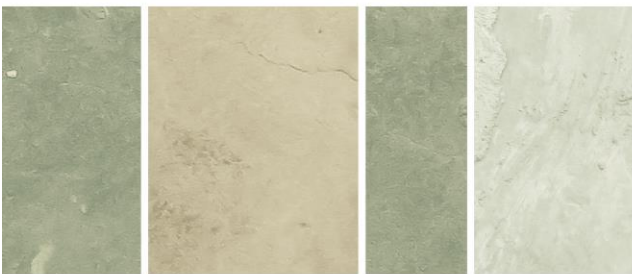
General processes designed to deal with incursions exist, but are not implemented consistently for IV among jurisdictions. Current gaps are incursions that primarily impact the environmental, or those not considered nationally significant.

##### *Action 1.1.1: Improve National Leadership and Coordination for Consistent Incursion Management*

Biosecurity is a shared responsibility which includes avoiding or reducing negative impacts (such as providing early notification of an IV) and refraining from activities that increase risk (such as inadequate prevention or response). This can be achieved by improving on existing national leadership and coordination outlined under the NEBRA.

Key Tasks:

- Create IV-specific incursion planning manuals and documents consistent with the outcomes of the APAS
- Adopt and implement plans, techniques and tools



- Establish and apply an incursion-focused communication network

### ***Action 1.1.2: Improve NEBRA Decision-Making for Incursion Response***

A planned review of the NEBRA should enhance decision-making structures and incorporate criteria measurability and consistency to the process. A desirable outcome of the NEBRA review is that practitioners can understand NEBRA without need for an interpretative guide.

Key Task:

- Complete NEBRA review and update

### ***Action 1.1.3: Ensure Accurate and Timely Incursion Communications***

Sharing information between jurisdictions was flagged as a major shortfall in biosecurity management (Commonwealth of Australia 2015). Improved mechanisms for information sharing are required to ensure relevant and sufficient material is adequately exchanged between the Australian government and other jurisdictions, and vice versa.

Key tasks:

- Create consistent and timely sharing and dissemination of IV incursion information including pre- to post-border detections
- Implement nationally agreed reporting standards. Incursion management data should be nationally recorded using agreed data standards and secure web accessibility
- Collate and curate risk assessments for priority species. Various risk assessments are held within jurisdictions. Collation in one location of all assessments in a consistent format is an outcome sought under the strategy
- Maintain a centralised library for publications and information sharing. The publication of incursion management information is of joint benefit. This information can be stored on a central web-based library immediately following publication or development, ensuring ready availability to incursion practitioners



#### ***Action 1.1.4: Explore Incursion Management Processes across Government/Non-Government***

As volumes and patterns of trade, migration, tourism, industry, land use, and climate change evolve, so too does the volume and diversity of IV incursions.

Key tasks:

- Identify need and gaps, and establish or formalise programs that can be applied across sectors including industry, services, environmental and social amenities
- Identify priority incursion threats in each key area (sector, pathway etc.)
- Determine priorities for development and implementation
- Describe how to implement and administer the program

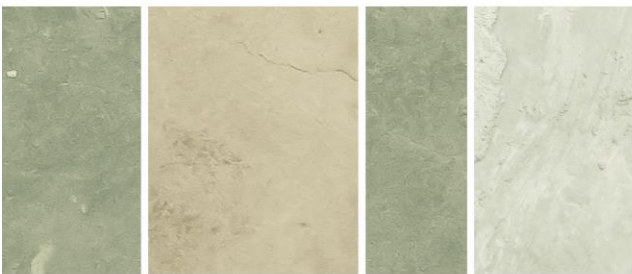
#### ***Action 1.1.5: Investigate Options for Improving Ongoing Resourcing Arrangements***

Cost share arrangements for biosecurity are agreed at a national level. However, there are a number of gaps in the current resourcing arrangements for IV, such as insufficient post-border incursion prevention funding, little provision for industries outside food production to contribute to responses, and high cost or lead time required before a NEBRA response is triggered.

A range of additional performance measures are considered with regard to investment decision-making.

Key tasks:

- Strengthen current cost sharing provisions for IV incursion prevention
- Increase capacity to share costs for cross-border incursions
- Support government/non-government partnerships in programs for education, awareness, prevention and response
- Investigate processes that facilitate non-government resource contribution



## Goal 2 - Build Capability and Expertise

### Objective 2.1: Establish and Enact Research Priorities

To deliver an effective IV incursion program, building necessary capacity and processes, developing information technology and communication strategies, and streamlining delivery processes must be created.

Since resources for research, development and extension are limited, effective and collaborative allocation is crucial (DAWR 2016). The government's capacity to support research is finite. Presently, states and territories support IV incursion management as the need and funds allow. With limited funding and diverse investments in research across the entire invasion curve, incursion research capacity must be built in a way that enhances capability through sustainable and thoughtful prioritisation and coordination.

Contributions by jurisdictions can be shared nationally, and outcomes that significantly increase Australia's ability to rapidly and reliably identify and respond to incursions prioritised. This ability is significantly supported by the [Australian Government's 2016-2019 research, development, and extension \(RD&E\) priorities](#) (DAWR 2016) that focus on priority areas, building on previous work, identifying opportunities, and maximising benefits derived from stakeholder investments.

#### *Action 2.1.1: Prioritise, Undertake and Adopt Research to Develop and Improve Capability and Capacity*

Improving capacity will require a review of existing knowledge to identify gaps and prioritise future research. Optimal IV incursion management can then be considered within the context of benefits and costs (or risks and returns), stakeholder support and available resources. Furthermore, communication at each step of the process can be established to ensure stakeholder input and understanding is considered with respect to decisions made.

Key tasks:

- Address significant gaps. This can be achieved through the development of EIC-endorsed gap analysis and priority document, similar to AHA's animal biosecurity research and development strategy (Rowland and Adams 2014)

- Expand and improve, where necessary, risk assessment processes. Further improvement of the predictive ability of risk assessment processes should greatly facilitate the ability to prepare and respond to incursions
- Develop and utilise specialised proficiencies. All levels of government facilitate the development of a number of linked, specialised capabilities in government, CSIRO, universities, research centres and industry through coordination and resource allocation
- Strengthen international linkages by facilitating strong connectivity with international collaborators. This will strengthen our ability to draw on the expertise of the global incursion management community

## Objective 2.2: Improve Prevention Proficiency and Capacity

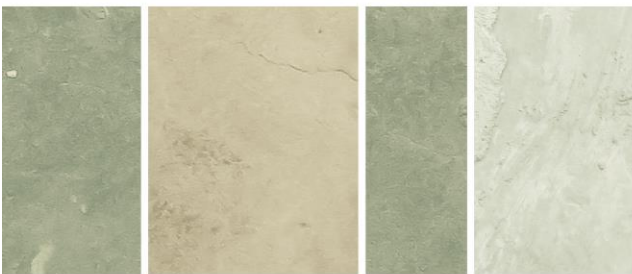
Effective incursion prevention necessitates activities offshore to reduce the risk of potential IVs reaching the border, actions onshore to deal with incursions as soon as they occur, and preventing inter-jurisdictional incursions. Expanding prevention capabilities from border to states/territories/regions/sites throughout Australia, understanding pathways, and developing plans of action will further reduce the risk of IV establishing.

### *Action 2.2.1: Establish a Continuum Approach to Incursion Prevention*

Having streamlined, universally accepted and implementable approaches for preventing incursions across the continuum from pre- to post-border is important. In a changing world of reduced government capacity and the need for industry and community to be involved, an integrated IV incursion prevention approach is an important addition to biosecurity in Australia.

Key tasks:

- Develop a streamlined EIC-endorsed plan that outlines advantages and disadvantages of the approach, and how incursion prevention can be implemented
- Facilitate testing, reporting and building remedial action into the process



## Objective 2.3: Review and Enhance Surveillance Systems

Effective surveillance and diagnostic services are pivotal to the successful operation of any incursion program. However, much of the surveillance and diagnostic activity currently undertaken by governments is fragmented and requires consolidation. For example, identification expertise for some taxa, such as freshwater fish, is primarily within private industry which can be difficult or expensive to access.

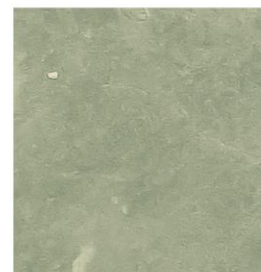
### *Action 2.3.1: Develop Processes and Capacity for Taxonomic Identification*

The [National Surveillance and Diagnostics Framework](#) (NBC 2014) was developed by the IGAB Schedule 4 working group to provide an integrated approach to the funding and management of these activities. The aim of the framework is to ensure that surveillance and diagnostics are supported by risk-based decision making to prioritise the allocation of government resources and investment to areas of greatest return, and maximise the use of existing capability and infrastructure. Consistency with the framework will facilitate a nationally streamlined approach.

Key tasks:

- Facilitate continued adoption of rapid diagnostic capabilities and technologies to maintain competence despite Australia's transforming biosecurity profile
- Develop succession planning for government and/or Memorandums of Understanding (MoU) or equivalent agreements to provide identification services with government agencies, museums, and institutions<sup>6</sup>
- Expand identification capacity by forming collaborative international networks
- Implement DNA-typing technology where practical
- Build and maintain a centralised and accessible DNA library
- Develop online identification tools such as lists of taxonomic experts, keys, descriptions and photos/illustrations

<sup>6</sup> Note that most states/territories have informal agreements and/or payment systems with museums and other government agencies providing diagnostic services. Some



### ***Action 2.3.2: Develop and Implement Surveillance Tools and Techniques for New Incursions***

Some useful foundations were developed to identify ‘national significance’ and ‘alert lists’ which were reported as required to support effective monitoring and surveillance of high risk species. Nationally agreed surveillance guidelines and protocols for prioritising species, pathways and activities should be developed using existing information, guidelines, and expertise.

Key tasks:

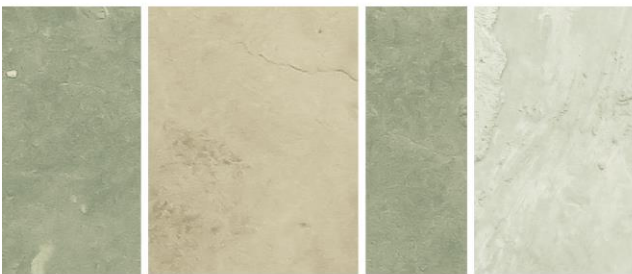
- Develop and adopt technologies and tools for detection and identification of IV at large
- Create/formalise active detection networks focused on high priority IVs, and passive detection networks that fortuitously detect IV incursions
- Implement new technologies such as eDNA, trapping, remote censusing, and incursion management structures as they are developed
- Establish a centralised, coordinated community of practice for web surveillance of illegal IV trading
- Monitor and improve current information technology, mapping and information systems

## **Objective 2.4: Improve Response Proficiency and Capacity**

Early detection and the ability to respond quickly to a new IV gives the best chance of successful eradication or containment.

### ***Action 2.4.1: Develop and Collate Preparedness Material***

The development of IV preparedness material involves the development of plans, manuals, operating procedures, and best management practices. These are necessary to ensure effective response.



Key tasks:

- Identify priorities and gaps in current material
- Explore existing models and material to establish consistency where relevant and feasible
- Create checklist of guidelines and the intended end users
- Establish guidelines for communication and stakeholder engagement with reference to existing resources where relevant, and current best practice
- Develop response manuals to support training programs
- Review periodically the uptake and implementation of preparedness material

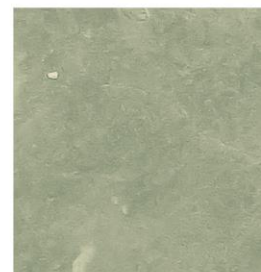
***Action 2.4.2: Maintain and Enhance Response Capability through Existing Structures***

Although other sector frameworks exist, there is currently no specific emergency response framework for IV. Currently, response activities are carried out under the NEBRA and the EPPRD, and align with the BIMS.

Key tasks:

- Develop of IV-specific material
- Implement training and emergency exercises
- Establish procedures for biodiversity data collection during responses
- Ensure that the development of material and structures do not duplicate existing material but include components that are not covered elsewhere





## Objective 2.5: Develop and Conduct Training

It is important for professionals and volunteers engaged in incursion management to have sufficient training to support subsequent action and ensure reporting quality.

### *Action 2.5.1: Assess Capabilities and Training Needs*

There is currently no national training program that ensures incursion practitioners are well prepared in the event of a new IV.

Key tasks:

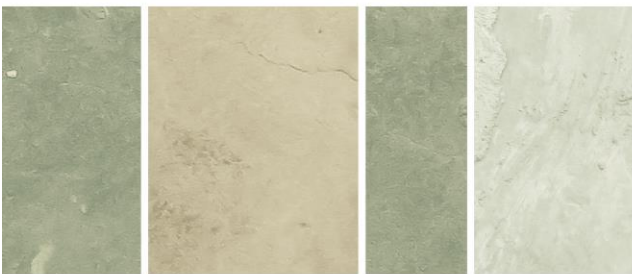
- Undertake an analysis of need to determine training needs, outcomes and target audience
- Consultation with end-users to establish training objectives, gaps in knowledge, content, and structure

### *Action 2.5.2: Create and Implement Accredited Training and Education Modules*

The Australian government recognises the importance of an integrated national emergency incursion preparedness approach for IV. The approach would be based on national and state/territory competencies and requirements.

Key tasks:

- Develop a plan to guide nationwide adoption and implementation of training programs or modules
- Provide pre-response training
- Undertake simulated exercises, face-to-face, classroom and field courses
- Evaluate the training program and adapt the design to address overlooked or additional factors



## Goal 3 - Improve Stakeholder/Community Support and Engagement

### Objective 3.1: Develop Partnerships

Under this model, the role of government would be to assist stakeholders to develop management practices to prevent IV incursions or mitigate incursion risk. This would require a greater understanding of stakeholders' perceptions and priorities than currently exists, and improving awareness. The development of the [National Biosecurity Engagement and Communication Framework](#) (NECWG 2013) was an initial step toward improved cooperation and stakeholder awareness through communication and engagement. Building on the framework should increase efficiency and effectiveness. Partnerships, such as AHA and PHA, demonstrate that nationally coordinated, collaborative incursion programs can be successful.

#### *Action 3.1.1: Identify and Promote Effective Incursion Management Relationships*

The strategy is strongly focused on strengthening collaboration between government and non-government stakeholders. This approach starts with the understanding that each jurisdiction and stakeholder shares incursion management (NBC 2013) and respects each other's roles and responsibilities. Groups such as universities and research centres are also important contributors to incursion management.

Key tasks:

- Establish MoUs or equivalent between relevant governments and stakeholder organisations for implementing incursion prevention and assisting with IV responses
- Provide maintenance and consistent jurisdictional application of the EIC Guidelines for the Import Movement and Keeping of Non-Indigenous Animals in Australia (VPC 2014)



### ***Action 3.1.2: Assist Non-Governments to Participate in Incursion Management***

Presently, incursion prevention is largely a border function undertaken by the Commonwealth and response by both national and state/territory governments. All stakeholders, including non-government groups and individuals, have a role ensuring that incursion management is understood and acted upon, standards are met, and roles and responsibilities are equitably developed and implemented.

Key tasks:

- Determine how assistance for non-government stakeholders is incorporated into IV incursion management (e.g., process as part of a program, or tools as part of a toolkit)
- Develop tools and processes (e.g., best management practices (BMP), industry codes of practice (ICP))
- Undertake feasibility and proof of concept studies
- Determine how and by whom tools and materials are created/revised and made available to relevant stakeholders

## **Objective 3.2: Enhance Communication**

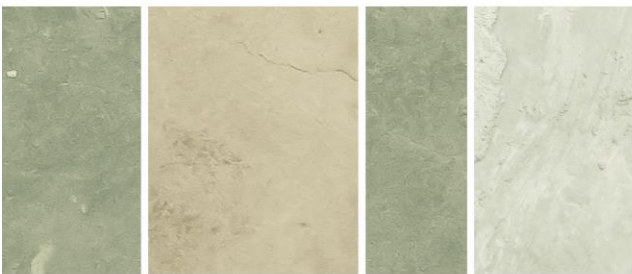
Better outcomes can be achieved if key stakeholders are involved. Many in the wider community have little awareness of IV incursions, or consider them less important than the control of already established species.

### ***Action 3.2.1: Develop Awareness Extension Materials and Tools***

National IV awareness education and engagement programs should be developed in consultation with relevant jurisdictions, stakeholders, and community to improve understanding.


Key tasks:

- Develop and review educational/engagement materials with targeted messaging that enables recognition of IV as biosecurity risks, understanding



responsibilities, engagement in passive and active surveillance, and timely reporting unusual sightings

- Reiterate that biosecurity is a shared responsibility and clearly communicate expectations
- Centrally locate relevant, shared operational and decision-making tools so they are readily available for adoption by jurisdictions and other stakeholders



### CASE STUDY

*Public reaction; when the take home message isn't what was planned*

In May 2015, a 2.6 m long female red-tailed boa constrictor (*Boa constrictor*) was captured in suburban Melbourne. Although the media mentioned the threat this snake posed to the environment should it have remained in the wild, it was the planned euthanasia of the snake that caught the public's attention. Photographs showed an attractive and healthy snake that many did not want to see killed. It seems the message that the boa is an extreme risk to Australia was overshadowed by animal welfare issues.

Photo: Department of Primary Industries



## Objective 3.3: Facilitate Involvement

To achieve success, an understanding of individual and community behaviour needs to be matched with program design.

### *Action 3.3.1: Generate/Streamline Reporting Protocols and Applications*

Reporting protocols and applications should be developed (or modified from existing) to facilitate timely and accurate notification and recording of incursions (see [Action 1.1.3](#)). Protocols will need to consider, and ensure consistency with, existing national response plans developed across plant, animal and marine sectors

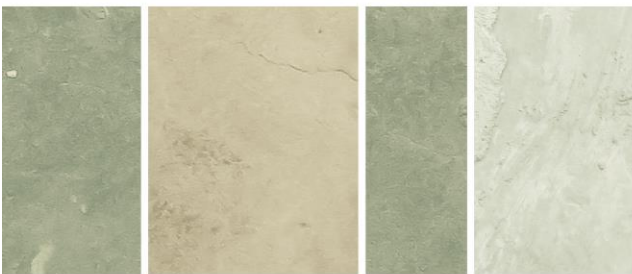
Key tasks:

- Enhance accessibility and functionality in field situations, and between jurisdictions and agencies that allow real-time input and accessibility of information
- Develop capability of individuals to readily access reporting systems, such as hotlines, that allow for centralisation of data

### THE INDICATIVE 10

EIC has developed a series of 10 'indicative' vertebrates which represent species that could become established in Australia either through an accidental pathway or an illegal or deliberate introduction. These 10 species are not necessarily those considered the highest risk of entering Australia; in effect the ten examples would become symbols of a new wave of potentially destructive vertebrate incursions highlighting different issues or pathways associated with their introduction. Materials developed around the indicative 10 will be valuable tools for increasing public support and awareness.





## Implementation, Governance and Delivery

National, state and territory government agencies through EIC will be responsible for implementation oversight.

No single group can deliver the ambitious actions and meet the goals set out in this strategy for managing Australia's IV incursions. Government may need to work with non-government representatives to make this strategy's vision a reality; and to ensure the gaps and exposures that have been identified are addressed.

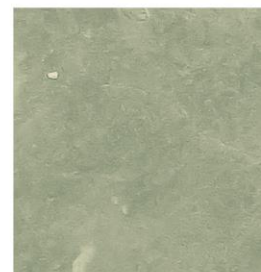
The implementation plan should include a set of milestones to track the progress of implementation. Milestones can be reported to EIC annually and include:

- Reports by jurisdictions on incursion incidents and responses
- Reporting by NBC of funding allocation and government incursion capacity across all biosecurity sectors
- Reporting on strategy implementation to EIC in areas such as performance indicators and changes to resourcing and capability

This information can be used to update all biosecurity stakeholders in Australia.

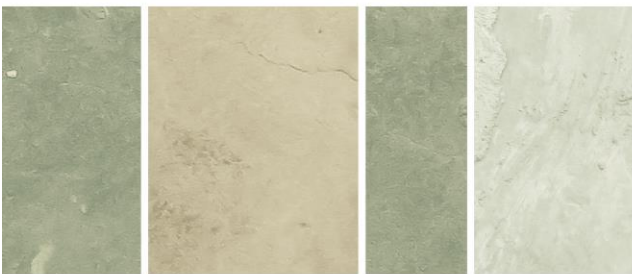
It is also important that the implementation and success of the strategy is reviewed periodically to ensure that it is working effectively and that the measures are sufficiently flexible to adapt or respond to changing circumstances. Interim reviews may be conducted by EIC on an annual basis with a formal review and evaluation by EIC and other stakeholders on a five yearly basis. The first formal review would be June 2023.





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# Appendix A

Summary of goals, objectives and actions and adaptive management framework for incursion prevention and response program

## Priority Key

### Feasibility

H - within current capabilities  
M - need extra expertise to achieve  
L - need high level expertise

### Resourcing

\$ - within existing resources  
\$\$ - utilize/source some additional resources  
\$\$\$ - high cost

### Impacted Phase

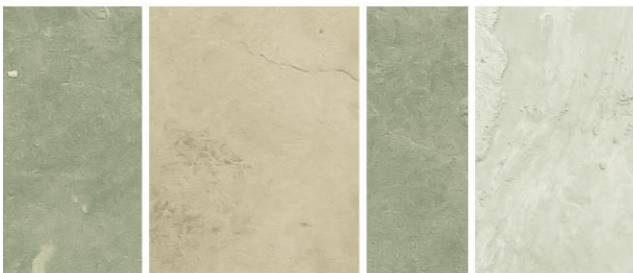
P - Prevention  
S - Surveillance  
R - Response

### Time Frame

Short - completed by 2019  
Medium - completed by 2020  
Long - completed by 2024 or beyond

Note: Response is initial incursion only and does not include ongoing control. Priority and resources and timeframe were determined by VPC and EIC VIEG member through a series of workshops

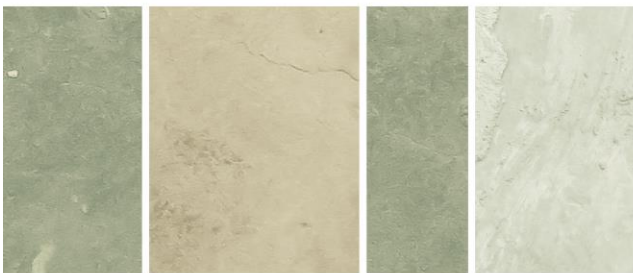
Objectives and Actions	Outcomes Sought	Responsible Parties	Priority & Resources	Time Frame	Performance Measures
1 DEVELOP PRACTICAL MANAGEMENT STRUCTURE					
1.1 DEVELOP EFFICIENT IV MANAGEMENT PROGRAM					
1.1.1 Improve National Leadership and Coordination for Consistent Incursion Management	Creation of IV-specific incursion planning manuals and documents	Australian Government via CEBO EIC Jurisdictions	H\$ P, S, R	Short	<ul style="list-style-type: none"><li>Comprehensive series of manuals developed</li><li>Material is consistent and supports the outcomes of the Australian Pest Animal strategy (APAS)</li></ul>
	Adoption and implementation of plans, techniques and tools		H\$ P, S, R	Medium	<ul style="list-style-type: none"><li>Mechanisms for ensuring adoption and implementation of relevant material</li><li>Ongoing support and distribution of updated information is made available</li></ul>



	Establishment and application of an incursion-focused communication network		H\$ P, S, R	Short	<ul style="list-style-type: none"> <li>• Key members at jurisdictional level are established</li> <li>• List of organisations/stakeholders participating included in annual report</li> </ul>
<b>1.1.2 Improve NEBRA decision-making for incursion response</b>	Enhance decision-making structures within the NEBRA and incorporate criteria measurability and consistency to the process	<b>Australian Government</b> via NMG <sup>1</sup> Secretariat CEBO	H\$\$ S, R	Ongoing	<ul style="list-style-type: none"> <li>• NEBRA review and update is completed</li> <li>• Enhancement is included in the NEBRA 5-year review</li> </ul>
	Ability to interpret NEBRA without need for an interpretative guide		H\$ S, R	Short	<ul style="list-style-type: none"> <li>• NEBRA update requires no interpretive guide</li> </ul>
<b>1.1.3 Ensure accurate and timely incursion communications</b>	Consistent and timely sharing and dissemination of IV incursion information including pre- to post-border detections	<b>Australian Government</b> via <b>CEBO</b> EIC Jurisdictions	M\$\$ P, S, R	Short	<ul style="list-style-type: none"> <li>• National reporting standards are utilised by all jurisdictions</li> <li>• All jurisdictions and relevant organisations responsible for the sharing and dissemination of all incursion information</li> <li>• The Australian Government disseminates information regarding detections at the border or on Commonwealth land</li> <li>• Jurisdictions and relevant organisations receive prompt notice of IV detections</li> <li>• National reporting standards complement existing systems without duplication</li> </ul>
	IV detection and response data is nationally recorded using agreed data standards and secure web accessibility	<b>EIC</b> <b>CEBO</b> Jurisdictions	M\$\$ P, S, R	Short	<ul style="list-style-type: none"> <li>• New IV detection data for all jurisdictions is centrally collated and accessible to relevant government stakeholders</li> </ul>



	Priority IV are risk assessed to inform jurisdictional policies and declarations	EIC	M\$\$\$ P, R	Long	<ul style="list-style-type: none"> <li>• Draft EIC <i>Australian List of Threat Categories of Non-indigenous Vertebrates</i> is complete and available to all jurisdictions</li> <li>• Risk assessments completed for high priority ornamental fish - Grey List</li> </ul>
	Support/encourage publication of incursions/detections/responses (including lessons learnt from unsuccessful responses)	EIC Australian Government Jurisdictions	H\$ P, S, R	Ongoing	<ul style="list-style-type: none"> <li>• Web-based library for species risk assessments and other risk-based information is operational</li> <li>• Facilitation of information sharing with research/tool developers implemented</li> <li>• Scientific publications and reports are available to all jurisdictions immediately following publication</li> </ul>
1.1.4 Explore incursion management processes across government/non-government	Identify need and gaps and establish or formalise programs	EIC Jurisdictions Stakeholders Research Groups	M\$\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Priorities for key areas determined</li> <li>• Formalised programs can be applied across sectors including industry, services, environmental and social amenities</li> </ul>
	Identify priority incursion threats in each key area (sector, pathway etc.)		M\$\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Threats in each key area reviewed</li> <li>• Priorities for key areas determined</li> </ul>
	Determine priorities for development, implementation and administration			Long	<ul style="list-style-type: none"> <li>• Development, implementation and administering plan developed</li> </ul>
1.1.5 Investigate options for improving ongoing resourcing arrangements	Include cost sharing arrangements for incursion prevention and inter-jurisdictional spread of IV	Australian Government Via EIC linked with CEBO and NBC NDMIG <sup>2</sup>	H\$\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Current cost sharing provisions for incursion prevention strengthened</li> <li>• Capacity to share costs for cross border incursions created</li> </ul>
	Engagement with non-government seeking partnerships in implementing NVIPR		M\$\$ P, S, R	Long	<ul style="list-style-type: none"> <li>• Government/non-government partnerships established in programs for education, awareness, prevention and response</li> <li>• Ability for non-government to contribute resources created</li> </ul>



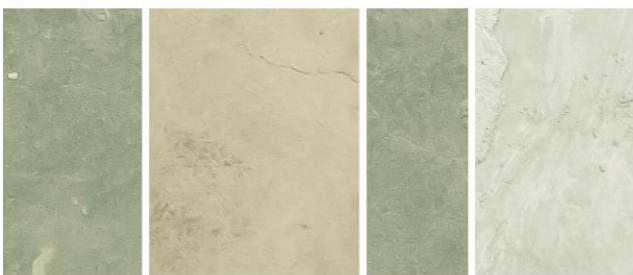
## 2 BUILD CAPABILITY AND EXPERTISE

### 2.1 ESTABLISH AND ENACT RESEARCH PRIORITIES

<b>2.1.1 Prioritise, undertake and adopt research to develop and improve capability and capacity</b>	Research priorities to address significant gaps in incursion knowledge and tools determined	<b>EIC</b> Facilitator Jurisdictions Research Groups	H\$\$ P, S, R	Short then Ongoing	<ul style="list-style-type: none"> <li>EIC-endorsed gap analysis and priority document completed</li> <li>Nationally coordinated research program into incursion management linked to other biosecurity and RD&amp;E strategies implemented</li> </ul>
	Further improvement in predictive ability of risk assessment processes	<b>Australian Government</b> via Research Groups Jurisdictions	H\$\$\$ S, R	Medium and Ongoing	<ul style="list-style-type: none"> <li>Risk assessment processes for reptiles, amphibians and freshwater fish are implemented inclusive of impacts</li> <li>Documentation of species impacts overseas included to better assess potential risk to Australia</li> </ul>
	Specialised capabilities in government, CSIRO, universities, co-operative research centres and industry deliver national incursion research capabilities	<b>NBC</b> via EIC Research Groups	M\$\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"> <li>Implementation and routine use of relevant research and tools following development</li> <li>Build linkages between research institutions to establish standard procedures and tools for operational use (e.g., eDNA)</li> </ul>
	Strengthen and maintain international linkages to draw on the skills, knowledge and experience of the global incursion management community	<b>EIC</b> Australian Government Jurisdictions Research Groups	M\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"> <li>Collaborations included in annual reporting and collaborative research published</li> <li>MoUs are established where necessary</li> </ul>



2.2 IMPROVE PREVENTION PROFICIENCY AND CAPACITY					
2.2.1 Establish a continuum approach to incursion prevention	Develop a comprehensive system that enables government, industry, and community to actively prevent pre- and post- border incursions	Australian Government via EIC Jurisdictions Community Groups	H\$\$ P, S	Medium to Long	<ul style="list-style-type: none"> <li>EIC-endorsed feasibility incursion prevention planning document implemented</li> <li>Facilitate reporting and building remedial action into the process occurring</li> </ul>
2.3 REVIEW AND ENHANCE SURVEILLANCE SYSTEMS					
2.3.1 Develop processes and capacity for taxonomic identification	Timely and accurate identification of new detections	NBC NSDG <sup>3</sup>	M\$\$\$ S, R	Long	<ul style="list-style-type: none"> <li>Continued adoption of rapid diagnostic capabilities and technologies</li> <li>MoU (or equivalent) with government agencies, museums, and institutions, including international collaborators</li> <li>Succession planning and/or institutional collaboration agreements in place</li> <li>DNA typing identification processes for selected species implemented</li> <li>Centralised and accessible DNA libraries built</li> <li>Online diagnostic capability available</li> </ul>
2.3.2 Develop and implement incursion surveillance tools and techniques	Priority species, pathways and activities for surveillance identified	EIC R&D <sup>4</sup> Group Research	H\$\$ S	Medium	<ul style="list-style-type: none"> <li>Nationally agreed surveillance guidelines and protocols developed</li> </ul>
	Technologies/tools developed and adopted for detection and identification IV at large	Groups Jurisdictions Industry Community	H\$\$\$ S	Medium then Ongoing	<ul style="list-style-type: none"> <li>Toolkit developed by collating existing early detection tools for routine use by jurisdictions</li> <li>New technologies and tools incorporated into toolkit</li> </ul>

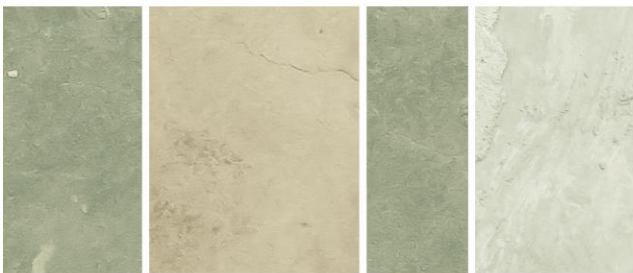


	Creation/formalisation of active detection networks focusing on high priority IVs and passive detection networks that fortuitously detect IV incursions	EIC Jurisdictions Industry Community	H\$\$\$ S	Medium	<ul style="list-style-type: none"><li>• Active and passive detection networks established</li><li>• Agreed national protocols for searching, information sharing and reporting</li></ul>
	A centralised community of practice for web surveillance of illegal vertebrates established	EIC R&D <sup>4</sup> Group Jurisdictions	M\$\$\$ S	Long	<ul style="list-style-type: none"><li>• Feasibility study into nationally coordinated web surveillance of illegal trade in non-native vertebrates undertaken</li></ul>
	Monitor and improve current information technology, mapping and information systems		M\$\$ S	Long	<ul style="list-style-type: none"><li>• Nationally agreed minimum standard available to all jurisdictions</li><li>• Quality, availability, analysis and reporting of data ensured</li></ul>
2.4 IMPROVE RESPONSE PROFICIENCY AND CAPACITY					
2.4.1 Develop and collate preparedness material	Preparedness plans, SOPs and manuals in use by all governments for high risk species, pathways and/or activities	EIC Australian Government Jurisdictions Research Groups	M\$\$ P, S, R	Medium	<ul style="list-style-type: none"><li>• Priorities and gaps in current material identified</li><li>• Preparedness material developed for high risk species, pathways and/or activities</li><li>• Common incursion response approaches are in place across Australia, including cross-border support in emergencies where needed</li><li>• Uptake and implementation of plans by government, industry, and community reviewed</li></ul>
2.4.2 Maintain and enhance response	Critical gaps in national incursion planning and response identified and being addressed		M\$\$ P, S, R	Medium	<ul style="list-style-type: none"><li>• Gap analysis conducted to inform response material development</li></ul>



capability through existing structures	Incursion planning toolkit and training in broad use		M\$\$\$ P, S, R	Long	<ul style="list-style-type: none"><li>• Incursion response planning toolkit developed and available online</li><li>• IV-specific material developed and implemented</li><li>• Training and emergency exercises regularly implemented</li></ul>
	Continuous improvement in monitoring and data collection and dissemination in responses		M\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"><li>• Regular reviews, training and dissemination through IV networks are routinely undertaken</li></ul>
2.5 DEVELOP AND CONDUCT TRAINING					
2.5.1 Assess capabilities and training needs	Analyse need to determine end-users and need	EIC Australian Government Jurisdictions	H\$ P, S, R	Short	<ul style="list-style-type: none"><li>• Scoping document to asses need, priorities, budget, gaps, and target audience is completed in consultation with end-users</li></ul>
2.5.2 Create and implement accredited training and education modules	Design/modify training program		H\$\$ P, S, R	Medium	<ul style="list-style-type: none"><li>• Nationally endorsed training program or modules implemented</li><li>• SOP or similar documenting evaluation methods, progress, efficiency and uptake in use by end-users</li></ul>
	Develop plan to guide nationwide adoption and implementation of training programs or modules		H\$\$ P, S, R	Medium	<ul style="list-style-type: none"><li>• National adoption and implementation plan developed and implemented</li></ul>
	Deliver training program/s		M\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"><li>• Pre-response and response training programs routinely delivered</li><li>• In person and online training programs/modules available</li></ul>





	Evaluate training program efficacy		H\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"> <li>• Annual report on training program available to jurisdictions</li> <li>• Evaluation conducted at regular intervals</li> </ul>
<b>3 IMPROVE STAKEHOLDER/COMMUNITY SUPPORT AND ENGAGEMENT</b>					
<b>3.1 DEVELOP PARTNERSHIPS</b>					
<b>3.1.1 Identify and promote IV Incursion management relationships</b>	Adopt strong collaboration between government and non-government	<b>EIC</b> Jurisdictions Research Groups	M\$\$ P, S, R	Ongoing	<ul style="list-style-type: none"> <li>• MOU established between relevant governments and stakeholders to implement incursion management</li> <li>• Maintenance and jurisdictional application of the import, movement and keeping of non-native vertebrate guidelines occurs</li> </ul>
<b>3.1.2 Assist non-government to participate in IV incursion management</b>	Processes established where new or revised national BMPs and ICPs developed, reviewed and shared for managing common risks	<b>EIC</b> Jurisdictions Industry Stakeholders Research Groups	H\$\$\$ P, S, R	Long	<ul style="list-style-type: none"> <li>• Existing BMPs and ICPs that can be used for incursion management actively shared</li> <li>• New/revised BMPs and ICPs available to relevant stakeholders</li> </ul>
<b>3.2 ENHANCE COMMUNICATION</b>					
<b>3.2.1 Develop awareness extension materials and tools</b>	Develop education materials that enable recognition of IV as biosecurity risks, engagement in passive surveillance and reporting unusual sightings	<b>EIC</b> NBC NECG <sup>5</sup> Jurisdictions Stakeholders	H\$ P, S, R	Medium then Ongoing	<ul style="list-style-type: none"> <li>• National factsheets for high risk species endorsed and published</li> <li>• Extension materials for 10 iconic species (national surveillance targets) developed and accessible</li> <li>• Web extension and reporting tools routinely accessed</li> </ul>





					<ul style="list-style-type: none"> <li>• Key stakeholders engaged in strategy implementation</li> <li>• Strategic insights gained into stakeholder behaviour and engagement for the improvement of incursion control outcomes</li> </ul>
	Communicate that effective incursion management is a shared responsibility approach	EIC Jurisdictions	H\$ P, S, R	Short	<ul style="list-style-type: none"> <li>• Guidance document for government authorities in how to engage high risk stakeholders to achieve behavioural change</li> </ul>
	Operational and decision tools are centrally located for adoption	NBC NECG <sup>5</sup>	H\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Toolkit is available online</li> </ul>
<b>3.3 FACILITATE INVOLVEMENT</b>					
<b>3.3.1 Generate and streamline reporting protocols and applications</b>	Enhance accessibility and functionality in field situations, and between jurisdictions and agencies	EIC NBC NECG <sup>5</sup> Jurisdictions	M\$\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Mechanisms in place that allow real-time input and accessibility of information</li> </ul>
	Government/stakeholders can readily access reporting systems for suspected incursions		M\$\$ P, S, R	Medium	<ul style="list-style-type: none"> <li>• Review into the effectiveness of hotline numbers and apps completed</li> <li>• Government/stakeholders can readily access reporting systems for suspected incursions</li> <li>• A national reporting procedure is in place for general public involvement</li> </ul>

<sup>1</sup>NMG - National Management Group

<sup>2</sup>NDMIG - National Decision-Making and Investment Group

<sup>3</sup>NSDG - National Surveillance and Diagnostics Group

<sup>4</sup>R&D - Research & Development

<sup>5</sup>NECG - National Engagement & Communication Group

## Appendix B

### *Glossary of Terms*

<b>Adaptive Management</b>	A systematic process for continually improving management policies and practices by learning from the outcomes of operational programs.
<b>Alien species</b>	(non-native, non-indigenous, foreign, exotic) A species, subspecies, or lower taxon occurring outside of its natural range (past or present) and dispersal potential (i.e. outside the range it occupies naturally or could not occupy without direct or indirect introduction or care by humans) and includes any part, gametes or propagule of such species that might survive and subsequently reproduce
<b>Animal Health Australia</b>	Also known as Australian Animal Health Council Ltd. A not-for-profit public company established by the Commonwealth, state and territory governments and major national livestock industry organisations. Aims to manage national programs to assist the Australian animal health service system in maintaining acceptable national animal health standards at home and overseas, and aids the improvement in the quality of animal health infrastructure and services.
<b>Australian Government</b>	In the context of the strategy, refers only to those National or central government departments responsible for invasive species and biosecurity.
<b>Biocontrol or biological control</b>	Controlling an invasive species by introducing a natural enemy, such as an insect or fungus, that specifically attacks the target species and does not attack other native or economically important species.
<b>Biodiversity</b>	The variety of life forms, the different plants, animals, micro-organisms, the genes they contain and the ecosystems they form.
<b>Biosecurity</b>	The management (through exclusion, mitigation, adaptation, control and eradication) of risks posed to



	the economy, environment and people's health by organisms entering, emerging, establishing or spreading
<b>Biosecurity continuum</b>	Describes the range of locations where biosecurity risks may arise and where biosecurity activities take place - offshore (pre-border), at the border and onshore (within Australia).
<b>Biosecurity Risks</b>	The potential of a disease or pest entering, emerging, establishing or spreading in Australia; and the disease or pest causing harm to the environment, or economic or community activities.
<b>Biosecurity Threats</b>	Those matters or activities which, individually or collectively, may constitute a biological risk to the ecological welfare or to the well-being of humans, animals or plants of a country.
<b>Category (invasive species)</b>	<p>The four agreed Australian national categories for invasive species taxa used to assign candidate taxa to these categories. The four are:</p> <p>Category 1: National surveillance</p> <p>Category 2: National eradication</p> <p>Category 3: Established invasive species of national significance</p> <p>Category 4: National restriction on keeping, sale and trade</p>
<b>Commonwealth</b>	The Commonwealth of Australia, including its external territories.
<b>Community of practice</b>	Groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.
<b>Containment</b>	Keeping an invasive species within a defined area thereby restricting its spread.
<b>Control</b>	To eliminate or prevent the flourishing or spread of potential or known invasive species.
<b>eDNA</b>	Environmental DNA (eDNA) is nuclear or mitochondrial DNA that originates from cellular

	material shed by organisms (usually via skin, excrement, and gametes) into aquatic or terrestrial environments
<b>Emergency Pests and Diseases (as they relate to emergency response arrangements in Australia)</b>	<p>Pests and diseases that are:</p> <p>exotic to Australia and it is considered to be in the national interest to be free of the pest/disease; or</p> <ul style="list-style-type: none"> <li>a) a variant of an endemic pest or disease (that can be distinguished by investigative and diagnostic methods) which if established in Australia, would have a national impact; or</li> <li>b) a serious pest or disease of unknown or uncertain cause; or</li> <li>c) a severe outbreak of a known endemic pest or disease, and that is considered to be of national significance with serious social or trade implications.</li> </ul>
<b>Emergency Preparedness</b>	The ability to respond to an emergency allowing for the efficient mobilisation and deployment of resources and services needed to address the outbreak
<b>Emergency Response</b>	<p>The actions taken in anticipation of, during and immediately after, an outbreak to ensure that its impacts are minimised and may include:</p> <ul style="list-style-type: none"> <li>a) actions constituting an initial response to an outbreak; and</li> <li>b) actions that form part of a national biosecurity incident response</li> </ul>
<b>Emerging species/pest</b>	A newly established species whose distribution and abundance is expanding
<b>Environmental vertebrates</b>	Potentially invasive vertebrates considered to primarily impact the environment and social amenity
<b>Eradication</b>	Complete removal of the species from an area such that natural reproduction or recolonization cannot occur



<b>Established pests and diseases</b>	A pest or disease that is perpetuated, for the foreseeable future, within any area and where it is not feasible (whether in terms of technical feasibility or a cost-benefit analysis) to eradicate
<b>Establishment</b>	The point at which a species can reproduce at a sufficient level ensuring survival in a new habitat without new genetic input from outside the system
<b>Exotic pest and disease</b>	Pests and diseases affecting plants or animals (and possibly including humans) that do not normally occur in a particular country
<b>Incursion</b>	An isolated individual or population of a non-native species recently detected in an area, not known to be established, but expected to survive for the immediate future
<b>Incursion Management</b>	Includes both incursion prevention and response
<b>Incursion Prevention</b>	Inhibit or stop the introduction of non-native species to an area
<b>Incursion Response</b>	Eliminate or prevent the invasion or spread of non-native species not known to be established in an area
<b>Invasive Species</b>	<p>Plants, animals or other organisms which are invading, or may invade the natural environment in Australia. This definition includes Australian species which have been introduced outside their pre-1750 range in Australia. It does not include indigenous species which may have increased their range incrementally during that time.</p> <p>These species are highly competitive and spread aggressively into environments where they are not normally found and whose introduction does, or is likely to, cause environmental or economic harm, or harm to human health.</p>
<b>Jurisdictions</b>	Refers collectively to Australian national, state, territory, and local governments.

<b>National Biosecurity Committee</b>	The committee established, independently of this Agreement, responsible for biosecurity matters, and tasked with managing a national, strategic approach to emerging and ongoing biosecurity policy issues.
<b>National Biosecurity System</b>	Encompasses the full range of activities undertaken by governments, organisations and individuals across the biosecurity continuum, including prevention, emergency preparedness, detection, response, recovery and on-going management of pests and diseases.
<b>Nationally significant</b>	Pest or disease that would likely have far reaching and/or national impacts to Australia. These include impacts to international trade, economic health, human health, natural environment, infrastructure, amenity of resources, and culture.
<b>Non-native</b>	Species introduced into an area/ecosystem outside of its historic native geographic range (also referred to as non-indigenous, exotic, alien, introduced). Non-natives do not always become invasive.
<b>Pathways</b>	An activity or process through which a species may be moved into a new location where it could become invasive.
<b>Pest</b>	Any plant or animal having, or with potential to have, an adverse economic, environmental or social impact.
<b>Public good</b>	The community receives significant benefit regardless of whether that benefit is economic, non-economic, environmental, or intangible.
<b>Risk management</b>	The process of identifying, selecting and implementing measures that can be applied to reduce the level of risks. The culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects.
<b>Shared responsibility</b>	A core concept underpinning Australia's national biosecurity system whereby all stakeholders—



including Australian Governments, industry and the broader community—have important roles and responsibilities in the management of biosecurity risks in Australia.


<b>Social amenity</b>	Any tangible or intangible resources developed or provided by humans or nature such as dwellings and parks, or views and outlooks.
<b>Stakeholders</b>	Those people and organisations who may affect, be affected by, or perceive themselves to be affected by a decision, activity or risk.
<b>Surveillance</b>	Activities to investigate the presence or prevalence of a pest or disease in a given plant or animal population and its environment.
<b>Surveillance - active</b>	Surveillance in which extra measures are taken to increase detection, collect data and confirm incursions. Active surveillance also includes formal and informal communications.
<b>Surveillance - passive</b>	The reporting of an incident or incursion to relevant authorities with no special effort made to do so.
<b>Toolkit</b>	A set of easily accessible resources, tools or information to support special communities.

### *Acronyms*

<b>AHA</b>	Animal Health Australia
<b>APAS</b>	Australian Pest Animal Strategy
<b>AQUAVETPLAN</b>	National Strategic Plan for Aquatic Animal Health
<b>AUSVETPLAN</b>	Australian Veterinary Emergency Plan
<b>BEPWG</b>	Biosecurity Emergency Preparedness Working Group
<b>BIMS</b>	Biosecurity Emergency Management - Biosecurity Incident Management System
<b>BMP</b>	Best Management Practice
<b>COAG</b>	Council of Australian Governments



<b>COP</b>	Community of practice
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DAF</b>	Department of Agriculture and Fisheries, Queensland
<b>DAWR</b>	Department of Agriculture and Water Resources
<b>DJPR</b>	Department of Jobs, Precincts and Regions, Victoria
<b>DNA</b>	Deoxyribonucleic acid
<b>DoEE</b>	Department of the Environment and Energy
<b>DPI</b>	Department of Primary Industries, NSW
<b>DPIPWE</b>	Department of Primary Industries, Parks, Water and Environment
<b>DPIRD</b>	Department of Primary Industries and Regional Development
<b>EBAG</b>	Environmental Biosecurity Advisory Group, convened under the Environment and Invasives Committee
<b>eDNA</b>	Environmental deoxyribonucleic acid
<b>EIC</b>	Environment and Invasives Committee (formally Invasive Animals and Plants Committee (IPAC))
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>EPPRD</b>	Emergency Plant Pest Response Deed
<b>IV</b>	Invasive vertebrates
<b>FVIWG</b>	Freshwater Vertebrates and Invertebrates Working Group, convened under the Environment and Invasives Committee
<b>ICP</b>	Industry codes of practice
<b>IGAB</b>	Intergovernmental Agreement on Biosecurity
<b>IPAC</b>	Invasive Plants and Animals Committee (merger of Australian Weeds Committee and Vertebrate Pest Committee). Currently Environment and Invasives Committee (EIC)



<b>IS</b>	Invasive Species
<b>MoU</b>	Memorandum of Understanding
<b>NBC</b>	National Biosecurity Committee
<b>NDMIG</b>	National Decision-Making and Investment Group of National Biosecurity Committee
<b>NEBRA</b>	National Environmental Biosecurity Response Agreement
<b>NECG</b>	National Engagement and Communication Group of National Biosecurity Committee
<b>NSDG</b>	National Surveillance and Diagnostics Group of National Biosecurity Committee
<b>NVIPR</b>	National Vertebrate Incursion Prevention and Response
<b>PIRSA</b>	Department of Primary Industries and Regions, South Australia
<b>PHA</b>	Plant Health Australia
<b>PLANTPLAN</b>	Australian Emergency Plant Pest Response Plan
<b>RD&amp;E</b>	Research, Development and Extension
<b>SOP</b>	Standard Operating Procedure
<b>TVWG</b>	Terrestrial Vertebrates Working Group, convened under the Environment and Invasives Committee
<b>WHA</b>	Wildlife Health Australia

