

NATIONAL INVASIVE PLANT
SURVEILLANCE FRAMEWORK

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DRAFT

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EXECUTIVE SUMMARY:

The early detection of invasive plants that occur at low abundance and with limited distribution provides the best opportunity to prevent the environmental and agricultural consequences associated with wide-scale establishment. It also represents the stage of invasion at which a rapid response results in cost effective management. For these reasons, the national biosecurity system, and that of each state and territory in Australia, places significant emphasis on the importance of surveillance activities, which are essential for early detection.

Surveillance, while representing a relatively small and specific part of the invasive plant management continuum, is complex and consists of several individual components such as search, detection, reporting, analysis and dissemination of information. Each component requires a number of skills and capabilities to achieve effective surveillance and to facilitate management decisions. Additionally, biosecurity threats such as invasive plants are not constrained by state and territory boundaries; hence there is often a need for cross-jurisdictional knowledge and management responsibility sharing, as well as some degree of national consistency or compatibility between the approaches used for surveillance.

The National Invasive Plant Surveillance Framework (NIPSF) aims to increasing Australia's post-border capability for the early detection to new invasive plant incursions and range expansions of existing invasive plants and facilitate rapid response. By enhancing the required skills and capabilities needed for effective surveillance and through facilitating cross-jurisdictional communication and knowledge sharing this aim can be achieved. The NIPSF has been developed in consultation with all state and territory governments, who have identified objectives and actions that when applied nationally will enhance the effectiveness of existing jurisdictional surveillance programs.

The primary goals and objectives of the NIPSF are:

GOAL 1 Improved systems and structures for the collection, verification, storage and analysis of surveillance information

OBJECTIVE 1: Increase effectiveness of invasive plant management through earliest detection of new invasive plant incursions

OBJECTIVE 2: Develop and implement consistent post-border surveillance systems and structures to improve earliest detection capabilities and facilitate rapid response where required

GOAL 2 Improved integration of Australia's biosecurity system

OBJECTIVE 3: Integrate invasive plant surveillance into biosecurity policy and processes at all levels of government

GOAL 3 The importance of surveillance is communicated and the NIPSF is adopted

OBJECTIVE 4: Increase the understanding and recognition of the importance of surveillance

Additionally the NIPSF addresses Objectives i, ii and iii of the Intergovernmental Agreement on Biosecurity and progresses a number of key objectives set out in the Australian Weed Strategy. Most importantly, it complements and adds value to invasive plant policies, strategies and existing surveillance programs in each state and territory.

The National Invasive Plant Surveillance Framework identifies the key actions required to achieve the goals and objectives based on a set of underlying principles. It reflects the commitment of all jurisdictions to work together to strengthen the national biosecurity system and prevent new invasive plant problems.

The next step is for the Australian Government, in partnership with states and territories, to develop an implementation plan to address the actions outlined in this framework, which will directly assist land managers and industry with the management of invasive plants.

BACKGROUND:

Investment in biosecurity in Australia occurs at all stages of invasion, from the prevention of entry through to the management of widespread pests and diseases. Figure 1 shows the theoretical invasion curve and corresponding management actions, after Chippendale (1991) and Hobbs and Humphries (1995), using its expected interpretation by DPI (2009). This curve is widely used to prioritise investment in invasive plant management in Australia by dividing invasion into four stages relative to the carrying capacity, and identifying the most appropriate management objectives for each stage. It also shows the expected economic return of management at each stage. The cost-benefit of invasive plant management decreases as the invasion progresses (from left to right), therefore actions carried out to prevent the entry of invasive species into a country or jurisdiction prove the most cost effective.

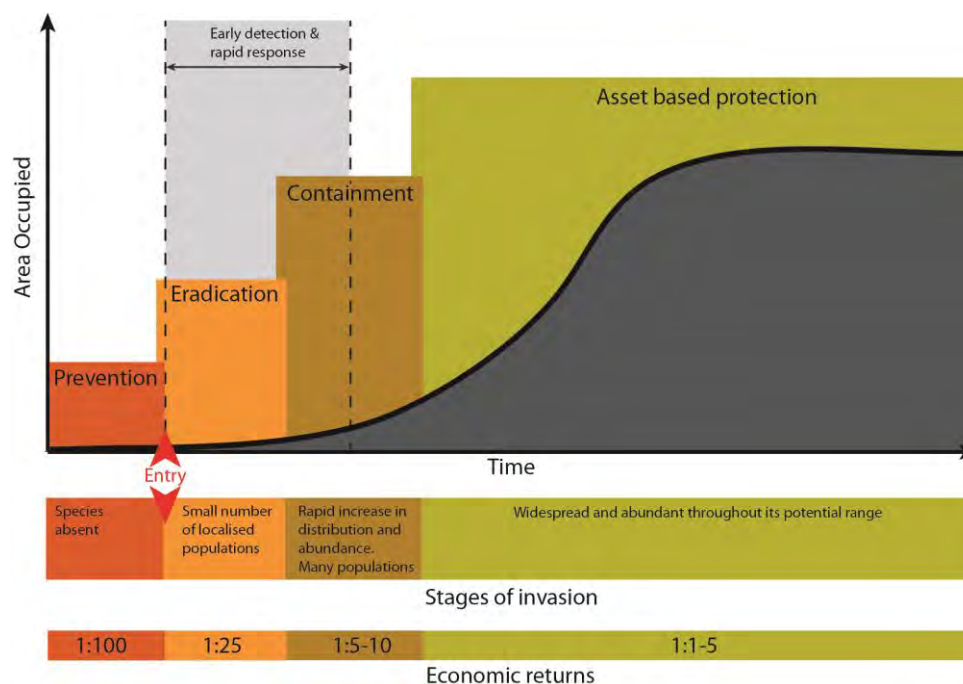


Figure 1: Species invasion curve and corresponding management actions, after Chippendale (1991) and Hobbs and Humphries (1995) using its expected interpretation by DPI (2009). The curve is divided into four stages of invasion showing the most appropriate management objectives for each stage and the corresponding economic return for management. For the purpose of this framework, early detection has been assigned to both eradication and early containment actions.

Once the prevention stage has passed it is most cost effective to concentrate management on those species that occur in small numbers and at small distributions. For the purpose of this framework, this is referred to as early detection and rapid response, and applies to the eradication phase of the invasion curve. The importance of surveillance in the early detection of invasive plants has been widely acknowledged both within Australia and worldwide. As such, all jurisdictions in Australia have developed biosecurity strategies and policies that prioritise surveillance programs to increase their capability for early detection and rapid response. Surveillance activities are also important in the management of established invasive plants, to prevent range expansions that may threaten environmental and agricultural assets.

The inter-Governmental Agreement on Biosecurity defines biosecurity surveillance as ‘...activities to investigate the presence or prevalence of a pest or disease in a given plant or animal population and its environment (COAG 2012a). The definition use by the Ministry of Agriculture, Forestry and Biosecurity in New Zealand goes further by listing the activities that constitute surveillance: ‘...collection, collation, analysis, interpretation and timely dissemination of information on the presence, distribution or prevalence of pests or

diseases and the plants or animals that they affect' (MAFBNZ, 2008). This definition illustrates the complexity of surveillance, which is often underestimated.

Figure 2b provides a diagrammatic representation of the individual components that constitute a surveillance program in the broader context of the invasive plant management continuum (Figure 2a). Based on the definition of surveillance given above, the components of surveillance are:

1. the search for high risk species or an asset that is threatened
2. detection of high risk species or asset
3. reporting of a detection to appropriate agencies and individuals to initiate analysis of the threat posed
4. analysis to assess the threat posed
5. dissemination of information on the threat posed and the response that will be implemented.

Each component relies on a set of foundational skills, tools, systems and individual actions to facilitate the next component and ultimately inform an appropriate management response. The effectiveness of surveillance programs can be constrained if any of these foundational requirements or actions are omitted or are inadequate (Kean et al., 2008).

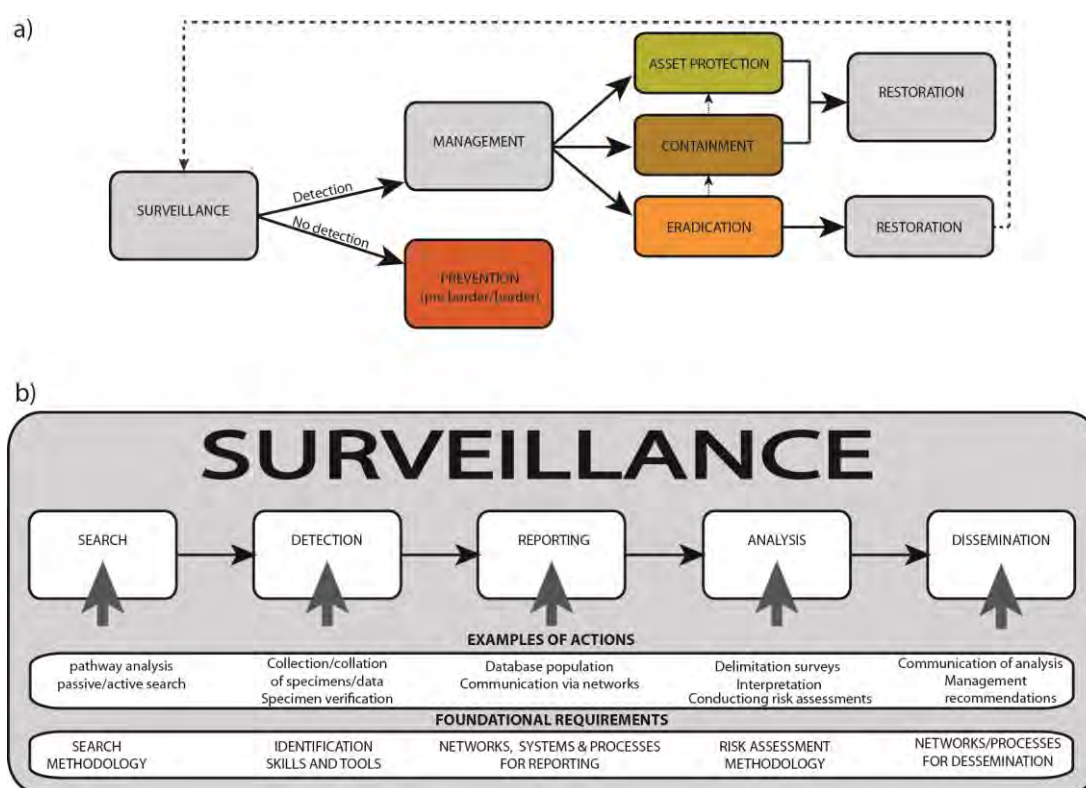


Figure 2: a) Diagrammatic representation of weed management from surveillance through to restoration. b) an enlargement of the surveillance box in a), showing the individual components that constitute a surveillance program based on the definition by MAFBNZ (2008), together with the foundational requirements and examples of actions that are needed for effective surveillance.

NEED FOR A NATIONAL INVASIVE PLANT SURVEILLANCE FRAMEWORK

In 2008 the Australian Government released an independent review of Australia's quarantine and biosecurity arrangements, known as the Beale Review (Beale et al., 2008). It recommended significant reforms to improve the ability of Australia's biosecurity system to deal with changing and increasing biosecurity risks. Specifically, the review found there is a strong case for a substantially greater effort to assist in detecting and managing

post-border risks, and recommended that the Commonwealth, in conjunction with states, establish a comprehensive monitoring and surveillance program for national priority exotic pests and diseases.

The Intergovernmental Agreement on Biosecurity -IGAB (COAG, 2012a) was developed to address the recommendations of the Beale Review and was endorsed by the Commonwealth and all state and territory governments in 2012 with the exception of Tasmania (refer to page 4 for further information). The National Invasive Plant Surveillance Framework (NIPSF) is one of the mechanisms under the IGAB that will address surveillance in relation to invasive plants. Additionally, the NIPSF progresses actions identified under Goal 1 of the Australian Weeds Strategy (AWS) that seeks to prevent new weed problems (refer to page 5 for further information).

The National Invasive Plant Surveillance Framework aims to increase the effectiveness of existing surveillance policies and programs by identifying the foundational activities, skills, tools and systems that are required to enhance post-border surveillance capability across the invasion curve. This will be achieved through nationally coordinated actions that result in the delivery of the following goals:

GOAL 1: Improved systems and structures for the collection, verification, storage and analysis of surveillance information

GOAL 2: Improved integration of Australia's biosecurity system

GOAL 3: The importance of surveillance is communicated and the NIPSF is adopted

DEVELOPMENT OF THE FRAMEWORK

The NIPSF was developed using the expertise of invasive plant managers from across Australia. A series of workshops were held in each state and territory to identify how existing surveillance strategies could be strengthened through a nationally coordinated approach. Participants included state and territory representatives of the Australian Weeds Committee, senior invasive plant and animal managers, policy officers, researchers and representatives from natural resource management boards, local government and state herbaria. Various industry peak bodies and other key stakeholders were also consulted.

In the workshops, participants discussed the strengths and weaknesses of current jurisdictional surveillance programs and identified areas where a national approach could enhance their effectiveness. From this, principles, objectives and actions were developed.

POLICY CONTEXT:

Post border early detection and response is the responsibility of state and territory governments. As such, each jurisdiction in Australia has policies in place which are summarised in Table 1. The NIPSF provides complementary systems, structures and process that will support and strengthen the effectiveness of these jurisdictional policies and provide links between policies and strategies at all levels of government.

Table 1: Jurisdictional legislation and policy relating to invasive plant surveillance in Australia.

Jurisdiction	Legislation	Policy
Australian Capital Territory	<i>Pest Plants and Animal Act 2005 (PPAA)</i>	ACT Weed Strategy 2009-2019 Environmental Weed (Invasive Plant) Control Operations Plan 2012-19
New South Wales	<i>Noxious Weed Act 1993</i>	The Invasive Species Plan 2009-2015 The new weed Incursion Plan 2009-2015 NSW 2021 – A Plan to Make NSW Number One <ul style="list-style-type: none"> - Goal 3 –Reduce the impact of noxious weeds - Goal 28 – Biosecurity - Goal 22 (Parks)
Northern Territory	<i>Weeds Management Act 2001 (WMA)</i>	Northern Territory Weed Management Strategy Statutory weed management plans (species based) Regional weed management strategies.
Queensland	<i>Land Protection (Pest and Stock Route Management) Act 2002 (LPA).</i> <i>The Land Act 1994</i>	Queensland Weed Strategy
South Australia	<i>Natural Resources Management Act 2004</i>	Surveillance guidelines (in preparation 2012)
Tasmania	<i>The Plant Quarantine Act 1997</i> <i>Weed Management Act 1999 (WMA)</i> <i>Seeds Act 1985</i>	<i>Weed Plan</i> <i>State Incursion Response Plan</i> Hygiene and Weed Management Manual (under development)
Victoria	<i>Catchment and Land Protection (CaLP)</i>	Biosecurity Strategy for Victoria Invasive plants and animals Policy Framework Weeds and Vertebrate Pests Module 1
Western Australia	<i>Agriculture and Related Resources Protection Act 1976 (ARRPA)</i> <i>Plant Diseases Act 1914</i> <i>Biosecurity and Agriculture Management Act 2007 (BAM)</i> <i>Invasive Species Strategy for DAFWA 2011-2017</i>	State Weed Plan

The National Invasive Plant Surveillance Framework was developed to align with the national biosecurity system and provides the mechanism to deliver on key objectives of the following national policies, plans and agreements:

INTERGOVERNMENTAL AGREEMENT ON BIOSECURITY (IGAB)

The purpose of the IGAB is to enhance Australia’s biosecurity system by strengthening the collaborative approach between the Commonwealth and state and territory governments to minimise the impact of pests and disease on Australia’s economy, environment and the community.

The objective set out in section 3 of IGAB provide arrangements, structures and frameworks that:

- 3.2 (i) *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;*
- 3.2 (ii) *prepare and allow for effective responses to, and management of, exotic and emerging pests and diseases that enter, establish or spread in Australia; and*
- 3.2 (iii) *ensure that, where appropriate, significant pests and diseases already in Australia are contained, suppressed or otherwise managed.*

Section 5 of the agreement commits signatories to strengthening the national biosecurity system through the adoption of nine components. Components concerned specifically with post-border surveillance are:

- 5.2 (iv) **Post border measures** *to prevent the establishment of potentially serious pests and diseases that enter Australia or arise internally.*
- 5.2 (v) **A comprehensive national surveillance and diagnostic system** *that provides for early detection and accurate and timely diagnosis of pests and diseases.*

The NIPSF will provide a mechanism for addressing these components in relation to invasive plants.

NATIONAL ENVIRONMENTAL BIOSECURITY RESPONSE AGREEMENT (NEBRA)

The National Environmental Biosecurity Response Agreement (COAG, 2012b) is the first deliverable of the IGAB, and sets out emergency response arrangements, including cost-sharing arrangements, for responding to biosecurity incidents that primarily impact the environment and/or social amenity and where the response is for the public good. NEBRA will provide the mechanism within the NIPSF for response to new environmental weeds where industry beneficiaries cannot be identified.

AUSTRALIAN WEEDS STRATEGY

The Australian Weed Strategy (AWS) identifies national invasive plant management priorities with the aim of minimising the impact of invasive plants on Australia's environmental, economic and social assets. It provides a framework to establish consistent guidance to all parties. The AWS was endorsed by the National Resource Management Ministerial Council (NRMCC) in November 2006 following drafting by the Australian Weeds Committee in consultation with relevant stakeholders. The AWS is currently under review.

The NIPSF addresses Goal 1 of The AWS, which is to *prevent new weed problems*, and more specifically, provides a mechanism to progress the following strategic actions of the AWS:

- 1.2.1 *Establish a nationally coordinated weed alert and early warning system that includes effective surveillance mechanisms.*
- 1.2.4 *Establish core capacities at the state and national levels for responding to significant weed incursions.*
- 1.2.5 *Enhance the ability of Australian herbaria to rapidly and accurately identify new introduced species.*
- 1.2.6 *Identify, detect and manage sleeper weeds.*

NATIONAL WEED INCURSION PLAN

The National Weed Incursion Plan (NWIP) 2008-2010 is an operational plan for managing national responses to invasive plant incursions. It is triggered by the detection of a high risk invasive plant and identifies the steps to be taken from detection through to response and recovery. The NWIP is currently being revised to align with other incident documents such as PLANTPLAN. The detection and reporting processes established as part of the NIPSF will provide the trigger for the NWIP.

NATIONAL PLANT BIOSECURITY SURVEILLANCE STRATEGY

The National Plant Biosecurity Surveillance Strategy (NPBSS) was developed in 2012 and aims at improving the management and coordination of all activities relating to plant pest surveillance. The scope of the NPBSS specifically excludes invasive plants as well as fresh water and marine plant pests. The NPBSS and the NIPSF share many of the same principals, objectives and actions to improve surveillance capabilities and therefore work together to provide complementary approaches to all plant biosecurity issues. The NPBSS should be considered and referred to when implementing the actions of the NIPSF, to ensure that surveillance for plant biosecurity is addressed holistically.

PRINCIPLES:

The following key principles guide the NIPSF and should apply to all actions:

Principle 1: All levels of Government are committed to earliest detection and response of invasive plants

The biosecurity systems that are currently in place throughout Australia demonstrate an existing commitment to earliest detection and response to invasive plants by all levels of government. The objectives and actions of the NIPSF complement and align to state and territory policies, strategies and programs by developing national systems and processes that will improve the effectiveness of surveillance. There is an assumption that the emphasis on earliest detection and response will continue into the future.

Principle 2: To succeed, a long-term systematic commitment from all levels of government is required for both surveillance and response

This principle is linked closely to Principle 1, and asserts that the best way to achieve earliest detection and rapid response is through the establishment of, and commitment to, long term, strategic, structured and coordinated surveillance programs that are cross-jurisdictional and cross-tenure in nature. This principal also recognises that surveillance is not an end in itself and is of limited value without a similar commitment to undertake an appropriate response.

Principle 3: Good science underpins the development of invasive plant surveillance programs

As with all aspects of invasive species management, surveillance relies heavily on sound scientific principles, particularly in relation to search methodology, weed risk assessment and the development of surveillance tools. Where knowledge gaps are identified, solutions should be investigated through research, and applied based on scientific evidence and rigorous analysis.

Principle 4: Surveillance is undertaken at an appropriate scale (i.e. regional, local etc.) and frequency

Effective early detection requires surveillance activities to be carried out at an appropriate resolution and frequency. Typically, surveillance occurs at the local or regional level; however there are circumstances where state or national surveillance is appropriate. The method of surveillance may also vary depending on the species being targeted, their distribution, their proximity to regional centres, site accessibility and human

capacity. The NIPSF is designed as an overarching guiding document to provide a level of national consistency to localised and prescriptive surveillance programs.

Principle 5: Invasive plants are integrated into the broader biosecurity surveillance effort

The IGAB defines biosecurity as the *'management of risks to the economy, the environment, and the community of pests and diseases entering, emerging, establishing or spreading'* (COAG, 2012a). Invasive plants, captured here under the broader category of pests, have historically attracted less attention than invertebrate pests and diseases. This is partly due to the perception that they do not affect market access to the same extent. However the presence of weed seeds can affect market access and productivity. It has been estimated that the annual cost of invasive plants to agriculture is \$4 billion and this figure is significantly more if environmental and ecological impacts are included (Sinden et al., 2004). An integrated approach to biosecurity surveillance, combining invasive plants, other pests and diseases, reduces duplication of surveillance effort and provides a clear message for engaging stakeholders. This principle acknowledges the need to progress the process of integration, and proposes the NIPSF as a mechanism to achieve this with respect to surveillance.

Principle 6: High risk pathways and sites are identified and targeted

Determining the source, vectors and pathways of invasive plant spread is critical for early detection of new invasive plant incursions and range expansions of existing invasive plants. It is particularly important when deciding on the initial search area, developing delimitation surveys and targeting future search and monitoring efforts. Developing surveillance programs based on high risk pathways may also allow for a combined search effort for species with similar spread vectors. This principle ensures that high risk pathways are considered in the development of surveillance programs.

Principle 7: Herbaria are recognised as the authority for Invasive plant identification and verification

Herbaria play a critical role in the identification, verification, curation and the reporting of invasive plant species, collation of specimens and the documentation of locations from which species have been reported. This principle recognises herbaria as the linchpin for early detection and rapid response, and that effective surveillance requires:

- a) awareness amongst invasive plant managers of the role herbaria play, the services they provide, and the establishment of networks between herbaria and natural resource managers; and
- b) adequate and ongoing support to ensure that the services provided by herbaria are maintained and where necessary expanded.

Principle 8: Cross-jurisdictional and cross-tenure communication and co-operation maximises information flow, and knowledge sharing, and leads to improved decision making

Biosecurity threats such as pests and disease are not constrained by state and territory boundaries. It is important in post border management that all levels of government communicate effectively—informing each other of new detections and sharing knowledge to increase preparedness and aid decision making.

OBJECTIVES AND ACTIONS:

The primary objectives of the NIPSF are to:

- 1. Increase effectiveness of invasive plant management through earliest detection of new incursions (both new and range expansions of existing invasive plants).**
- 2. Develop and implement consistent post-border surveillance systems and structures to improve earliest detection capabilities and facilitate rapid response where required.**

3. **Integrate invasive plant surveillance into biosecurity policy and processes at all levels of government.**
4. **Increase the understanding and recognition of the importance of surveillance.**

The following table expands on the objectives of the NIPSF, identifying broad **Action areas** (shown in bold) that must be addressed in order to enhance surveillance capability. Within each action area, specific actions are proposed. Where possible it is intended that existing policies and processes be used to deliver the goals and objectives of the NIPSF and relevant documents have been listed in the table. Implementation of these specific actions, though desirable, will be subject to jurisdictional priorities and resourcing capacity. If specific actions cannot be implemented, jurisdictions can propose and implement alternative actions to assist in achieving the objectives and the action areas.

The action table below divides the objectives, action areas and actions into functional groups that will collectively achieve each of the three goals of the framework.

Actions listed under Objective 1 are aimed at increasing the skills and knowledge that are essential for surveillance. Objective 2 focuses on actions that develop reporting and communication structures that will facilitate an appropriate and timely response and utilises the skills and knowledge gained through objective 1. These two objectivities work together to address Goal 1 of the NIPSF and if implemented, will provide a strong foundation for effective early detection.

Objective 3 focuses on activities that will integrate invasive plant surveillance (achieved through Objective 1 and 2) with all other aspects of the Australian biosecurity system, achieving Goal 2 of the NIPSF.

Objective 4 focuses on communication activities to promote surveillance and the NIPSF, achieving Goal 3

Table 2: Objectives and actions table for GOAL 1

GOAL 1: Improved SYSTEMS & STRUCTURES for the collection, verification, storage and analysis of surveillance information		
Objective	Action areas and specific actions	Existing policies & processes to be used to deliver actions
1. Increase capability for earliest detection of new invasive plant incursions (both new and range expansions of existing invasive plants)	<p>1.1 Enhance/maintain the ability of Australian herbaria to assist in invasive plant identification and taxonomy:</p> <ul style="list-style-type: none"> a) Obtain formal acknowledgement from the Council of Heads of Australasian Herbaria (CHAH) of the importance of the herbaria in invasive plant management b) Establish arrangements (e.g. MOU, fees for service or funded/partially funded positions) with herbaria in each state and territory that ensure invasive plant taxonomists and the services they provide are available long term c) Establish a national reference collection (specimens) of potential invasive plant species sourced from state/territory and overseas herbaria <p><i>Also refer to related actions: 2.2 c), 2.3 b) and c)</i></p>	Current state and territory arrangements with herbaria (contractual/funding arrangements, Memorandum of Understanding or other agreements).
	<p>1.2 Enhance capability of land managers to identify invasive plants:</p> <ul style="list-style-type: none"> a) Develop/adopt nationally consistent, accredited invasive plant identification training b) Develop/adopt tools for taxonomic identification and community mapping (e.g. practical web-based tools, smartphone apps, other social media etc. c) Integrate and add value to existing jurisdictional programs for invasive plant identification and surveillance 	<p><i>Existing jurisdictional programs for invasive plant ID and surveillance</i></p> <p><i>Australian Living Atlas (ALA) - Weed Portal</i></p> <p><i>Pest and Disease Image Library (PaDIL)</i></p>
	<p>1.3 Enhance capability for, and effectiveness of, surveillance:</p> <ul style="list-style-type: none"> a) Develop/adopt nationally agreed surveillance standards (for active and passive surveillance) that prescribes what to collect and how to collect it b) Develop/adopt nationally consistent accredited surveillance training c) Establish agreed minimum levels of surveillance to be carried out within each state and territory d) Facilitate periodic surveys to be carried out by surveillance specialists at high risk sites 	<i>Existing jurisdictional programs for invasive plant ID and surveillance</i>
	<p>1.4 Promote the development and adoption of strategic solutions, where required, to improve earliest detection capabilities:</p>	

	<ul style="list-style-type: none"> a) Develop/adopt consistent standards and definitions for surveillance and reporting across a range of stake holders b) Investigate the feasibility of developing multi-species surveillance methodologies. This may include classifying species into functional groups based on dispersal mechanisms etc. c) Support the development/adoption of decision support tools for early detection d) Conduct gap analysis to identify research needs to improve earliest detection capabilities and priorities for existing national and state funding opportunities e) Research to refine/improve surveillance methods e.g. un-manned aircraft; helicopter / light aircraft for remote areas 	<p><i>Existing research findings and decision support tools</i></p> <p><i>Existing research funding opportunities</i></p>
<p>2. Develop and implement consistent post border surveillance systems and structures to improve earliest detection capabilities and facilitate rapid response where required</p>	<p>2.1 Strategically prioritise surveillance effort:</p> <ul style="list-style-type: none"> a) Identify high risk pathways and sites b) Develop a process for prioritising high risk pathways and sites for surveillance c) Identify priority species for each high risk pathway and site d) Identify high priority areas for protection 	<p><i>Existing declared species</i></p> <p><i>Existing surveillance data</i></p> <p><i>State and territory weed risk assessment procedures.</i></p> <p><i>The National Categorisation System for Invasive Species</i></p>
	<p>2.2 Develop surveillance networks and structures to facilitate earliest detection:</p> <ul style="list-style-type: none"> a) Expand the Northern Australia Quarantine Strategy (NAQS) approach to post border surveillance[#] b) Develop a National Weed Spotters Network c) Facilitate the establishment of networks for invasive plant botanists to communicate regarding new incursions or difficult to identify specimens. This includes linking with existing botanical and ecological networks* d) Formalise cross jurisdictional networks for the communication of new detections and range expansions <p>[#] For further information of NAQS, refer to the website: http://www.daff.gov.au/aqis/quarantine/naqs</p> <p>* This action links to action area 1.1.</p>	<p><i>Integrate existing jurisdictional weed spotter and other community-based passive surveillance programs</i></p> <p><i>Integrate existing jurisdictional active surveillance programs</i></p>
	<p>2.3 Improve the collection, collation, management and sharing of new distribution and taxonomy data:</p> <ul style="list-style-type: none"> a) Develop and promote an accessible repository for the information gathered (species and distribution data) that is integrated with existing jurisdictional processes for information gathering b) Establish agreed specimen collection requirements for new invasive plant detections and significant range extensions* c) Introduce two-way reporting protocols and procedures between regions, state/territory agencies and herbaria that facilitate submission of specimens for verification and storage and timely notification of 	<p><i>Community Information Portal</i></p> <p><i>Australian Virtual Herbarium</i></p>

	<p>high risk species * <i>These actions link to action area 1.1.</i></p>	
	<p>2.4 Strengthen reporting and processes for triggering an appropriate management response:</p> <ul style="list-style-type: none"> a) Promote existing processes/structures for responding to new detections (eg. EADRA, NEBRA, NWIP), and promote or support the development of interpretative guides for these processes where necessary. b) Where specific species are not covered under the processes/structures listed in a) develop nationally agreed rapid assessment processes for the determination of risk posed by a species following detection c) Develop structures for reporting and responding to range expansions using the networks established under 2.2 and provisions under IGAB d) Formalise links to national data repositories developed under action 2.3 a) e) Develop and maintain reporting tree for each jurisdiction, with a point of contact for information on new detections in each state and territory 	<p><i>EADRA- for invasive plants new to Australia with an impact on production</i></p> <p><i>NEBRA – for invasive plants new to Australia with an impact on the environment</i></p> <p><i>NWIP</i></p> <p><i>IGAB</i></p> <p><i>State Incident plans etc.</i></p>

Table 3: Objectives and actions table for GOAL 2

GOAL 2: Improved INTEGRATION of Australia’s biosecurity system		
Objective	Action areas and specific actions	Existing policies & processes to be used to deliver actions
3. Integrate invasive plant surveillance into biosecurity policy and processes at all levels of government	<p>3.1 Facilitate effective cross-jurisdictional and cross-tenure communication and knowledge sharing of new detections to increase preparedness and aid decision making:</p> <ul style="list-style-type: none"> a) Establish communication networks between all jurisdictions to ensure that as new plants are declared, the import conditions database (ICON) is updated. Ensure all declared species that are listed on ICON are removed from permitted seed lists b) To facilitate an appropriate and rapid response following surveillance and a positive detection of new invasive plants or range expansions, establish region to region and state to state reporting protocols to share information on distribution, weed risk assessment outcomes, current declarations and management options 	<p><i>Intergovernmental Agreement on Biosecurity</i></p> <p><i>The National Categorisation System for Invasive Species</i></p>
	<p>3.2 Integrate NIPSF into jurisdictional invasive plant surveillance programs and policy and national biosecurity programs and policy:</p> <ul style="list-style-type: none"> a) Develop an implementation plan for the National Surveillance Framework b) Where appropriate, align with or refer to the NIPSF in local, regional and state/territory surveillance policies and plans c) Develop safeguards in biosecurity policy to ensure that potentially high risk pathways are automatically prioritised for appropriate post-entry invasive plant surveillance d) Promote the NIPSF to other areas of biosecurity surveillance (pest animals and disease) and encourage reporting of suspected invasive plants e) Facilitate the development of networks to link/inform biosecurity managers of surveillance programs that are occurring in each area of biosecurity (i.e. plant animal and disease) and provide opportunities for coordination f) Implement the NIPSF in conjunction with the National Plant Biosecurity Surveillance Strategy for plant pests and other biosecurity strategies and frameworks. Allow for periodic review to better align such documents. 	

Table 4: Objectives and actions table for GOAL 3

Goal 3: The importance of surveillance is COMMUNICATED and the NIPSF is ADOPTED		
Objective	Action areas and specific actions	Existing policies & processes to be used to deliver actions
4. Increase the understanding and recognition of the importance of surveillance	<p>4.1 Increase the awareness amongst land and water managers of the importance of surveillance:</p> <ul style="list-style-type: none"> a) Develop a communication plan for the NIPSF, identifying key messages and audiences b) Promote the framework, its key messages and tools c) Deliver surveillance messages and promote the NIPSF through other invasive plant management programs (existing and future) e.g. WoNS, National Weed Spread Prevention Initiative etc. 	
	<p>4.2 Evaluate the effectiveness of the NIPSF in enhancing early detection capabilities</p> <ul style="list-style-type: none"> a) Develop a monitoring, evaluation, reporting and improvement (MERI) plan for the NIPSF, in conjunction with state and territory governments, identifying key evaluation question and reporting responsibilities 	

REFERENCES

Beale, R F., Inglis, A., Trebeck, D. 2008, One biosecurity: a working partnership - the independent review of the Australia's quarantine and biosecurity arrangements report to the Australian Government', Minister of Agriculture, Fisheries and Forestry, Canberra

Chippendale, J. F. 1991. Potential returns to research on rubber vine (*Cryptostegia grandiflora*). M. S. Thesis. University of Queensland, Brisbane

COAG 2012a, *Intergovernmental Agreement on Biosecurity*, Council of Australian Governments, Canberra, available at http://www.coag.gov.au/intergov_agreements/docs/intergovernmental_agreement_biosecurity.pdf, accessed March, 2012.

COAG 2012b, *National Environmental Biosecurity Response Agreement*, Council of Australian Governments, Canberra, available at www.coag.gov.au/intergov_agreements/docs/national_environmental_biosecurity_response_agreement.pdf, accessed March, 2012.

Hobbs R.J. and Humphries, S.E. 1995. An Integrated Approach to the Ecology and Management of Plant Invasions. *Conservation Biology*, Vol. 9, No. 4

Kean J.M., Phillips C.B. and McNeill M.R. (2008). Surveillance for early detection: lottery or investment? In K.J. Froud, A.I. Popay and S.M. Zydenbos (eds.) *Surveillance for biosecurity: Pre-border to pest management*. pp. 11-17. New Zealand Plant Protection Society Inc., Hastings, New Zealand.

MAFBNZ (Ministry of Agriculture and Forestry Biosecurity New Zealand) (2008) Biosecurity Surveillance Strategy: Review of the Current State of the Biosecurity Surveillance System <<http://www.biosecurity.govt.nz/files/pests/surv-mgmt/surv/mafbnz-surv-strategy-current-state.pdf>>.

Sinden, J., Jones, R., Hester, S., Odom, D., Kalisch, C., James, R., and Cacho, O. 2004, *The economic impact of weeds in Australia*, Technical Series no. 8, CRC for Australian Weed Management, Australia Victoria. Dept. of Primary Industries. Biosecurity Victoria. 2009, *Biosecurity strategy for Victoria* Dept. of Primary Industries, Biosecurity Victoria, Melbourne.