Sydney Weeds Committees

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

Sydney Weeds Committees

Rapid Response Plan

2010-2015

NEW SOUTH WALES

WEEDS ACTION PROGRAM

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ABBREVIATIONS

AIIMS	Australian Inter-service Incident Management System
AUSBIOSEC	Australian Biosecurity System for Primary Production and the Environment
LCA	Local Control Authority
NSW DPI	NSW Department of Primary Industries
NSW ISP	NSW Invasive Species Plan 2008 - 2015
NWAC	NSW Noxious Weeds Advisory Committee
NWIP	National Weed Incursion Plan 2008
RISO	Regional Invasive Species Officer
RRP	Rapid Response Plan 2011
RWMO	Regional Weed Management Officer
RWOT	Regional Weed Officers Team
RWS	Regional Weeds Strategy 2008-2012
SISP	Strategic Invasive Species Plan 2010-2015
SWC	Sydney Weeds Committees
WAP	Weed Action Program 2010 - 2015
WIP	Weed Incursion Plan 2010 - 2015
WIT	Weed Incursion Team
WMP	Weed Management Plan
WRA	Weed Risk Assessment

ACKNOWLEDGEMENTS

The SWC Rapid Response 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.

EXECUTIVE SUMMARY

The key objective of an early detection and rapid response plan is to create a state of readiness (preparedness), in order to significantly reduce the response time to new invasive plant incursions and therefore improve the level of success of efforts in containment and/or eradication.

As the generic emergency response plan for new weed incursions, this Plan will be used by local control authorities and other stakeholders as a guide to management of new weed incursions and is linked directly to the over-arching SWC Weed Incursion Plan 2010-2015.

This Response Plan provides a comprehensive outline of the procedures, management structure and information flow systems for the handling of new weed incursions at a regional and local level.

The steps of an emergency response described in this Plan may occur in a slightly different order depending on the type of emergency. Some steps may also occur concurrently. It may be possible to merge some of the roles described in the Plan, depending on the nature and size of the outbreak, the availability and capability of personnel, and the progress of the eradication program.

Salvinia control program in operation

1. INTRODUCTION

Preventing the introduction of new weed incursions is the cornerstone to best management practice. However, even the best prevention efforts will not stop all invasive species incursions. Early detection and rapid response efforts increase the likelihood that invasions will be addressed successfully while populations are still localised and population levels are not beyond containment and eradication.

Once populations are widely established, all that might be possible is the partial reduction of negative impacts. The costs associated with early detection and rapid response efforts are typically far less than those of long term invasive species management programs.

The SWC Rapid Response Plan details the co-ordinated regional response primarily concerned with the containment and / or eradication of new weed incursions which pose a potential threat to the Sydney region's agriculture, tourism and recreation industries and high conservation value ecosystems.

To assist in the implementation of a rapid response to a new weed incursion Appendix 8 provides a collation of the checklists of the various stages defined within the Plan.

New weed incursions may also have impacts on the environment, amenity values, animals and human health.

1.1 Overview of stages within the SWC Regional Weed Incursion Plan (WIP)

Responses to new weed incursions in the SWC need to be managed in a similar way to other natural emergencies.

To ensure a common understanding of incursion response this document and the SWC WIP is based on the National Weed Incursion Plan and the Plant Health Australia – PLANTPLAN. Both models divide incident management into 4 stages:

- Prevention
- Preparedness
- **Response**
- **Recovery**

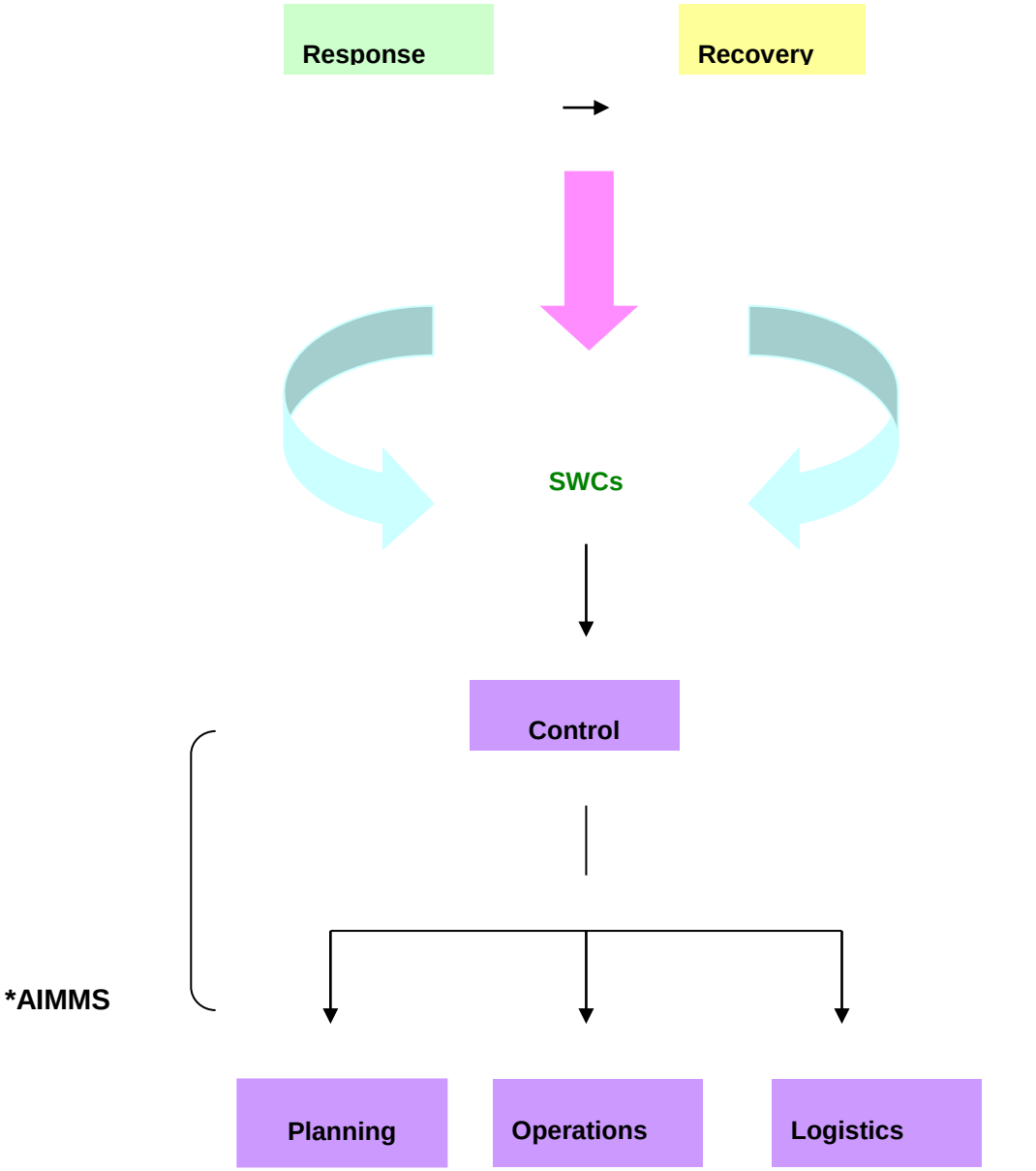
The SWC Rapid Response Plan 2010 – 2015 (RRP) covers the response and recovery stages.

The prevention and preparedness stages involve identifying the weed threats to the region, assessing the risks if that weed were to be found in the region and taking action to avoid the establishment of the species through the regional inspection program of high risk pathways and sites and other priority sites as identified in the SWC Weeds Action Program 2010 – 2015 (WAP).

As part of being prepared, the Weed Alerts list (contained in the SWC WIP) details plant species not currently present in the region, which, should they occur will then instigate action under the SWC WIP and associated SWC RRP.

Clear management and co-ordination systems need to be in place to ensure those involved in the management of the incursion have a strong grasp of their roles and responsibilities and know who the relevant stakeholders are to contact in each organisation. This can be summarised in the following flow diagram.

Chart 1: SWC Rapid Response Plan Stages



(Australian Inter-service Incident Management System (AIIMS)

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

*AIIMS provides a system that facilitates the co-ordination of all activities by all parties involved in the resolution of an emergency.

1.2 Purpose of the Rapid Response Plan

The purpose of the Rapid Response Plan is to provide:

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

1.3 Responses to new weed incursions

There are 5 phases to be activated in a response to a new weed incursion:

- Investigation
- Alert / Scoping
- Operational/Response (eradication and containment)
- Stand Down, and
- Recovery

The SWC RRP provides a step by step guide to handling responses to new weed incursions. It is important to note that:

- while the phases of the SWC RRP are represented as separate events, they should all be viewed as part of a continuous process;
- because of the potential urgency and changing timeline of an incident, the Investigation Phase can invariably move immediately into the Alert Phase, and/or the Operational Phase may be commenced prior to all activities in the Alert Phase being completed;
- the actions described in this SWC RRP are advisory in nature and during the course of a response additional actions may be performed or some actions listed will not be carried out; and
- there is a requirement for all phases of this response section to be carried out in conjunction with a communication strategy, an overview of which is provided in Section 5, and detailed in the SWC Communication Strategy 2010-2015.

There are specific trigger points that continue through all of the five phases. Table 1 provides a summary guide to the trigger points for each of the five phases.

Table 1: Trigger points along the phases of the response continuum

Phases / Triggers	Detection	Verification / Notification	Weed Risk Assessment WRA	Surveillance	Planning	Response
Investigation	Detection of suspect weed	Identification verified and notified	Preliminary WRA (could be based on existing WRA)		Notify state authority (NSW DPI)	Establish a preliminary Weed Incursion Team (WIT)
Scoping / Alert	Detection/s of suspect weed/s may occur at all phases of the response	Verification and notification of suspect weed/s may occur at all phases of the response	Final WRA	Scoping and delimitation - mapping & surveying at weed incursion site/s	Establish interim restricted and control area	Investigate options for treatment and assess needs for chemical permits / trials
			Initiate declaration process with NSW DPI		Instigate Weed Management Plan	
					Set up control centre/s depending on the level of response	
Operational - Containment	Detection/s of suspect weed/s may occur at all phases of the response	Verification and notification of suspect weed/s may occur at all phases of the response		Trace back and trace forward programs in region	Establish quarantine areas	Establish Weed Incursion Team (WIT)
					Decision on eradication vs containment	Application of chemical treatment /s or integrated weed management
				Delimitation program in area	Develop an exit strategy	
Operational – Eradication				Delimitation program continues in area	Endorse successful eradication or recommend termination	WIT implements WMP including organisational arrangements
				On-going surveillance, trace back and mapping		Application of chemical treatment /s or integrated weed management
Stand Down				On-going surveillance, trace back and mapping	Develop site / local/ regional rehabilitation plan/s	Implement exit strategy
Recovery				On-going surveillance, trace back and mapping		Implement site / local/ regional rehabilitation plan/s

2.1 INVESTIGATION PHASE

The investigation phase involves the reporting of a suspect weed, verification of the species and the initial investigation of the weed species by the relevant authorities.

The following Sections 2.1.1 – 2.1.8 detail the steps of the Investigation Phase

2.1.1 DETECTION

The investigation phase begins with the initial detection of a suspect weed. A landholder, community group member, consultant, state or local agency person or other individual reports the detection or provides a specimen to the Weed Officer of a LCA.

The Weed Officer will notify the SWC Executive Officer and arrange to forward the specimen directly to the Royal Botanic Gardens Herbarium in Sydney for identification and verification.

The Weed Officer, in association with the SWC must exercise a high level of judgement to determine the appropriate response at the time. Decisions must be balanced against the need to ensure that all necessary actions can be taken if the new weed incursion is verified.

Preliminary information, from the site of detection, which could be useful in identifying and dealing with a suspect plant, should be documented. Any information that can aid in early diagnosis, and help in the adoption of extra precautionary measures will increase the likelihood of eradication.

Useful information includes:

- site details – ownership, location, map (latitude and longitude using Global Positioning System (GPS) equipment if available);
- specimen photographs – electronic and/or print;
- when and where the weed species was first noticed and identification of probable incursion pathway (where available);
- precautionary measures (quarantine of site and decontamination) put in place
- any other details that could be helpful.

2.1.2 INITIAL VERIFICATION AND FORMAL NOTIFICATION

The initial verification from the Royal Botanic Gardens Herbarium of the weed species is notified to the Officer who provided the initial specimen who will then forward the information onto the SWC Executive Officer, who will in turn report to the Regional Invasive Species Officer (RISO), NSW DPI. If further information is required by Royal Botanic Gardens Herbarium to assist with the verification, the state herbarium usually requests this from the officer who provided the initial specimen. Further taxonomic work may be required (e.g. identification to subspecies level may be needed to select the most effective control measure).

2.1.3 SWC INFORMS LANDHOLDERS

The RWMO informs the landholder of the weed incursion and the process that will be taken to address the weed incursion, including any landholder obligations.

2.1.4 NOTIFY ADJOINING WEED CONTROL AUTHORITIES, OTHER LAND MANAGEMENT AGENCIES AND OTHER STAKEHOLDERS

The SWC Executive Officer notifies all weeds committees in Sydney, all neighbouring Regional Weeds Committees, Hawkesbury Nepean, Central West and Hunter Central Rivers Catchment Management Authorities, the Local Land Services and NPWS Regional Pest Management Officer.

2.1.5 SWC/LCA CO-ORDINATES RELEVANT INFORMATION

The SWC Executive Officer co-ordinates the collection of relevant information for the initial report and verbally advises the Regional Invasive Species Officer (RISO), NSW DPI.

The SWC Executive Officer must ensure that chain of custody and record of evidence requirements for collection and retention of specimens are satisfied. An unbroken chain of custody and record of evidence must be maintained for results to be admissible in court, in the event of legal action by the lead agency or the landholder. (refer to Appendix 2 – Chain of Evidence).

Appropriate measures and documentation procedures must be followed at all times, in accordance with NSW DPI's publication: 'Field Inspection to Follow-up New or Unknown Weed Incursions' (Appendix 2) and Weed Recording Standards in NSW (refer to Appendix 3).

2.1.6 NOTIFICATION TO THE STATE WEED CONTROL CO-ORDINATOR NSW DPI

The SWC Executive Officer forwards a report to the RISO and State Weed Co-ordinator, NSW DPI of the notification of the confirmed new weed incursion.

2.1.7 PRELIMINARY WEED RISK ASSESSMENT (WRA)

The LCA Weed Officer and SWC, in association with the land manager, NSW DPI, Weed Ecologist carries out a preliminary WRA on the confirmed weed incursion using the adopted NSW Weed Risk Assessment System (refer to Appendix 7).

2.1.8 PRELIMINARY WEED INCURSION TEAM (WIT) ESTABLISHED AND MEETING CONVENED

The chair of the relevant weeds committee, or their delegate, convenes a meeting to discus the situation report, herbarium identification, technical update of species specific response plan, administrative arrangements, communication and media releases (Appendix 4, Agenda template for WIT meetings).

See Table 2 (Appendix 1) for a checklist of procedures and actions to be taken in the investigation phase.

2.2 ALERT AND SCOPING PHASE

The Alert and Scoping Phase is to delimit (map and survey) the extent of the incursion and provide further information for decisions about the type or level of response required. Actions within this phase cover the assessment of the weed species, its impacts and determining the appropriate nature and magnitude of the operational response.

The Alert Phase begins when the SWC declares that on initial analysis of the new weed incursion, an emergency exists or has the potential to exist. During the alert phase SWC will ensure all stakeholders are alerted and key response staff will be placed on standby.

The Alert Phase exists while accurate confirmation of the diagnosis is made. The aim of the Alert Phase is to complete a detailed scoping of the incident to define the extent of the emergency.

This in-turn will provide the basis for decisions about the type of response required.
Key issues to be addressed in the Alert Phase include whether the incursion can be effectively contained and eradicated, and the potential for the incursion to spread rapidly and lead to significant agricultural, social and economic impacts and / or environmental consequences.

In some emergency situations it may be necessary to move quickly to the operational phase and to conduct scoping activities as part of the operational phase.

The following Sections 2.2.1 – 2.2.7 detail the steps in the scoping of the Alert Phase.

2.2.1 FURTHER WORK TO CONFIRM IDENTIFICATION (IF REQUIRED)

If identification has not been confirmed, more detailed taxonomic work may be required or further specimens collected and provided to the Royal Botanic Gardens Herbarium in Sydney.

2.2.2 INITIAL CONTAINMENT AND SCOPING

The LCA is to delegate officers in the affected area / region to conduct initial surveys, inspect properties and collect specimens to delimit the extent of the incursion (refer Appendix 5 - Delimiting Operational Plan template). This will determine the extent of the interim restricted and control areas. Hygiene protocols need to be activated and quarantine measures established. Preparedness planning is an important procedure in handling potential new weed incursions. This should include assessment of risk scenarios, site access, staff capacity / training needs to respond to a new weed incursion and the availability of equipment to mitigate the effects of the new weed incursion. (refer to Appendix 6 SWC Inventory of Resources / Equipment).

2.2.3 DEVELOP THE PRELIMINARY WEED RISK ASSESSMENT (WRA) INTO A FINAL WRA

The SWC is to develop the final WRA based on the preliminary WRA work in the Investigation Phase, information from the initial containment and scoping exercise and other research in collaboration with the Weed Ecologist, NSW DPI. (Refer to Appendix 7 – Weed Risk Assessment template)

2.2.4 DEVELOP A SPECIES SPECIFIC WEED MANAGEMENT PLAN (WMP)

The LCA, in collaboration with the WIT, is to develop a species specific Weed Management Plan (WMP). The plan should also include a range of decision triggers for declaring a successful eradication.

In developing the WMP's it is important to allow scope for modification, innovation and adaptation should an unexpected event/s occur.

2.2.5 CONFIRMATION OF WEED INCURSION NOTIFIED

The LCA notifies the State Weed Control Co-ordinator, NSW DPI and prepares a report on the weed incursion. This should include the initial containment and scoping exercise, the WMP and the Final WRA.

2.2.6 NSW DPI REVIEW

NSW DPI reviews the WMP and Final WRA providing technical advice on appropriate actions, and where necessary oversees its implementation.

2.2.7 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.

2.2.8 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, as overviewed in Section 5.

See Table 3 (Appendix 1) for a checklist of procedures and actions to be taken in the ALERT / SCOPING phase.

2.3 OPERATIONAL PHASES

The Operational Phase begins when NSW DPI agrees to implement the WMP with the aim to eradicate the new weed incursion. The Operational Phase should be carried out in conjunction with communication actions as discussed in Section 5.

Sections 2.3.1 – 2.3.11 detail the steps of the OPERATIONAL – CONTAINMENT Phase.

Sections 2.3.12 - 2.3.16 detail the steps of the OPERATIONAL – ERADICATION Phase.

OPERATIONAL – CONTAINMENT Phase

2.3.1 COMMUNICATE THE WMP TO PROPERTY OWNER/S

The LCA is to advise the affected property owner/s of the decision by NSW DPI to implement the WMP. This should include any plans to quarantine the owner/s property/s and any potential impacts to the property owner.

2.3.2 COMMUNICATE WMP TO GOVERNMENT AND AFFECTED INDUSTRY

LCA/SWC and the NSW DPI RISO to brief the affected state and local governments, industry and other stakeholders of the decision to implement the WMP. This should include any plans to quarantine areas and any potential impacts to stakeholders.

2.3.3 IMPLEMENT CONTAINMENT

The LCA/SWC establishes the Weed Incursion Team (WIT) (based on the preliminary WIT) responsible for the strategic control of the weed incursion. This includes policy and research development, liaison with media and affected stakeholders, financial and personnel administration and operational control procedures. The control procedures agreed by NSW DPI are implemented at this stage to **contain the outbreak** while the feasibility of eradication is investigated.

Containment measures might include:

- establish quarantine areas and buffer zones around affected properties and implement quarantine controls such as vehicle wash downs and inspection of equipment
- restrictions on the movement of vehicles, equipment, plant material, stock and products onto and off the affected site and permit systems
- official surveillance and trace back programs, including mapping of affected sites, recording of survey data and further delimitation work where required
- application of chemical treatments and / or integrated weed management
- research established into optimal control methods, species life cycle, seedbank longevity, and dispersal
- public awareness campaign
- weed incursion response training (including Occupational Health and Safety) for the WIT and other contractors, where applicable.

2.3.4 CO-ORDINATE CONTAINMENT PROGRAM

NSW DPI to liaise with the LCA/SWC to ensure effective and timely implementation of response actions.

2.3.5 SEEK EXPERT ADVICE (IF APPLICABLE)

NSW DPI may seek further technical advice from experts within Australia or overseas.

2.3.6 TECHNICAL FEASIBILITY, BUSINESS PLAN AND COST BENEFIT ANALYSIS

NSW DPI to liaise with the affected local government to prepare a scoping package to determine technical feasibility, a business plan and cost-benefit analysis of proposed options to inform decisions on response actions for submission to the State / NSW Noxious Weeds Advisory Committee (NWAC) for emergency funds.

2.3.7 REPORT TO THE NSW DPI

SWC to provide regular progress reports and other information on the incursion needed to assess the feasibility of eradication.

2.3.8 DECISION ON ERADICATION VS. CONTAINMENT

NSW DPI, affected LCA/s, in association SWC and its WIT convene to consider the feasibility of eradication, considering the weed incursion distribution, available control methods, triple bottom line (economic, environmental and social) impact, efficacy of containment measures and cost-benefit analysis. If eradication is considered feasible, then NSW DPI explore funding issues.

Note: a species is often designated an eradication target before it has been properly delimited, which may take up to several years. If this is the case the weed incursion should be declared as a 'provisional eradication target' until it is delimited, at which time a realistic cost-benefit analysis can be done and the feasibility properly assessed.

2.3.9 DEVELOP COST-SHARING PROPOSAL

NSW DPI to develop a proposal for cost-sharing to fund response actions required.

2.3.10 REPORT TO STATE GOVERNMENT ON ERADICATION

NSW DPI to brief the Minister for Primary Industries and the NWAC on the technical feasibility of containment / eradication. If containment / eradication is considered feasible based on current knowledge of incursion extent (which may be incomplete), NSW DPI will recommend an appropriate Strategy and propose state/local cost-sharing arrangements.

2.3.11 DEVELOP A WEED INCURSION EXIT STRATEGY

LCA and the WIT team in collaboration with NSW DPI RISO will develop a weed incursion exit strategy to be used during the Stand Down Phase. This exit strategy will be used either when the weed incursion is confirmed eradicated or, when it is considered not cost-beneficial to continue with the weed incursion response. The exit strategy should include:

- definitions of the trigger points for termination of the restricted and containment zones;
- the surveillance zone;
- restrictions to industry/agencies;
- time frames for long-term monitoring;
- revegetation strategy/s for affected area;
- time frame for restoration of property/area free of weed incursion, and
- communication to all stakeholders of any status change.

See Table 4 (Appendix 1) for a checklist of procedures and actions to be taken in the OPERATIONAL – CONTAINMENT phase.

OPERATIONAL – ERADICATION Phase

2.3.12 APPROVE ERADICATION CAMPAIGN AND COST-SHARING ARRANGEMENTS

NSW DPI to approve eradication campaign and funding for eradication programs.

2.3.13 IMPLEMENT AND MANAGE ERADICATION

The eradication phase includes procedures where quarantine/operational activities are established. These may include:

- the maintenance of quarantine zones;
- further surveillance and monitoring surveys;
- trial and application of chemical/physical controls;
- debrief sessions daily (if feasible); and
- communication programs.

2.3.14 REPORT TO NSW DPI

SWC to provide regular progress reports and other information on the incursion needed to assess the progress of eradication.

2.3.15 EVALUATE PROGRESS

NSW DPI to review progress on a regular basis and prepare briefing papers for Minister for Primary Industries and NWAC. Renewal of funding for eradication after the first year is subject to approval by NSW DPI.

2.3.16 ENDORSE SUCCESSFUL ERADICATION OR RECOMMEND TERMINATION & BRIEF MINISTER & NWAC

NSW DPI to brief the Minister for Primary Industries and NWAC on whether to endorse continuation of the eradication works or recommend to terminate the eradication program.

See Table 5 (Appendix 1) for a checklist of procedures and actions to be taken in the OPERATIONAL – ERADICATION phase.

2.4 STAND DOWN PHASE

The stand down phase begins when either the eradication of the new weed incursion is confirmed or is considered not cost beneficial to continue with the weed incursion response.

2.4.1 REVIEW AND IMPLEMENT THE EXIT STRATEGY

LCA/SWC and Weed Incursion Team to review and implement the exit strategy.

2.4.2 ACQUITTAL OF FUNDS AND PROGRAM DOCUMENTATION

The SWC and NSW DPI will be required to provide financial audit reports where cost sharing arrangements have been instigated. Final reports should be prepared and circulated to all relevant parties involved in the response.

2.4.3 REVIEW INTRA- AND INTER-REGIONAL QUARANTINE ARRANGEMENTS (IF APPLICABLE)

NSW DPI to review the intra-and inter-regional quarantine arrangements to define the weed incursion free zones. This will apply if the eradication is unsuccessful or the RRP is terminated prior to completion.

2.4.4 NOTIFY OTHER PARTNERS

If eradication is successful SWC to advise the four Regional Weeds Advisory Committees, neighbouring Regional Weeds Committees, Crown Lands (NSW DPI) and NPWS Regional Pest Management Officer.

2.4.5 INCIDENT DE-BRIEF AND REVIEW OF THE RESPONSE (RWMO/WIT)

LCA/SWC to organise a de-briefing workshop with the WIT and other operational staff. The de-brief should occur within a reasonable time frame after the exit strategy has been implemented to evaluate the response and review the RRP. Each phase of the operation should be examined and evaluated for suggested improvements to the RRP incursion procedures. RWMO to prepare a report documenting the suggested improvements and submit to NSW DPI and SWC.

2.4.6 INCIDENT DE-BRIEF AND REVIEW OF THE EVALUATION REPORT FROM SWC

NSW DPI to convene and chair a de-briefing meeting with key local, regional and state agency and other stakeholders involved in the weed incursion response. The submitted evaluation report from the LCA/SWC is to be discussed and endorsed if acceptable.

NSW DPI to evaluate the SWC RPP, this should include the validity of the WRA, the transparency of the decision-making processes and the effectiveness of the communication strategy and reporting procedures.

2.4.7 REVISE THE SWC RRP

SWC to revise the SWC RRP following the outcomes of the incident debriefing meeting.

See Table 6 (Appendix 1) for a checklist of procedures and actions to be taken in the STAND DOWN phase.

3. RECOVERY FROM RESPONSE/S TO WEED INCURSION/S

3.1 Review

The SWC RRP should be continually reviewed and evaluated to monitor the currency and application of the document. In the event of a response to a weed incursion SWC are required to activate the current version of the RRP. It is intended that the RRP will be reviewed bi-ennially. Review should occur before the two-year period time frame if a response to a weed incursion incident has occurred.

3.2 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 of the weed incursion.

On-going surveillance programs will be required to ensure the area continues to be free of the weed incursion. Consideration needs to be given to appropriate time-frames required for a monitoring program to guide the recovery phase.

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

Table 7. Checklist of critical decisions during the recovery phase

Recovery Phase decisions	**Yes / No**
Has the SWC RRP been reviewed and evaluated for currency and application?	
Has funding been allocated for rehabilitation for weed incursion site/s ?	
Has an on-going surveillance program/s been set-up to monitor for re-emergence of the weed species?	
Has the communication plan been reviewed and evaluated to include the recovery phase?	
Have landholders and the general public been urged to report further sightings?	
Is there further planning and financial assistance required to bring the affected area back to its normal level of functioning?	

4. COMMUNICATION

4.1 Communication Planning

Communication planning is a fundamental component to the SWC RRP. It will maintain organisational and community support, participation, alertness and awareness to ensure an effective flow of information during responses to new weed incursions.

The aims of the communication strategy for the RRP are to:

- 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 RRP;
- 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 not compromise investigations.

In each phase of the SWC RRP 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.

The SWC Weeds Action Program 2010-2015 Communication Strategy provides more detailed information and should be read in conjunction with this document.

4.2 Media

All information pertaining to media will be listed in the SWC Communications Strategy 2010-2015. This will include information to be provided, frequency, nature of communication and responsibility for releasing media statements and briefs during the response.

Budgetary allocations for media components during the weed incursion should be considered within the overall budget for the response operations.

5. INFORMATION SYSTEMS

In response to a new 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 response activities to the widest range of users and all data collected should be archived appropriately to ensure availability of data for future weed incursion project management purposes.

5.1 Data Management

Data management systems should provide for 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 kill response;
- 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 and notification information;
- ecological and biological information on weed incursion;
- generation of progress reports on destruction, containment and / or eradication;
- generation of forms for scheduled property visits;
- review of monitoring, evaluation and improvement processes.

Appendix 3 'Weed Recording Standard in NSW' provides guidelines for accurate and consistent recording of field data.

5.2 GIS mapping component

During the response phase to new weed incursions geographic information systems (GIS) are to be used to map new weed incursions.

The mapping can also be integrated with other spatially registered databases for analysis of the weed incursion (e.g. soil landscapes, vegetation classes, land use). Weed incursion risk pathways can be geographically defined, analysed and managed in relation to other spatially referenced data.

These databases and GIS technology are a vital component in helping to investigate and/or control suspected or actual weed incursions.

APPENDIX 1 RAPID RESPONSE CHECKLISTS SUMMARY

Table 2: Checklist of procedures and action to be taken in the INVESTIGATION PHASE
N.B Some actions may occur simultaneously

Agency	Procedures / Actions	Responsibility	Status		
			Pending	Commenced	Completed
SWC	**Detection of a suspect weed incursion**	Landholder, community group member, consultant, state/territory or local agency person or other individual submits suspect weed incursion			
	Initial verification and formal notification	State/territory herbarium provides verification and notification to the Sydney Weeds Committees Inc.			
	Landholder /s informed	LCA/land manager advises landholder/s of incursion verification, response process and obligations.			
	Adjoining weed control authorities, other land management agencies / stakeholders informed	SWC Executive Offcier notifies authorities, agencies and stakeholders			
	SWC co-ordinates relevant information	SWC Executive Officer collects relevant information for initial report			
	Notification to State Weed Control Co-ordinator NSW DPI	LCA/Land manager reports notification			
	Preliminary WRA	LCA/land manager and SWC 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.			

Table 3: Checklist of Procedures and Actions to be taken in the ALERT / SCOPING Phase
N.B Some actions may occur simultaneously

Agency	Procedures / Actions	Responsibility	Status		
			Pending	Commenced	Completed
SWC	**Further work to confirm identification (if required)**	LCA co-ordinates further specimens to Royal Botanic Gardens Herbarium			
	Initial containment and scoping	LCA/SWC 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/SWC, 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			

Table 4: Checklist of Procedures and Actions to be taken in the OPERATIONAL – CONTAINMENT Phase

N.B some actions may occur simultaneously

Agency	Procedures / Actions	Responsibility	Status		
			Pending	Commenced	Commenced
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/SWC and RISO to brief state and local governments, industry and other stakeholders of implementation of WMP			
	Implement containment	LCA/SWC 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/SWC to ensure timely implementation of response actions.			
	Seek Expert advise (if applicable)	NSW DPI seeks advise 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**	SWC 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 RISO develops exit strategy for stand down phase.			

Table 5: Checklist of Procedures and Actions to be taken in the OPERATIONAL – ERADICATION Phase

N.B some actions may occur simultaneously

Agency	Procedures / Actions	Responsibility	Status		
			Pending	Commenced	Completed
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	SWC 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.			

Table 6: Checklist of Procedures and Actions to be taken in the STAND DOWN Phase

N.B some actions may occur simultaneously

Agency	Procedures / Actions	Responsibility	Status		
SWC	**Implement the exit strategy**	Weeds Officer and the WIT implement strategy	Pending	Commenced	Completed
	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	Weeds Officer to organise de-brief workshop with WIT and other operational staff and prepare report for SWC.			
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**	SWC revises RRP following incident de-brief meeting.			

Table 7. Checklist of critical decisions during the recovery phase

Recovery Phase decisions	Yes / No
Has the SWC RRP been reviewed and evaluated for currency and application?	
Has funding been allocated for rehabilitation for weed incursion site/s ?	
Has an on-going surveillance program/s been set-up to monitor for re-emergence of the weed species?	
Has the communication plan been reviewed and evaluated to include the recovery phase?	
Have landholders and the general public been urged to report further sightings?	
Is there further planning and financial assistance required to bring the affected area back to its normal level of functioning?	

APPENDIX 2 – CHAIN OF EVIDENCE

(based on National Weed Incursion Plan 2008 – Appendix 6)

In the event that a person takes legal action against the Lead Agency (LCA) a demonstrable chain of custody and record of evidence from the time of specimen collection until trial is essential for evidence to stand up in court.
The specimens taken from the infected properties are likely to be one of the most important forms of evidence for the Lead Agencies and the courts. Protocols are therefore required to maintain confidence in the integrity of the specimens and their value as evidence. The Lead Agencies must be able to ensure:

1. The collection of the specimens is authorised by law;
2. The specimens collected come from the infected properties;
3. The persons collecting the specimens have appropriate training, experience and authority; and
4. The specimens are properly identified, recorded, stored and handled between the time of collection and trial.

In order to maintain continuity of evidence, collection and survey teams and herbarium staff should follow these protocols when collecting and handling response weed incursion samples.

Chain of Evidence protocols do not have to be followed for samples from general surveys.
Chain of evidence protocols will be reviewed as part of the annual review of the SWC Weed Incursion Plan to ensure the protocols are relevant and reflect best practice.

Collection of the specimens is authorised by law

If a specimen is to be used as evidence, the Lead Agencies must ensure that the persons collecting the sample are authorised to do so by law. If the collection of the specimen is not authorised, a court may refuse to accept the specimen as evidence or, if accepted, accord it little or no weight.

The specimens collected come from the infected properties

The person or persons collecting the specimen must be able to establish that the specimens were collected from the infected properties .

To help establish that the specimens were collected from the infected properties and how the specimens were collected, the person or persons collecting the specimens should make a written record of collection at the time the specimen is collected and take a GPS point. It would then be appropriate for those persons to mark the point or points of collection on a map of the infected properties and to photograph the scene.

The persons collecting the specimen have appropriate training and experience

The training and experience of the persons collecting specimens is vital. The chain of evidence is only as good as the people who operate it and there are risks throughout the collection process of things going wrong: people making an error in identification or compromising the integrity of the specimen, or misinterpreting results.

APPENDIX 2 – CHAIN OF EVIDENCE (CONT'D)

Lead Agencies must ensure that everyone involved in the collection and processing of plant material is trained and competent to collect, store and handle specimens.

The specimens are properly identified, recorded, stored and handled between the time of collection and trial.

Chain of evidence protocols should be followed for all specimens taken from infected properties. Appropriate handling and documentation procedures are required when collecting and handling specimens to preserve the integrity of the evidence. All specimens must be uniquely numbered by the collector.

The written record should be sufficiently detailed to:

- Permit the Lead Agency to call witnesses who could explain how the specimens were collected, identified, stored and handled between the time of collection and trial; and
- Permit another expert to be able to identify what has been done to a particular specimen and to independently assess the Lead Agency's findings.

The collection team will complete a botanical specimen label form at the time of collection. This will form part of the Evidence Register. Botanical specimen label forms may be supplied by the state herbaria to which the specimens are being sent but must include at least the following information:

- Collector and collector unique number;
- date;
- location (address if applicable);
- location (GPS and distance from nearest town);
- taxon name;
- description of the plant (shrub, herb, vine, tree, bark etc);
- description of the situation (garden, cultivated field, roadside, forest etc.);
- abundance (number of plants, age classes, clump size, density etc);
- collectors signature and date;
- witness signature and date.

Marking the exhibit

The collection team (or person collecting specimens) will allocate each specimen with the collector's name and collector's unique number. The specimen should be marked by securely attaching a tag to the specimen. The collector should write their name and collection number for the specimen on one side of the tag and initial and date the other side of the tag. The specimen should be placed in a plant press for the appropriate drying procedure. The hand written botanical specimen label form must be included with the specimen for continuity of evidence and remain with the specimen at all times. When the specimen is incorporated into a herbarium collection the hand written label form is to be kept with the specimen at all times.

APPENDIX 2 – CHAIN OF EVIDENCE (CONT'D)

Evidence Register

Once the state herbaria takes possession of the specimen, the following procedures must occur immediately:

1. The specimen is identified by a qualified botanist (usually the curator of that family) and a legal statement of identification is provided, including the name of the collector and the collectors unique number, and other information relevant to the chain of evidence e.g. date of receipt, from whom, and where and how the specimen is to be housed. It is recommended that the identification botanist initial and date the specimen tag as well.
2. The specimen may be referred to as a voucher specimen and may be assigned a database
   number on incorporation for later internal tracking purposes (but see 5.). It is recommended that this number is also included on the statement if available.
3. Information that could be used to identify person or properties associated with impending legal action must not be databased or given out to the public or hosted on the world wide web or in any other way compromise the person's privacy.
4. The specimen is processed immediately and retained in a Quality Assurance Program (QAP) or other suitably secured area for a period of at least ten years. The original hand written label must be retained with the specimen, along with a copy of the statement of identification.
5. The specimen must not be discarded, loaned or gifted for at least ten years.

APPENDIX 3 FIELD INSPECTION TO FOLLOW-UP NEW OR UNKNOWN WEED INCURSIONS

NSW DEPARTMENT OF PRIMARY INDUSTRIES

Field Inspections to Follow up Reported New or Unknown Weed Incursions

Weeds officers are often advised of new or unknown weeds growing in their district. Once a report has been received a weeds officer should follow the steps listed below.

Prior to inspection:

☐ Contact person who made report and landowner by telephone to obtain clear directions and seek permission to access site.

☐ Ensure you have equipment needed. Equipment may include:

- camera
- field press and newspaper for collection of specimens
- large plastic bags
- topographic/cadastral maps
- GPS unit if available
- reference source with illustrations of the plant and its biology if available, to assist in finding the plant and,
- copies of information to give to landowners
- flagging tape, pegs and steel droppers to mark infestation
- bags and spade to collect live specimens for growing out if in vegetative stage
- perhaps a Dustbuster® and paper bags for seed collection
- equipment for cleaning vehicle and boots to remove weed seeds

☐ Allow adequate time for the field search as it may take some hours to find the plant.

☐ Similarly allow sufficient time to prepare a written report.

Defining the infested area
After the infested area is found, determine the extent by going to the extremities of the infested area, depending on the terrain, go in the four compass point directions. After you have reached the extremities depending on time, go to other similar areas 1-2 km away, in the next valley, next river or next paddock and look for the plant.

APPENDIX 3 (CONT'D) - FIELD INSPECTION TO FOLLOW-UP NEW OR UNKNOWN WEED INCURSIONS

At the site:

- ☐ Collect at least 3 specimens, 2 for herbarium and one to retain for own record.
- ☐ Prepare notes to allow for a report.
- ☐ Mark location of infestation. (GPS or map)
- ☐ List ecosystems and environments where the plant is growing.
- ☐ Describe other vegetation where it does and does not occur.
- ☐ Describe soils and terrain etc.
- ☐ Density and local impact where established.
- ☐ Possible source.
- ☐ Determine how long the infestation has been present (or when first noticed) if possible.
- ☐ Record growth stage.
- ☐ Record the area surveyed and affected.
- ☐ Take photographs of:
    - the plant (especially identifying features such as flowers, fruit, seeds etc);
    - the situation (habitat);
    - establish photo-points.

To establish a photo-point, ensure you use a standard zoom setting or focal length lens (eg 50mm) and take photographs including fixed points such as posts or distinctive trees from a fixed point such as a post (or 2m west of the gate post).

- ☐ Collect live specimens for growing out if no flowering material available.
- ☐ Look for and collect seeds.
- ☐ Note down comments and concerns of landowners.

After return from site:

- ☐ Prepare specimens and forward to Royal Botanic Gardens (refer to NSW DPI PrimeFacts sheet).
- ☐ Collecting and preparing plant specimens for identification)
- ☐ Report verbally to the State Weed Control Co-ordinator.
- ☐ Prepare your report as soon as possible, usually the same or next day.
- ☐ Process your photos, date and make notes on photos or slides. Store digital images where they can be accessed

Once positive identification ascertained

- ☐ Forward report to State Weed Control Co-ordinator.
- ☐ If a Class 1 or 2 weed fill out notifiable weed form and send to NSW DPI
- ☐ Develop weed management options.

APPENDIX 4– WEED RECORDING STANDARDS IN NSW

Weed Recording Standards in NSW

Accurate and consistent recording of field data is the first step in any good weed management program. Therefore, the Australian Weeds Committee has endorsed a minimum set of core attributes for recording distribution and spread of Weeds of National Significance (WoNS). These core attributes were developed in consultation with all states and territories.

NSW Department of Primary Industries (DPI) will be adopting, with some modifications, the WoNS core attributes as it recording standard for all notifiable weeds in NSW. (Copies of WoNS attributes are available from the Bureau of Rural Sciences www.brs.gov.au).

The *Noxious Weeds Act 1993* requires Local Control Authorities (LCAs) to keep records of and report to NSW DPI on, among other things, the presence and distribution of noxious weeds in the local area. To assist LCAs in the reporting process NSW DPI has developed a minimum standard for recording noxious weeds. These standards should be taken into account when selecting weed recording software.

NSW Department of Primary Industries Weed Recording Standards

1. **Weed Name:** This should be set in 4 fields
    - I. Genus
    - II. Species
    - III. Variety or Subspecies
    - IV. Accepted common name as per declaration

2. **Weed Control Class:** eg CC1, CC2 etc

3. **Datum Used:** AGD 94 is the preferred standard.

4. **Geographical Location of Infestation:** This should be set in 2 fields. Decimal degrees is the preferred option. (Conversion programs are available on the internet.) Readings to be taken from centre of infestation.
    - I. Latitude (northing)
    - II. Longitude (easting)

5. **Date:** Date infestation discovered or date of inspection

6. **Size of Infestation:** To be recorded in hectares. Note: $1m^2 = 0.0001$ ha.

7. **Number of Plants in Infestation:** If weed is notifiable then all plants should be counted where possible.
8. **Degree of Infestation:** Recorded as a degree of infestation in no more than 5 classes – class 1 being the lowest level of infestation; class 5 the highest.

9. **Weed Status:** This should be set in 2 fields.
    I. ***Stage of development of plant*:** To be recorded as: - Seedling, Juvenile, Non-flowering, Fruiting, Flowering, Seeded. The most advanced stage to be used.
    II. ***History of infestation*:** To be recorded as: N = New Infestation or R(#) = Repeat infestations (#) = number of times area has re-infestation.

10. **Land Use:** The Australian Land Use Mapping Classification (ALUM) is to be used. (appendix 2)

11. **Land Tenure:** ***Examples of tenure*:-** Federal, State or Local government, RLP Board, Forestry, Private, etc.

12. **Source of Infestation:** ***Example of sources*:-** Header, Grain, Fodder, Stock, Unknown, Other (please list)

13. **Total Area Infested in LCA:** This figure should be derived from all infestation reports.

14. **Total number of properties infested in LCA:** This figure should be derived from all property inspection reports.

LCA Weed Recording Standards

Participants at a workshop held in April 1998, which included staff from NSW Agriculture, National Parks and Wildlife and noxious weeds inspectors and general managers from various LCAs throughout NSW, developed a more detailed set of weed recording standards. Recognising that the needs of local control authorities may differ, the following weed recording standards were considered suitable for the majority of local authorities. There have been some changes to these standards to accommodate recent amendments to the Noxious Weeds Act.

The workshop resolved that any weed recording software selected by LCAs should be flexible enough to record, store and process all or as much as possible of the following.

PROPERTY RECORDS

I. NAME OF OCCUPIER
II. NAME AND ADDRESS OF OWNER
III. PROPERTY DETAILS - NAME, ASSESSMENT NUMBER, LOT DP, ROAD, AREA (SIZE), PARISH ETC.

WEED RECORDS

I. WEED NAMES - COMMON AND BOTANICAL
II. SIZE OF INFESTATION, HECTARES FOR COMMON WEEDS, NUMBER OF PLANTS FOR NOTIFIABLE WEEDS
III. DEGREE OF INFESTATION - A SCALE WITH NOT MORE THAN FIVE STEPS INCLUDING NIL INFESTATION
IV. LOCATION

V. LAND USE
VI. WEED GROWTH STAGE AND HISTORY OF INFESTATIONS ON THE SITE (NOTIFIABLE WEEDS)
VII. SOURCE OF INFESTATION (NOTIFIABLE WEEDS)

INSPECTION DETAILS

I. INSPECTION DATE AND TIME
II. INSPECTION NUMBER
III. NAME OF INSPECTOR
IV. INSPECTION WITH OR WITHOUT OCCUPIER
V. FULL OR PART INSPECTION
VI. INITIAL OR RE-INSPECTION
VII. TELEPHONE CALLS
VIII. RE-INSPECTION DATE
IX. INSPECTORS COMMENTS

PROPERTY WEED CONTROL RECORDS

I. WEEDS CONTROLLED
II. METHOD - HERBICIDE, MECHANICAL, CULTURAL OR BIOLOGICAL
III. HERBICIDE USED, RATE, ADJUVANT, APPLICATION METHOD AND WATER SOURCE
IV. SUCCESS OR EFFECTIVENESS

REGULATORY HISTORY

I. PREVIOUS INSPECTIONS - LINKED THROUGH INSPECTION NUMBERS
II. WEED CONTROL NOTICES SERVED
III. PENALTY NOTICES ISSUED
IV. PROSECUTIONS AND RESULTS

LCA LAND WEED CONTROL RECORDS

I. WEEDS CONTROLLED
II. DATE
III. LOCATION
IV. TYPE OF HERBICIDE USED
V. VOLUME OF HERBICIDE USED

REPORTING

I. TOTAL AREA INFESTED WITHIN LCA
II. PERCENTAGE OF PROPERTIES WITH A GIVEN WEED IN LCA
III. NUMBER OF PROPERTIES PER SIZE OF INFESTATION, E.G. NUMBER OF PROPERTIES WITH < 1HA, 1HA, 5HA, 10HA, ETC. OF A GIVEN WEED
IV. NUMBER AND PERCENTAGE OF PROPERTIES INSPECTED
V. RE-INSPECTION SCHEDULES

THE FOLLOWING IS A LIST OF FORMS, REPORTS AND SYSTEM REQUIREMENTS, WHICH THE WORKSHOP PARTICIPANTS REGARDED AS DESIRABLE FOR WEED RECORDING SOFTWARE TO BE CAPABLE OF GENERATING.

STANDARD RECORDING FORMS

Letter of notification of entry for inspections
Property inspection report – must comply with NSW DPI requirements
Nil infestation letter
Section 18 notice and accompanying letter with reinspection and expiry date
Section 18A prior notice of Section 18 notice
Emergency weed control notice
Property reinspection report

Section 20 notice and accompanying letter
Letters for (S.E.I.N.S) and/or prosecution
Notice / work record spraying form
Section 43 record of entry (for section 20)
Account for section 20 work – to be tailored for individual councils
Private works form – to be tailored for individual councils
Notifiable weed form – must comply with NSW DPI requirements (see appendix 1)

Reports

- Property report
- Inspectors periodic reports – from / to date format
- Weed infestation – from / to date format, must comply with NSW DPI requirements
- Reinspection program (schedular / diary)

System requirements

- Ability to link to a GIS system
- Ability to link to a variety of external programs and mainframe computers
- Ability to store GPS data in decimal degrees
- Reinspection scheduling

A sample database which may be used to meet NSW DPI's minimum standards

Infestation ID	**Text**	**15 characters**
Description:	Essential: A unique identifier to be used. No duplicates allowed.	
Required:	True: ie need a record	
Infestation History	**Text**	**15**
Description:	Essential if infestation has been recorded previously. Use the initial infestation ID in this field.	
Required:	False: ie record not required	
Genus	**Text**	**50**
Description:	Essential: Plant genus eg. *Chrysanthemoides*	
Required:	True	
Species	**Text**	**50**
Description:	Essential: Plant species eg. *monilifera*	
Required:	True	
Spp or Var	**Text**	**50**
Description:	Essential: Plant sub species or variety eg. ssp. *rotundata*	
Required:	False	
Local Common Name	**Text**	**50**
Description:	Desirable: Accepted common name for the area. Eg Bitou bush	
Required:	False	
Date Discovered	**Date/Time (dd-mm-yyyy)**	**8**
Description:	Essential: Date infestation discovered	

Required:	True	
Size of Infestation	**Number (Long)**	
Decimal Places:	4	
Description:	Essential: Area to be recorded in hectares. 0.0001ha = 1sq metre	
Required:	True	
Number of plants	**Number (Integer)**	
Description:	Essential: notifiable weeds. Desirable: for all other weeds	
Required:	False	
Degree of Infestation	**Text**	**50**
Description:	Desirable: Degree of infestation from sparse to complete cover. No more than 5 classes to be used.	
Required:	False	
Development stage of Plant	**Text**	**50**
Description:	Essential: notifiable weeds. Desirable: for all other weeds	
Required:	False	
Source of Infestation	**Text**	**50**
Description:	Desirable: Mainly for new infestations. Eg Header, seed or feed.	
Required:	False	
Identification/ Verification	**Text**	**50**
Description:	Essential: All new weed outbreaks. Desirable: For other weeds. Eg National Herbarium of NSW	
Required:	False	
Identification/ Verification ID:	**Text**	**20**
Description:	Essential: All new weed outbreaks. Desirable: for all other weeds. Eg Herbarium voucher number	
Required:	False	

Alan Maguire, Noxious Pests Advisory Officer, Tamworth

FIELD LOCATIONS of NOTIFIABLE WEEDS

Name of LCA.....

Notifiable Weed Species	Datum used	Geographical Location		Date	Weed Status		Source	Land		Number of Plants	Area	Verification		Comments Eg. Location, site description etc.
		Latitude (northing)	Longitude (easting)		Stage	History		Use	Tenure			Person or Herbarium	Voucher No.	

Datum used: eg GDA 94, WGS 84. from map also include map sheet name; number; scale
Weed Status: **Stage:** A = Seedling; B = Rosette; C= Juvenile; D = Non-flowering, E = Fruiting; G= Flowering; H = Seeded
History: N = New Infestation; R(#) = Repeat infestation (#) = Number of times area has reinfested
Source: H = Header, G = Grain, S = Stock, U = Unknown, Other (please list)
Land: **Use: Australian Land Use Mapping Classification**
Tenure: FG = Federal government; SG = State government; LG = Local government; NP = National Park; SF = State Forest; PR = Private; DL = Land & Water; PP = Pasture Protection Board Land; OT = Other (please list)
Number of plants: Count if 100 or less; A = 101-500; B = 501-1000; C = >1000 (Count all plants if possible)
Area: 1 ha = 10,000 m^2 (10 m^2 = 0.001 ha, 100 m^2 = 0.01 ha)
Verification: **Person or Herbarium:** The name of the person or herbarium who has identified the weed. Eg National Herbarium of New South Wales
Voucher No.: The voucher number of the specimen lodged with a herbarium. Eg A. Maguire 253
Please return form soon after a notifiable weed is discovered to: Noxious Pests Advisory Officer - NSW Department of Primary Industries
4 Marsden Park Road, CALALA NSW 2340 Or Fax 02 67631120

APPENDIX 4 – WEED RECORDING STANDARDS IN NSW CONT'D

Australian Land Use Mapping Classification

1. CONSERVATION AND NATURAL ENVIRONMENTS

Land used primarily for conservation purposes, based on the maintenance of the essentially natural ecosystems present.

1.1 Nature conservation (national parks, nature reserves or other legally protected areas)
1.2 Managed resource protection
1.3 Other minimal

2. PRODUCTION FROM RELATIVELY NATURAL ENVIRONMENTS

Land used primarily for primary production with limited change to the native vegetation.

2.1 Grazing natural vegetation
2.2 Production forestry

3. PRODUCTION FROM DRYLAND AGRICULTURE AND PLANTATIONS

Land used mainly for primary production, based on dryland farming systems.

3.1 Plantation forestry
3.2 Grazing modified
3.3 Cropping
3.4 Perennial horticulture
3.5 Seasonal horticulture

4. PRODUCTION FROM IRRIGATED AGRICULTURE AND PLANTATIONS

Land used mostly for primary production based on irrigated farming.

4.1 Irrigated plantation forestry
4.2 Irrigated modified pastures
4.3 Irrigated cropping
4.4 Irrigated perennial
4.5 Irrigated seasonal horticulture

5. INTENSIVE USES

Land subject to extensive modification, generally in association with closer residential settlement, commercial or industrial uses

5.1 Intensive horticulture
5.2 Intensive animal production
5.3 Manufacturing and industrial
5.4 Residential
5.5 Services (includes commercial areas, recreation areas, schools, defence and research facilities)
5.6 Utilities
5.7 Transport and communication (includes roads and railways)
5.8 Mining
5.9 Waste treatment and disposal (includes landfill sites)

6. WATER

6.1 Lake
6.2 Reservoir or dam
6.3 River
6.4 Channel/aqueduct

6.5 Marsh/wetland

6.6 Estuary/coastal waters

APPENDIX 5 – AGENDA TEMPLATE FOR WEED INCURSION TEAM MEETING/S ON NEW WEED INCURSION

(based on National Weed Incursion Plan 2008 – Appendix 8)

Location / Teleconference: …… **Date**: …… **Time**:……..

DRAFT AGENDA

ITEM ……...……..

PRESENTER……

Attendees: ……..….

Apologies:……..……..

Chair……...

1 OPENING

Papers distributed

Affected jurisdiction

2 REPORTS

2.1 Situation report

2.1.1 Overview

2.1.2 Location of infested sites — grid reference and map

2.1.3 Description of situation on sites

– description of weed

– density and distribution of weed

2.1.4 Duration of the infestation

2.1.5 Has the source of infestation been identified

2.1.6 Other susceptible areas in vicinity

2.1.7 Results of preliminary tracing/surveillance

2.1.8 Action taken to date

2.1.8a Existing media interest/public awareness

2.1.8b Stakeholder impacts

2.1.9 Resources used to date (personnel and/or equipment)

2.1.10 Feasibility of eradication, other response actions

2.2 Herbarium identification of suspect plant [Taxonomic specialist]

2.3 Technical update on weed [NSW DPI / CSIRO]

3 PROPOSED ACTION Affected jurisdiction

3.1 SWC Rapid Response Plan

3.1.1 Eradication, containment and/or risk mitigation techniques

3.1.2 Decontamination requirements

3.1.3 Clean-up methods

3.2 Quarantine and movement controls

3.2.1 Quarantine sites
3.2.2 Restricted Area movement and security — draft proclamation and map
3.2.3 Restricted movement provisions / draft proclamation (and map if other than entire State)
3.3 Tracings
3.4 Surveillance

4 DISCUSSIONS/CONCLUSIONS OF NSW DPI

5 MOVEMENT AND TRADE ISSUES
5.1 Intrastate - outside Restricted/Control Areas
5.2 Interstate
5.3 National

6 ADMINISTRATIVE ARRANGEMENTS
6.1 Additional staff/resources
6.2 Estimates of cost
6.3 Cost-sharing arrangements

7 NOTIFICATION TO INDUSTRY / STATE / NATIONAL SECTORS
7.1 Local
7.2 State
7.3 National

8 MEDIA RELEASE Affected jurisdiction
8.1 Local
8.2 State
8.3 National

9 RECOMMENDATIONS TO I&I NSW
9.1 Advice of the occurrence of the weed
9.2 Feasibility and mechanisms for response
9.3 Invoking the States cost-sharing agreement

10 OTHER BUSINESS

11 NEXT MEETING

12 CLOSE

APPENDIX 6 – DELIMITATION OPERATIONAL PLAN TEMPLATE (SURVEY & MAPPING)

(based on National Weed Incursion Plan 2008 – Appendix 9)

DELIMITATION OPERATIONAL PLAN

NAME OF WEED:
Insert name of weed

AIM:
Insert aim of project here

BACKGROUND:
Insert background information here

SCOPE:
Insert the scope of the project here

ECOLOGY:
Insert info on reproduction, vectors and dispersal mechanisms, growth and spread rate, seedbank and budbank persistence, growth and flowering calendar, tolerances, biology and ecology

COMPONENTS:

- **Survey boundaries**
  Describe the survey boundaries here
- **Pathway analysis**
  Ecology of Weed Incursion
  Distribution
- **Sources**
- **Pathways**
- **Destinations**
- **Risk Assessment**
  Consultation Process

  Risk management

  Survey methodology and rigour

  Budget

PRIORITIES:
List the priority areas for the delimitation survey

AGENCY SUPPORT:
What types of partnerships/collaborations exist in the project

PERFORMANCE MANAGEMENT:
Data management
Data evaluation

Progress reporting

CRITICAL PRIORITIES
List the critical priorities required for project to move forward.

Examples of SURVEY TASKS

TASKS ACTIVITIES PERSON DAYS COMPLETION OFFICER

1. SURVEY OF INFESTED AND ADJOINING CATCHMENTS

- Prepare aerial map of existing and adjoining catchments
- Advise aerial operators of proposed surveillance
- Identify existing treatment zones and proposed delimitation surveillance zones
- Identify all waterways, roads, tracks and cleared land within existing catchments.
- Identify all waterways, roads and tracks in adjacent catchments
- Develop and confirm optimum detectability scenarios
- Implement surveillance based on risk and resources
- Identify projected costings for 95% confidence levels.
- Review, Document and Report Outcomes

2. TRACE FORWARD SURVEYS

Properties

- Determine Location, Ownership and Contact Details
- Liaise with property owners to determine Spread Potential of each property
- Determine survey methodology per property (Phone call, visit or direct survey)
- Conduct phone calls, surveys or visits
- Review, Document and Report Outcomes

Machinery within Catchment

- Identify relevant industries (earthmovers, slashers, trucking operators etc.)
- Confirm known movements with property owners and operators
- Develop a log of operators
- Confirm highest risk activities
- Conduct trace forward surveillance
- Review, Document and Report Outcomes

Sand/Gravel within Catchment

- Identify and contact all businesses operating within or sourcing from the catchments
- Develop a log of operators
- Document all pathways and assess risk
- Conduct trace forward surveillance (direct or by phone.)
- Review, Document and Report Outcomes

People/Vehicles within Catchment

- Contact all infested properties and document known, regular movements, especially via infestations
- Contact Tourist Operators?
- Follow up surveillance
- Review, Document and Report Outcomes

Slashing within Catchment

- Develop a log of Operators
- Determine routes and destinations
- Conduct follow up surveillance
- Review, Document and Report Outcomes

Stock Movements beyond Catchment

- Determine stock movements with landowners
- Check Saleyards
- Review, Document and Report Outcomes

Machinery beyond Catchment

- Identify relevant industries (earthmovers, slashers, trucking operators etc.)
- Confirm known movements with property owners and operators
- Develop a log of operators
- Confirm highest risk activities
- Conduct trace forward surveillance
- Review, Document and Report Outcomes

Sand/Gravel beyond Catchment

- Identify all businesses operating within or sourcing from the catchments
- Develop a log of operators
- Conduct trace forward surveillance (direct or by phone.)
- Review, Document and Report Outcomes

Stock Movements within Catchments

- Identify saleyards
- Identify relevant land holders
- Determine routes and destinations of stock
- Categorise risk and conduct appropriate follow up
- Review, Document and Report Outcomes

Bushwalker/Backpackers

- Contact catchment tourist operators and wildlife/outdoors groups
- Develop a log of clients (bird watchers, SGAP, Catchment Groups etc.)
- Disseminate pest information
- Conduct trace forward surveillance (direct or by arrangement with third parties)
- Review, Document and Report Outcomes

Slashing beyond Catchment

- Develop a log of Operators
- Determine routes and destinations
- Check yards and holding depots
- Conduct follow up surveillance
- Review, Document and Report Outcomes

Seed beyond Catchment

- Determine vectors of spread

Fauna within Catchment

- Determine ground migratory fauna and potential routes
- Liaise with property owners to determine likely tracks
- Survey tracks
- Review, Document and Report Outcomes

Timber within Catchment

- Determine sources/suppliers
- Liaise directly with suppliers
- Arrange trace forward inspections as necessary
- Review, Document and Report Outcomes

Hay/Mulch within catchment

- Determine sources/suppliers (liaise with landowners and
- contact produce suppliers)
- Conduct trace forward surveillance
- Review, Document and Report Outcomes

Seed within Catchment

- Determine sources/suppliers (liaise with landowners and contact produce suppliers)
- Conduct trace forward surveillance
- Review, Document and Report Outcomes

Hay/Mulch beyond Catchment

- Determine sources/suppliers (liaise with landowners and
- contact produce suppliers)
- Conduct trace forward surveillance
- Review, Document and Report Outcomes

Wind within Catchment

- Liaise with BOM to Determine High Risk Areas
- Conduct Aerial Surveys based on risk
- Review, Document and Report Outcomes

Fauna beyond Catchment

- Determine ground migratory fauna and potential routes
- Liaise with property owners to determine high traffic tracks
- Survey tracks
- Review, Document and Report Outcomes

Timber beyond Catchment

- Determine sources/suppliers
- Liaise directly with suppliers
- Arrange trace forward inspections as necessary
- Review, Document and Report Outcomes

Bushwalkers/Backpackers within Catchment

- Contact tourist operators and wildlife/outdoors groups
- Develop and maintain a log of clients (bird watchers, Landcare, SGAP, Catchment Groups etc.)
- Disseminate pest information
- Conduct trace forward surveillance (direct or by arrangement with third parties)
- Review, Document and Report Outcomes

APPENDIX 6 – TEMPLATE INVENTORY OF RESOURCES / EQUIPMENT

LCA / Agency	*Fill in*			
Resource / Equipment *(insert rows as required)*				
Staff	**Name**	**Qualifications**	**Competencies**	**Contact Details**
Vehicles (insert rows as required)	**Descriptions** (Make / model)	**Fuel** (diesel / petrol)	**Type** (4WD, dual / single cab / tray back)	
Spray Equipment	**Description** (Make / model)	**Power** (petrol / electric)	**Reel type** (single or dual)	**Hose length**
Chemical Stores	**Location** (inc. site address)	**Contact person** and phone number	**Wash Down Bays** (inc. site address)	**Contact person** and phone number

Chemical Suppliers	**Location** (inc. site address)	**Contact person**	**Contact details**	
Office Accommodation	**Location** (inc. site address)	Contact person and phone number	**Equipment available** (computers, GIS mapping and GPS units)	
Water Carriers	**Location**	**Contact person** and phone number	**Description** (Make / model / capacity)	**Power** (petrol / electric)

Contractors	Name	Contact Details	Qualifications	Equipment
Volunteer Organisations	**Name Person**	**Contact Details**	**Qualifications**	**Equipment**

APPENDIX 8 – THE WEED PRIORITISATION PROCESS WEED RISK ASSESSMENT TEMPLATE

The NSW WRM system, developed 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.[6] 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;
- prioritising weeds for the allocation of limited management resources;
- determining the appropriate legislative status for undeclared naturalised plants; and
- reviewing the legislative status of currently declared weeds.

The Questionnaire completed for each weed is as follows;

NSW Weed Risk Management Form[7]

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

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

[7] Extracted from "Draft Guide to NSW WRM – July 2007)

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*

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.

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.

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 coordinated 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.