

WEEDS OF NATIONAL SIGNIFICANCE

Chilean needle grass

***Nassella neesiana* (Trin. & Rupr.)**

Barkworth

strategic plan 2012–17

This publication is produced as part of the Weeds of National Significance initiative, a joint initiative between the Commonwealth of Australia and each of the Australian states and territories.

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An unpublished draft of the revised strategic plan has guided national coordination of this Weed of National Significance for the past two years. Before publishing the revised plan, the Australian Weeds Committee altered it because some actions had been completed, and then agreed to include a uniform monitoring, evaluation, reporting and improvement (MERI) template for all phase-3 Weeds of National Significance.

Supporting information about the Australian Weeds Strategy, Weeds of National Significance and progress to date may be found at www.weeds.org.au, where links and downloads provide contact details for all species and copies of the strategy. Comments and constructive criticism are welcome as an aid to improving the process and future revisions of this strategy.

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Summary

Chilean needle grass—*Nassella neesiana* (Trin. & Rupr.) Barkworth, synonym *Stipa neesiana*—is a Weed of National Significance that threatens native grasslands and productive pastures throughout south-eastern Australia. To date, it has been found in the Australian Capital Territory, New South Wales, Victoria, South Australia, Queensland and Tasmania, and is declared noxious in all states and territories throughout Australia.

A national strategic plan was developed in 2001 to manage the threat of Chilean needle grass. Since that time, considerable progress has been made in identifying the Chilean needle grass problem, developing best-practice management options and reducing the spread and impacts of Chilean needle grass.

In 2009, a review of progress towards the Chilean Needle Grass Strategic Plan recommended that national strategic management be continued under a revised strategic plan. It recommended to place greater emphasis on identifying and protecting assets at risk from Chilean needle grass, incorporate monitoring and restoration activities, and integrate the management of Chilean needle grass with other stipoid grass weeds.

This revised strategic plan focuses on these recommendations and considers activities that are required to complete or complement progress made under the previous strategic plan. It also provides the tools for all Chilean needle grass managers to maintain cross-jurisdictional partnerships to enable the continuation of effective strategic management under reduced national coordination.

The strategy aims to deliver on the following key national goals and objectives:

- 1 Prevent new infestations from establishing
 - Review and enforce relevant national and state legislation.
 - Record, map and analyse all infestations.
 - Develop and maintain early-detection mechanisms to protect uninvaded areas.
 - Maintain and monitor eradication programs.
 - Develop, maintain and progress containment programs to prevent spread (including implementing hygiene practices).
- 2 Strategically manage existing infestations
 - Investigate and introduce biological controls to reduce the impact of large and/or well-established infestations (i.e. ‘core’ infestations).
 - Identify priority assets at risk and strategically manage their protection.
 - Enhance recovery of assets after infestations are under control.
- 3 Increase the capability and willingness to manage Chilean needle grass.
 - Develop and maintain landscape-scale partnerships to deliver integrated land management.
 - Refine and adopt best-practice management tools and techniques.

- Increase awareness and capability of land managers to manage Chilean needle grass and other *Nassella* species.
- Maintain effectiveness and relevance of, and commitment to, the national strategy.

Vision

To stop the spread and reduce the impacts of Chilean needle grass in natural and agricultural ecosystems.

1 The challenge

Chilean needle grass has been recognised as a serious weed throughout Australia since the late 1990s. In 2009, the Australian Weeds Committee reviewed all strategic plans for Weeds of National Significance (WoNS). The 2009 review concluded that significant progress had been made towards the goals of the 2001 Chilean Needle Grass Strategic Plan, including:

- identifying the scope of the problem
- quantifying the impacts of Chilean needle grass
- identifying management options
- establishing partnerships
- garnering support for its control across Australia.

Extensive research has formed the basis of the current best-practice management options. A key achievement has been the sharing of knowledge across Australia, resulting in a nationally consistent approach to the management of Chilean needle grass. In light of these achievements, the review recommended that the National Chilean needle grass Program continue with reduced coordination, with the aim of entrusting the strategic management of Chilean needle grass to states and territories by 2012–13.

Several challenges remain for the management of Chilean needle grass and include:

- incorporating Chilean needle grass management with that of similar stipoid grassy weeds, including its integration into broader farm or land management activities
- improving identification materials. Chilean needle grass is regionally variable in appearance and is difficult to identify when not in seed. Despite the development of regionally specific identification materials, correct identification remains the single largest impediment to the management of this weed
- identifying and understanding environmental and agricultural assets that are threatened by stipoid grassy weeds. This will assist decision-making about where management should occur (i.e. prioritisation) and ensure on-ground control activities are appropriate for the situation
- increasing the uptake of various management options available to landholders.

The 2009 review concluded that progress towards the goals and objectives of the Chilean Needle Grass Strategic Plan was sufficient to justify a reduction in the level of national coordination, and projected that by 2012–13, national coordination could cease. The single largest challenge for states and territories will be to build upon the momentum that the National Chilean needle grass Program has gained since 2001 and maintain the capacity to deliver strategic actions of the plan with a reduced level of national coordination.

The objectives and actions outlined in this revised strategic plan will provide a framework to address the above challenges. These actions have been identified as critical in stopping the spread and reducing the impacts of Chilean needle grass in natural and agricultural ecosystems.

2 Background

2.1 The biology of Chilean needle grass

The biology, ecology, invasion history, impacts of spread, and control methods for Chilean needle grass are extensively detailed in the *Chilean needle grass national best practice management manual* (Snell et al. 2007). A brief overview is presented below together with a diagrammatic representation of its life cycle (Figure 1).

2.1.1 Taxonomy

Chilean needle grass (*Nassella neesiana* (Trin. & Rupr.) Barkworth (syn. *Stipa neesiana*) is in the tribe Stipeae (commonly referred to as stipoid grasses) within the grass family of Poaceae. There are six genera of stipoid grasses in Australia, with *Austrostipa* the only indigenous genus. *Nassella*, one of the introduced genera, includes Chilean needle grass and species such as serrated tussock (*N. trichotoma*), Mexican feather grass (*N. tenuissima*), cane needle grass (*N. hyalina*), Texas needle grass (*N. leucotricha*), lobed needle grass (*N. charruana*) and short-spined needle grass (*N. megapotamia*).

2.1.2 Growth form and general characteristics

Chilean needle grass is a perennial tussock-forming grass that, in the absence of grazing, can grow to 1 m in height. Leaves are between 1–5 mm wide, up to 300 mm long and are flat to slightly rolled. The upper leaf surface is strongly ribbed, with a broad but variable mid-rib. Sparse hairs can be observed on the upper side of the leaf.

2.1.3 Seeds

A key characteristic of Chilean needle grass is that it produces three types of seed. The most abundant seed type is the panicle seed, which is a sexual form that is borne on the flowering stem. Panicle seed is usually produced during spring and summer; however, in favourable conditions with sufficient rainfall and suitable temperatures, secondary seeding events can also occur in autumn and even in winter. Gardener (1998) showed that mature plants can produce as many as 22 000 panicle seeds over a season. Chilean needle grass also produces asexual stem and basal seeds, known as cleistogenes. Stem cleistogenes are produced inside the flowering stem above any of the nodes. Basal cleistogenes form at the base of the tussock above the root zone, and can be produced within the first year of the plants life cycle. Cleistogenes allow the plant to reproduce, even if flowering has been prevented, for example, during adverse climatic conditions such as drought.

2.2 History of spread

Chilean needle grass was introduced from South America, where it occurs in Argentina, Bolivia, Ecuador, Uruguay, southern Brazil, and Chile. Chilean needle grass is naturalised in all states and territories throughout Australia, with the exception of Western Australia and the Northern Territory (Figure 2). The earliest known collection of Chilean needle grass in Australia was made in October 1934 at Northcote, an inner northern suburb of Melbourne.

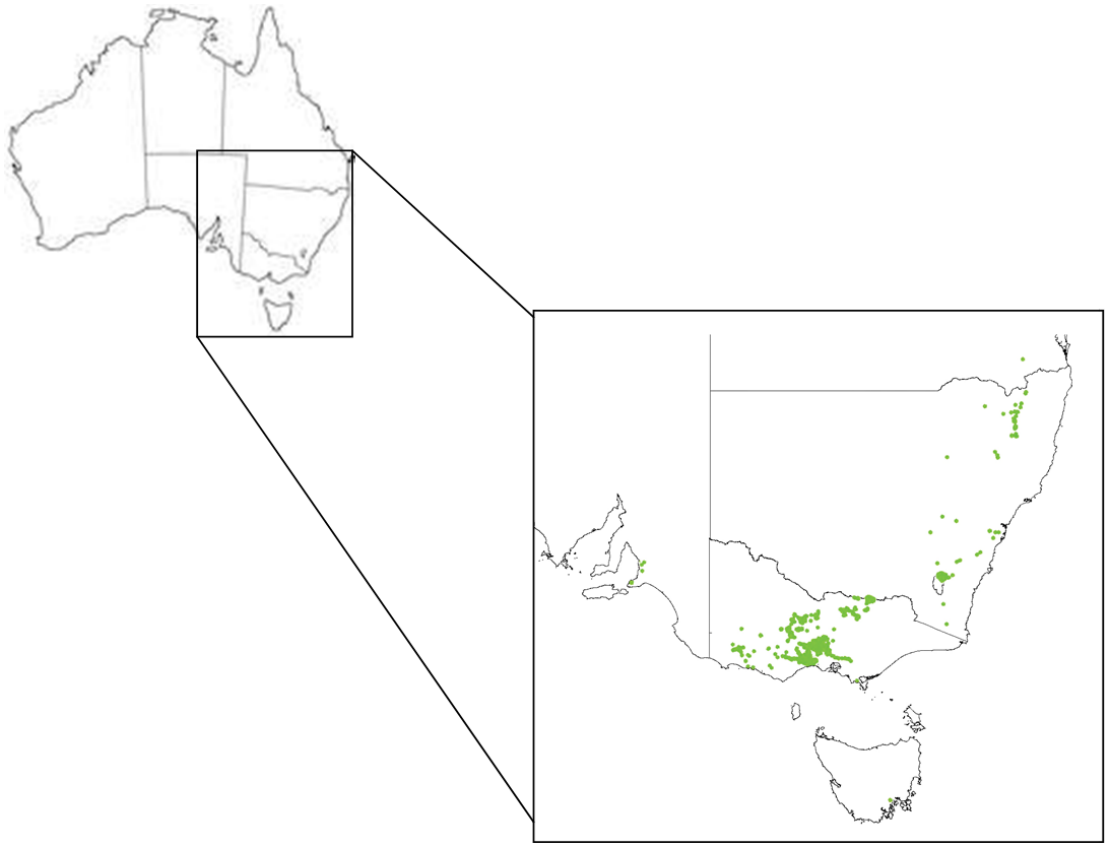


Figure 2 The known distribution of Chilean needle grass in Australia

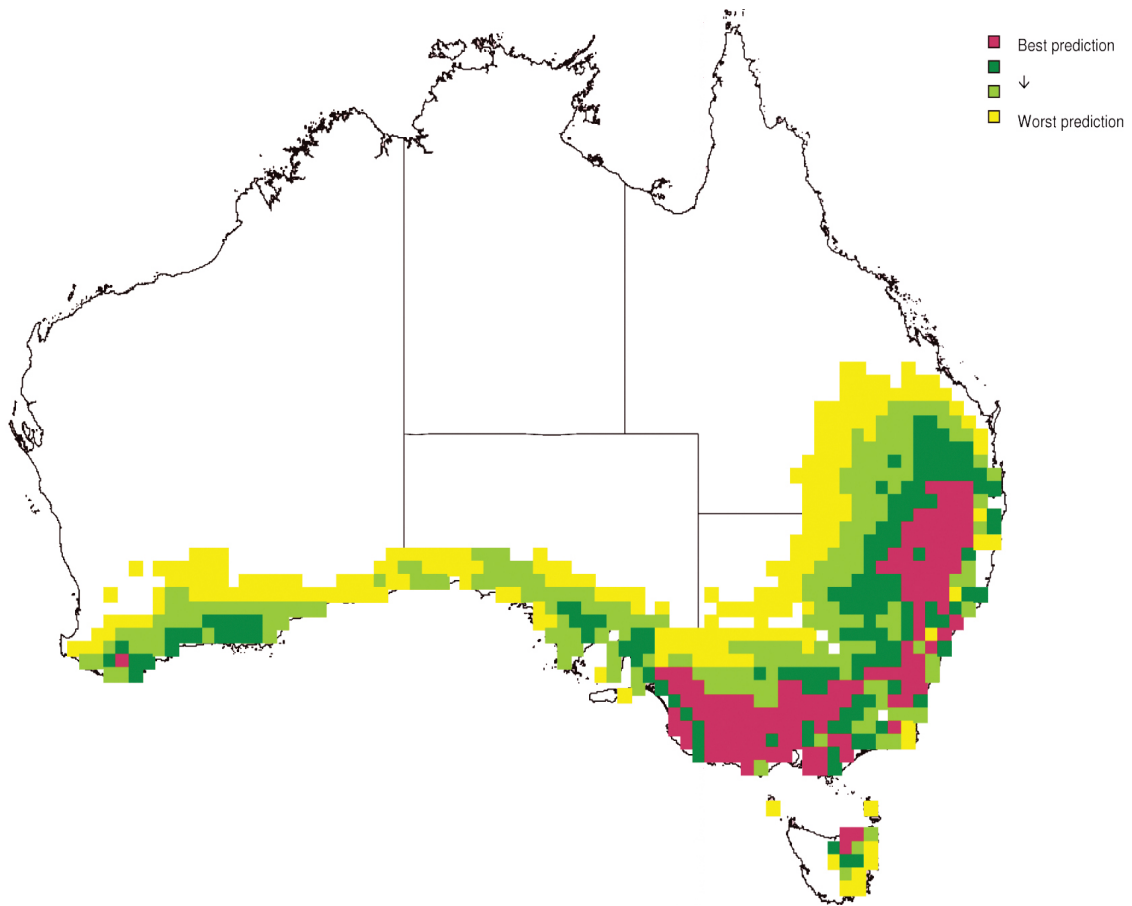


Figure 3 The potential distribution of Chilean needle grass, predicted by bioclimatic modelling, from its known locations in Australia is (41 million ha)

2.3 Summary of impacts

Chilean needle grass has been described as potentially the worst environmental weed of native grasslands in south-eastern Australia and poses a significant threat to agriculture. Eleven exotic stipoid grasses are naturalised in Australia. Chilean needle grass and serrated tussock (*Nassella trichotoma*) are of such importance they have been identified as WoNS. However, the threat posed by lobed needle grass (*N. charruana*), cane needle grass (*N. hyalina*), Texas needle grass (*N. leucotricha*), Mexican feather grass (*N. tenuissima*), and the espartillo grasses (*Amelichloa caudatum* and *A. brachychaetum*) may be of equal importance, and these species should be included in any local stipoid grass management plans. Where appropriate, these species have also been included in the actions set out in Sections 3.1–3.3 in this strategic plan.

In temperate Australia, Chilean needle grass occurs predominantly in pastures and grassy woodlands, on roadsides and along creeks and rivers, and is increasingly invading native grasslands. Native grasslands are one of Australia's most threatened ecosystems, with less than one per cent of their original extent remaining (Ross 1999), in various stages of degradation, throughout south-east Australia.

The major impacts and issues caused by Chilean needle grass are summarised below.

2.3.1 Biological and ecological

- Chilean needle grass rapidly invades disturbed soils and degraded ecosystems.
- Chilean needle grass can out-compete and displace native grass species, especially if these are in a senescing state.
- Chilean needle grass interferes with revegetation programs and, once established, has a seed bank that is difficult to manage.
- Chilean needle grass is a particular problem in native grasslands and grassy woodlands in south-east Australia, and poses a threat to native species such as kangaroo grass (*Themeda triandra*) wallaby grasses (*Austrodanthonia* species), spear grasses (*Austrostipa* species), native tussock grasses (for example, *Poa* species), along with a multitude of native ground plants that form the diversity these grassy ecosystems.

2.3.2 Primary production

- Chilean needle grass reduces pasture production and stock-carrying capacity by as much as 50% (Gardener 1998) by:
 - displacing palatable pasture species
 - being less palatable than pasture grasses and impalatable whilst flowering and seeding.
- The panicle seed of Chilean needle grass can degrade agricultural products such as wool, grain, hay and meat. Panicle seeds readily attach to stock, particularly sheep, and can cause injury by burrowing into the skin and muscle.
- Chilean needle grass is a major contaminant on vehicles, machinery and equipment, creating the potential to spread Chilean needle grass across properties and over long distances.
- The cost to control Chilean needle grass has been estimated at between \$64 and \$119 per hectare per year (McLaren et al. 2002a).

2.3.3 Linear reserves

- Roadsides contain some of the heaviest infestations of Chilean needle grass in Australia and provide vectors for its invasion and spread through adjacent agricultural land, native grasslands and urban areas.
- Movement of vehicles and machinery contaminated with Chilean needle grass panicle seed is the greatest cause of spread along roadsides and other linear reserves such as rail corridors and power-line easements.
- Routine maintenance activities, such as mowing along linear reserves, further spread Chilean needle grass.

2.3.4 Urban situations

- In urban areas, Chilean needle grass can be found on neglected land, parks, gardens, reserves and sporting grounds, degrading the remnant native grasslands that are also found in these areas.

- The panicle seed of Chilean needle grass can cause injury to pets and is easily carried on their coats or on the socks and shoes of humans.

2.3.5 Waterways

- Chilean needle grass has the potential to spread along waterways in both rural and urban settings.
- The seeds of Chilean needle grass can be deposited at the edges of flood plains or up stream banks well away from the central stream, forming new infestations, during high-water flow events.

2.4 Control methods

Chilean needle grass can reproduce from asexual cleistogone seeds even when prevented from flowering and producing panicle seeds. The seed longevity of Chilean needle grass is up to 12 or more years though a maximum is not known. These reproduction features, coupled with the necessity to vary control methods depending on circumstances, makes Chilean needle grass a challenging weed to manage.

A successful management program is dependant on:

- an integrated management program that uses a number of different control methods, including cultural, chemical and grazing management
- good vehicle, machinery and stock hygiene practices to reduce spread
- a reduction of panicle seed production and increased competition of desirable grasses
- eradication of new, small or outlying infestations before they establish, including along the edges of waterways and in the uplands of flood plains
- incorporation of Chilean needle grass management into the broader production or biodiversity system
- regular monitoring and review of the actions that have been taken.

No single technique will successfully control or reduce Chilean needle grass. Each situation will require a different combination of control methods to achieve success. For detailed information on control methods and their appropriateness in a given situation, refer to the *Chilean needle grass national best practice management manual* (Snell et al. 2007).

2.5 Socioeconomic factors affecting management decisions

While controlling Chilean needle grass provides benefits to land managers and the community, there are several socioeconomic factors that continue to affect its management.

During its vegetative stage, the growth form and characteristics of Chilean needle grass can show regional variability and be similar to many native species. Consequently, correct identification by non-specialists can be very difficult. While the national program has developed a number of identification resources to assist land managers with the identification of Chilean needle grass, correct identification remains the single largest impediment to its management. Additionally, the grass is a sleeper weed that can persist

unnoticed for several years during harsh climatic periods such as drought, only becoming apparent when conditions improve. These factors often combine to make control of Chilean needle grass difficult, both economically and logistically, for many land managers, and can reduce motivation and willingness for control.

In some jurisdictions where Chilean needle grass is widespread, the current state and territory legal declarations only prohibit the sale or transport of propagules and do not enforce control of existing infestations (refer to Table 1). Consequently, there is often a lack of capacity, or a lack of will, to control Chilean needle grass compared to other higher priority weeds where funding support may be available or where control is enforced.

2.6 Legislative controls

Chilean needle grass is a prohibited species under the *Quarantine Act 1908*, and is not permitted for entry or sale in Australia.

After Chilean needle grass became a WoNS, it was declared a noxious weed under legislation in all states and territories within its potential distribution. The current legal declarations of Chilean needle grass vary significantly across Australian states and territories and are summarised in Table 1, together with declarations for other *Nassella* grasses. Legislative management requirements depend on the distribution and density of Chilean needle grass, and range from a minimum of prohibiting the sale and transport of propagules (Victoria) through to the enforced requirement of the land manager to eradicate all infestations (Queensland and Tasmania). All other states and territories fall in between this spectrum and place legislative requirements on the land manager to control Chilean needle grass as appropriate.

Table 1 also shows the significant variation in the declarations for other *Nassella* grasses throughout Australia, both between species and between states, despite these species impacting on the same assets and having similar potential distributions.

Table 1 Summary of current state and territory declarations for *Nassella* species as of September 2012

	Australian Capital Territory <i>Pest Plants and Animals Act 2005</i>	New South Wales <i>Noxious Weeds Act 1993</i>	Queensland <i>Land Protection (Pest and Stock Route Management) Act 2002</i>	South Australia <i>Natural Resources Management Act 2004</i>	Tasmania <i>Weed Management Act 1999</i>	Victoria <i>Catchment and Land Protection Act 1994</i>	Western Australia <i>Agriculture and Related Resource Protection Act 1976</i> <i>Biosecurity and Agriculture Management Act 2007^a</i>
<i>Nassella neesiana</i> Chilean needle grass	Class 3 (contain) <i>AND</i> Class 4 (prohibited for sale or transport—control where appropriate)	Class 3 (suppress or destroy) <i>OR^b</i> Class 4 (prohibited for sale or transport—growth of plant must be managed in a manner that reduces its numbers, spread and incidence and continuously inhibits its reproduction)	Class 1 (eradicate)	Notify and control 182(2) (significantly reduce the extent of Chilean needle grass)	Declared (eradicate—importation, sale and distribution prohibited)	Restricted (prohibited for sale)	ARRPA: P1 (prohibits movement) BAMA: Prohibited species (prohibited and targeted for eradication if found)
<i>Nassella trichotoma</i> Serrated tussock	Class 3 (contain) <i>AND</i> Class 4 (prohibited for sale or transport—control where appropriate)	Class 3 (suppress/destroy) <i>OR^b</i> Class 4 (prohibited for sale/transport—growth of plant must be managed in a	Class 1 (eradicate)	Notify and destroy	Declared (eradication and containment zones - importation, sale and distribution prohibited)	Regionally prohibited (regional eradication target) <i>OR^b</i> Regionally controlled (Reasonable steps must be taken to control/ contain weed)	ARRPA: P1 (prohibits movement) P2 (eradicate) BAMA: Prohibited species (prohibited & targeted for eradication if

		manner that reduces its numbers, spread and incidence and continuously inhibits its reproduction)					found)
<i>Nassella leucotricha</i> Texas needle grass	Not declared	Not declared	Not declared	Notify and control (prevent the ongoing spread of Texas needle grass)	Declared (eradicate - importation, sale and distribution prohibited)	Nominated for declaration	Unassessed ^c
<i>Nassella charruana</i> Lobed needle grass	Class 1 (notifiable) AND Class 4 (prohibited for sale or transport—control where appropriate)	Not declared	Not declared	Not declared	Declared (prevention and early detection—importation, sale and distribution prohibited)	State prohibited (state eradication target)	Unassessed ^c
<i>Nassella hyalina</i> Cane needle grass	Not declared	Not declared	Not declared	Notify and destroy	Declared (prevention and early detection—importation, sale and distribution prohibited)	Nominated for declaration	Unassessed ^c
<i>Nassella tenuissima</i> Mexican feather grass	Class 1 (notifiable) AND Class 4 (prohibited for sale or transport—control where appropriate)	Class 1 (eradicate)	Class 1 (eradicate)	Notify and destroy	Declared (prevention and early detection—importation, sale and distribution prohibited)	State prohibited (eradicate)	ARRPA: Not declared BAMA: Prohibited species (prohibited and targeted for eradication if found)

ARRPA = Agriculture and Related Resource Protection Act 1976; BAMA = Biosecurity and Agriculture Management Act 2007

a The Agriculture and Related Resource Protection Act 1976 (ARRPA) will be replaced by the Biosecurity and Agriculture Management Act 2007 (BAMA) by 1 July 2012.

b Declarations in these jurisdictions vary regionally. Refer to jurisdiction's noxious weed lists for detailed regional information.

c These species will be treated as prohibited until their weed potential is assessed, which would occur if it was found within the state or if an import request was received.

2.7 Management status: achievements to date

The Weeds of National Significance Chilean Needle Grass Strategic Plan was published in 2001, 'to stop the spread and reduce the occurrence and impacts of Chilean needle grass in natural and agricultural ecosystems'. A coordinator was appointed and a national taskforce established in 2003 to implement the strategic plan.

In 2009, the Australian Weeds Committee first reviewed the national strategy to assess progress towards the goals and objectives, and to identify those areas still requiring implementation and resourcing into the future under a revised strategy. A summary of the achievements and outcomes against the goals of the 2001 strategy is provided in Tables 2–5 below:

Table 2 Key achievements and outcomes for goal 1—*Identify the Chilean needle grass problem*

Key achievements and outcomes	
1	Communication plan developed and implemented in 2005, followed by the production and dissemination of extension materials. These resources together with media campaigns and identification workshops have raised the profile of Chilean needle grass relative to its position prior to the commencement of the national program.
2	National baseline distribution data obtained and maintained.
3	Mapping and surveillance programs developed and implemented in all jurisdictions.
4	Mapping methodologies developed— <i>Field manual for surveying and mapping nationally significant weeds</i> (McNaught et al. 2006).
5	Potential distribution of Chilean needle grass determined using both the Climate and Climex modelling tools.
6	Economic impacts of Chilean needle grass assessed and published.
7	Conservation impacts investigated by state agencies in each jurisdiction. These were also the subject of a PhD project from 2007 to 2010 (Faithfull 2012).
8	Increased understanding of processes leading to Chilean needle grass invasion in native grasslands or woodlands (Faithfull et al. 2010).
9	Investigated the potential for Chilean needle grass to spread along waterways, and methods of control (Hocking 2011a).
10	Annual Priority Action Framework developed by the National Chilean needle grass Taskforce to inform Chilean needle grass management activities.
11	Strategic plans in place at state, territory, regional and local government level that identify management priorities and complement (or are informed by) the strategic plan.
12	Planning tools such as the Weed Surveillance Toolbox developed as decision support tools for land managers and invasive plant researchers.

Table 3 Key achievements and outcomes for goal 2—Development of best management options for Chilean needle grass control

Key achievements and outcomes	
1	Appropriate herbicides identified through research and registered for use.
2	Biological control research commenced in 2007 and continues.
3	Extensive research activities undertaken to identify best-practice management methods (Grech 2007, Hocking 2008).
4	<i>Chilean needle grass national best practice management manual</i> developed in 2007 and distributed.
5	Biology and ecology of Chilean needle grass has been the focus of several PhD studies (Gardener 1998, Grech 2007, Faithfull 2012).

Table 4 Key achievements and outcomes for goal 3—Prevent, contain and rehabilitate Chilean needle grass infestations

Key achievements and outcomes	
1	Chilean Needle Grass Strategic Plan developed (2001).
2	National Chilean needle grass Taskforce established and national coordinator appointed (2003) to oversee implementation of the strategic plan.
3	Chilean needle grass declared as a noxious weed in all states and territories by 2006.
4	Management plans for Chilean needle grass developed in many areas, including at the state, regional and local level.
5	10 000 copies of the <i>Chilean needle grass best practice management manual</i> and brochure distributed throughout Australia, increasing the capacity of land managers to manage Chilean needle grass.
6	Awareness raising carried out by the national program resulted in new infestations being reported in Queensland and Tasmania—these infestations are now state eradication targets.
7	Promotion and adoption of existing and new hygiene protocols reduced the spread of Chilean needle grass.
8	Rehabilitation of grasslands and woodlands following Chilean needle grass treatment carried out in SA and ACT.

Table 5 Key achievements and outcomes for goal 4—Develop appropriate extension packages

Key achievements and outcomes	
1	Communication Strategy for Chilean needle grass produced by the national taskforce in March 2005.
2	Chilean needle grass communication plans developed at the state level in Victoria, Queensland and Tasmania.
3	Extensive evaluation of density and distribution of Chilean needle grass completed, following treatments in trial situations, and providing a sound theoretical understanding of post treatment response, which has led to the refinement of control methods and development of best-practice methods.
4	Annual national reporting process developed and implemented.

The 2009 review concluded that overall, the program has achieved many of its aims and objectives and recommended that the program be continued with a reduced level of

coordination. It recognised the need for continued national coordination to maintain the momentum that had been gained.

Key recommendations arising from the review that have been considered in this revised strategy include:

- Much of the research and development of management tools has been completed and the program should move into an extension and adoption phase.
- Consideration should be given to development of a single *Nassella* program.
- The national strategy be reviewed to reflect efforts, activities and outcomes that can be achieved at a national level *independent* of the level of prioritisation provided to Chilean needle grass by a particular jurisdiction, and differentiate between national, state and territory and landholder responsibilities.
- The program continue to develop strong linkages to other key national activities and strategies for delivery at a regional or property level, including weed-spread prevention and pasture or land management.
- There be a national push for continued identification and publication of assets of significance by states, territories and the Commonwealth to enable better strategic planning and to direct on-ground control activities.
- That a greater emphasis be placed within the national strategy on the role and benefits of integrated land management across land tenures and jurisdictions.

2.8 Principles underpinning the plan

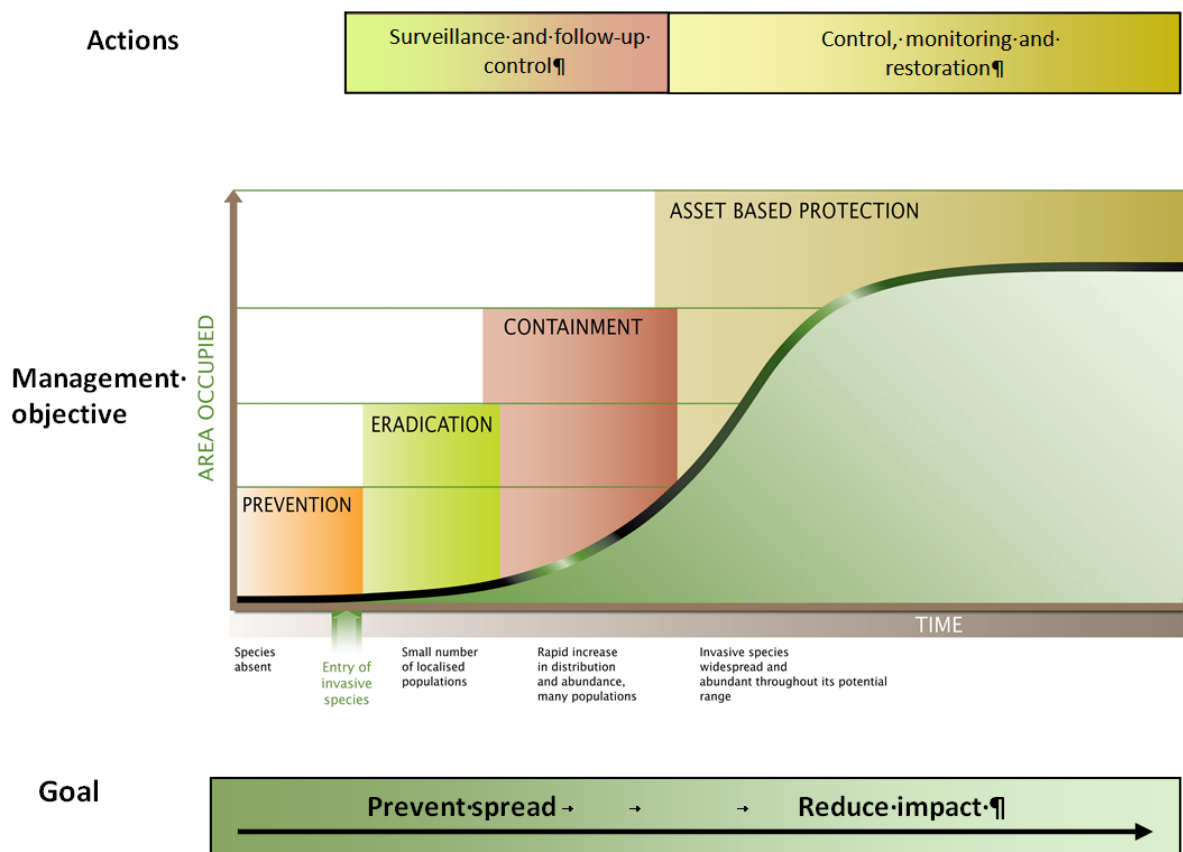
This strategic plan is based on the seven key principles of the Australian Weeds Strategy (NRMMC 2007):

- 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.
- Combating weed problems is a shared responsibility that requires all parties to have a clear understanding of their roles.
- Good science underpins the effective development, monitoring and review of weed management strategies.
- Prioritisation of, and investment in, weed management must be informed by a risk-management approach.
- Prevention and early intervention are the most cost-effective techniques for managing weeds.
- Weed management requires coordination among all levels of government, in partnership with industry, land and water managers and the community, regardless of tenure.
- Building capacity across government, industry, land and water managers and the community is fundamental to effective weed management.

The WoNS initiative establishes national priorities and facilitates action where there is a significant national or cross-jurisdictional benefit to be gained. These strategic plans do not

specifically address resourcing; however, they aim to identify efficiencies and ensure existing resources can be allocated to achieve the most strategic management outcomes.

Effective broadscale management of WoNS and other weeds requires an integrated approach that includes prevention and eradication programs, establishment and implementation of management zones, and the protection of key environmental, social and economic assets in areas where the weeds are already widespread (Figure 4).



Source: Modified from Hobbs & Humphries (1995) and DPI (2010).

Figure 4 Stages of weed invasion with corresponding goals, management objectives and actions at each stage

2.8.1 Process followed

Since 2003, the National Chilean needle grass Taskforce has monitored and reviewed annual progress towards the actions in the 2001 strategic plan and has used annual reviews to inform development of this plan. In addition, the 2009 review (conducted in September 2009 by the Australian Weeds Committee, refer to Section 2.7) recommended revision of the 2001 Strategic Plan.

The taskforce, in conjunction with stakeholders, developed a draft 2011–16 strategic plan. The draft plan was placed on public display for 30 days in March 2011. All submissions received were considered prior to a final version being presented to state, territory and Australian governments for approval.

2.8.2 Relevance to other strategies

This revised Chilean Needle Grass Strategic Plan provides a framework for coordinated management of Chilean needle grass across Australia. This plan is linked to many national, state, regional and local plans (Table 6) that have been developed to protect biodiversity and agriculture from the threat of weeds.

Table 6 Strategies and plans that are relevant to Chilean needle grass management

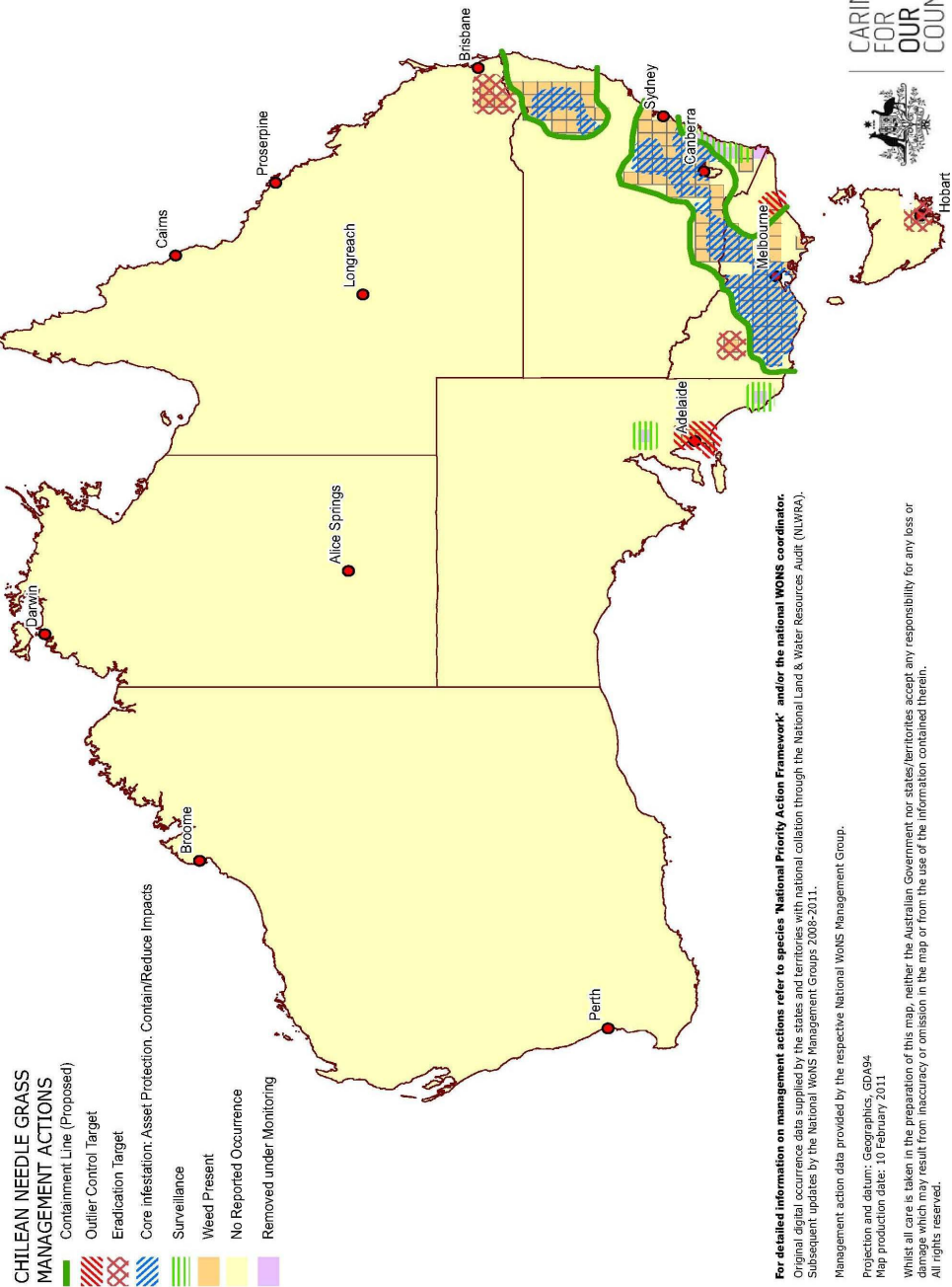
Scale	Strategy or plan	Relevant policy or legislation
National	Australian Weeds Strategy, Australia's Biodiversity Conservation Strategy (draft), other Weed of National Significance strategic plans	<i>Environment Protection and Biodiversity Conservation Act 1999</i> , Australian Quarantine and Inspection Service
State	State or territory biodiversity conservation strategies, invasive species and biosecurity strategies	State or territory pest plant and biodiversity conservation policies and associated legislation
Regional	Natural resource or catchment management plans, invasive species plans	Guided by state, territory or Commonwealth legislation and policies
Local	Weed control plans, property management plans, local government weed strategies or plans	Guided by state, territory or Commonwealth legislation and policies

3 Strategic goals

This revised strategic plan for Chilean needle grass outlines five-year strategic actions that are required to protect natural and agricultural values from the impacts of Chilean needle grass and stipoid grass weeds generally. These objectives and actions have been informed by the findings of the 2009 review (refer to Section 2.7). The strategic goals and objectives in this revised plan (Table 7) include actions to maintain ongoing strategic management, and address critical management and research needs for the future. The plan places emphasis on activities that are required to complete or complement progress made under the 2001 strategic plan, and the need to maintain cross-jurisdictional partnerships to enable the continuation of effective strategic management under reduced national coordination.

Objectives and actions that address on-ground management of Chilean needle grass acknowledge that it occurs in all areas of the invasion spectrum (Figure 4). Management actions that reflect this range are illustrated geographically in Figure 5. Eradication is appropriate when dealing with small and isolated infestations (e.g. statewide Chilean needle grass eradication in Tasmania and Queensland). Once infestations increase in size and eradication is no longer feasible, the focus shifts to containing spread, reducing infestation size and protecting uninvaded areas (e.g. Chilean needle grass management in South Australia). When the weed is widespread and considered a core infestation, management actions are directed towards protecting important assets, both environmental and agricultural, that are at risk (Victoria and parts of NSW).

CHILEAN NEEDLE GRASS (*Nassella neesiana*)
WEED SPREAD & MANAGEMENT ACTIONS 2011



For detailed information on management actions refer to species 'National Priority Action Framework' and/or the national WONS coordinator. Original digital occurrence data supplied by the states and territories with national collation through the National Land & Water Resources Audit (NLWRA). Subsequent updates by the National WONS Management Groups 2008-2011.

Management action data provided by the respective National WONS Management Group.

Projection and datum: Geographics_GDA94
Map production date: 10 February 2011

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Figure 5 Chilean needle grass weed spread and management map, showing current distribution, invasion level (i.e. core, outlier etc.) and proposed management actions

Goals and objectives

Goals and objectives of this strategic plan are listed in Table 7 and are further expanded upon in the action tables in Sections 3.1–3.3 of the plan, showing actions necessary to achieve these goals and objectives. Tables have been colour coded to show how the goals, objectives, actions and activities link to the program logic (see Appendix 1) that was developed by the National Chilean Needle Grass Taskforce in 2010.

Table 7 Goals and objectives of this strategic plan

Goal	Objectives
1 New infestations are prevented from establishing	1.1 Review and enforce relevant national and state legislation. 1.2 Record, map and analyse all infestations. 1.3 Develop and maintain early-detection mechanisms to protect uninvaded areas. 1.4 Maintain and monitor eradication programs. 1.5 Develop, maintain and progress containment programs to prevent spread (including implementing hygiene practices).
2 Existing infestations are under strategic management	2.1 Investigate and introduce biological controls to reduce the impact of large and/or well-established infestations (i.e. 'core' infestations). 2.2 Identify priority assets at risk and strategically manage their protection. 2.3 Enhance recovery after infestations are under control.
3 Greater capability and commitment to manage Chilean needle grass	3.1 Develop and maintain landscape-scale partnerships to deliver integrated land management. 3.2 Refine and adopt best practice management tools and techniques. 3.3 Increase awareness and capability of land managers to manage Chilean needle grass and other <i>Nassella</i> species. 3.4 Maintain effectiveness and relevance of, and commitment to, the national strategy.

3.1 Goal 1: Prevent new infestations from establishing

As shown in Figure 3, climate suitability modelling indicates that Chilean needle grass has not reached its potential distribution. It is therefore worth placing considerable emphasis within the national strategic plan on strategic actions that will ensure Chilean needle grass does not establish outside of current core infestations. Goal 1 of the strategic plan seeks to achieve this by identifying and implementing legislative and policy actions (1.1), mapping (1.2), increasing early detection capabilities (1.3), and through on-ground actions to eradicate (1.4) and contain (1.5) existing infestations (Table 8). While objectives 1.1 and 1.5 cover actions that relate to existing and core infestation, they have been considered necessary for the prevention of new infestations, and hence have been included in this goal.

On implementing actions outlined in goal 1, it is critical to consider and address the major vectors of spread of Chilean needle grass. These include the transport of seed on vehicles and machinery, along waterways, on animals (livestock, domestic and native), in hay and fodder, and on clothing and shoes. The implementation of appropriate hygiene practices (as a part of best practice management) will be critical to achieving this goal.

Table 8 Objectives and strategic actions to achieve goal 1 of the Chilean Needle Grass Strategic Plan 2012–17

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
1.1 Review and enforce relevant national and state legislation Links to program logic activity: effective legislation and policies	Maintain declaration of Chilean needle grass as a noxious weed in all states and territories and facilitate periodic review of the status, maintaining a minimum of prohibition of sale and movement.	1	State and territory agencies, local governments
	Assess effectiveness of current prohibition of movement legislation as a means of reducing spread.	2	
	Investigate ways to improve implementation of legislation that prohibits movement of Chilean needle grass as a means of reducing spread.	2	
	Maintain importation restrictions on <i>Nassella neesiana</i> (<i>Stipa neesiana</i>), <i>N. charruana</i> (<i>S. charruana</i>), <i>N. tenuissima</i> (<i>S. tenuissima</i>) and <i>N. trichotoma</i> (<i>S. trichotoma</i>).	2	AG (DAFF)
1.2 Record, map and analyse all infestations Links to program logic activity: surveillance and mapping	Update data (and maps) to maintain accuracy of all infestations (including containment and eradication areas) in line with national WoNS mapping guidelines (McNaught et al. 2006).	2	State and territory agencies, regional NRM bodies, local government with NCNGT oversight
	Collate updated distribution and density data and maintain national repository (when established). Use data to produce management	1	AG, state and territory agencies, local govt and NRM regions

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
	action maps.		
1.3 Develop and maintain early-detection mechanisms to protect uninvaded areas	Develop, update and distribute identification tools (noting regional variability in morphology) for Chilean needle grass and other <i>Nassella</i> weeds, and facilitate training opportunities to increase the capacity for early detection.	2	State and territory agencies, regional NRM bodies, local government with NCNGT oversight
Links to program logic activity: surveillance and mapping	Support key stakeholders with early detection and hygiene measures.	1	State and territory agencies, regional NRM bodies, local government with NCNGT oversight
	Develop early detection capabilities to support Quarantine WA entry-point inspections through actions identified in 1.3.1 and 1.3.2.	1	WA Government with support from other state and territory agencies and NCNGT
	Maintain surveillance and monitoring programs in identified regions (refer to annual priority action list), including the following SA NRM regions: <ul style="list-style-type: none"> – South East NRM – Northern and Yorke NRM. 	1	Relevant state and territory agencies with regional NRM bodies, local government and landholders
	Develop and implement integrated management plans to address newly reported infestations.	2	Weed control authorities or landholders (depending on state and territory legislation)
	Conduct periodic reviews of the potential spread modelling for Chilean needle grass under different climate change scenarios.	3	State and territory agencies and researchers
1.4 Maintain and monitor eradication programs	Establish, maintain and monitor Chilean needle grass eradication programs where feasible and necessary, including existing eradication programs in Tasmania and Queensland and assess the impacts of the 2010 floods on the potential for eradication in Queensland.	2	Relevant state and territory agencies with regional NRM bodies, local government and landholders
Links to program logic activity: integrated control in priority areas			
1.5 Develop, maintain and progress containment programs to prevent spread (including implementing hygiene practices)	Maintain and monitor the management program in Adelaide and Mount Lofty Ranges NRM region to significantly reduce the extent of Chilean needle grass and contain Texas needle grass.	2	SA Government, AMLR NRM Board with local govt and landholders
Links to program logic activity: integrated control in priority areas.	Support containment lines and zones in identified NSW/ACT NRM regions (refer to annual priority	1	ACT Government and NSW local governments, with regional NRM bodies

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
	action list), including: <ul style="list-style-type: none"> – Northern Rivers – Borders Rivers/Gwydir – Namoi – Central West. 		and landholders
	Establish voluntary outlier control targets in identified Victorian NRM regions (refer to annual priority action list), including: <ul style="list-style-type: none"> – Wimmera CMA – Glenelg Hopkins CMA – East Gippsland CMA. 	2	Victorian Government, regional NRM bodies, local government and landholders

ACT = Australian Capital Territory; AG = Australian Government; AMLR = Adelaide and Mount Lofty Ranges; CMA = Catchment Management Authority; NCNGT = National Chilean Needle Grass Taskforce; NRM = Natural Resource Management, NSW = New South Wales; SA = South Australia; WA = Western Australia; WoNS = Weeds of National Significance

a The Australian Weeds Committee (AWC) applied three action levels that reflect jurisdictional commitment to implementing actions:

Level 1 = Highly beneficial as a national action that is critical to success of the WoNS revised strategic plan and all relevant AWC jurisdictions have committed resources to implementing this action.

OR

Highly beneficial to a particular jurisdiction and the responsible party/ies have committed resources to implement this action.

Level 2 = Highly beneficial at national and/or jurisdictional level, but implementation will be subject to resource availability and investment priorities.

Level 3 = Desirable and still beneficial to improving uptake and efficiency of on-ground action, but not critical to success.

3.2 Goal 2: Strategically manage existing infestations

Chilean needle grass has become well established across much of its current range in Australia. In these core areas, eradication is no longer considered a realistic management objective, and the emphasis has shifted to reducing the impact of existing infestations, preventing further spread and protecting key assets, both environmental and agricultural. An asset-based approach to invasive species management requires a holistic approach to managing threats. Actions listed in Table 9 are therefore inclusive of other stipoid grass weeds as well as Chilean needle grass.

The strategic actions in Table 9 seek to establish biological control as an important tool for the management of core infestations (2.1), identify and prioritise assets impacted by stipoid grass weeds (2.2), and emphasise the importance of re-establishing competitive native grasslands and pasture systems both during and post control (2.3).

Table 9 Objectives and strategic actions to achieve goal 2 of the Chilean Needle Grass Strategic Plan 2012–17

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
2.1 Investigate and introduce biological controls to reduce the impact of large and/or well-established infestations ('core' infestations) Links to program logic activity: integrated control in priority areas	Complete investigations into potential biocontrol agents (<i>Uromyces pencanus</i> , <i>Puccinia nassellae</i> , <i>P. graminella</i>) and, where appropriate, gain approval for their release.	2	Victorian Government, with support from AG and state and territory agencies
	Facilitate further research on biological control options for Chilean needle grass and other <i>Nassella</i> species.	2	AG, state and territory agencies, with oversight by NCNGT
	Establish nurseries throughout Australia for mass rearing of approved agents.	2	State and territory agencies, regional NRM bodies, with support from local government and the community
	Develop extension materials to promote the use of biological agents once available.	3	State and territory agencies, regional NRM bodies, with support from local government and the community
2.2 Identify priority assets at risk and strategically manage their protection Links to program logic activity: asset restoration	Identify, publish and prioritise assets (both environmental and agricultural) at regional, state and national level, focusing on those that are threatened by the invasion of Chilean needle grass, other <i>Nassella</i> species or stipoid grass weeds generally.	3	Relevant state and territory agencies, regional NRM bodies with support from local government and NCNGT
	Develop, adopt and resource plans to protect/manage high priority assets from key threats, including Chilean needle grass, other <i>Nassella</i> species and stipoid grass weeds generally.	3	AG, state and territory agencies, regional NRM bodies with support from local government as appropriate

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
	Establish weed exclusion zones around identified key assets where appropriate.	3	State and territory agencies, regional NRM bodies with support from local government and community groups
2.3 Enhance recovery after infestations are under control Links to program logic activity: asset restoration	Monitor post-control recovery and restoration of native grasslands and pasture (using selective removal where required) to reduce the likelihood that stipoid grass weeds re-establish.	2	State and territory agencies, regional NRM bodies, local government with support from community groups
	Develop example restoration guidelines and work with NRM regions and farming programs and initiatives to develop guidelines for each region.	3	State and territory agencies, regional NRM bodies, local government
	Promote further research, improve post-control restoration techniques and incorporate restoration into NRM policy and planning.	3	State and territory agencies, regional NRM bodies, local government, researchers, agricultural industry

AG = Australian Government; NCNGT = National Chilean needle grass Taskforce; NRM = Natural Resource Management
a The Australian Weeds Committee (AWC) applied three action levels that reflect jurisdictional commitment to implementing actions:

Level 1 = Highly beneficial as a national action that is critical to success of the WoNS revised strategic plan and all relevant AWC jurisdictions have committed resources to implementing this action.

OR

Highly beneficial to a particular jurisdiction and the responsible party/ies have committed resources to implement this action.

Level 2 = Highly beneficial at national and/or jurisdictional level, but implementation will be subject to resource availability and investment priorities.

Level 3 = Desirable and still beneficial to improving uptake and efficiency of on-ground action, but not critical to success.

3.3 Goal 3: Increase the capability and willingness to manage Chilean needle grass

Successful management of all Chilean needle grass infestations relies heavily on land managers having the necessary skills to identify and control it, as well as a long term commitment to its management. Goal 3 of the strategic plan sets out actions that aim to increase the capability and commitment to Chilean needle grass management, and hence facilitate the actions set out in goals 1 and 2.

Goal 3 of the strategic plan aims to ensure that Chilean needle grass management is integrated with the management of other stipoid grass weeds and, more broadly, with NRM through multi-regional partnerships and linkages (3.1). It also seeks to further refine and increase adoption of existing best practice management (3.2), increase the awareness and capability of land managers to manage Chilean needle grass (3.3), and maintain the effectiveness and relevance of the national strategy (3.4).

Table 10 Objectives and strategic actions to achieve goal 3 of the Chilean Needle Grass Strategic Plan 2012–17

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
3.1 Develop and maintain landscape-scale partnerships to deliver integrated land management. Links to program logic activity: collaboration, coordination and partnerships.	Develop multi-regional plans through stakeholder collaborations that embed stipoid grass weed management into broader land or farm management.	2	All stakeholder groups
	Establish links with agricultural and biodiversity programs and initiatives such as Evergraze/Prograze, Sustainable Grazing Systems and the Future Farming Industries Cooperative Research Centre.	3	All stakeholder groups
3.2 Refine and adopt best-practice management tools and techniques. Links to program logic activity: research and awareness raising.	Increase the awareness, acceptance and adoption of existing integrated BPM techniques. Use landscape-scale programs such as agricultural programs (refer to 3.1.2) and Landcare as conduits for the delivery of BPM information.	3	State and territory agencies, regional NRM bodies, local government with agricultural programs and Landcare
	Continue farm-scale trials to refine existing BPM techniques (and increase awareness and adoption of these techniques).	3	Researchers, state and territory agencies, regional NRM bodies, local government
	Review existing hygiene protocols to determine rates of adoption, effectiveness, gaps and needs (implement recommendations from this review to improve uptake of hygiene practices).	3	NCNGT and researchers (all stakeholder groups)
	Through continuing research, address barriers to current flupropanate herbicide control options, such as the indefinite withholding period for lactating stock and factors affecting herbicide efficacy like soil type, growth stage and water availability.	2	APVMA, researchers, state and territory agencies

Objectives Activity (from program logic)	Strategic actions	Action level ^a	Responsibility
3.3 Increase awareness and capability of land managers to manage Chilean needle grass and other <i>Nassella</i> species. Links to program logic activity: awareness raising, education and training.	Build capability of land managers: raise awareness of impacts and deliver identification and BPM training for stipoid grass weeds. Use landscape-scale programs such as agricultural programs (refer to 3.1.2) and Landcare as conduits for the delivery of BPM information.	1	State and territory agencies, regional NRM bodies, local government with agricultural programs and Landcare
	Assist land managers, including community groups and individuals in obtaining resources to implement or undertake weed and land management.	2	State and territory agencies, regional NRM bodies, local government.
3.4 Maintain effectiveness and relevance of, and commitment to, the national strategy. Links to program logic activity: collaboration, national coordination and partnerships.	Maintain, update and promote the list of national priority actions by region to inform goals 1 and 2 of the strategic plan.	1	NCNGT
	Develop and implement management plans at the state, regional and local level that reflect national priorities.	1	State and territory agencies, regional NRM bodies, local government.
	Maintain a holistic and national approach to stipoid weed management by maintaining a national management network (i.e. the national stipoid grass taskforce, a reference group or equivalent organisation).	1	AG (DAFF), state and territory agencies, regional NRM bodies, local government.
	Develop and implement a communication plan for the delivery of priority actions within the strategic plan.	2	AG, State and territory agencies, regional NRM bodies, local government with agricultural programs and Landcare and with NCNGT oversight.
	Monitor and evaluate progress towards this strategic plan against a phase-3 Monitoring, Evaluation, Reporting and Improvement plan.	1	AWC

AG = Australian Government; APVMA = Australian Pesticides and Veterinary Medicines Authority; AWC = Australian Weeds Committee; BPM = best practice management ; NCNGT = National Chilean needle grass Taskforce; NRM = Natural Resource Management

a The Australian Weeds Committee (AWC) applied three action levels that reflect jurisdictional commitment to implementing actions:
Level 1 = Highly beneficial as a national action that is critical to success of the WoNS revised strategic plan and all relevant AWC jurisdictions have committed resources to implementing this action.

OR

Highly beneficial to a particular jurisdiction and the responsible party/ies have committed resources to implement this action.

Level 2 = Highly beneficial at national and/or jurisdictional level, but implementation will be subject to resource availability and investment priorities.

Level 3 = Desirable and still beneficial to improving uptake and efficiency of on-ground action, but not critical to success.

4 Monitoring, evaluation, reporting and improvement framework

The Australian Weeds Strategy (NRMMC 2007) gives the Australian Weeds Committee (AWC) responsibility for monitoring and evaluating the management of national priority weeds, including the Weeds of National Significance. The AWC is therefore responsible for monitoring and reporting of this strategic plan.

This strategic plan is subject to a five-year review; however, mechanisms must also be put in place to allow the goals and actions to be evaluated throughout this period. This enables ongoing assessment of progress towards intermediate and long-term outcomes, and, ultimately, helps to determine the effectiveness of individual actions. It also helps to identify program improvements, and provides evidence to stakeholders and funding bodies that they are getting value from their investment.

Individual jurisdictions and/or organisations responsible for weed management and conservation will need to develop their own monitoring strategies. They should, where possible, coordinate actions to implement this plan, and monitor and evaluate progress towards its goals in conjunction with existing state, regional or local plans. While individual actions should be monitored at the jurisdictional level, data or evidence collected as a part of state, regional and local activities or plans should be provided to the AWC and collated so that it can be assessed each year within the national context. This will help to build a comprehensive overview of the plan's delivery. Table 11 lists key evaluation questions that should be assessed by the AWC each year at the national level to ensure progress against strategy goals, and which should be used to provide the basis for an annual report to the AWC.

This monitoring, evaluation, reporting and improvement (MERI) framework lists the basic reporting information that should be collected for the life of the strategic plan—including during phase 3 delivery (see Appendix 2). This will ensure that sufficient data are collected to identify successes and failures, and provide the opportunity for improvement where outcomes are not being achieved. Annual MERI plans may be developed to follow activities in more detail.

Although performance indicators or other ways of measuring progress are not provided in this strategic plan, a scoring system could be appropriate.

A generic program logic model (Appendix 1) was developed by WoNS coordinators in 2010. This shows the relationship between strategic actions and the objectives and goals they achieve. The program logic is one way to communicate the links between activities, their intermediate and long-term outcomes, and the vision of the strategic plan.

Table11 Suggested monitoring and evaluation questions to measure progress under the phase 3 WoNS Chilean needle Grass Strategic Plan 2012–17

WoNS:		Jurisdiction:	Date:
Goal	Key evaluation questions	Data or evidence required	Consider
1 Prevent new infestations from establishing	To what extent have new infestations been prevented from establishing?	1.1 National distribution data: Has the national distribution map been reviewed and/or updated? Has the Priority Management Action spreadsheet been updated?	<ul style="list-style-type: none"> • Are these documents publicly available? • Have stakeholders been advised of any changes? • Where is this data or information stored? • Does this information capture national priorities?
		1.2 New infestations: Number of new infestations recorded Percentage of known infestations actively controlled	<ul style="list-style-type: none"> • Are any new infestations occurring in areas identified as a high priority in the national strategy? • How were infestations detected (passive or active surveillance, community reporting etc.)? • Have high-risk pathways been adequately identified? • Have threats been minimised?
		1.3 Eradication and containment programs: Percentage of eradication and/or containment programs being maintained	<ul style="list-style-type: none"> • What percentage of programs identified in the national strategy are being actively managed? • Is there a plan in place for ongoing management? • How is progress being monitored and reported to stakeholders? <p>(Examples using case studies can be included)</p>
		1.4 Legislation: Legislation or policy changes for this species Legislative change has been identified by stakeholders	<ul style="list-style-type: none"> • What legislative changes have been made? • Are minimum requirements being maintained (e.g. ban on sale, trade, movement)? • Is control required throughout or in part of the jurisdiction? • Is compliance actively enforced?
			Score:

Table 11 *continued*

WoNS:		Jurisdiction:	Date:
Goal	Key evaluation questions	Data or evidence required	Consider
2 Strategically manage existing infestations	To what extent is integrated weed management effectively managing core infestations?	2.1 Integrated weed management: Effectiveness of integrated weed management programs	<ul style="list-style-type: none"> • Are existing tools providing adequate control of WoNS? • Have new advances or technologies been developed and are they incorporated into best-practice management information? • Are there barriers to adoption of best-practice management? • Are research programs addressing any observed gaps (e.g. herbicide trials, biocontrol, restoration requirements post-control)?
	To what extent are assets being protected through strategic management?	2.2 Asset protection: Number of priority assets identified as 'at risk' from WoNS Percentage of priority assets being protected (e.g. assessed against relevant threat abatement plans) Percentage of state and regional invasive species plans that identify priority assets at risk from WoNS	<ul style="list-style-type: none"> • Methods by which assets are being protected (e.g. targeted annual spray programs, high-risk pathway surveillance, strategic plans) • Are long-term monitoring programs in place to detect change? • To what extent is management leading to an improvement in asset condition? <p>(Response should include status report on progress towards asset-protection programs)</p>
			Score:
3 Increase capability and commitment to manage WoNS	To what extent has the capability and commitment to manage WoNS increased?	3.1 Community engagement and awareness: What is the status of best-practice information? Are partnerships being maintained to ensure collaboration on WoNS? Number and type of media activities	<ul style="list-style-type: none"> • Is best-practice information up to date and readily available? • Is this information and/or advice being targeted to priority regions? • Is training being delivered to meet the needs of weed managers (including the community)? • Are networks and groups being supported (e.g. through dissemination of research outcomes, funding opportunities, control options etc.)? • Has awareness and engagement in WoNS management been raised

Table 11 *continued*

WoNS:	Jurisdiction:	Date:	
Goal	Key evaluation questions	Data or evidence required	Consider
			effectively?
		3.2 Resourcing: From what sources are programs being funded?	<ul style="list-style-type: none"> Number of projects funded by Australian Government, jurisdictions, industry, etc.
		3.3 Policy and planning: Are the objectives of the strategy being integrated into Australian Government/state/regional plans, policies and programs? Has cross-border collaboration occurred?	<ul style="list-style-type: none"> How are priorities reflected in planning and policy approaches (e.g. weed risk assessments, invasive species plans, asset-protection plans, district plans, weed spread prevention activities, management programs, incentive programs, state working groups)? How are national priorities being maintained (e.g. containment lines, eradication targets, training and awareness raising, research projects)?
			Score:
Continuous improvement	Are there any unexpected outcomes that have been identified through implementation of strategy?	Barriers: <ul style="list-style-type: none"> Have any other management issues or impediments been identified? 	

WoNS = Weeds of National Significance

Scoring:

1: Insufficient evidence to score

2: No progress has been made against this goal

3: Limited progress is being made against this goal

4: Reasonable progress is being made against this goal

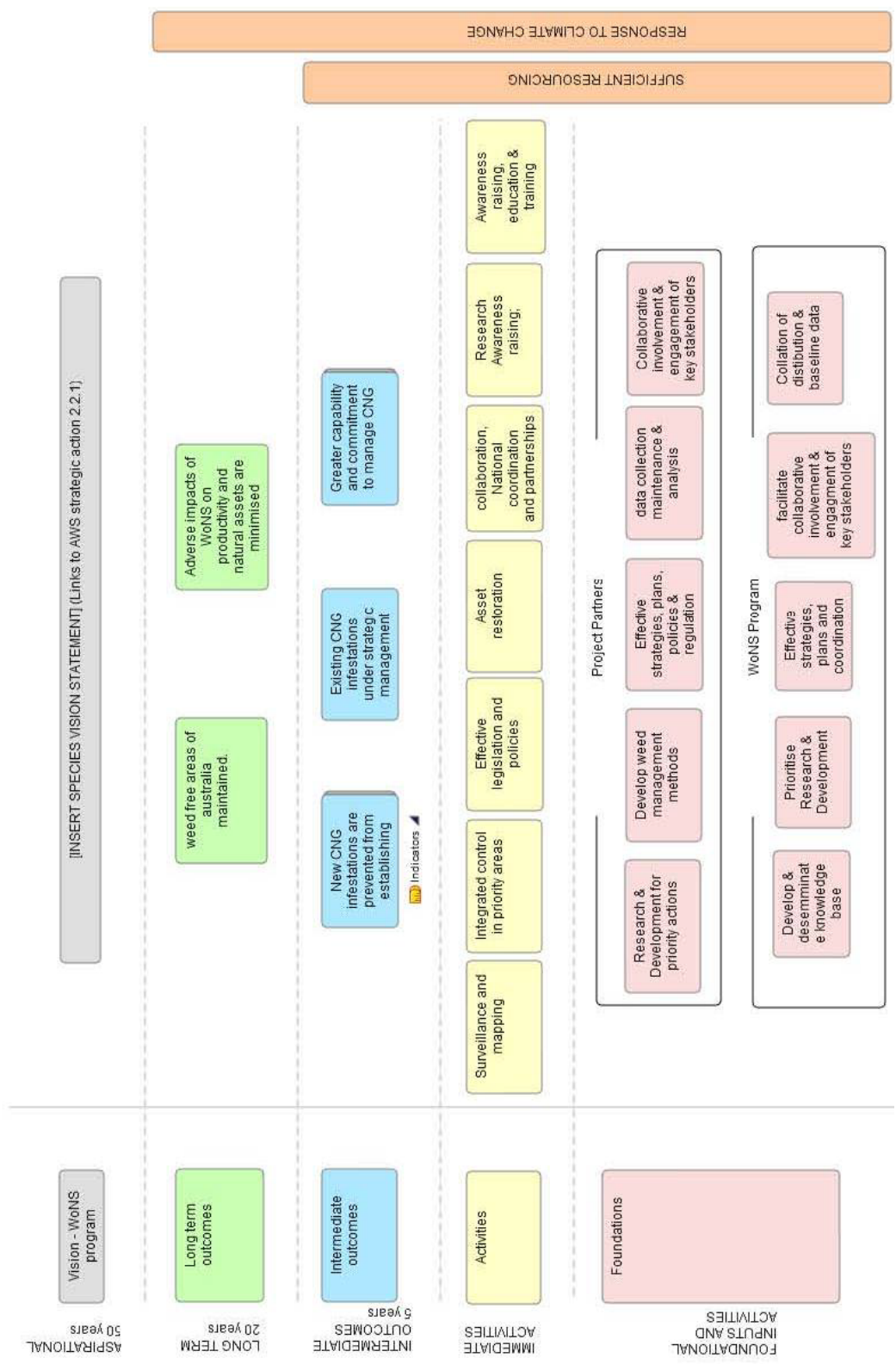
5: Excellent progress is being made against this goal

5 Stakeholder responsibilities

Commonwealth and state agencies, regional natural resource management bodies, local government, non-government organisations, industry, research organisations and community members all share responsibility for implementing strategic actions of the Chilean Needle Grass Strategic Plan. In the past, strategic actions have been delivered through the establishment of national partnerships and the development of coordinated and consistent approaches to management. Delivery of the future strategic actions listed in Sections 3.2–3.4 will rely on the goodwill of all listed partners and, in doing so, result in the protection of past investment in Chilean needle grass management and support the communities that continue to be affected by its impacts.

Appendix 1 Program logic model for the Chilean needle grass strategic plan

WoNS Program Logic for Chilean needle Grass



Appendix 2 The Weeds of National Significance initiative and its phases¹

In 2007, an independent review of the WoNS initiative concluded that the nationally strategic approach of WoNS was highly successful in leveraging consistent multijurisdictional activity on high-priority weed species. This initial review was followed by a detailed review of the inaugural WoNS species by the Australian Weeds Committee (AWC) in 2009–10. The AWC reviewed the implementation of the 20 WoNS national strategies and, in light of achievements for these 20 species, considered the capacity for national coordination of additional WoNS species.

Following the reviews, the Natural Resource Management Ministerial Council (Resolution 15.7, 21 May 2009) endorsed a three-phased approach to national management of WoNS species (Figure 6). This 'phased approach' aims to provide the most cost-effective use of limited 'national coordination' resources.

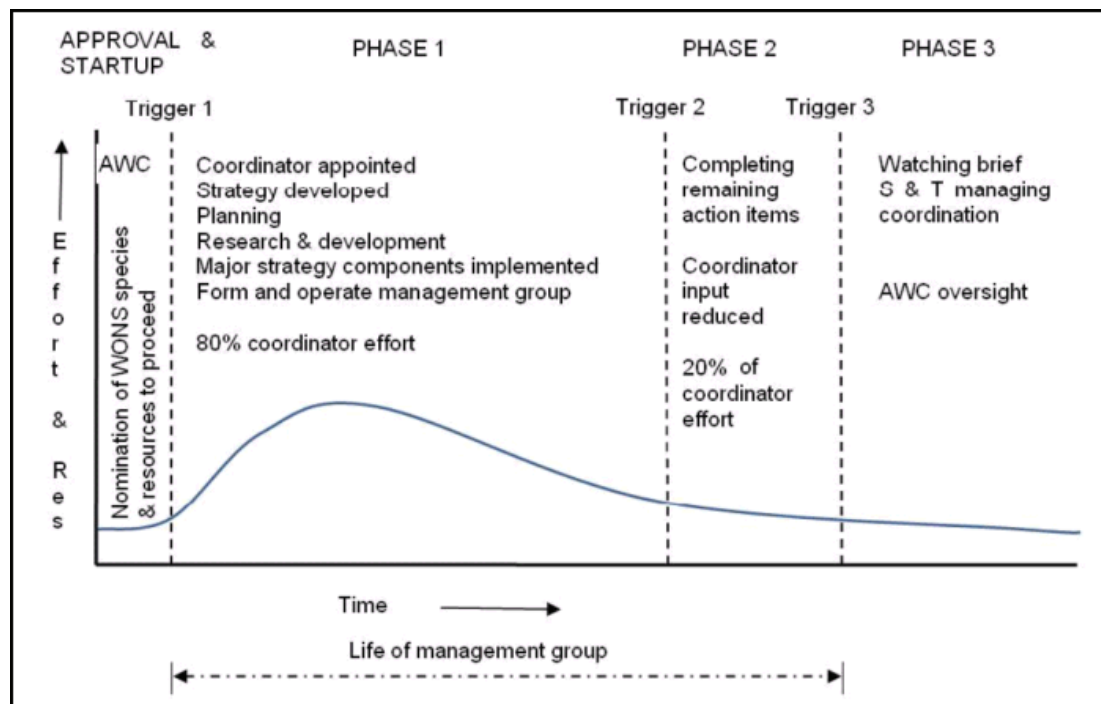


Figure 6 Australian Weed Committee diagrammatic representation of coordinator effort and resource use when implementing a Weeds of National Significance strategy

The phased approach recognises the need for reduced national coordination ('phasing down') of WoNS species that are under effective national management, and allows for further weed species to be nominated for consideration as additional WoNS. The AWC is implementing these reforms, and national coordination of the inaugural 20 WoNS species has already transitioned to phase 2 or 3, depending on the species. No species have yet been removed from the WoNS list. The AWC is developing a protocol to guide future decisions about when this should occur on a case-by-case basis.

¹

Adapted from Thorp 2012, *Additional list of Weeds of National Significance*, <www.org.au/WoNS>.

In 2010, jurisdictions nominated additional candidate WoNS species. These species were independently assessed, and the AWC endorsed 12 additional 'species' to be listed as WoNS. The AWC Chairman, Dr Jim Thompson, announced these additional plant species as WoNS on 20 April 2012. Additional information on the selection of these species and the phased approach is available on www.weeds.org.au/WONS.

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