

# REGIONAL WEED MANAGEMENT PLAN

**1.1 PLAN TITLE :** CHILEAN NEEDLE GRASS DUAL REGIONAL PLAN

## 1.2 PLAN PROPONENTS

Regional Weeds Advisory Committee: Macquarie Valley Weeds Advisory Committee and Lachlan Valley Noxious Plants Advisory Committee

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Signature: ..... MVWAC Chairman Date: .....

Signature: ..... LVNPAC Chairman Date: .....

## 1.3 NAME OF PLANT (S)

**WONS** Yes

Botanical name(s): *Nassella neesiana*

Common name(s): Chilean Needle Grass

## 1.4 PLAN PERIOD (not to exceed five years)

Starting date: 01/07/2007

Completion date: 30/06/2012

**1.5 AREA OF OPERATION:** This plan will take effect throughout the MVWAC and LVNPAC region but especially in the LCA and RLPB areas of:

Cabonne Council

Cootamundra Shire Council

Cowra Shire Council

Dubbo City Council

Forbes Shire Council

Mid Western Regional Council

Narromine Shire Council

Orange City Council

Parkes Shire Council

Wellington Council

Central Tablelands RLPB

Dubbo RLPB

**1.6 AIM:** To prevent further establishment within the Macquarie Valley and Lachlan Valley to suppress and manage present infestations.

## 1.7 OBJECTIVES:

1. To reduce all core, marginal and isolated areas by 80% on Public Lands by the end of plan.
2. To reduce all marginal and isolated areas by 80% on private lands by the end of the plan.
3. To reduce the core area by 50% on private lands by the end of the plan.
4. To monitor and evaluate rate of spread of all infestations.
5. To educate the public in identification and control techniques.

## **2.0 STAKEHOLDERS**

### **2.1 Signatories**

Participating Councils:

Cabonne Council	Cootamundra Shire Council
Cowra Shire Council	Dubbo City Council
Forbes Shire Council	Mid Western Regional Council
Narromine Shire Council	Orange City Council
Parkes Shire Council	Wellington Council

Participating RLPB's:

Central Tablelands	Dubbo
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### **2.2 Other Stakeholders**

- Department Primary Industries
- Superfine Wool Growers
- Prime Lamb Breeders
- Certified Seed Industry
- Cattle Producers
- A.R.T.C.
- Catchment Management
- National Parks and Wildlife

## **3.0 BACKGROUND and JUSTIFICATION**

### **3.1 Weed History and Ecology**

Chilean Needle Grass is a perennial tussock that grows to 1m in height, and forms dense stands in pastures, along roadsides, and in bushland.

This species was first noticed in Victoria in the 1930's and then in NSW in the 1940's, and is thought to have spread very slowly until the 1970's. It is a native of South America and is now well established across the southern tablelands and southwest slopes of NSW, and southern and central Victoria. This is a hardy species, tolerant of heavy grazing and drought.

It is a prolific seeder and can produce more than 28 000 seeds per square metre contributing to its large, long-lived soil seed bank. It is estimated that seeds can survive in the soil seedbank for more than 12 years.

### **3.2 Method and Rate of Spread**

Seeds are produced in two ways, on the flower head and on the stem. These stem seeds mature even if the flower head has been removed. Seeding takes place in late spring, and heads can be recognised by their distinct purple colour.

Although seedling growth is generally slow, they have a high survival rate and reach reproductive maturity in the first season.

The sharp head of the seed has backwards facing hairs that allow for the seeds to penetrate animal coats. A quarter of seeds in a fleece can still be there after five months. The seeds can fall out months afterwards and still be viable, spreading the seed to new regions easily. Seeds spread by attaching themselves to machinery, clothing, or livestock. If consumed by cattle, some seeds can still remain viable.

The main requirement for establishment is bare ground.

### **3.3 Distribution and Potential Spread**

Generally found in temperate regions where rainfall is more than 500mm annually. Based on this and other climatic requirements, it has an extremely large potential distribution across native ecosystems and grazing areas in Australia. It is estimated that this species could infest up to 41 million hectares of Australian soils, including most of this region.

In Orange City Council it was found in 3 separate locations, one in the eastern section, one in the western section and one in a residential area. The largest infestation was almost one hectare in area and the others a few square metres. There are small infestations in Cabonne shire.

### 3.4 Null Hypothesis

If this species is not controlled and allowed to continue at its current rate of spread:

- Once established, the long-lived seedbank means this species is unlikely to ever be eradicated without appropriate control and follow-up measures.
- Its effective dispersal and high seedling survival allows for greater distributions.
- Its tolerance of drought and heavy grazing allows for dominance to continue even under pressure.
- Infestations can reduce pasture production by 50%.
- Its unpalatability reduces stock carrying capacity.
- It invades extensive areas of rare native grasslands, Australia’s most threatened ecosystem.

### 3.5 Justification

It is a Weed of National Significance.

Seeds are reported to penetrate and damage the fleece, skin and eyes of livestock. They can pierce the skin creating abscesses reducing carcass values.

Chilean Needle Grass is a highly invasive species that threatens pasture, native grasslands and roadside environments in the Lachlan Valley. It has the potential to seriously impact on the profitability of agricultural enterprises within the region by reducing productivity by up to 50% during spring and summer. It is of lesser value than other pasture species, causing a reduction in carrying capacity. Fodder crops may face reduced acceptance and lower values as a result of Chilean Needle Grass infestations. In addition to productivity losses, meat, skin and fleece values may be reduced due to contamination. Along with animal health problems that may occur, the operational costs of animal husbandry will increase.

Chilean needle grass can and does negatively impact on the natural environment. This species is known to out-compete native grasses leading to a significant drop in biodiversity by creating monocultures within the natural environment. The seeds also have the potential to cause injuries to native wildlife.

This Management Plan and associated Weeds Management Strategy needs support at Local, Regional, State and Federal level to prevent another Serrated Tussock situation from occurring, costing \$40 million in lost production.

## 4.0 LEGISLATIVE and REGULATORY SITUATION

### 4.1 Current Declaration

Council	Declaration
Cabonne Council	Class 4
Cootamundra Shire Council	Class 3
Cowra Shire Council	Class 4
Dubbo City Council	Class 4
Forbes Shire Council	Class 4
Mid Western Regional Council	Class 4
Narromine Shire Council	Class 4
Orange City Council	Class 4
Parkes Shire Council	Class 4
Wellington Council	Class 4

## **4.2 Declaration Changes**

No declaration changes are anticipated.

## **5.0 CONSIDERATIONS and OPPORTUNITIES**

### **5.1 Financial Support for Plan Implementation**

Funding to implement this plan will be sourced through local, state and federal government initiatives.

### **5.2 Barriers and Contingencies**

Chilean Needle Grass looks very similar to native grasses such as *Austrostipa* and *Danthonia* spp. Unfortunately controlling Chilean Needle Grass within natural environments is extremely difficult and expensive. Its similarities with native grasses mean that distinguishing between the two becomes a problem when using conventional management techniques. Because of the biological similarities, control methods often affect these species as well.

Methods based on prevention of flowering to stop seeding are not completely successful, as the stem seeds do not require flowering to develop. The stem seeds make up around 20-25% of total seed production, so a large number of viable seeds are still produced.

### **5.3 Links to Other Strategies**

As a Weed of National Significance, a National Strategy has been developed for this weed. In addition to noting the potential economic costs to agriculture, this strategy identifies the weed's ability to invade native vegetation, replacing vulnerable species of flora, and with an unknown potential to injure fauna and degrade tourism values. The National Strategy further indicates that control in other areas under environmental management is particularly difficult. The current preferred option, as outlined in the National Strategy, is to prevent the establishment and spread of Chilean Needle Grass, as rehabilitation of infested land is both technically difficult and expensive.

This Regional Plan follows these principles in attempting to identify and eradicate new occurrences while containing and reducing known infestations. Protection of remnant vegetation is also a feature of the National Strategy, and this Regional Plan will contribute to preventing Chilean Needle Grass from degrading the identified Grassy White Box Woodland area.

## 6.0 ACTION PLAN

<b>ACTION PLAN FOR CONTROL:</b>	Performance indicator	Who	Objectives Addressed (Number)
Inspect LCA and RLPB lands	All LCA and RLPB land inspected and recorded annually.	LCA Officers RLPB Rangers	1.7.1
Inspect Private lands	All core, marginal and light areas inspected and recorded.	LCA Officers	1.7.2
	100% of properties inspected bordering core, marginal and light areas.	LCA Officers	1.7.2
	100% of properties deemed “at risk of infestation” inspected annually.	LCA Officers	1.7.2
	All infestations treated before seed set.	LCA Officers	1.7.1
Implement control programs on LCA land	Roadside slashing programs controlled where necessary to prevent spread of seed.	LCA Officers	1.7.1
	All infestations treated before seed set.	LCA Officers Landowners	1.7.2 & 1.7.3
Implement control programs on private land	Limit spread of seed through use of hygiene practices with regard to livestock, machinery, and produce movement.	Landowners & DPI Personnel	1.7.2 & 1.7.3
Map all infestations on private land	All infestations mapped and measured annually.	LCA Officers Landowners	1.7.4
Implement education programs	Field day held annually 1,000 flyers circulated Strategic press releases	LCA Officers DPI Personnel & Catchment Management Officers	1.7.5

## 7.0 MONITOR and REVIEW PROCESS

This plan will be monitored by Weed Officers and progress reviewed annually by Macquarie Valley Weeds Advisory Committee. This will include discussions on increase or decrease, rate of spread, the potential range, successful management strategies and their results.

An annual review of this plan and management strategies will be held to ensure stakeholder’s efforts match the performance indicators and that key milestones are achieved. Further opportunities to combine other weed control or land management efforts into an integrated program including Chilean

Needle Grass will be actively pursued, as will the use of any future advances in biological, chemical or management control techniques.

## **8.0 BENEFITS**

This Plan will benefit the Macquarie Valley and Lachlan Valley regions by,

- Maintaining Agricultural production.
- Decreasing potential future costs.
- Minimising stock health problems.
- Maintaining a certified Seed Industry.
- Maintaining the area as a source of clean fodder.
- Preserving a Nationally Significant Grassy Box Woodland.

## **9.0 RESOURCES**

M. R. Gardener, R. D. B. Whalley and B. M. Sindel, 2003. "Ecology of *Nassella neesiana*, Chilean needle grass, in pastures on the Northern Tablelands of New South Wales. I. Seed production and dispersal" *Australian Journal of Agricultural Research* Vol. 54 No. 6, pp 613 – 619

M. R. Gardener, [R. D. B. Whalley](#) and B. M. Sindel, 2003. "Ecology of *Nassella neesiana*, Chilean needle grass, in pastures on the Northern Tablelands of New South Wales. II. Seedbank dynamics, seed germination, and seedling recruitment" *Australian Journal of Agricultural Research* Vol. 54 No. 6, pp 621 – 626

NSW Agriculture Chilean Needle Grass Agnote, DPI 194, 3<sup>rd</sup> Ed.