

WEEDS OF NATIONAL SIGNIFICANCE

**Mesquite**  
**(*Prosopis* spp.)**  
**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An unpublished draft of the revised strategic plan has guided national coordination of this Weed of National Significance for the past two years.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](http://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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# Acknowledgements

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Dr Rieks van Klinken and Dr Shane Campbell contributed significantly to the technical sections of this strategy including biology, history of spread and control methods.

The national distribution and management zone map was developed by Nathan March and Moya Calvert (Queensland Department of Agriculture, Fisheries and Forestry) based on the contributions of the NPBMG, lead state and territory agencies and consultation with stakeholders.

# Summary

Mesquite (*Prosopis* spp.) are some of Australia's worst weeds and a particular threat to semi-arid and arid rangelands. They aggressively invade grasslands, woodlands and wetlands with more than 75% of the mainland at risk to invasion by one or more mesquite species.

Mesquite infestations are well established in the Pilbara region of Western Australia and parts of western Queensland and western New South Wales. The task of controlling this weed is exacerbated by the number of small occurrences over these areas plus parts of the Northern Territory, South Australia and Victoria.

Mesquite was designated a Weed of National Significance in 1999 to recognise the need for coordinated effort to reduce current and potential impacts. An initial strategy was published in 2001 and, despite the size of the problem, significant progress has been made towards reducing both the geographic range and impact of the weed.

National reviews have since identified gaps associated with the strategic control, planning, coordination, best practice adoption, spread prevention and research aspects which require strengthening. This strategic plan has been developed with consideration for the previous program achievements as well as research progress and new aspirations.

The strategy aims to deliver three goals and their associated objectives:

- 1 Protect clean areas and eradicate outlier infestations
  - Investigate mesquite threats and impacts.
  - Protect clean areas and promote early detection of new infestations.
  - Minimise spread.
  - Eradicate outlier infestations.
- 2 Confine and reduce core infestations
  - Facilitate mesquite planning and containment.
  - Increase best practice adoption.
  - Support biological control initiatives.
- 3 Maintain and enhance national commitment to manage mesquite
  - Coordinate, monitor and evaluate implementation of the strategy.
  - Improve resourcing and stakeholder support of the strategy.
  - Increase awareness of the mesquite threat.
  - Maintain legislative support for mesquite management.
  - Develop and utilise national mapping tools.

All stakeholders share a responsibility for implementing and monitoring the strategic actions derived from these goals and objectives to ensure the effective management of mesquite continues.

**Vision**

Mesquite is confined and its impacts reduced to a minimum

# 1 The challenge

Mesquite (*Prosopis* spp.) has serious current and potential impacts on the agricultural, environmental and cultural values of Australia's rangelands.

While mesquite has already invaded over 1 million hectares, the vast majority of infestations are of a low density. However, overseas experience and climate modelling indicates this weed to be a significant threat to more than 75% of the Australian mainland.

The potential impacts of mesquite on productive grazing systems are enormous, with dense infestations virtually eliminating perennial grass growth. While the environmental impacts are not well quantified, mesquite is known to transform and destroy habitat and reduce biodiversity. Dense infestations may also limit access and be detrimental to the cultural values of the land.

Efforts to date have dramatically reduced the size and density of mesquite infestations at many sites across Australia. In particular, large infestations at McKinlay and Quilpie in Queensland are almost unrecognisable from the impenetrable thorny thickets that were once present.

Nevertheless, some major infestations remain and there are still hundreds of low-level occurrences across Australia. A challenge exists to safeguard past control successes, contain large infestations and maintain mesquite-free areas. Encouraging a change in stakeholder attitudes and aspirations and a reconsideration of complementary policy, legislative and incentive options should also be considered.

Eradication of mesquite is difficult even at a site level. However, such an objective remains feasible across broad areas if the required actions are systematic, coordinated and driven from property to jurisdictional levels. Due to a long-lived seed bank and difficulties in locating isolated plants, long-term monitoring and follow-up control will be required wherever eradication is sought.

## 2 Background

The genus *Prosopis* contains 44 species, of which three are known to have become widely naturalised in Australia: *P. pallida*, *P. velutina* and *P. glandulosa*. A fourth, *P. juliflora*, is currently only known from Geraldton in Western Australia. In addition, hybridisation commonly occurs between species. This can make species identification difficult.

For the purposes of the national strategy, all *Prosopis* species will be considered equally and will be referred to by the term 'mesquite'. This grouping of species is undertaken due to similarities in plant features and impacts. The strategy recognises, however, that the potential distribution of the various species is quite different and the responses to some control methods differ. For example, *P. pallida* is more susceptible to fire and mechanical control.

Mesquite is not native to Australia. However, it may be confused with some native species and several other weedy trees. The most easily confused plant is *Acacia farnesiana*, commonly known as mimosa bush or needle bush; the pods and plant habit are similar but the flowers and seed pods are distinctly different. Other similar-looking species include the native *A. paradoxa* (kangaroo thorn) and two WoNS: prickly acacia (*A. nilotica* ssp. *indica*) and parkinsonia (*Parkinsonia aculeata*).

### 2.1 The biology of mesquite

Mesquite is a thorny shrub or small tree that usually grows to about 3 metres high but can reach 15 metres. The foliage is usually dark green but can be bluish green. The canopy often looks characteristically untidy, with individual zigzagged twigs sticking out beyond the main canopy. Mesquites are mostly thorny with spines ranging in size from 4 mm to 75 mm long. *P. pallida* is typically a single-stemmed tree with a wide girth, whereas the other species and hybrids tend to be multi-stemmed shrubs. Small greenish-cream 'lamb's tails'-shaped flowers grow near the ends of branches in wattle-like spikes. Seed pods are 10–20 cm long, with slight constrictions between the seeds. Each pod contains 5–20 hard seeds.

Mesquite possesses characteristics that make it very competitive, including rapid germination of seedlings under a wide range of conditions, very high survival rates after the first year, a massive root system, an ability to resprout from dormant stem buds following injury, drought resistance, and excellent seed dispersal. It may also grow in most soil types and in areas where annual rainfall ranges from 150 mm to 1200 mm.

It is also typically very long lived; often more than 100 years, which is longer than most populations have been in Australia. Mesquite is highly resistant to damage, being able to reshoot from the stem and up to 30 cm underground following damage from fire, machinery or other causes. Its longevity is assisted by an extensive root system that allows it to access sub-surface water and also acts as an important carbohydrate reserve to help buffer the plant against environmental stress. Mesquite can also continue to actively grow during prolonged drought when most other desert plants shut down, although it can defoliate during cold dry winter conditions to conserve root reserves.

Most pods are produced during summer. Seed production can vary greatly between plants and from year to year, but can be very high following ideal conditions. Mature pods have a high sugar and protein content and are highly sought after by many native animals such as emus and kangaroos, domestic animals such as cattle, horses and sheep, and feral animals

such as pigs. Of these, cattle are generally most important due to their high populations in infested areas, movement and high viability of seed (>70%) after it passes through the gut. Seed survival rates through sheep and other animals that masticate their food is relatively low (<25%), although they can still be important dispersal agents. Most pods are probably consumed by vertebrate herbivores. As a consequence seeds can be distributed over a large area, resulting in relatively low density but diffuse seed banks.

Most seeds probably germinate within 2–3 years (Figure 1), especially if they have passed through an animal and provided they are exposed to warm to hot, wet conditions. Seed germination and recruitment probably occurs most years, but can be very high in years when high rainfall is well distributed throughout the summer. Young seedlings have a marked ability to survive damage from trampling and browsing, and can survive intense fires (except *P. pallida*) and droughts within a year.

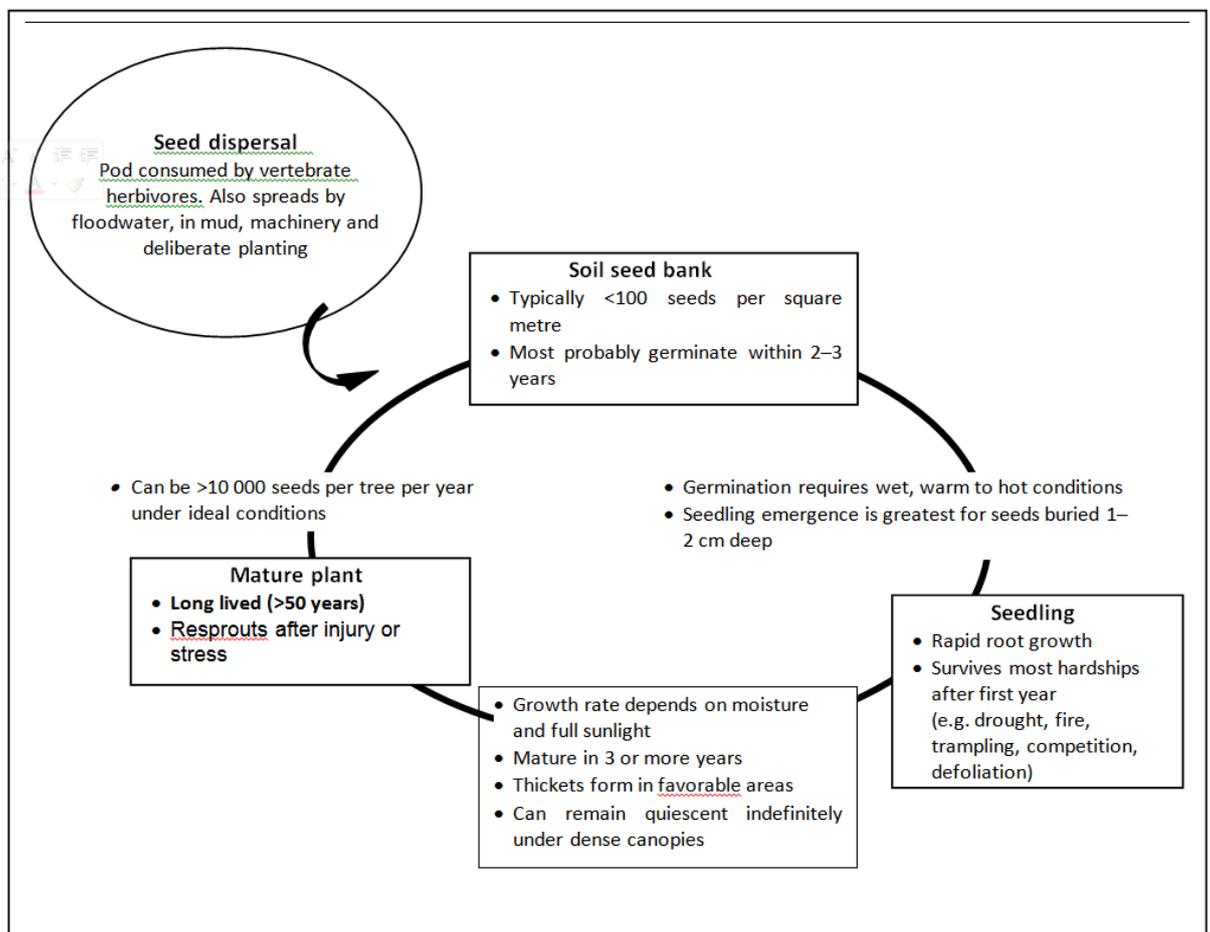


Figure 1 Life cycle of mesquite

## 2.2 History of spread

Several mesquite species in this American genus have been planted around the world and subsequently become serious weeds. Mesquite has naturalised across rangeland Australia, with the most substantial infestations occurring in western Queensland and the Pilbara region of Western Australia (Appendix 1). Mesquite has probably been introduced into

Australia on multiple occasions since the late 1800s, although records are sparse. It was already widely planted by the 1930s, primarily as a shade tree around homesteads, but occasionally as stock shade and fodder trees and for dust suppression.

*P. pallida*, a native of South America, was already planted in the Brisbane Botanical Gardens by the 1880s, and an original tree survives today. In 1895 *P. pallida* seeds were imported from Hawaii, planted at Kamerunga State Nursery in north Queensland, and the resulting seed subsequently widely distributed in Queensland following promotion in the Queensland Agricultural Journal. Additional imports may have also occurred.

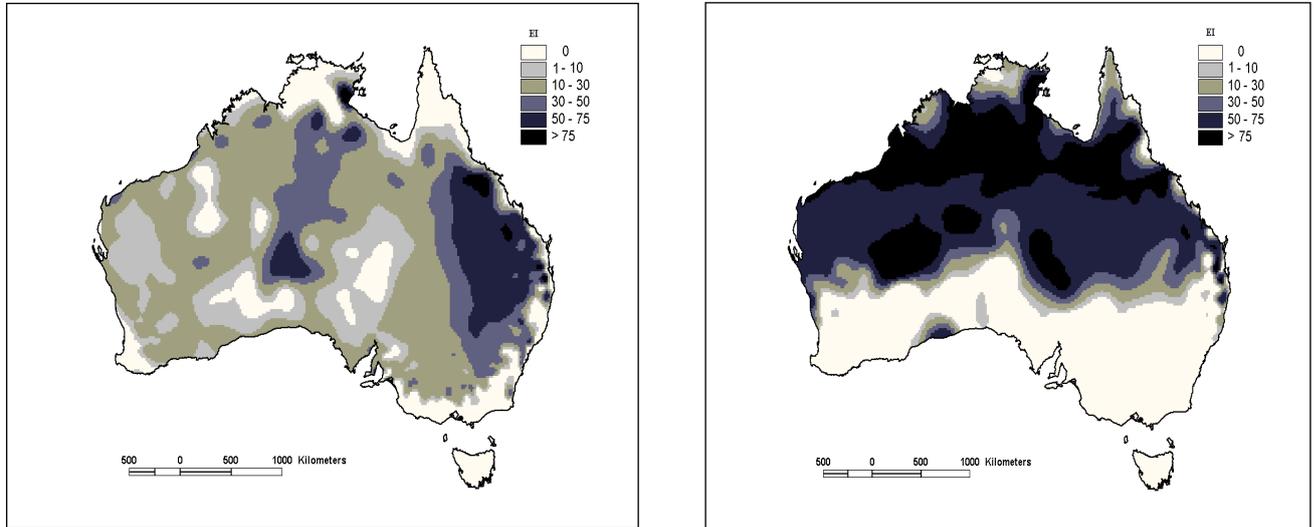
Large infestations of *P. pallida* are now present in the Cloncurry, Hughenden and McKinlay areas of Queensland and the Pilbara region of Western Australia. Small-scale infestations occur in various areas of Queensland including Gayndah, Longreach, Winton, Aramac, Richmond, Julia Creek, Mount Isa, Burketown and Townsville. Occurrences of *P. pallida* are also present at Barrington and Hebel in New South Wales (now controlled and under a monitoring program), the Barkly Tablelands and other districts of the Northern Territory, and the west Kimberley of Western Australia.

*P. velutina* and *P. glandulosa* are native to North America and have probably been introduced into eastern Australia on multiple occasions. Hybridisation between these two species, including between the two morphologically distinct *P. glandulosa* varieties (*glandulosa* and *torreyana*), is common in Australia. They were frequently planted around homesteads, but in western New South Wales they were also planted to revegetate dust hazard areas and pods were also reputedly spread by plane over an extensive area by a private citizen. Two plants were planted near a homestead in south-west Queensland and subsequently naturalised, resulting in an infestation that extended across approximately 300 000 hectares (and a core area of 4000 hectares) of flood plain on the Bulloo River. Most populations in south-east Queensland, New South Wales, Victoria and South Australia are now largely controlled, with the exception of several populations in New South Wales that are resurging since control efforts were wound back in the early 1990s. Extensive infestations of *P. glandulosa* var. *torreyana*, sometimes referred to as 'north Queensland hybrid', still occur in north Queensland, although the largest infestations around McKinlay township (about 10 000 hectares) and near Nelia (100 hectares) have largely been controlled.

Mesquite was introduced into Western Australia and distributed to townships and properties in the north-west at least by the early 1920s. Although reputedly of a thornless variety, populations now consist of a wide diversity of mostly thorny types which include various mixes of *P. pallida*, *P. glandulosa* and *P. velutina*. Most infestations occur on pastoral land in the Gascoyne, Pilbara and Kimberley regions. The largest infestation is 250 000 hectares (150 000 hectares on Mardie Station, 30 000 hectares of which is dense) in the west Pilbara. Other infestations include 12 000 hectares of scattered trees south of Derby, 20 000 hectares of scattered trees in the upper Gascoyne and 200–300 hectares of light infestations south of Broome. It includes the only significant naturalised population of *P. glandulosa* var. *glandulosa* in Australia (south of Kununurra)—approximately 1000 hectares of scattered plants prior to control work. A second infestation (200 hectares) of *P. glandulosa* var. *glandulosa* was found in the Texas area of Queensland but has largely been controlled.

The potential distribution of mesquite species was predicted using CLIMEX (a simulation modelling system developed by CSIRO based on climate; Figure 2). This prediction suggests that all mainland states and territories have favourable conditions for mesquite, particularly

northern areas above 28 °S latitude. *P. glandulosa* and *P. velutina* were found to have similar potential distributions. These species are suited to eastern areas, but are limited in the south-east by waterlogging stress. *P. pallida* has extensive potential in central Australia but is limited in the south by cold stress.



EI = ecoclimatic index: EI < 30 = potential for permanent population is low, EI > 50 = potential for permanent population is very high Source: CSIRO. Data is splined from a CLIMEX climate prediction.

**Figure 2** Potential distribution of three mesquite species in Australia: *Prosopis glandulosa* and *P. velutina* (left) and *P. pallida* (right); the black area is considered to be highly suitable and the grey area marginally suitable

## 2.3 Summary of impacts

Most infestations in Australia are currently of small scale and low density. In such cases, the plant provides an almost negligible benefit through provision of shade and fodder but also usually has only minor impacts. The low-density status of many sites and the tendency of mesquite to spread primarily through irregular high-rainfall years led to complacency in some regions. However, if left unmanaged, mesquite has the potential to become a serious pastoral and environmental weed.

Infestations usually first establish along watercourses or in association with historical plantings. These sites may rapidly increase in area and density under suitable conditions. Infestations eventually become impenetrable and can dramatically affect pastoral production through loss of pasture, changed pasture composition to favour annual species, increased difficulty and expense of mustering, impeded stock access to water, and damage to station vehicle tyres. In one study in New Mexico, the carrying capacity of pasture was reduced by 75% over a 35-year period (Paulson & Ares 1961 in van Klinken & Campbell 2001). The current and potential economic impacts of mesquite have not been thoroughly analysed in Australia.

Mesquite may transform open grasslands and other habitat to dense closed-canopy thorn forests. The environmental consequences have not been adequately studied in Australia but are likely to include structural changes to habitat, increased bare ground due to a decrease in grass cover causing erosion, a decline in biodiversity and provision of a refuge for feral

animals. Dense infestations may also limit access to land and be detrimental to cultural values of land.

## 2.4 Control history

Control programs were not initiated in Australia until about the 1950s and, until recently, most have been led by state and territory agencies. Western Australia initiated control trials in the Pilbara from 1954 and major efforts to reduce infestations occurred during the 1960s to 1980s. While some notable progress occurred, infestations became beyond the resources of some individual properties to contain. Led by the Pilbara Mesquite Management Committee, coordinated action has again occurred since 2000. Strategic control of outliers has helped to partially contain the large and dense core infestation area.

In Queensland, major control programs began in 1978 and initially focused on the south-west. A statewide focus commenced in 1992 and continued through the Strategic Weed Eradication and Education Program initiative (1995–2000) and again through the Queensland Pest Offensive (2005–2008). Multiple sites across Queensland, including two large infestations at Quilpie and McKinlay, have been controlled.

In New South Wales and South Australia, lead agencies have coordinated control programs since the 1960s. Significant progress was made and many infestation sites came close to eradication. The intermittent nature of programs, loss of key personnel and the failure of landholders to capitalise on control efforts saw a resurgence of some infestations in the 1990s. Coordinated control programs in these states, plus more recently those in the Northern Territory and Victoria, have been systematic from about 2002 onwards. At many sites, the density and distribution of mesquite has been dramatically reduced.

In recent years, coordination of control programs has been increasingly regionally driven through catchment management authorities or regional natural resource management groups, local government and landcare groups.

Many of Australia's medium- to large-scale infestations are now either contained and/or dramatically reduced in size and density. Meanwhile, hundreds of small-scale occurrences remain to be addressed, although extension-related efforts have positively influenced landholder attitudes, aspirations and control activity.

Successful mesquite management will require improved delimitation practices and techniques as well as long-term monitoring and follow-up to protect investments and efforts undertaken to date.

## 2.5 Control methods

Chemical and mechanical methods, livestock management and fire can be used in an integrated control program for all mesquite species and hybrids. Chemical methods principally involve spraying stems with herbicide–diesel mix (basal-barking) or foliar spraying of plants up to about 2 metres tall. No chemicals are currently registered for aerial application and soil-applied herbicides have low kill rates. Mechanical methods primarily involve cutting plants off at 20–30 cm below the surface or, less commonly, using chains to knock standing plants over. Chaining is the cheapest method but results in the lowest kill rate. Management of livestock and other animal seed vectors is critical.

All control methods may be effective in particular situations, depending on the infestation density, landform, costs or resources, area covered and the management objectives. For example, tall dense infestations may require mechanical control, followed by foliar spraying of seedlings. The typically single-stemmed *P. pallida* is sensitive to fire as well as to chaining and therefore responds to most control options. The other species and hybrids are typically multi-stemmed and more readily resprout from the base following top-damage, including following very hot fires and chaining. They can also be more difficult to treat with herbicide as each stem needs to be individually sprayed. Follow-up after initial control is essential, including in the years following high rainfall when seedling recruitment can be high.

Mesquite is sometimes commercially harvested overseas, but the viability of these industries in Australia is uncertain due to the small size and isolated nature of infestations, and the value for such activities in managing mesquite is often questionable.

Four insects have been released in Australia as biological control agents. Two seed-feeding beetles were released, *Algarobius bottimeri* and *A. prosopis*, but only *A. prosopis* has been recorded during recent surveys. Seed predation rates are highest in seeds in the seed bank, so seed predation may be helping to reduce seed bank longevity. The defoliating moth, *Evippe* sp., became widely established. In the Pilbara region it has greatly reduced seed production and growth rates, resulting in a dramatic reduction in population growth rates. Impacts in north Queensland are probably intermediate. The fourth insect, the sap-sucking *Prosopidopsylla flava*, only established tenuously in western New South Wales and caused no impact.

## 2.6 Socioeconomic factors affecting management decisions

Mesquite is principally a rangeland weed—an invader of mainly pastoral properties in low population areas of Australia. The ability of properties to effectively and consistently address mesquite and other weeds in the rangelands is driven by key elements such as stock prices, property viability, climate, accessible resources and the knowledge, attitudes, skills and aspirations of the land managers involved.

Mesquite management in the rangelands can also be difficult due to a lack of skilled personnel for control operations, logistics associated with finding and treating weeds in remote situations and difficulties of coordinating efforts across large expanses.

The generally sparse density of many sites has meant a lack of awareness of the threat posed by mesquite and a degree of complacency remains where limited numbers of plants are present. However, like many other rangeland woody weeds, mesquite responds rapidly when conditions are suitable (high rainfall years), potentially resulting in the transformation of scattered plants to entrenched thickets within relatively short periods.

Some infestations of mesquite are beyond the resources of individual properties to manage and assistance is required to adequately contain key areas. It is a reality, especially within the rangelands, that external resourcing is a catalyst for group-based aspirations and subsequently drives landscape-level coordinated control programs.

With a scarcity of active landcare groups in the rangelands, program drivers such as agencies, local government and regional natural resource management groups have often harnessed this individual effort into 'property syndicates' and 'subcatchment groups' to achieve broadscale objectives.

Achieving necessary changes to the attitudes and aspirations of land managers is reliant on effective extension delivery. However, direct extension services by agencies in some rangeland regions have declined but have been partly balanced by indirect services (such as via the internet) and an increasing role and capacity of regional natural resource management groups (catchment management authorities). Effective extension services are critical to awareness, early detection and adoption of best practices and should be considered necessary complementary actions to on-ground control.

## **2.7 Legislative controls**

The Australian Quarantine and Inspection Service (now Biosecurity Australia), through the Quarantine Proclamation 1998, prohibits the introduction of mesquite as nursery stock, plant parts or seed into Australia.

The management of mesquite in Australia is supported by legislation at a state and territory level (Table 1). In addition, most jurisdictions have developed policy and strategic frameworks to assist the implementation of legislation.

**Table 1 Legislative related to mesquite in Australia**

Jurisdiction	Legislation	Declaration	Actions
Australian Capital Territory	<i>Pest Plants and Animals Act 2005</i>	C4	Propagation and supply is prohibited
New South Wales	<i>Noxious Weeds Act 1993</i>	C2	Must be notified to local control authority The plant must be eradicated from the land and the land must be kept free of the plant Cannot sell or move the plant or plant material
Northern Territory	<i>Weeds Management Act 2001</i>	Class A and Class C	Class A—reasonable effort must be made to eradicate the plant in the Northern Territory Class C—not to be introduced
Queensland	<i>Land Protection (Pest and Stock Route Management) Act 2002</i>	Class 1 all <i>Prosopis</i> spp. and hybrids except <i>P. glandulosa</i> , <i>P. pallida</i> and <i>P. velutina</i> Class 2— <i>P. glandulosa</i> , <i>P. pallida</i> and <i>P. velutina</i>	Class 1—must be eradicated Class 2—landowners are required to take reasonable steps to keep land free of weed or to control Class 1 & 2—must not introduce, keep, release, supply or transport
South Australia	<i>Natural Resource Management Act 2004</i>	Class 1C(i) Category 1 whole of state	Prohibits movement and sale of plants. Landowner to take action to destroy or control
Tasmania	<i>Weed Management Act 1999</i>	Not declared	
Victoria	<i>Catchment and Land Protection Act 1994</i>	State prohibited weed	Illegal to buy, sell, possess for sale, display, plant, propagate, deposit on land, bring into or transport around Victoria. Department of Primary Industries is responsible for control actions
Western Australia	<i>Agricultural and Related Resources Protection Act 1976</i> <i>Plant Diseases Act 1914</i>	P1 (whole state) P2 (whole state except for defined area of Mardie Station) P4 (defined area of Mardie Station) The legislative arrangements are currently in a transition from the <i>Agriculture and Related Resources Protection Act 1976</i> to the <i>Biosecurity and Agriculture Management Act 2007</i> (BAM Act)	P1—prohibits sale, trade and movement P2—eradicate existing and new infestations P4—prevent spread

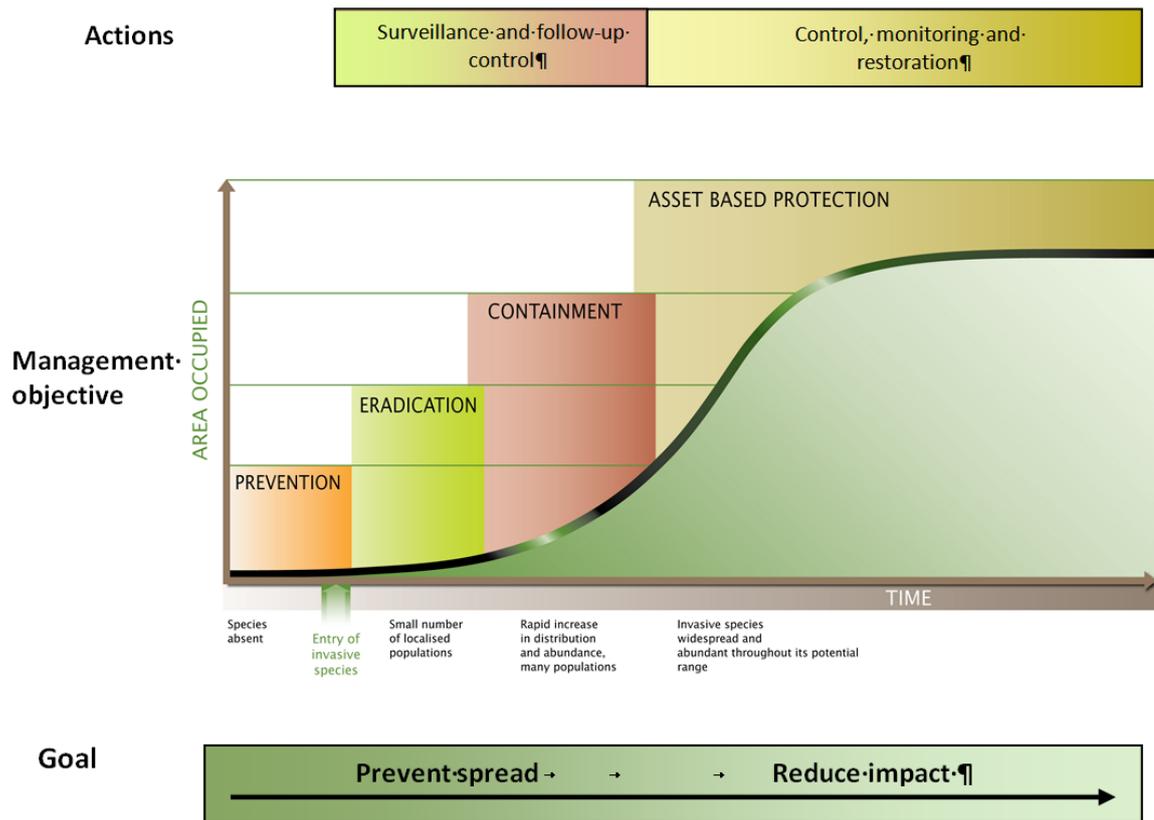
## 2.8 Principles underpinning the plan

This strategic plan is based on the seven principles outlined in 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, 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 detection are the most cost-effective techniques for managing weeds.
- Weed management requires coordination among all levels of government in partnerships with industry, land and water managements, 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 3).



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

**Figure 3 Stages of weed invasion with corresponding goals, management objectives and actions at each stage**

### 2.8.1 The national program—progress to date

The original mesquite strategy was published in 2001 and was quickly followed by the formation of the National Prickle Bush Management Group (December 2001) and appointment of a national coordinator (April 2002). The group met annually to assess progress against the strategy's goals and objectives and participated in major reviews of the strategy during 2006–2010.

Strategy implementation initially focused on community-based strategic control programs, best practice adoption and promotion, national mapping and awareness. The Natural Resource Management Ministerial Council (Resolution 15.7, 21 May 2009) endorsed a three-phased approach to national management of WoNS species (Appendix 2). In 2009 the national strategy was reviewed to assess progress against goals and objectives, and to identify gaps and new actions for future management. Key achievements identified from the review included:

- effective control of all known infestations in South Australia, Victoria and the Northern Territory, with each progressing to eradication
- collation and publication of best-practice information for landholders
- awareness of mesquite through extension products, media, field days and workshops
- mapping activities that showed the extent of mesquites across Australia
- major reductions in the extent and density of core infestations, especially through landholder involvement

- partially effective biological control agents in some regions
- established regional and cross-regional alliances in Western Australia, Queensland and New South Wales
- national mapping of occurrence and management actions (Appendix 1).

The review recognised there were several barriers and challenges to achieving effective management of mesquite, including:

- detecting and strategically managing the eradication of scattered outliers across Australia
- a reliance on external resourcing for long-term eradications
- insufficient state-level coordination in some jurisdictions
- a lack of economic data on benefits of control
- limited effectiveness of existing biocontrol agents in Queensland.

With consideration for the above challenges, the review recognised the need for ongoing national coordination of mesquite management, with a particular focus on:

- achieving effective, long-term local and regional containment or eradication through a sustained compliance/incentives mix
- maintenance of the gains made from past multi-stakeholder investments
- a robust and informative monitoring system of on-ground activities
- quantifying mesquite impacts and the benefits of control
- governance that includes capacity for national prioritisation of strategic funding investments.

In August 2010 the NPBMG held a national workshop to identify new actions required to maintain the benefits derived from national coordination and to limit the impacts of mesquite in Australia. A draft strategy, linking strategic actions with intermediate to long-term program objectives, was produced.

To finalise this document, comments were sought from targeted agency, industry and community stakeholders. In addition, the draft strategy was available for public comment via the Weeds Australia website.<sup>1</sup>

## 2.9 Relevance to other strategies

The Mesquite Strategic Plan 2012–17 has been developed to provide a framework for coordinated management of mesquite across the country. Complementary links can be found in a range of existing resource management initiatives at all jurisdictional levels, as shown in Table 2.

<sup>1</sup>

[www.weeds.org.au](http://www.weeds.org.au)

**Table 2 Strategies and plans for the management of mesquite**

Scale	Natural resource management	Pest management	Weed species management
National	<i>Environment Protection and Biodiversity Conservation Act 1999</i> National Strategy for the Conservation of Australia's Biological Diversity 2010 Native Vegetation Policy 2001 National Strategy for Ecologically Sustainable Development 1992	The Australian Weeds Strategy 2007 Weeds of National Significance <i>Biological Control Act 1984</i> Caring for our Country Business Plan	Weeds of National Significance
State	State biodiversity and natural resource management strategies	State and territory agency pest management plans	New South Wales Prickle Bush Strategy Northern Territory Mesquite Guideline Queensland Mesquite Guideline
Regional	Regional natural resource management plans	Regional pest management strategies	Specific weed control plans
Catchment	Regional/catchment management strategies	Regional pest management strategies	Regional species plans
Local	Landcare plans	Local government pest management plans (Queensland)	Local weed control plans
Property	Property management plans National parks management plans	Property pest management plans National parks weed management strategies	Property weed management plans

### 3 Strategic goals

Revised actions to confine mesquite and reduce its impacts to a minimum are described in Sections 3.1–3.3.

#### 3.1 Goal1: Protect clean areas and eradicate outlier infestations

Objectives are to:

- investigate mesquite threats and impacts
- protect clean areas and promote early detection of new infestations
- minimise spread
- eradicate outlier infestations.

The actions to achieve goal 1 of the strategic plan, and the action level and responsible partners for each action, are shown in Table 3.

**Table 3 Actions to achieve goal 1 of the Mesquite Strategic Plan 2012–17**

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
1.1 Determine the current and potential threat and impacts of mesquite	Determine the benefits and costs of mesquite control for best practice management	3	Qld lead agency, PMMC, industry	Projects resourced and reports available Maps completed and accessible
	Quantify the potential impacts of mesquite on the environment and primary production	3	Research agencies	
	Use risk assessment (landscape modelling) to determine how and where mesquite is most likely to spread	3	CSIRO, regional groups	
	Document and disseminate current and potential spread information including climate change considerations	2	CSIRO, state and territory lead agencies	
1.2 Restrict short and long distance movement of mesquite by livestock and machinery	Enhance awareness of livestock hygiene protocols and practices for minimising the dispersal of mesquite seed through livestock transport	1	Local government, state and territory lead agencies, PMMC	Majority of landholders using hygienic practices when moving livestock
	Promote the use of vehicle wash down facilities and livestock holding paddocks at times when mesquite pods are likely to be mature	2	Local government, state and territory lead agencies, PMMC	
	Maintain border (cross-jurisdictional) quarantine requirements between NT and WA and consider similar arrangements in other areas	2	WA lead agency	

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
1.3 Restrict movement of mesquite seed by feral and native animals	Increase awareness of native and feral animals as vectors for mesquite seed	3	Local government, state and territory lead agencies, SA natural resource management authorities, PMMC	Majority of landholders using hygienic practices when moving livestock
	Reduce spread by feral animals by appropriate population control methods and, where practical, encourage containment practices (such as fencing) that restrict movement of mesquite seed by relevant animal vectors	3	Local government, state and territory lead agencies, landholders, PMMC	
1.4 Develop and maintain early detection and eradication mechanisms	Encourage reporting of suspected outbreaks and ensure processes are in place for identification, rapid response, delimitation and control planning	1	Local government, state and territory lead agencies	Reports of new outbreaks
	Build community, industry and government commitment to ensure early detection and eradication of outbreaks	1	Local government, state and territory lead agencies	Number of outbreaks controlled
1.5 Coordinate control programs for active management and eradication outcomes	Encourage the development of and use databases to collate existing information of infestations (location, size, density, treatment) at property, local government, regional and state/territory levels where appropriate	2	Local government, state and territory lead agencies, regional groups.	Databases in operation
	Encourage stakeholder syndicates to form for coordinated mesquite control	2	Local government, regional groups, state and territory lead agencies	Area controlled (hectares annually)
	Facilitate regional and subregional mesquite control programs to address clusters of multiple small to medium scale outlier infestations and support these control programs with extension campaigns	3	Local government, regional groups, state and territory lead agencies	Eradication progress—number of sites and status
	Promote eradication/containment objectives in the Northern Territory, South Australia, Victoria and identified regional areas of New South Wales, Queensland and Western Australia	2 (1 for NSW and SA)	Local government, regional groups, state and territory lead agencies	
1.6 Undertake strategic surveillance and follow-up control of treated areas	Undertake monitoring of treated areas and advise land managers of treatment options	3	Landholders, local government, state and territory lead agencies	List of project areas under monitoring
	Maintain mesquite-free areas	2	Landholders, local	Number of new outbreaks found

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
	through awareness, identification training and early detection capability		govt., state and territory lead agencies	and controlled

CSIRO = Commonwealth Scientific and Industrial Research Organisation; PMMC = Pilbara Mesquite Management Committee

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: Confine and reduce core infestation areas

Objectives are to:

- facilitate mesquite planning and containment
- increase best practice adoption
- support biological control initiatives.

The actions to achieve goal 2 of the strategic plan, and the action level and responsible partners for each action, are shown in Table 4.

**Table 4 Actions to achieve goal 2 of the Mesquite Strategic Plan 2012–17**

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
2.1 Facilitate a planned approach to achieving effective mesquite management	Incorporate mesquite management in all relevant plans including: <ul style="list-style-type: none"> <li>• property and subcatchment plans</li> <li>• local government and agency pest management plans</li> <li>• natural resource management and catchment strategies</li> <li>• biodiversity strategies</li> <li>• state and territory plans</li> </ul>	1	Local government, state and territory lead agencies, PMMC, regional groups	Strategic priorities are under effective management
2.2 Facilitate mesquite containment of core infestations	Develop management plans, which incorporate containment objectives and practices for Hughenden Qld, Pilbara and Gascoyne regions WA and other identified core infestation areas	3	Flinders Shire Council, Qld and WA lead agencies, PMMC, landholders	Strategic priorities are under effective management
	Undertake control operations to contain infestations and implement buffer zones where necessary	3	Flinders Shire Council, Qld and WA lead agencies, PMMC, regional groups, landholders	Wash down facilities upgraded or developed
	Maintain and enhance the wash down facility network particularly within the	3	Qld lead agency, local government	

		core infestation, adjacent areas and strategic locations along high-risk transport corridors			
2.3	Promote the adoption of best practice management	Undertake research to clarify the mesquite species (including subspecies and hybrids) that occur in Australia	3	CSIRO	Research completed and results available
		Include mesquite management in pest management field days, workshops and demonstration sites to facilitate best practice adoption	2	Local government, regional groups, state and territory lead agencies	Increase skills and knowledge of land managers
		Incorporate mesquite control and management techniques in relevant pest management training	2	Local government, regional groups, state and territory lead agencies	
		Analyse optimal search strategies for mesquite control with guidelines provided to land managers	3	Research organisations	
2.4	Introduce biological control agents and improve their impact	Review the need for biological control research programs and opportunistically find new agents to reduce the impacts of mesquite	3	CSIRO, Qld lead agency	Research review conducted
		Monitor the impacts of introduced biological agents and interrelationships between them and other control options	3	CSIRO, Qld lead agency	Monitoring outcomes available

CSIRO = Commonwealth Scientific and Industrial Research Organisation; PMMC = Pilbara Mesquite Management Committee

**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: Maintain and enhance national commitment to manage mesquite

Objectives are to:

- coordinate, monitor and evaluate implementation of the strategy
- improve resourcing and stakeholder support of the strategy
- increase awareness of the mesquite threat
- maintain legislative support for mesquite management
- develop and utilise national mapping tools.

The actions to achieve goal 3 of the strategic plan, and the action level and responsible partners for each action, are shown in Table 5.

**Table 5 Actions to achieve goal 3 of the Mesquite Strategic Plan 2012–17**

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
3.1 Manage implementation of the plan	Maintain effective national coordination and implementation arrangements including interjurisdictional collaboration	1	State and territory lead agencies, Australian Weeds Committee,	Effective coordination of national strategy is occurring
3.2 Monitor and evaluate implementation of the strategy	Collate strategic milestones and report on progress annually to the Australian Weeds Committee and other key stakeholders using a monitoring, evaluation, reporting and improvement plan	1	State and territory lead agencies, regional groups,	Effective coordination of national strategy is occurring
3.3 Coordinate communication about the strategy	Conduct communication activities to ensure awareness of the plan, priority actions and achievements	1	State and territory lead agencies, national coordinator	Strategic priorities are under effective management
	Ensure links with other relevant WoNS strategies and other plans to maximise awareness	1	State and territory lead agencies,	
3.4 Seek support and resources for strategy delivery	Facilitate collaborative partnerships to improve mesquite coordination and control outcomes	1	State and territory lead agencies, regional groups, local government	Resources gained to address national priority action framework
	Undertake joint actions where appropriate with other WoNS strategies	2	State and territory lead agencies	
3.5 Increase education and awareness of the mesquite situation in Australia	Promote and direct awareness of the threat and impacts of mesquite, especially to groups in high-risk regions	1	State and territory lead agencies, regional groups, local government	Strategic priorities are under effective management
	Produce and distribute identification materials for mesquite and joint products with parkinsonia, prickly acacia and other WoNS	2	State and territory lead agencies, regional groups	

Strategic actions	Actions	Action level <sup>a</sup>	Responsibility	Performance indicators
3.6 Maintain an appropriate legislative framework for mesquite management	Maintain declaration of all Prosopis species to prevent trade and distribution in all states and territories	1	State and territory lead agencies	Legislation and policy supports strategy objectives
	Promote landholder awareness of their responsibilities under legislation	2	Local government, state and territory lead agencies	
	Utilise enforcement where necessary to complement eradication objectives, protect control investments and/or restore environmental and cultural assets	3	Local government, state and territory lead agencies	
3.7 Develop maps of mesquite distribution and management zones	Maintain and update national distribution and density maps	1	State and territory lead agencies, herbariums	National maps updated biennially and publicly accessible Annual assessment of eradication progress
	Develop distribution and density maps at appropriate scales for project management, planning, resource prioritisation and reporting	3	Regional groups, local government, state and territory lead agencies	
	Review national management zones including community, industry and government submissions to amend zoning	3	State and territory lead agencies	
	Determine nationally consistent data attributes for evaluation of mesquite management progress in each zone	3	State and territory lead agencies	
	Supplement gaps in mesquite distribution data through targeted surveys of nationally strategic infestations and adjacent areas	3	State and territory lead agencies, regional groups	

WoNS = Weeds of National Significance

a The Australian Weeds Committee (AWC) applied three action levels that reflect jurisdictional commitment to implementation when setting the priorities:

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 WoNS. The AWC is therefore responsible for monitoring and reporting on progress under 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 6 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 3) 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.

**Table 6 Suggested monitoring and evaluation questions to measure progress under the phase 3 WoNS Mesquite 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"> <li>• Are these documents publicly available?</li> <li>• Have stakeholders been advised of any changes?</li> <li>• Where is this data or information stored?</li> <li>• Does this information capture national priorities?</li> </ul>
		1.2 New infestations: Number of new infestations recorded Percentage of known infestations actively controlled	<ul style="list-style-type: none"> <li>• Are any new infestations occurring in areas identified as a high priority in the national strategy?</li> <li>• How were infestations detected (passive or active surveillance, community reporting etc.)?</li> <li>• Have high-risk pathways been adequately identified?</li> <li>• Have threats been minimised?</li> </ul>
		1.3 Eradication and containment programs: Percentage of eradication and/or containment programs being maintained	<ul style="list-style-type: none"> <li>• What percentage of programs identified in the national strategy are being actively managed?</li> <li>• Is there a plan in place for ongoing management?</li> <li>• How is progress being monitored and reported to stakeholders?</li> </ul> <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"> <li>• What legislative changes have been made?</li> <li>• Are minimum requirements being maintained (e.g. ban on sale, trade, movement)?</li> <li>• Is control required throughout or in part of the jurisdiction?</li> <li>• Is compliance actively enforced?</li> </ul>
			Score:

Table 6 *continued*

WoNS:		Jurisdiction:		Date:
Goal	Key evaluation questions	Data or evidence required	Consider	
2	Strategically manage existing infestations	2.1 Integrated weed management: Effectiveness of integrated weed management programs	<ul style="list-style-type: none"> <li>Are existing tools providing adequate control of WoNS?</li> <li>Have new advances or technologies been developed and are they incorporated into best-practice management information?</li> <li>Are there barriers to adoption of best-practice management?</li> <li>Are research programs addressing any observed gaps (e.g. herbicide trials, biocontrol, restoration requirements post-control)?</li> </ul>	
		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"> <li>Methods by which assets are being protected (e.g. targeted annual spray programs, high-risk pathway surveillance, strategic plans)</li> <li>Are long-term monitoring programs in place to detect change?</li> <li>To what extent is management leading to an improvement in asset condition?</li> </ul> (Response should include status report on progress towards asset-protection programs)
				Score:
3	Increase capability and commitment to manage WoNS	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"> <li>Is best-practice information up to date and readily available?</li> <li>Is this information and/or advice being targeted to priority regions?</li> <li>Is training being delivered to meet the needs of weed managers (including the community)?</li> <li>Are networks and groups being supported (e.g. through dissemination of research outcomes,</li> </ul>	

Table 6 *continued*

WoNS:	Jurisdiction:	Date:	
Goal	Key evaluation questions	Data or evidence required	Consider
			funding opportunities, control options etc.)? • Has awareness and engagement in WoNS management been raised effectively?
		3.2 Resourcing: From what sources are programs being funded?	• 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?	• 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: • 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

Although landowners and managers have primary responsibility for the control of mesquite on their land, relevant agencies share responsibilities for the actions listed in Sections 3 and 4. The effective implementation of this strategy requires the involvement of a range of stakeholders. Stakeholders' responsibilities may vary between jurisdictions; some actions may be optional while others are prescribed by legislation. The successful achievement of strategic actions relies on the development and maintenance of partnerships between community, industry and government, and recognition of the roles of each stakeholder. In particular, while the National Prickle Bush Management Group provided oversight for the original strategy, future coordination arrangements will evolve to maintain and build on past achievements. The Australian Weeds Committee, at a national level, and various agencies at the state and territory level will continue to provide a leadership role. Suggested responsibilities for each group are listed below.

### Private landowners

- Manage and control mesquite consistent with legislative requirements for their state or territory.
- Implement best practice management.
- Undertake any necessary planning and mapping.
- Identify mesquite and other weeds threatening their property.
- Implement stock hygiene and other management practices to minimise mesquite spread.

### Local governments

- Incorporate mesquite objectives in relevant pest management plans and monitor implementation.
- Administer and enforce legislation where applicable.
- Undertake surveying and mapping particularly in relation to outlying mesquite infestations.
- Establish local management policies to contribute to strategic control, containment and/or asset protection objectives.
- Control mesquite on land owned or managed by local government.
- Facilitate the removal of urban plantings of mesquite.
- Source funding and/or contribute to strategic control programs.
- Develop and implement extension strategies to increase awareness of mesquite.

### Natural resource management groups (catchment management authorities), community, conservation and other interest groups

- Contribute local and regional perspectives to mesquite management.
- Contribute to the development, implementation and/or review of local and regional pest management plans.

- Promote and contribute to local and regional containment and/or management programs in partnership with relevant stakeholders.
- Support and/or develop mesquite funding submissions.
- Participate in local and regional mapping initiatives and contribute to state, territory and national map production.
- Promote awareness and best practice management through event coordination and product distribution.

### **Primary industries (including producers and industry bodies associated with the grazing sector and relevant agricultural and herbicide industries)**

- Promote and adopt best practice management of mesquite.
- Identify gaps and issues associated with implementation of the mesquite national strategy.
- Contribute to research and development of management practices to support industry members.

### **State and territory agencies**

- Maintain appropriate legislation and policies to achieve state- and territory-based objectives for managing mesquite.
- Coordinate mesquite control and management at a jurisdictional level to complement the delivery of the Mesquite Strategic Plan.
- Control mesquite on land owned or managed by government bodies.
- Work closely with local governments, communities and other stakeholders to prevent and minimise mesquite impacts.
- Identify strategic management areas and associated objectives.
- Include the strategic control of mesquite on state lands in agency pest management plans and on-ground implementation and outcomes.
- Facilitate the inclusion of strategic mesquite management in pest management planning processes with secondary stakeholders.
- Source funding for strategic management programs and research.
- Implement monitoring and reporting protocols in line with the monitoring, evaluation, reporting and improvement plan and provide relevant information to a national task force and/or Australian Weeds Committee.
- Develop and implement communication and extension plans where appropriate.
- Facilitate mapping at state and territory level and contribute to national mapping initiatives.
- Ensure, where appropriate, participation on a national task force.

### **Research institutions**

- Conduct applied research to address priority national strategic requirements.

- Identify research gaps and seek innovative solutions for the management of mesquite.
- Seek new and on-going funding and support for research requirements.

## **Australian Government**

- Ensure quarantine controls to prevent importation (Australian Quarantine and Inspection Service).
- Ensure access is available for appropriate and potential resources through funding initiatives such as Caring for our Country.
- Provide research support through CSIRO and the Commonwealth Weeds Research Group.
- Undertake strategic mesquite control on all lands managed by the Australian Government.

## **Australian Weeds Committee**

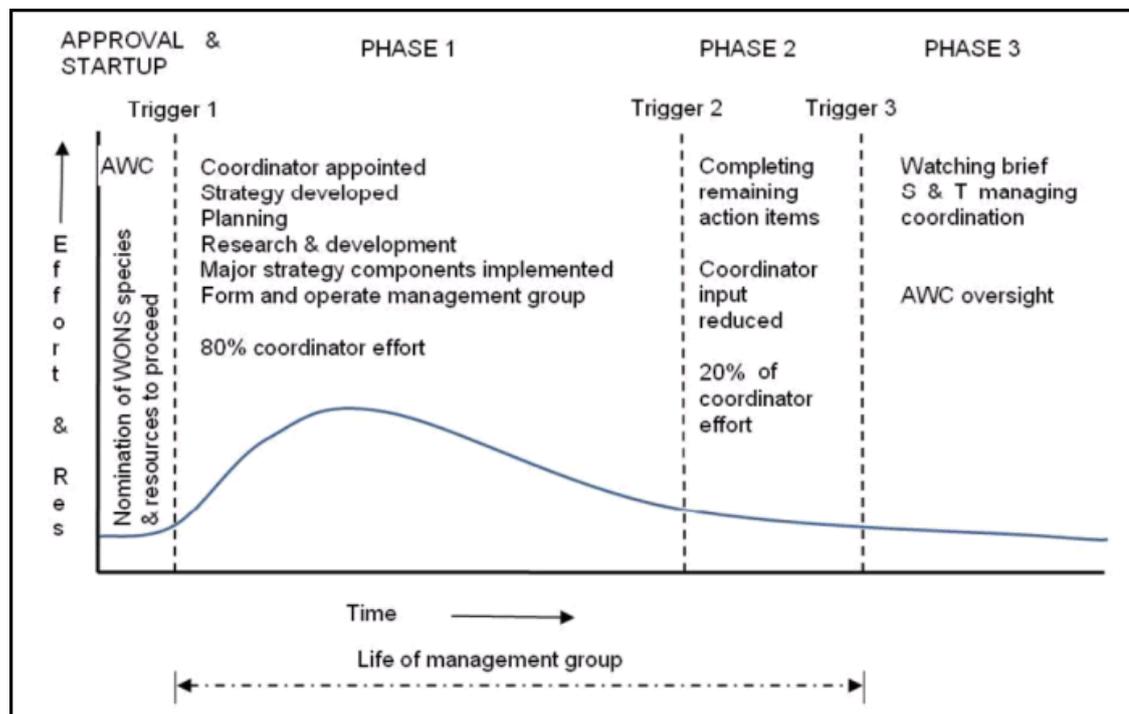
- Provides a mechanism for identifying and resolving weed issues at a national level.
- Facilitates coordination between the Australian Government and the states and territories and with other agencies.
- Provides advice to the Natural Resource Management Ministerial Council on weeds issues.
- Plan, coordinate and monitor implementation of the Australian Weeds Strategy; build links between key stakeholders; identify potential and emerging weed problems; implement consistent approaches to weed management; and develop a communications strategy for increasing the profile of weed issues.
- Oversee the implementation of the activities described in the WoNS strategies.



## Appendix 2 The Weeds of National Significance initiative and its phases<sup>2</sup>

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 4). This 'phased approach' aims to provide the most cost-effective use of limited 'national coordination' resources.



**Figure 4 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

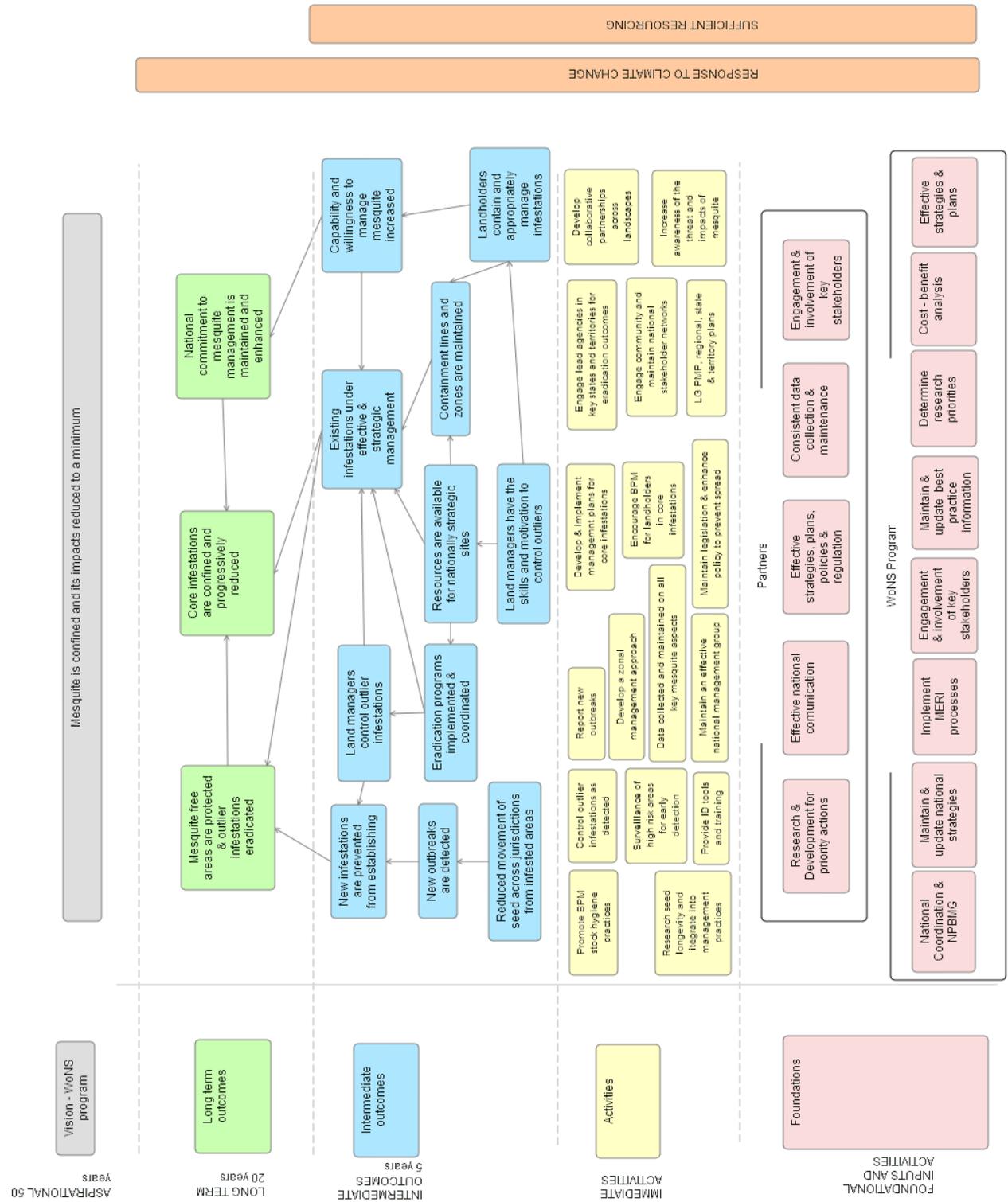
<sup>2</sup>

Adapted from Thorp 2012, *Additional list of Weeds of National Significance*, <[www.org.au/WoNS](http://www.org.au/WoNS)>.

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.

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](http://www.weeds.org.au/WONS).

# Appendix 3 Program logic model for the mesquite strategic plan



## References

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## Further reading

This strategy has drawn strongly from the following references:

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