Sydney Weeds Committees

- Sydney Central
- Sydney South West
- Sydney North
- Sydney West – Blue Mountains

Sydney Weeds Committees

Weed Incursion Plan

2010-2015

NEW SOUTH WALES

WEEDS ACTION PROGRAM

Front Cover Photo: “Asp falcatus”, Sydney Weeds Committees

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Abbreviations

AQIS	Australian Quarantine and Inspection Service
AUSBIOSEC	Australian Biosecurity System for Primary Production and the Environment
AWS	Australian Weed Strategy
LCA	Local Control Authority
LLS	Local Land Services
NSW DPI	NSW Department of Primary Industries
NSW ISP	NSW Invasive Species Plan 2008 - 2015
NSW WAP	NSW Weed Action Program 2010 - 2015
NWAC	Noxious Weeds Advisory Committee
NWIP	National Weed Incursion Plan 2008
RRP	Rapid Response Plan 2010 - 2015
RWS	Regional Weeds Strategy 2010 - 2015
SWC	Sydney Weeds Committees
WIP	Weed Incursion Plan 2010 - 2015
WIT	Weed Incursion Team
WRA	Weed Risk Assessment

Acknowledgements

The SWC Weed Incursion Plan has been modelled on the National Weed Incursion Plan. SWC wishes to thank Phillip Maher, Senior Project Officer, Biosecurity QLD, Department of Primary Industries and the participants of the 2007 workshop which developed many of the principles of the National Weed Incursion Plan.

2. EXECUTIVE SUMMARY

The Sydney Weeds Committees (SWC) Regional Weed Incursion Plan (SWC WIP) is an operational plan and guideline for managing responses to new weed incursions and fits into a hierarchy of frameworks, strategies and legislation which collectively provide for a weed management system for the Sydney region of NSW (see Map 1, page 4). It also sits within the National Weed Incursion Plan (NWIP) and NSW New Weed Incursion Plan framework.

The SWC WIP provides the essential steps required to execute a response to a new high risk weed incursion. It is consistent with current major incident documents such as PLANTPLAN and is directly linked to the SWC Rapid Response Plan (SWC RRP) document and the SWC Communication Strategy.

Application of the SWC WIP is triggered by the detection of a new high-risk weed species.

Outlined in the document are procedures that are generic for all responses to new weed incursions in the region, while the Appendices include significant detail on different components of the Plan.

Section Two contains information pertaining to the prevention and preparedness stages for weed incursions in line with the National Weed Incursion Plan (NWIP).

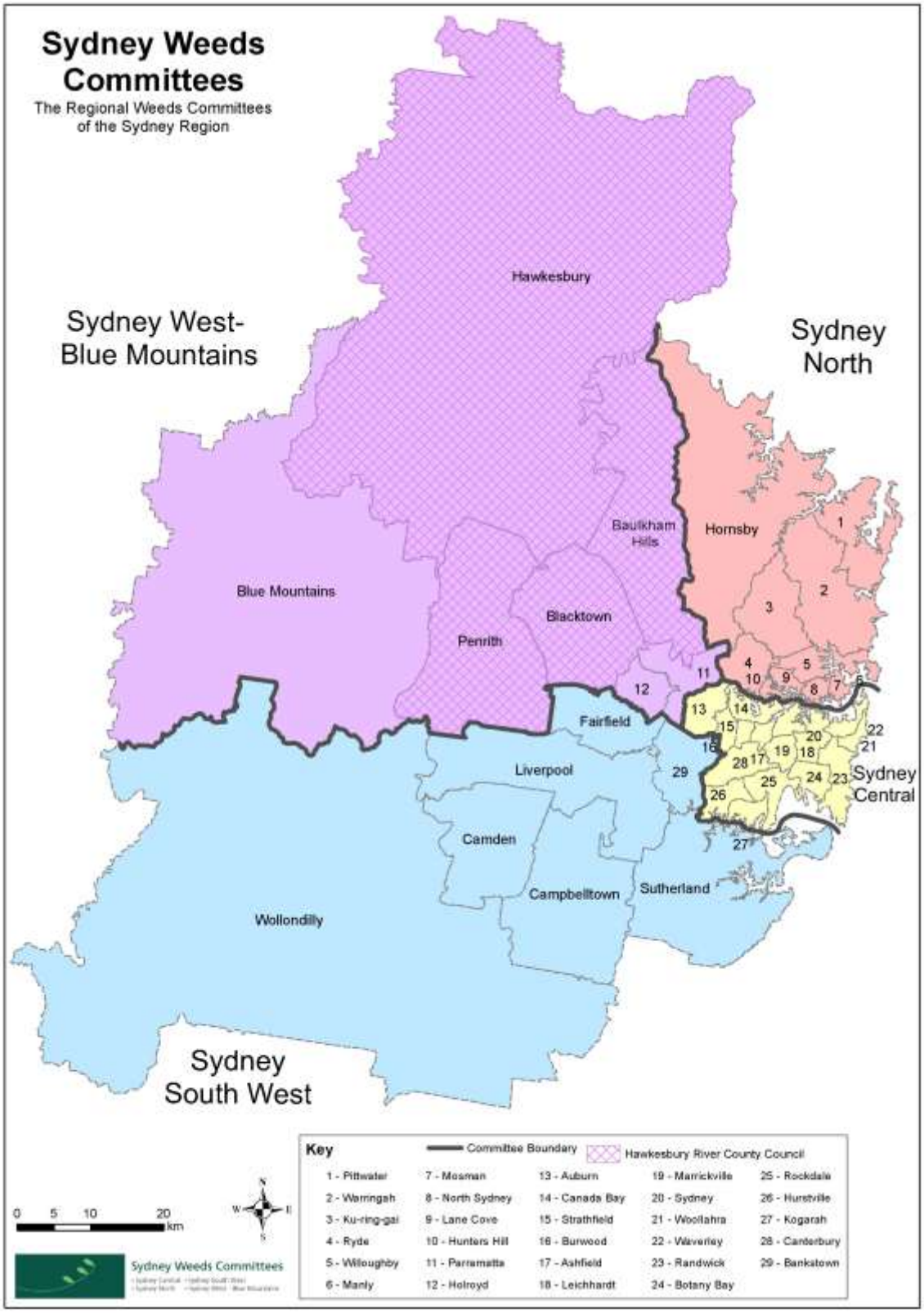
A major component of the SWC WIP is an overview of the response to new weed incursions where the four phases of response are provided as a step-by-step guide to those involved in an incursion response. The four stages are:

- Prevention
- Preparedness
- Response
- Recovery

The response and recovery phases are covered in generic terms within this document and are detailed in full in the separate document titled the ‘SWC Rapid Response Plan 2010-2015’ (SWC RRP).

Communication and information systems are fundamental to the SWC WIP. These cover communication strategies, media and information management for a response and whilst covered in this plan, more detailed provisions are contained within the ‘SWC Communication Strategy 2010-2015’.

Map 1 – Sydney Weeds Committees REGIONAL MAP



3. INTRODUCTION

3.1 Background to the SWC Weed Incursion Plan

A response to a new weed incursion is potentially a complex undertaking that requires rapid mobilisation and co-ordination of a diverse team of people and resources. The SWC Weed Incursion Plan (SWC WIP) is an operational plan and guideline for managing responses to new weed incursions and fits into a hierarchy of frameworks, strategies and legislation which collectively provide for a weed management system for the Sydney region of NSW.

In Sydney there are over 140 recorded invasive plant species. Many of these weeds are now widespread. New species have been found in recent years, and there is always the potential for more.

This Plan is a guide to help coordinate the surveillance and identification of weeds and weed pathways, the risk assessment of species and the implementation of effective barriers to prevent their establishment. The Plan will also outline how responses to weed incursions will be coordinated, implemented, monitored and reported. New incursions need to be dealt with at the moment of 'entry' (in the weed invasion curve) as soon as they are detected.

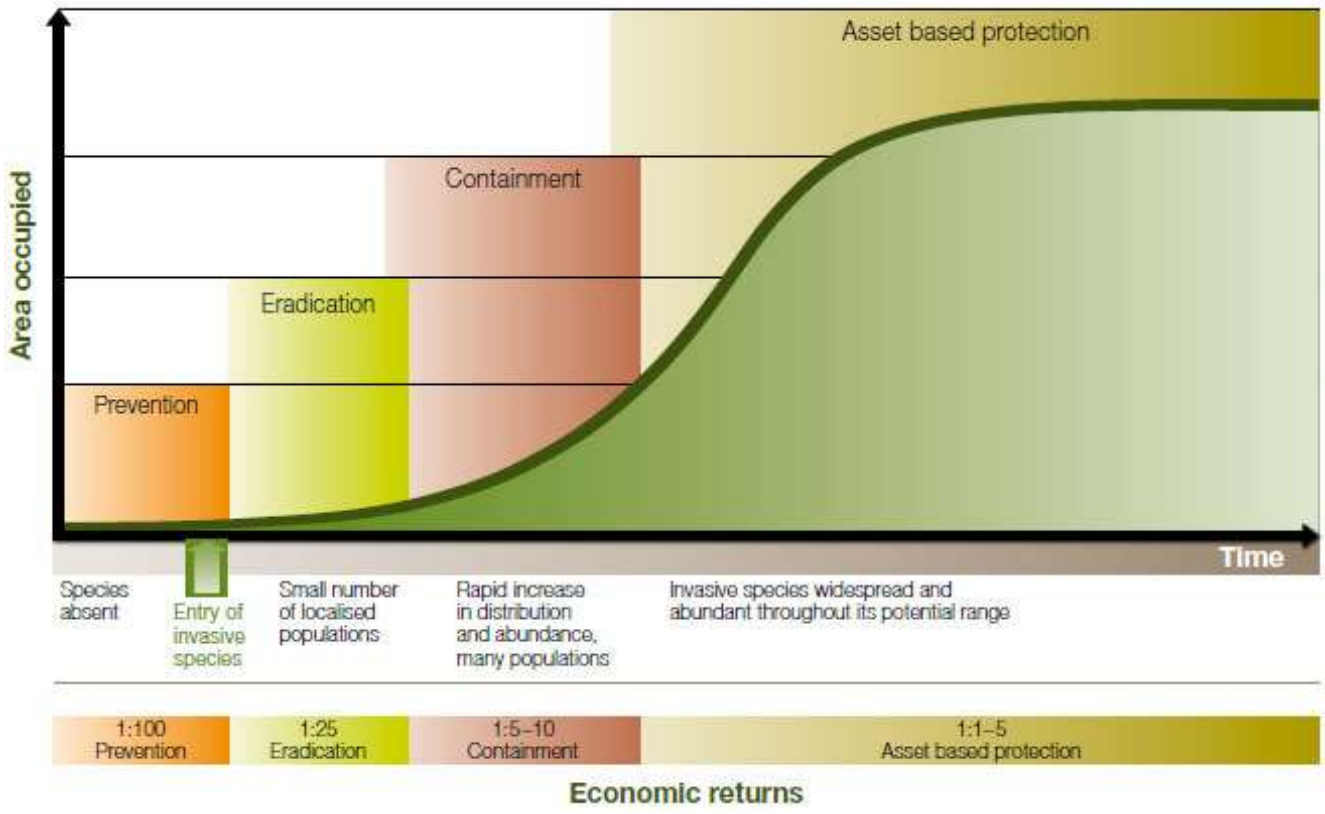


Image: Department of Environment and Primary Industries, Victoria.

The return on investment for different phases of weed control activity, highlights that the greatest return on investment is achieved through investing in prevention and early intervention, compared to investing in weed management once weeds are widespread and established.

Adopting the four stages of prevention, preparedness, response and recovery within the region reduces the threat, prevents or mitigates against the threat and prepares the Local Control Authorities for responses to weed incursions.

The SWC Rapid Response Plan document covers the phases in the response and recovery stages, providing a step-by-step guide for handling responses to weed incursions. A summary of these phases is included in section 4.8 of this document to provide an overview of actions in the SWC Rapid Response Plan.

The appendices supporting the SWC WIP provide significantly more detail on various aspects of the document.

The SWC WIP describes procedures for a response, however the steps may occur in slightly different order or may occur concurrently depending on the situation. It may be necessary to allow for modification, innovation and adaptation depending on the nature and size of the incursion, the availability and capability of personnel and the progress of the response.

3.2 Purpose of the SWC WIP

The purpose of the SWC WIP is to:

- provide guidelines for the consistent management of responses to weed incursions by appropriately trained personnel in the region;
- provide compatibility of operation and procedures within the SWC region and with adjoining Weeds Advisory Committees;
- a focus for training personnel in operational response procedures, and
- provide guidelines for the development of standard operating procedures for personnel involved in response management.

3.3 Objectives of the SWC WIP

- Prevent the introduction and establishment of new weed incursions in the region on public and private land.
- Support NSW governments in the prevention of introduction of new weeds.
- Support a surveillance program to enhance the reporting of new weed incursions in the region and state.
- Determine the appropriate type of response to each category of new weed incursion.
- Assess the potential impact on agricultural, environmental and social values of each incursion of high-risk weed species.
- Monitor, report and evaluate the type and number of new responses to high-risk weed incursions and the effectiveness of on-ground management and eradication programs.
- Review the SWC WIP biennially to improve and enhance preparedness and response outcomes.

3.4 Application of the SWC WIP

The SWC WIP will be used by the region to ensure that weed incursions are dealt with in a rapid, effective and consistent manner.

3.5 Principles underpinning the SWC WIP

The SWC Regional Weed Incursion Plan has been developed to address Goals 1 & 2 of the NSW Invasive Species Plan 2008 – 2015:

GOAL 1: EXCLUDE
Prevent the establishment of new invasive species.

GOAL 2: ERADICATE OR CONTAIN
Eliminate or prevent the spread of new invasive species.

One of the most effective ways to minimise the impacts of invasive plants is to prevent their initial incursion. Once weeds get into a new area, they have the ability to establish rapidly, and successful control often depends directly on a timely and rapid response.

This Plan will help co-ordinate the surveillance and identification of weeds and weed pathways, the risk assessment of species and the implementation of effective barriers to prevent their establishment. The Plan will also outline how responses to weed incursions will be co-ordinated, implemented, monitored and reported and links directly to the Rapid Response Plans for new weed incursions in the SWC region.

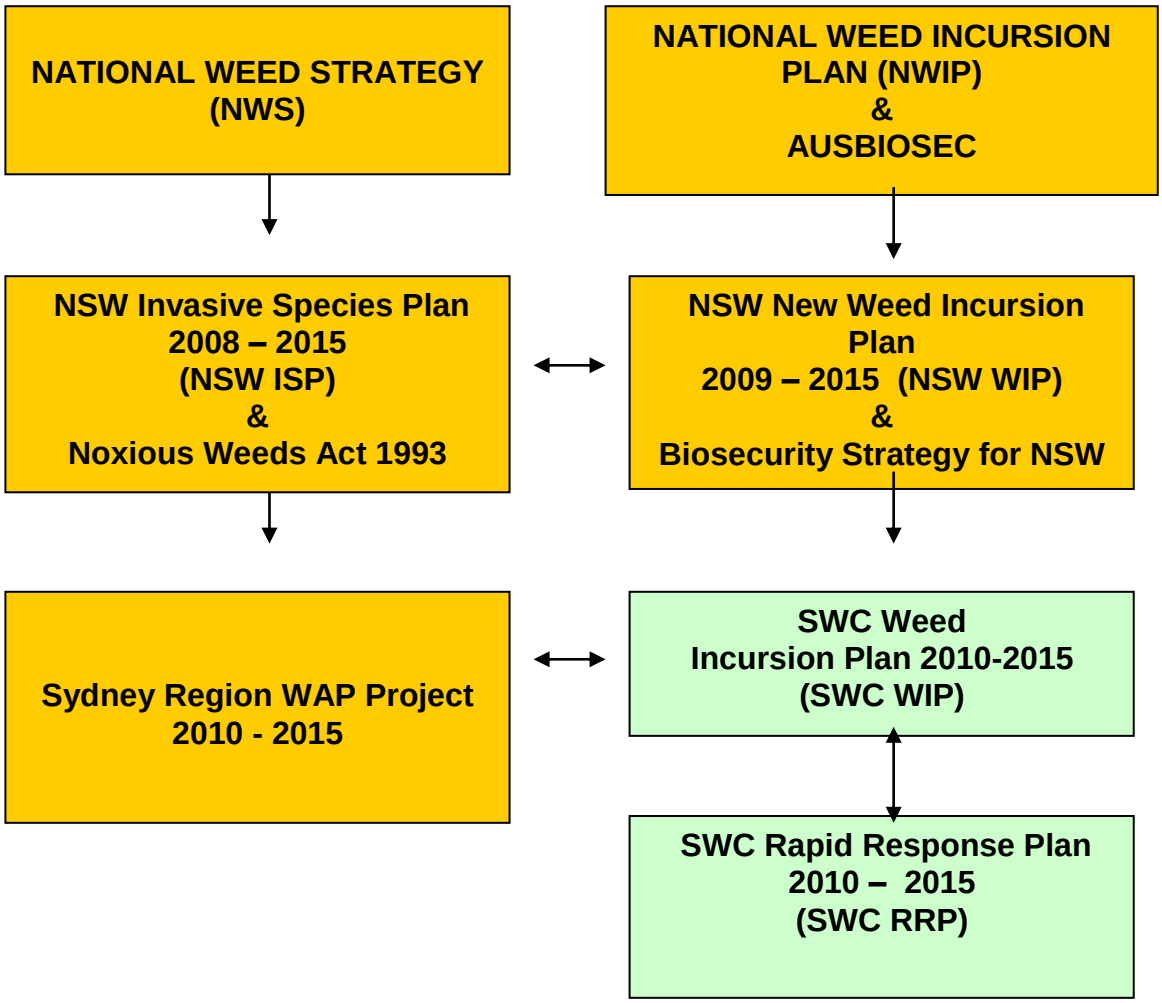
The SWC WIP is underpinned by the seven principles from the Australian Weeds Strategy (AWS).

1. Weed management is an essential and integral part of the sustainable management of natural resources for the benefit of the economy, the environment, human health and amenity.
2. Combating weed problems is a shared responsibility that requires all parties to have a clear understanding of their roles.
3. Good science underpins the effective development, monitoring and review of weed management strategies.
4. Prioritisation of and investment in weed management must be informed by a risk management approach.
5. Prevention and early intervention are the most cost-effective techniques for managing weeds.
6. Weed management requires coordination among all levels of government in partnership with industry, land and water managers and the community, regardless of tenure.
7. Building capacity across government, industry, land and water managers and the community is fundamental to effective weed management.

3.6 Legislation and policy framework

The SWC WIP fits into a hierarchy of frameworks, strategies, and legislation within the region (which collectively provide for a weed management system for the region) the state and nationally as summarized in Chart 1.

Chart 1: SWC Weed Incursion Plan 2010 – 2015 Policy Framework



3.7 The SWC WIP Process

The SWC WIP will help co-ordinate the surveillance and identification of weeds and weed pathways, the risk assessment of species and the implementation of effective barriers to prevent their establishment. The following chapter outlines the stages of the SWC WIP.

A summary of the SWC WIP process based on the NSW New Weed Incursion Plan 2008 - 2015 is detailed overleaf:

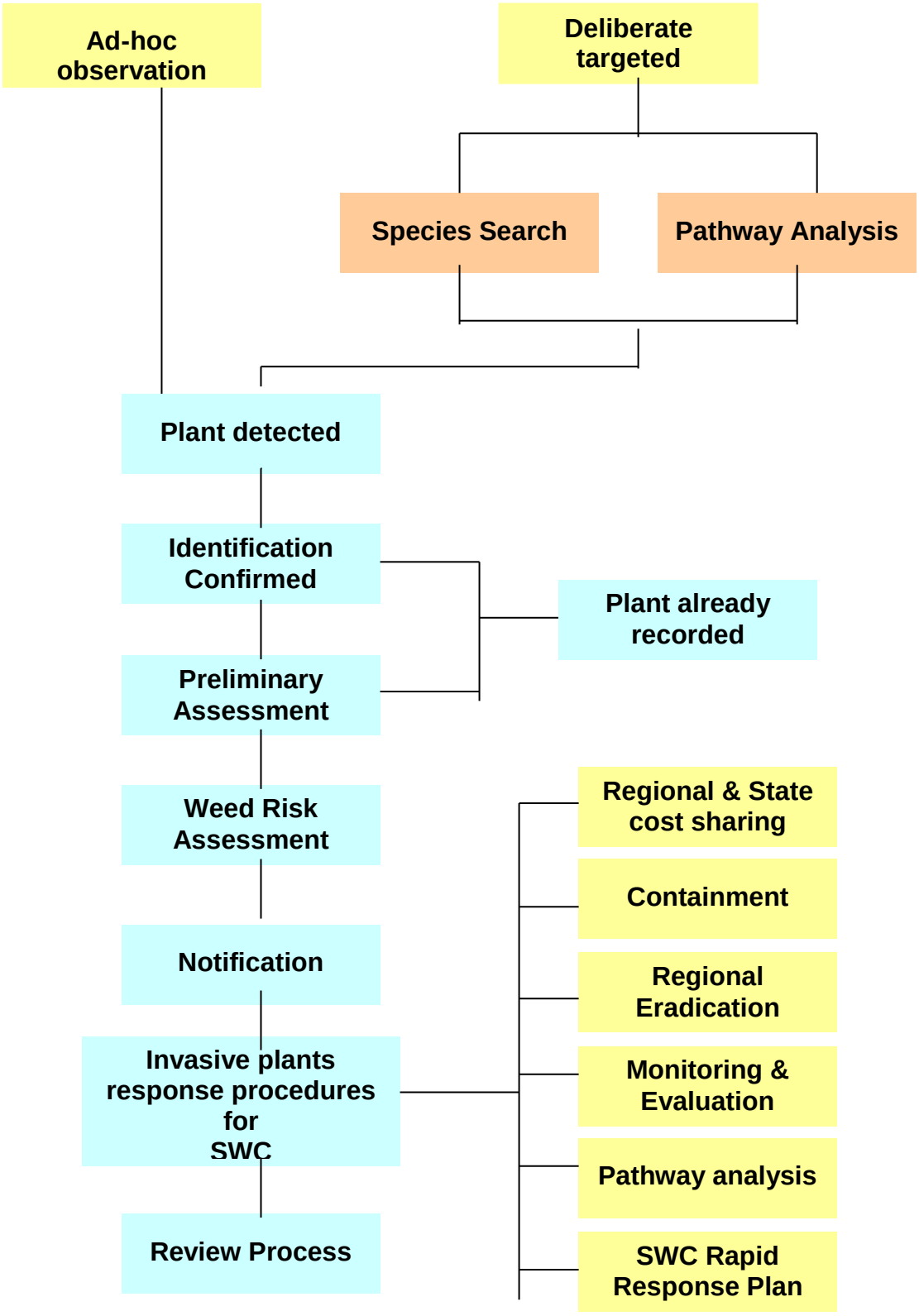
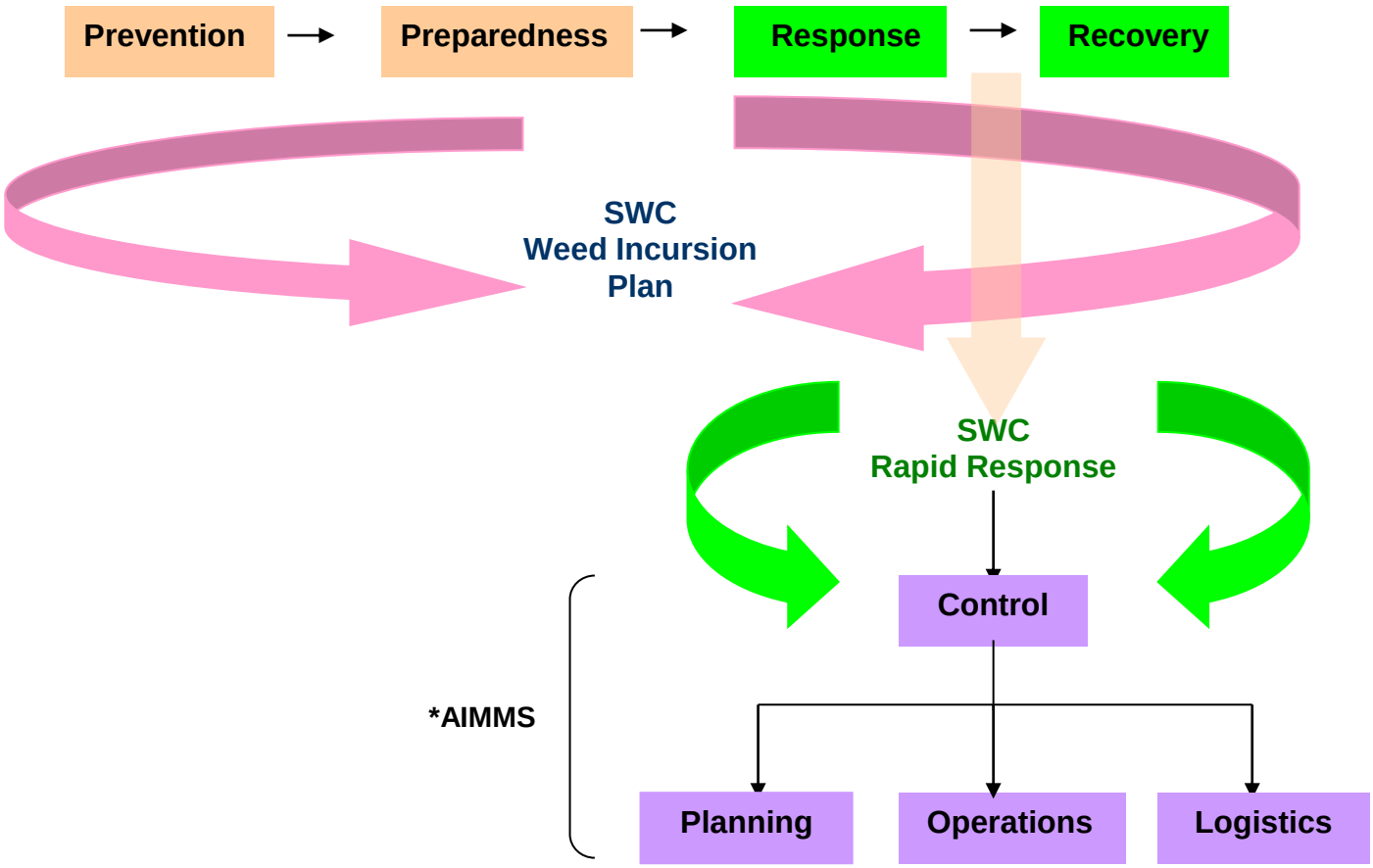


Chart 2: SWC Weed Incursion Plan Process (based on NSW Weed Incursion Plan)

4. STAGES OF THE SWC WIP

Responses to weed incursions in Australia are managed in a similar way to bushfires and other natural disasters. To ensure a common understanding of incursion response this document is based on the Australian Inter-service Incident Management System – Incident Control system and the Plant Health Australia Plant Plan. Both models divide incident management into four stages:



(Australian Inter-service Incident Management System (AIMMS)

Chart 3: SWC Weed Incursion Plan Stages

As part of BIOSEC protocols, it is recommended that the Australian Inter-service Incident Management Systems (AIMMS) be adopted in Rapid Response Plans.[1]

*AIMMS provides a system that facilitates the coordination of all activities by all parties involved in the resolution of an emergency.

[1] National Weed Incursion Plan P59

4.1 Prevention

Prevention and early intervention are the most cost-effective techniques for managing weeds.

Preventing the introduction of new weed incursions is the first line of defence against invasions. Early detection and rapid response efforts increase the likelihood that invasions will be addressed successfully while populations are still localized and population levels are not beyond that which can be contained and eradicated.

One of the most effective ways to minimise the impacts of invasive weed species is to prevent their initial incursion. Prevention systems need to be in place to reduce the threat of future weed incursions. This involves identifying the weed threats to the region and assessing the risks of the weed species were it to be found in the region and taking action to avoid the establishment of the new weed species.

The SWC Regional Inspection Program, which is documented separately, is an operational plan for the inspection of private and public lands in the Sydney region under the NSW Invasive Species Plan and the SWC Weeds Action Program that will provide deliberate targeted surveillance for new weed species.

The SWC Weeds Action Program project 2012-2015, incorporating the Weeds Action Program for the Sydney region integrates key objectives, measurable outcomes and activities that require prevention procedures in:

- Identifying and documenting regional high risk pathways;
- Developing effective management protocols of high risk pathways;
- Developing lists of high risk species;
- Developing lists of alert weed species not already present within the region;
- Developing and implementing a regional inspection program;
- Implementing appropriate surveillance of high risk pathways;
- Reducing the impact of invasive weed species at priority sites;
- Managing invasive weed species on public and private lands;
- Information distributed on high risk weed species and
- Maintain close working relationships with adjoining Regional Weeds Committees in regard to new weed species.

Appendices 2, 3 and 4 provide lists of Alert Weed Species, High Risk Weed Species and Other Priority Invasive Weed Species for the Sydney region.

Table 1 (page 12) provides a checklist of the critical decisions to be made during the prevention phase.

Table 1: Checklist of Critical Decisions to be made in the Prevention Phase

Checklist	YES	NO
Formal notification systems in place at the state herbaria?		
Is there available taxonomic expertise to verify weed species?		
Is the weed species a declared Class 1 or Class 2 Noxious Weed under the *Noxious Weeds Act 1993*?		
Is there a definitive Weed Risk Assessment available of the weed species?		
Are there hygiene protocols in place for safe handling of high risk species?		
Are there existing post-boundary regional surveillance networks to link into?		

4.2 Preparedness for weed incursions

Being in an active state of readiness (preparedness) significantly reduces the response time to new weed incursions, ultimately improving the outcomes of management efforts.

Preparedness for a response to a weed incursion requires a number of key elements:[2]

- Early detection and verification;
- Known reporting lines;
- Agreed decision making processes;
- Contingency response plans and
- Co-ordinated response procedures.

4.3 What do we consider to be "new incursions" in the region?

"Isolated population/s of invasive species recently detected in the region for the first time. A weed that has shown up in an area for the first time, where it now exists beyond what was its known extent."
(i) Sydney-wide new incursion (these are highest priority for response)
Example: A plant is found in Sydney for the first time, or there are only a few other known locations in other parts of the region. It may also have been present at a site for a number of years, but only recently detected or identified as a priority (eg Kudzu).

(ii) Regional new incursion
Examples: A widespread aquatic weed showing up in a completely new catchment for the first time, or a terrestrial weed found growing outside of a containment line.

4.4 How are we finding new incursions in the region?

- Property inspection programs – public land, private land
- Surveying of high risk pathways, high risk sites and hot spots
- Increased capacity to identify weeds – training days/field days/identification resources for professionals, other staff in council, Bushcare volunteer training

[2] National Weed Incursion Plan P13

4.5 What are the new incursions recently in the region in past few years:

- Sicklethorn (Asparagus falcatus)
- Japanese Knotweed (*Fallopia japonica)*
- Horsetail (*Equisetum* species)
- Kidney Leaf Mud Plantain (*Heteranthera reniformis)*
- Kudzu *(Pueria lobata)*
- Monkeycomb *(Pithecoctenium cynanchoides)*
- Mysore Thorn (*Caesalpinia decapetala)*
- Angels Trumpet (Maurandya barclayana)

4.6 Weed incursion preparedness checklist

Weed incursion preparedness actions will be formulated for new weed species, as referenced in the Alert Weed Species List (Appendix 2) that are not yet in the region as part of the Rapid Response Plan.

If a new incursion has occurred in the region and is ranked as a high priority under the Weed Risk Assessment Process (refer Appendix 5) a species specific Weed Management Plan will be prepared under the guidelines of the Rapid Response Plan. Table 2 provides a checklist of the critical decisions to be made during the preparedness phase.

Table 2: Checklist of Critical Decisions to be made in the preparedness phase

Checklist	YES	NO
Is there a Weed Management Plan ready for use in the event of a new weed incursion?		
Does the weed species meet NSW DPI emergency funding criteria?		
Is there existing research available on the weed species?		

4.7 When a suspected new incursion is found - Response

There are four phases of the SWC Rapid Response Plan activated in response to a new weed incursion:

- Investigation;
- Alert (Scoping);
- Operational Response (eradication and containment) and
- Stand Down.

This section provides a brief overview of the processes. Operational details are contained in the SWC Rapid Response Plan which is modeled on the National Weed Incursion Plan.

Use this order of steps as a guide for dealing with each individual situation.

Identify

Step 1:
Take photos of the plant in situ

Note to land manager: if there are a small number of plants, take photos, remove the plants immediately if possible and keep one as a sample.

Step 2:
Correctly identify the plant's genus and species (If unsure, send a specimen to the Herbarium for identification before going any further)

Step 3:
Once the plant is correctly identified, find out if:

- The plant is listed on Sydney Region high risk weeds list (check list on website)
- The plant is on NSW Weed Alert list (check with DPI)
- The plant is already recorded in Sydney (check with SWC Executive Officer)

Step 4:
Notify the land manager that the plant is a potential problem (if not done already).

Record

Step 5:
Complete the "SWC New Incursion Form" (Attachment) and email it to info@sydneyweeds.org.au within one week of suspecting it is a new incursion
(This is the precautionary principle: keep a documented record of the plant/s and location/s until we know more). If the plant is found on private property, a delegated weeds committee representative needs to assist with completing the new incursion report and monitoring the situation (eg weeds or bushland officer from local council).

Step 6:
SWC Executive Officer to ensure New Incursion Form data is entered onto the Sydney Weeds GIS layer.

Seek more information

Step 7:
Gather more information about the plant – internet search, existing publications, previous weed risk assessments, and anecdotes.

Step 8:
Bring a specimen and photos to the next weeds committee meeting/s to show others in the region.

Communicate

Step 9:
Ask around in the Sydney Weeds Committees and DPI networks. Collate any evidence of this plant being a problem in other parts of NSW, Australia, overseas.

Step 10:
Once we know enough about to determine it as a potential problem in the region, email out "NEW WEED ALERT", with photos and information we know to date. Ask people to send back any additional information sightings, anecdotal evidence and photos.

Email the new weed alert to:

- The four weeds committees in Sydney
- Contacts in DPI
- Other regional Project Officers in neighbouring regions, or across NSW (as appropriate)
- Other NRM email networks – CMA, Bushcare, Local Govt NSW, AABR etc
- Weed management/ecological restoration contractors working in Sydney

Step 11:
Upload fact sheet information to Sydney Weeds website on “New Weeds in Sydney page”

Step 12:
If it is a Notifiable Weed, complete an additional report for DPI (form is on the Weeds Extranet, login though DPI website)

Email a copy of this notifiable weed report to info@sydneyweeds.org.au

Assess the problem and actions required

Step 13:
Coordinate a Weed Risk Assessment (if one not done to date) to be done using the guidelines and pro forma on DPI website. Do the WRA with representatives from the relevant weeds committee, land manager and/or contractor who know something about the plant.

Step 14:
Determine what actions need to be taken by, or on behalf of, the land manager:

- Does the land manager have the resources to eradicate the infestation?
- How will the plants be destroyed?
- Who will do the work?
- When will the work be done? (rapid response)

Step 15:
If funds are required, make an application to the Steering Group for use of WAP contingency funds to assist with primary weed control. WAP funds for weed control can be spent on any land tenure, according to the WAP project priorities, and including private land. Contingency funds are usually provided for the first 12-24 months (depending on the severity), with the land manager taking over financial responsibility of the follow up weed control after then.

Step 16:
Consider whether a noxious weed declaration of the plant will be helpful in ensuring the plant

is eradicated and controlled over time. Discuss with DPI Weed Ecologist.

Follow up – report back – close the loop

Step 17:
Send updates to SWC Executive Officer once the new incursion has been controlled.

Step 18:
SWC Executive Officer to ensure GIS record is updated, and all other interested parties, weeds committees etc are notified of the action taken.

Step 19:
Land manager to monitor site/s for next 18 months to check for re-growth, and report back through weeds committee representatives and meetings.

Sydney Weeds Committees
• Sydney Central • Sydney South West
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Version 1.10 Date: Oct 2013

New Weed Incursion - report form

This form is to record information about new weed incursions detected in the Sydney region. This form can be completed by local council and government agency officers, contractors, consultants and community members.

A "new weed incursion" is *An isolated population of an invasive species detected in an area where it has not previously established.* That is,an invasive species that has arrived in an area or landscape (a vegetation community, a waterway etc) for the first time. This form needs to be completed for (i) new incursions that have just been found and (ii) new incursions detected within the last 10 years, that have not been officially recorded. The information recorded about all new weed incursions will assist with a rapid response to inform others within the region and eradicate/contain the spread of the species.

Please complete this form as soon as a new weed incursion is found and send it immediately to: info@sydneyweeds.org.au
Please put in the email subject title: "NEW INCURSION"

Do you think this species should be raised as a New Weed Alert? (ie it is the very first time that is has been found in this region/Sydney) **yes [ ] no** [ ]

Attribute	Description	Data
Record Date	**Date** DD/MM/YYYY	
Recorder	**Name** of person completing this form:	
	Council/ Agency/ Organisation/ Community group:	
	Phone Number	
Information about the invasive species	**Common name**	
	Genus	
	Species	
Estimated number of individual plants	insert exact number if less than 20 plants. Or, provide estimates: **A** = 20-100 **B** = >100 **C** = Unknown	
Growth phase	**A** = Seedling **B** = Juvenile **C** =Mature	
Reproductive phase/ type	**A** = Non in flowering **B** = Flowering **C** = Fruiting **D** = In-Seed or **E** = Vegetative	
Recommended Control Measure	1 = Spray 2 = Cut & Paste 3 = Scrape & Paste 4 = Hand 5 = Other (describe)	
Is a permit required?	insert permit number (if known)	
What do you think has triggered the weed incursion?	1 = Flood 2 = Heavy rain event 3 = Fire 4 = Land disturbance 5 = Transport corridor 6 = Drainage line 7 = Waste Disposal 8 = Machinary 9 = Bushwalker 10 = Spread from nearby property 11 = Other (describe)	
Where has the machinery/ weed spread come from?	insert location (if known)	
Description of the place Note: if you do NOT have access to a GPS, please attach a more detailed description of the site/s infested	Describe (in plain English) the place where the species has been found eg. *"100m north from the intersection of James Rd & Circa St".*	
Land Use Category	1= Nature Conservation; 2 = Grazing modified pastures 3 = Manufacturing/Industrial 4 = Residential 5 = Recreation 6 = Utilities easement 7 = Transport corridor 8 = Waste Disposal 9 = Reservoir /dam 10 = Creek / river 11 = Wetland 12 = Estuary/Coast waters 13 = Other	
Location	Please attach shapes file to show the area of infestation or..	
	Please attach a hard copy map (from street directory, Google Maps etc) to show the area of infestation.	
Precision of co-ordinates	GPS precision of measurement in locating the site. Measured in meters (m).	
Area	Size of the area infested with this species (1ha = 10,000m²). e.g. 0.001 ha = 10m²	hectares
	Or, length of the area infested (if it is a creekline for example) 1km = 1000m	kilometres
Photos	Please also send photos showing flowers or seeds (if any), stem, leaves and overall form. Include a pen, foot, coin etc to indicate size.	

NB: Some of these attributes have been taken from suggestions made in *A Field Manual For Surveying and Mapping Nationally Significant Weeds* Bureau of Rural Sciences (2006) and *Field Locations of Mistletoe* Weeds NSW Dept Industry & Investment

Attachment: Sydney Weeds new incursion report form (Contact SWC for an electronic copy of this form info@sydneyweeds.org.au)

4.7a Summary of procedures and actions in the Response - Investigation Phase

(some actions may occur simultaneously)

Agency	Procedures / Actions	Responsibility
SWC	**Detection of a suspect weed incursion**	*Landholder, community group member, consultant, state or local agency person or other individual submits suspect weed incursion information*
	Initial verification and formal notification	*State herbarium provides verification and notification to SWC*
	Landholder/s informed	*LCA advises landholder/s of incursion verification, response process and obligations.*
	Adjoining weed control authorities, other land management agencies/ stakeholders informed	*SWC notifies authorities, agencies and stakeholders*
	SWC co-ordinates relevant information	*LCA collects relevant information for initial report*
	Notification to State Weed Control Co-ordinator NSW DPI	*LCA reports notification*
	Preliminary WRA	*SWC together with LCA carries out a preliminary WRA in association with NSW DPI*
	Preliminary Weed Incursion Team (WIT) established	*SWC establishes preliminary WIT and convenes meeting to discuss situation, identification, response plan, administrative arrangements, communication, media releases and establishment of WIT.*

4.7b Summary of procedures and actions in the Response - Scoping / Alert Phase

(some actions may occur simultaneously)

Agency	Procedures / Actions	Responsibility
SWC	**Further work to confirm identification (if required)**	*LCA co-ordinates further specimens to Royal Botanic Gardens Herbarium*
	Initial containment and scoping	*LCA delegates officers in the affected areas to conduct initial surveys, inspect properties, and take specimens to delimit the extent of the incursion.*
	Develop the preliminary Weed Risk Assessment (WRA) into a final WRA	*LCA, in collaboration with the Weed Ecologist NSW DPI , prepares the Final WRA.*
	Develop a Weed Management Plan (WMP)	*LCA in collaboration with Weed Incursion Team (WIT) prepares species specific WMP.*
	Confirmation of weed incursion notified	*LCA notifies NSW DPI and prepares report including WMP and Final WRA*
NSW DPI	**NSW DPI review**	*NSW DPI provides technical advice on WMP and Final WRA and where necessary, oversees implementation of a program to investigate the feasibility of eradication.*
SWC	**Treatment options investigated**	*The WIT, in conjunction with NSW DPI, investigates the options for treatment of the new weed incursion and assesses the need for chemical permits and or trials.*
	Weed incursion communication	*The WIT, in conjunction with NSW DPI , co-ordinates the development of a local / regional / state / national communication / media release as outlined in the SWC Communication Strategy*

4.7c Summary of procedures and actions taken in the Response - Operational Containment Phase

(some actions may occur simultaneously)

Agency	Procedures / Actions	Responsibility
SWC	**Communicate Weed management Plan (WMP) to property owners**	*LCA to advise affected property owners of implementation of WMP*
	Communicate WMP to government and affected industry	*LCA and NSW DPI Regional Invasive Species Officer to brief state and local governments, industry and other stakeholders of implementation of WMP*
	Implement containment	*LCA convenes Weed Incursion Team (WIT) responsible for strategic control of incursion, policy development, financial administration, media and stakeholder liaison.*
NSW DPI	**Co-ordinate containment program**	*NSW DPI liaises with LCA to ensure timely implementation of response actions.*
	Seek Expert advice (if applicable)	*NSW DPI seeks advice if applicable.*
	Technical feasibility, business plan and cost benefit analysis	*NSW DPI prepares business plan and cost benefit analysis of options on response actions, in liaison with LCA/s.*
SWC	**Report to NSW DPI**	*LCA to provide regular reports on progress.*
NSW DPI	**Decision on eradication vs containment**	*NSW DPI in association with LCA/s, SWC, and WIT considers feasibility of eradication/containment and explores funding options.*
	Develop cost-sharing proposal	*NSW DPI develops cost-sharing proposal to fund response actions.*
	Report to State Government on eradication	*NSW DPI briefs Minister and NWAC on feasibility of containment / eradication and cost sharing arrangements.*
SWC	**Develop weed incursion exit strategy**	*LCA and WIT in association with NSW DPI Regional Invasive Species Officer develops exit strategy for stand down phase.*

4.7d Summary of the procedures and actions taken in the Response - Operational Eradication Phase

(some actions may occur simultaneously)

Agency	Procedures / Actions	Responsibility
NSW DPI	**Approve eradication campaign and cost sharing arrangements**	*NSW DPI approves eradication campaign and funding.*
SWC	**Implement and manage eradication**	*Weed Incursion Team (WIT) implements eradication program.*
	Report to NSW DPI	*LCA provides regular progress reports.*
NSW DPI	**Evaluation progress**	*NSW DPI reviews progress & briefs Minister.*
	Endorse continuation of successful eradication or recommend termination and brief Minister for Primary Industries & NWAC.	*NSW DPI to brief Minister & NWAC on continuation or termination of eradication.*

4.7e Summary of procedures and actions taken in the Stand Down Phase

Agency	Procedures / Actions	Responsibility
SWC	**Implement the exit strategy**	*SWC and WIT implement strategy*
	Acquittal of funds and program documentation	*SWC and NSW DPI provide financial audited reports.*
NSW DPI	**Review intra- and inter- regional quarantine arrangements (if applicable)**	*NSW DPI reviews arrangements and defines weed incursion free zones (if applicable).*
SWC	**Notify other partners**	*SWC to notify other partner / stakeholder organisations*
	Incident debrief and review of response	*SWC to organise de-brief with WIT and other operational staff and prepare report*
NSW DPI	**Incident de-brief and review of evaluation report from SWC**	*NSW DPI convenes de-brief and review meeting with key stakeholders involved in rapid response.*
SWC	**Revise SWC Rapid Response Plan (RRP)**	*SWC revises SWC RRP following incident de-brief meeting.*

4.8 Recovery

The recovery process involves returning the affected area to its normal level of functioning after an incursion event. This may include revegetation and habitat rehabilitation programs to reduce the potential for re-infestation from another weed species and the provision of on-going surveillance programs to ensure the area continues to be free from the weed incursion.

In some situations the weed incursion may have already severely degraded high conservation value vegetation, which will have a severe impact on habitat value, connectivity and diversity. The recovery process may include revegetation strategies and plans for an area to facilitate the return of the high conservation value vegetation and the reconstruction of viable ecosystems.

Recovery may also include financial assistance to landholders or others in the community who are directly affected by the incursion event. This may require negotiations with NSW DPI as part of a State cost sharing arrangement.

On-going surveillance programs will be required to ensure the area continues to be free of the weed incursion. Surveillance models can be used to assess the time frame required for a monitoring program to guide the recovery phase.

Table 3: Checklist of critical decisions to be made in the Recovery phase

Checklist	Yes	No
Has the SWC WIP been reviewed and evaluated for currency and application?		
Has funding been allocated for rehabilitation of the weed incursion site/s?		
Has ongoing surveillance programs been set up to monitor for re-emergence of weed species?		
Has the communication plan been reviewed and evaluated to include the recovery phase?		
Are landholders and the general public being encouraged to report further sightings?		
Is there further planning and financial assistance required to bring the affected area back to its normal level of functioning?		

5. COMMUNICATION

Communication planning is a fundamental component of the SWC WIP and has been integrated into the SWC Communication Strategy.

The SWC Communications Strategy (and SWC Rapid Response Plans) will maintain organisational and community support, participation, alertness, and awareness and ensure there is an effective flow of information during responses to new weed incursions.

5.1 Communication actions

The objectives of the communication are:

- create maximum possible awareness of the weed incursion, the problem, its potential and identification of the species;
- create a communications network that encourages community to report sightings/infestations of the weed incursion;
- create and facilitate an effective working environment between, state, regional, local agencies and the community;
- provide effective key messages that are consistent with the outcomes of the SWC WIP;
- provide quantifiable data into the future reporting requirements for the project;
- ensure all weed contingency and incursion action plans contain a communication component; and
- respect confidentiality and privacy requirements to protect affected landholders/managers and to not compromise investigations.

In each phase of the SWC WIP there will be a diverse range of stakeholders involved. Each of these will need to be engaged through a variety of methods and with a variety of messages. Refer to the SWC Communication Strategy 2010 – 2015 for a list of the potential stakeholders involved in the SWC WIP.

5.2 Media

Information pertaining to the media can be found in the SWC Communication Strategy. This includes format, responsibility and protocol for writing and releasing media statements and briefings during the response.

6. INFORMATION SYSTEMS

Information and data management systems are essential to the SWC WIP. In a response to a weed incursion the information and data management system needs to be comprehensive, flexible and user friendly to allow for those individuals who may not use such systems during their normal duties. The system should be capable of disseminating data collected as part of project activities to the widest range of users and all data collected should be archived appropriately to ensure the availability of data for multiple use and to safeguard the investment for future use.

6.1 Data Management

Data management systems should as a minimum provide for data collection of the following information:

- landholders, owners and locations of target properties;
- area status – containment zone and restricted area;
- revisit frequencies;
- statistics for surveillance and tracing activities;
- staff movement and premises visit details;
- movement permits applications;
- reports or information provided by the public or industry;
- expenditure records;
- statistics for control techniques and eradication responses;
- routine management and surveillance and
- exchange of information across Regional Weeds Advisory Committee areas and with NSW DPI.

The system should also allow for:

- tracking of specimens and taxonomic verification, notification information;
- ecological and biological information on weed incursions and
- generation of progress reports on destruction, containment and/or eradication.

6.2 GIS Mapping

The use of geographic information systems (GIS) to map weed incursions in responses provides a system capable of integrating, storing, editing, analyzing, sharing, and displaying geographically referenced information.

Using GIS techniques, the LCA's and land managers can facilitate the integration of other spatially registered databases to be used in analyses of the weed incursion (e.g. weather data, land cover classes and satellite imagery). Weed incursion risk pathways can be geographically defined, analyzed and managed in relation to other spatially referenced data.

7. REVIEW OF THE WEED INCURSION PLAN

The Weed Incursion Plan will be reviewed biennially as part of the SWC Weed Action Program.

It will also continue to be updated in conjunction with the Rapid Response Plan and amended as part of the evaluation process of the response to new weed incursions.

Appendix 1 Recent responses to weed incursions requiring state support.

Recent responses to weed incursion requiring state support

Weed	Detection Date	Location	Other RWACs involved	Eradicated (-) Still present (+) Ongoing monitoring (#)	Cost Sharing

After the initial alert, a weed risk assessment was conducted by NSW DPI[8] to determine the nature and magnitude if the operational response required. The response was prioritised as "contain spread".

Appendix 2: Weed Alert List

Weed Alert List

Declared Noxious Weeds NOT CURRENTLY PRESENT in the SWC region.

Common Name	*Botanical Name*	Noxious Weed Class	Weed of National Significance

[8] Solanum viarum Tropical Soda Apple Weed Risk Assessment – Dr Stephen Johnson NSW I & I

Appendix 3: High Risk Weed in the Sydney & Blue Mountains region

List at April 2013

LIST A: ERADICATION

The aim is to eradicate all mature plants from the Sydney and Blue Mountains region, with follow up as required in the following years.

Strategy	Common name	Botanical Name	Plant Type
Eradicate Class 1 in NSW	Eurasian Water Milfoil	*Myriophyllum spicatum*	Aquatic
	Kidney Leaf Mud Plantain	*Heteranthera reniformis*	Aquatic
	Horsetail	*Equisetum* species	Aquatic
	Mexican Feather Grass	*Nassella tenuissima (or Stipa tenuissima)*	Grass
	Senegal Tea Plant	*Gymnocoronis spilanthoides*	Aquatic
Eradicate Class 2 in NSW	Boneseed	*Chrysanthemoides monilifera* subspecies *monilifera*	Shrub
Regional Concern	Bitou Bush *(eradicate west of Holsworthy land)*	*Chrysanthemoides monilifera ssp. rotundata*	Shrub
Regional Concern	Kudzu	*Pueraria lobata*	Vine
Regional Concern	Japanese Knotweed	*Fallopia japonica*	Groundcover
Regional Concern	Sicklethorn	*Asparagus falcatus*	Vine
Eradicate where it's Class 2	Hygrophila / Glush Weed	*Hygrophila costata*	Aquatic
	Salvinia	*Salvinia molesta*	Aquatic
	Water Hyacinth	*Eichhornia crassipes*	Aquatic
Eradicate outside of Sydney wide containment lines	African Olive	*Olea europaea ssp. cuspidata*	Tree
Blue Mountains LGA only	Alligator Weed (Class 1) Cat's Claw Creeper (Class 2)	*Alternanthera philoxeroides* *Dolichandra unguis-cati*	Aquatic Vine

(LIST A: PENDING)

Other new weeds that have been seen in Sydney for the first time or becoming a concern.
Keep on List A until a Weed Risk Assessment is completed and we know more about their threats.

Recent New Incursions / Emerging concerns	Angel's Trumpet	*Maurandya barclayana*	Vine
	Kei Apple	*Dovyalis caffra*	Tree
	Monkey Comb	*Pithecoctenium cynanchoides*	Vine
	Mysore Thorn	*Caesalpinia decapetala*	Tree
	Wild Onion / Asphodelus	*Asphodelus fistulosus*	Herb

LIST B: LOCAL CONTROL, CONTAINMENT & ASSET PROTECTION

The aim is to strategically control, contain and educate about these weeds to protect our most important assets. Aim for eradication in strategic locations where there is limited distribution / small population.

Strategic local control, asset protection and education	African Boxthorn	*Lycium ferocissimum*	Shrub
	African Olive *(strategic control inside containment lines)*	*Olea europaea ssp. cuspidata*	Tree
	Asparagus Fern	*Asparagus scandens*	Vine
	Asparagus (Climbing)	*Asparagus plumosus*	Vine
	Asparagus (Ground)	*Asparagus aethiopicus*	Vine
	Asparagus (Climbing)	*Asparagus africanus*	Vine
	Bitou Bush *(asset protection east of Holsworthy land)*	*Chrysanthemoides monilifera ssp. rotundata*	Shrub
	Blackberry	*Rubus fruticosus*	Vine
	Box Elder (targeted control in south west)	Acer Negundo	Tree
	Bridal Creeper	*Asparagus asparagoides*	Vine
	Broom (Montpellier/Cape)	*Genista monspessulana*	Shrub
	Cats Claw Creeper	*Dolichandra unguis-cati (previously classified as Macfadyenunguis-cati)*	Vine
	Chilean Needle Grass	*Nassella neesiana*	Grass
	Chinese Celtis/ Chinese Hackberry	*Celtis sinensis*	Tree
	Coolatai Grass	*Hyparrhenia hirta*	Grass
	Corky Passionflower	*Passiflora suberosa*	Vine
	Broom (Flax-leaf)	*Genista linifolia*	Shrub
	Glory Lily	*Gloriosa superba*	Herb
	Gorse	*Ulex europaeus*	Shrub
	Green Cestrum *(strategic control on ag land)*	*Cestrum parqui*	Tree
	Honey Locust	*Gleditsia triacanthos*	Tree
	Lantana	*Lantana camara*	Shrub
	Madeira Vine	*Anredera cordifolia*	Vine
	Pampas Grass	*Cortaderia jubata*	Grass
	Prickly Pear	*Opuntia (except O.ficus indica)*	Succulent
	Broom (Scotch/English)	*Cytisus scoparius*	Shrub
	Serrated Tussock	*Nassella trichotoma*	Grass
	Tussock Paspalum/ Blue Grass	*Paspalum quadrifarium*	Grass
	Yellow Bells / Golden Bells	*Tecoma stans*	Tree
Emerging weeds and the more widespread: Protect assets, education and containment **(aquatic)**	Alligator Weed *(strategic control where Class 3)*	*Alternanthera philoxeroides*	Aquatic
	Cabomba	*Cabomba caroliniana*	Aquatic
	Leafy Elodea	*Egeria densa*	Aquatic
	Long Leaf Willow Primrose	*Ludwigia longifolia*	Aquatic
	Primrose Willow / Water Primrose	*Ludwigia peruviana*	Aquatic
	Red Ludwigia	*Ludwigia repens*	Aquatic
	Salvinia *(strategic control where Class 3)*	*Salvinia molesta*	Aquatic
	Water Hyacinth *(strategic control where Class 3)*	*Eichhornia crassipes*	Aquatic

Appendix 4: Weed Risk Assessment Process

The NSW WRM system, developed by NSW DPI aims to provide a standard, nationally accepted and transparent process to help make decisions about the introduction , declaration and prioritisation of weed species[9]. It has been designed as a decision support tool for:

- Deciding which plants should be approved for release in NSW;
- Identifying which plants require further research prior to release in NSW;
- Prioritizing weeds for the allocation of limited management resources;
- Determining the appropriate legislative status for undeclared naturalized plants, and
- Reviewing the legislative status of currently declared weeds.

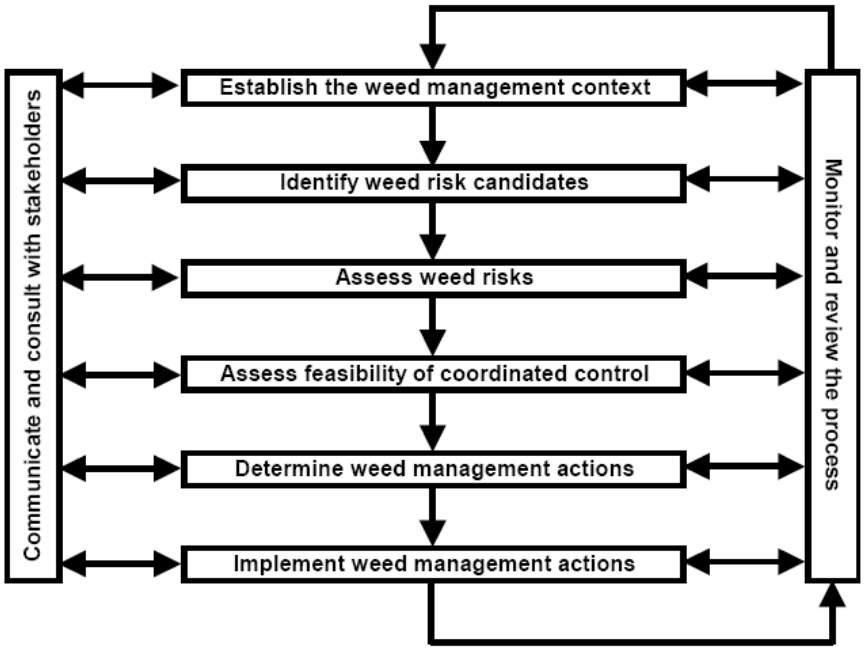

Figure 1. An overview of the Weed Risk management context (extracted from Virtue *et al.* 2006).

The WRM process uses a standard set of questions to determine the relative weed threats posed by different plants. Several analysing factors were involved with the WRM including:

- Invasiveness
- Impacts and
- Potential

The feasibility of coordinated control was determined by three key criteria:

- Control costs
- Persistence and
- Potential Distribution.

[9] Refer to "Draft Guide to NSW WRM – July 2007"

WEED RISK ASESSMENT Template

The Questionnaire completed for each weed is as follows;

NSW Weed Risk Management Form to NSW

(Extracted from 'NSW Weed Risk Managemenr Form, NSW DPI 2009)

Section B General Weed Information

B1. Genus: .....

B2. Species: .....

B3. Common Name(s): .....

B4. Family: .....

B5. Subspecies/ Variety/Cultivar: .....

B6. Management Area: .....

B7. Land use: .....

B8. Assumptions/Comments

Section C Invasiveness

C1. What is the ability of the weed to establish amongst existing plants?

		SCORE
☐ very high	"Seedlings" establish within dense vegetation or weeds.	*3*
☐ high	"Seedlings" establish within open vegetation or weeds.	*2*
☐ medium	"Seedlings" establish after moderate disturbance.	*1*
☐ low	"Seedlings" mainly need bare ground to establish.	*0*
☐ do not know		*1.5*

C2. What is the weed's tolerance to average weed management practices in the land use?

		SCORE
☐ very high	95% + weeds survive common management.	*3*
☐ high	Between 50 and 95% of weeds survive.	*2*
☐ medium	Between 5 and 50% of weeds survive.	*1*
☐ low	Less than 5% of weeds survive.	*0*
☐ do not know		*1.5*

Source

C3. What is the reproductive ability of the weed in the land use?

(a) Time to seeding		(b) Annual seed production		(c) Vegetative reproduction	
☐ 1 year or less	*2*	☐ high	*2*	☐ frequent	*2*
☐ 2-3 yrs	*1*	☐ low	*1*	☐ infrequent	*1*
☐ >3 yrs/never	*0*	☐ none	*0*	☐ none	*0*
☐ do not know	*1*	☐ do not know	*1*	☐ do not know	*1*

Total score (a+b+c)	SCORE
5 or 6	*3*
3 or 4	*2*
1 or 2	*1*
0	*0*

C4. How likely is long-distance dispersal (>100 m) by natural means?

	(a) Flying animals	(b) Other wild animals	(c) Water	(d) Wind
common	☐ *2*	☐ *2*	☐ *2*	☐ *2*
occasional	☐ *1*	☐ *1*	☐ *1*	☐ *1*
unlikely	☐ *0*	☐ *0*	☐ *0*	☐ *0*
do not know	☐ *1*	☐ *1*	☐ *1*	☐ *1*

Total score (a+b+c+d)	SCORE
6, 7 or 8	*3*
3, 4 or 5	*2*
1 or 2	*1*

0 *0*

C5. How likely is long-distance dispersal (>100 m) by human means?

	(a) Deliberate spread by people	(b) Accidentally by people and vehicles	(c) Contaminated produce	(d) Domestic/farm animals
common	☐ *2*	☐ *2*	☐ *2*	☐ *2*
occasional	☐ *1*	☐ *1*	☐ *1*	☐ *1*
unlikely	☐ *0*	☐ *0*	☐ *0*	☐ *0*
do not know	☐ *1*	☐ *1*	☐ *1*	☐ *1*

Total score (a+b+c+d)	*SCORE*
6, 7 or 8	*3*
3, 4 or 5	*2*
1 or 2	*1*
0	*0*

Section D Impacts

D1. Does the weed reduce the establishment of desired plants?

		SCORE
☐ >50% reduction	More than 50% of desirable plants do not establish.	*3*
☐ 10-50% reduction	Between 10 and 50% of desirable plants do not establish.	*2*
☐ <10% reduction	Less than 10% of desirable plants do not establish.	*1*
☐ no reduction	Establishment unaffected.	*0*
☐ do not know		*1.5*

D2. Does the weed reduce the yield or amount of desired vegetation?

		SCORE
☐ >50% reduction	More than 50% reduction in desirable plants yield/amount.	*4*
☐ 25-50% reduction	Between 25 and 50% reduction in yield/amount.	*3*
☐ 10-25% reduction	Between 10 and 25% reduction in yield/amount.	*2*
☐ <10% reduction	Less than 10% reduction in desirable plants yield/amount.	*1*
☐ no reduction	Desirable plant yield or amount is unaffected.	*0*
☐ do not know		*2*

D3. Does the weed reduce the quality of products, services or diversity available from the land use?

		SCORE
☐ high	Severe reductions.	*3*
☐ medium	Substantial reductions.	*2*
☐ low	Slight reductions.	*1*
☐ none	No reductions.	*0*

☐ do not know *1.5*

D4. What is the weed's potential to restrict the physical movement of people, animals, vehicles, machinery and/or water?

		SCORE
☐ high	Major impediment and almost always impenetrable.	*3*
☐ medium	Moderate impediment and sometimes impenetrable.	*2*
☐ low	Never impenetrable but causes some obstruction.	*1*
☐ none	No affect on physical movement	*0*
☐ do not know		*1.5*

D5. What is the weed's potential to negatively affect the health of animals and/or people?

		SCORE
☐ high	Highly toxic and frequently causes death/severe illness.	*3*
☐ medium	Occasional significant injuries/illness resulting in death.	*2*
☐ low	Slight injury or mild illness with no lasting effects.	*1*
☐ none	No affect on human or animal health.	*0*
☐ do not know		*1.5*

Source

D6. Does the weed have major positive or negative effects on environmental health?

	major positive effect	**major negative effect**	**minor or no effect**	**do not know**
(a) food/shelter	☐	☐	☐	☐
(b) fire regime	☐	☐	☐	☐
(c) altered nutrient levels	☐	☐	☐	☐
(d) soil salinity	☐	☐	☐	☐
(e) soil stability	☐	☐	☐	☐
(f) soil water table	☐	☐	☐	☐

Total score (a+b+c+d+e +f)	*SCORE*
>3	*3*
2 or 3	*2*
1	*1*
0 or less	*0*

Section E Potential distribution

E. Within the geographic area being considered, what is the percentage area of land use that is suitable for the weed?

		SCORE
☐ >80% of land use	Weed has potential to spread to 80%+ of land use.	*10*
☐ 60-80% of land use	Weed has potential to spread to 60-80% of land use.	*8*
☐ 40-60% of land use	Weed has potential to spread to 40-60% of land use.	*6*
☐ 20-40% of land use	Weed has potential to spread to 20-40% of land use.	*4*
☐ 10-20% of land use	Weed has potential to spread to 10-20% of land use.	*2*
☐ 5-10% of land use	Weed has potential to spread to 5-10% of land use.	*1*
☐ <5% of land use	Weed has potential to spread to less than 5% of land use.	*0.5*
☐ unsuited to land use	Weed not suited to growing in any part of land use.	*0*
☐ do not know		*5*

Source (Please attach relevant maps if information is not published)

Section F Comparative Weed Risk and Uncertainty Scores

The score for weed risk is calculated by adjusting the invasiveness, impacts and potential distribution scores to range from 0 to 10, and then multiplying these. Weed risk will have a maximum of 1000, and a minimum of 0. The spreadsheet (to be developed later) does this for you.

To calculate manually, adjust the raw scores as follows:

Invasiveness: Divide by 15 and multiply by 10.

Impacts: Divide by 19, and multiply by 10. Round off to one decimal place.

Potential distribution: Leave unchanged.

Comparative Weed Risk = Invasiveness × Impacts × Potential distribution

Splitting up these possible scores into bands of 20% gives cut-offs for categories of weed risk as follows:

Frequency bands and Weed Risk Categories

Frequency band	Weed Risk Score	Weed Risk
80-100% (top 20% of possible scores)	192+	*Very high*
60-80%	101-192	*High*
40-60%	39-100	*Medium*
20-40%	13-38	*Low*
0-20% (bottom 20% of possible scores)	<13	*Negligible*

Weed Risk Scores

	Raw score	Correction	Adjusted score	
Invasiveness	…	((Raw score)/15) x 10	… (a)	
Impacts	…	((Raw score)/19) x 10	… (b)	
Potential Distribution	…	Unchanged	… (c)	
Comparative Weed Risk			…	i.e. (a) x (b) x (c)
Weed Risk Category **(from frequency band table)**			…	(e.g. Very high)

Weed Risk uncertainty scores

	Raw score	Correction	Adjusted score
Invasiveness	…	((Raw score)/14) x 100	…
Impacts	…	((Raw score)/11) x 100	…
Potential Distribution	…	((Raw score)/5) x 100	…

Section G Control costs

G1. How detectable is the weed?

(a) Distinguishing features

☐	non-descript	*2*
☐	sometimes distinct	*1*
☐	always distinct	*0*
☐	do not know	*1*

(b) Shoot growth period

☐	<4 months	*2*
☐	4-8 months	*1*
☐	>8 months	*0*
☐	do not know	*1*

(c) Height at maturity

☐	<0.5 m	*2*
☐	0.5-2 m	*1*
☐	>2 m	*0*
☐	do not know	*1*

(d) Pre-reproductive height in relation to other vegetation

☐	below canopy	*2*
☐	similar height	*1*
☐	above canopy	*0*
☐	do not know	*1*

Total (a+b+c+d)	*SCORE*
6, 7 or 8	*3*
3,4 or 5	*2*
1 or 2	*1*
0	*0*

G2. What is general accessibility of infestations at the optimum time of treatment?

		SCORE
☐ low	Most sites difficult to access, requiring special equipment.	*2*
☐ medium	Most sites readily accessed, may require extra equipment.	*1*
☐ high	All sites readily accessible by conventional methods.	*0*
☐ not present	Not known to be present.	*0*
☐ do not know		*1*

G3. How expensive is management of the weed in the first year of targeted control?

	(a) Chemical cost- How much chemical will you use?	**(b) Labour costs- How many person hours will it take you to control?**	**(c) Equipment costs- What equipment are you going to use**
very high	☐ *4*	☐ *4*	- -
high	☐ *3*	☐ *3*	☐ *3*
medium	☐ *2*	☐ *2*	☐ *2*
low	☐ *1*	☐ *1*	☐ *1*
none/not present	☐ *0*	☐ *0*	☐ *0*
do not know	☐ *2*	☐ *2*	☐ *1.5*

Total score (a+b+c)	*SCORE*
9-11	*5*
7-8	*4*
5-6	*3*
3-4	*2*
1-2	*1*
0	*0*

G4. What is the likely level of participation from landholders within the land use at risk?

		SCORE
☐ low	Weed management rarely undertaken, beyond landholders.	*2*
☐ medium	Weed management changes needed, within landholder capacity.	*1*
☐ high	Minimal changes needed to weed management.	*0*
☐ do not know		*1*

Section H Persistence

H1. How effective are targeted management treatments applied to infestations of the weed?

		SCORE
☐ low	More than 25% of weeds survive annual targeted treatment/s.	*3*
☐ medium	5-25% of weeds survive annual targeted treatment/s.	*2*
☐ high	1-5% of weeds survive annual targeted treatment/s.	*1*
☐ very high	<1% of weeds survive annual targeted treatment/s.	*0*
☐ do not know		*1.5*

H2. What is the minimum time period for reproduction of sexual or vegetative propagules?

		SCORE
☐ <6 months	Minimum generation time 0-6 months.	*3*
☐ <6-12 months	Minimum generation time 6-12 months.	*2*
☐ <1-2 years	Minimum generation time 12-24 months.	*1*
☐ >2 years	Minimum generation time >24 months.	*0*
☐ do not know		*1.5*

H3. What is the maximum longevity of sexual or vegetative propagules?

		SCORE
☐ >5 years	Propagules remain viable for at least 5 years.	*2*
☐ 2-5 years	Propagules remain viable for 2-5 years	*1*
☐ <2 years	Propagules remain viable for less than 2 years	*0*
☐ do not know		*1*

H4. How likely are new propagules to continue to arrive at control sites, or to start new infestations?

	(a) Long-distance dispersal by natural means	**(b) Long-distance dispersal by human means**
frequent	☐ *2*	☐ *2*
occasional	☐ *1*	☐ *1*
rare	☐ *0*	☐ *0*
do not know	☐ *1*	☐ *1*

Total (a+b)

4	*3*
2 or 3	*2*

1 *1*
0 *0*

Section I Current distribution

I1. What percentage area of the geographic area is currently infested by the weed?

			SCORE
☐	>80% land use	Weed infests more than 80% of land use.	*10*
☐	60-80% land use	Weed infests 60-80% of land use.	*8*
☐	40-60% land use	Weed infests 40-60% of land use.	*6*
☐	20-40% land use	Weed infests 20-40% of land use.	*4*
☐	10-20% land use	Weed infests 10-20% of land use.	*2*
☐	5-10% land use	Weed infests 5-10% of land use.	*1*
☐	1-5% land use	Weed infests 1-5% of land use.	*0.5*
☐	<1% land use	Weed infests less than 1% of land use.	*0.1*
☐	0% of land use but 20-40% of area	Weed not known in land use but infests 20-40% of geographic area.	*2*
☐	0% of land use but 10-20% of area	Weed not known in land use but infests 10-20% of geographic area.	*1*
☐	0% of land use but 5-10% of area	Weed not known in land use but infests 5-10% of geographic area.	*0.5*
☐	0% of land use but 1-5% of area	Weed not known in land use but infests 1-5% of geographic area.	*0.1*
☐	0% of land use and <1% of area	Weed not known in land use and infests <1% of geographic area.	*0.05*
☐	not present	Weed not known to be present in the geographic area.	*0*
☐	do not know		*5*

I2. What is the number of infestations, and distribution of the weed within the geographic area being considered?

			SCORE
☐	widespread	Weed occurs as large and small infestations across most of the geographic area.	*2*
☐	scattered	Weed occurs mainly as small infestations across much of the geographic area.	*1*
☐	restricted	Weed is localised on up to three isolated outbreaks within the geographic area.	*0*
☐	not present	Weed is not known to be present within the geographic area.	
☐	do not know		*1*

Section J Comparative Feasibility of Coordinated Control and Uncertainty scores

The score for feasibility of coordinated control is calculated by adjusting the control costs, persistence and current distribution scores to range from 0 to 10, and then multiplying these. Feasibility of coordinated control will have a maximum of 1000, and a minimum of 0. The spreadsheet (to be developed later) does this for you.

To calculate manually, adjust the raw scores as follows:

Control costs: Divide by 12 and multiply by 10. Round off to one decimal place.

Persistence: Divide by 11, and multiply by 10. Round off to one decimal place.

Current distribution: Divide by 12, and multiply by 10. Round off to one decimal place.

Feasibility of coordinated control = Control Costs × Persistence × Current Distribution

Splitting up these possible scores into bands of 20% gives cut-offs for categories of weed feasibility as follows:

Frequency bands and Weed Feasibility of co-ordinated control Scores

Frequency band	Feasibility Score	Weed Feasibility
80-100% (top 20% of possible scores)	113+	*Negligible*
60-80%	56-113	*Low*
40-60%	31-55	*Medium*
20-40%	14-30	*High*
0-20% (bottom 20% of possible scores)	<14	*Very high*

Feasibility of coordinated control scores

	Raw score	Correction	Adjusted score	
Control costs	…	((Raw score)/12) x 10	… (a)	
Persistence	…	((Raw score)/11) x 10	… (b)	
Current Distribution	…	((Raw score)/12) x 10	… (c)	
Comparative Weed Risk			…	i.e. (a) x (b) x (c)
Weed Feasibility Category (from frequency band table)			…	(e.g. Negligible)

Weed Feasibility uncertainty scores

	Raw score	Correction	Adjusted score
Control costs	…	((Raw score)/12) x 100	…
Persistence	…	((Raw score)/6) x 100	…
Current Distribution	…	((Raw score)/6) x 100	…

Section K Overall Uncertainty score

Calculation of overall uncertainty score

Section	Adjusted score (Percentage uncertainty
Invasiveness	
Impacts	
Potential distribution	
Control costs	
Persistence	
Current Distribution	
	=(total sum of uncertainty scores above)/6 (round to nearest whole number)

Section L Positive impacts

Are there any other positive impacts the species may have?	
Positive impact	**Reference**

Determining Priorities using the WRM Score

WEED RISK	FEASIBILITY OF COORDINATED CONTROL				
	Negligible **(113+)**	***Low*** **(56-113)**	***Medium*** **(31-55)**	***High*** **(14-30)**	***Very high*** **(<14)**
Negligible **(<13)**	No Action	No Action	No Action	No Action	Monitor
Low **(13-38)**	No Action	No Action	No Action	Monitor	Monitor Protect priority sites
Medium **(39-100)**	Manage sites	Manage sites	Manage sites	Protect priority sites	Contain spread
High **(101-192)**	Manage weed	Manage weed	Protect priority sites	Contain spread	Destroy infestations
Very high **(192+)**	Manage weed	Manage weed Protect priority sites	Contain spread	Destroy infestations	Eradication

Following are guiding principles for each of the management categories in the matrix:

ERADICATION

Aims to remove the weed species from the geographic area being considered

- Detailed surveillance and mapping to locate all infestations.
- Destruction of all infestations including seed banks.
- Prevention of entry to geographic area and movement and sale within.
- Must not grow and all cultivated plants to be removed.
- Monitor progress towards eradication.

DESTROY INFESTATIONS

Aims to significantly reduce the extent of the weed species in the geographic area being considered

- Detailed surveillance and mapping to locate all infestations.
- Destruction of all infestations, aiming at local eradication where feasible.
- Prevention of entry to geographic area and movement and sale within.
- Must not grow.
- Monitor progress towards reduction.

CONTAIN SPREAD

Aims to prevent the ongoing spread of the weed species in the geographic area being considered

- Surveillance and mapping to locate all infested properties.
- Control of all infestations, aiming for a significant reduction in weed density.
- Prevention of entry to geographic area and movement and sale within.
- Must not allow to spread from cultivated plants (if grown).
- Monitor change in current distribution.

PROTECT PRIORITY SITES

Aims to prevent the spread of the weed species to key sites/assets of high economic, environmental and/or social value

- Weed may be of limited current distribution but only threatens limited industries/habitats (lower weed risk), or the weed may be more widespread but is yet to invade/impact upon many key industries/habitats (higher weed risk).
- Surveillance and mapping to locate all infested areas.
- Identification of key sites/assets in the geographic area.
- Control of infestations in close proximity to key sites/assets, aiming for a significant reduction in weed density.
- Limits on movement and sale of species within geographic area.
- Must not allow to spread from cultivated plants (if grown) in close proximity to key sites/assets.
- Monitor change in current distribution within and in close proximity to key sites/assets.

MANAGE WEED

Aims to reduce the overall economic, environmental and/or social impacts of the weed species through targeted management

- Research and develop Integrated Weed Management (IWM) packages for the species, including herbicides and biological control where feasible.
- Promote IWM packages to landholders.
- Monitor decrease in weed impacts with improved management.
- Identify key sites/assets in the geographic area and ensure adequate resourcing to manage the weed species.

MANAGE SITES

Aims to maintain the overall economic, environmental and/or social value of key sites/assets through improved general weed management

- Promote general IWM principles to landholders, including the range of control techniques, maintaining competitive vegetation/crops/pastures, hygiene and property management plans.
- Identify key sites/assets in the geographic area and ensure adequate resourcing to manage these to maintain their values.
- Broaden focus beyond weeds to all threatening processes.

MONITOR

Aims to detect any significant changes in the species' weed risk

- Monitor the spread of the species and review any perceived changes in weediness.

NO ACTION

The weed species is perceived to be of insufficient risk to warrant any investment by the NSW state government in strategic management actions.