



REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: SERRATED TUSSOCK DUAL REGIONAL MANAGEMENT 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.....Y

Botanical Name(s): *Nassella trichotoma*

Common Name(s) Serrated Tussock

1.4 PLAN PERIOD (not to exceed five years)

Starting date: 01/07/2007

Completion date: 30/06/2012

1.5 AREA OF OPERATION: The Local Control Authorities (LCA) and Rural Lands Protection Boards (RLPB) of the Macquarie Valley Weeds Advisory Committee and the Lachlan Valley Noxious Plants Advisory Committee, but especially:

Cabonne Council

Cootamundra Shire Council

Cowra Shire Council

Dubbo City Council

Mid Western Regional Council

Narromine Shire Council

Orange City Council

Parkes Shire Council

Wellington Council

Central Tablelands RLPB

1.6 AIM: To suppress and manage Serrated Tussock infestations to minimise damage to agriculture and the environment

1.7 OBJECTIVES:

1. Identify existing and emerging infestations
2. Reduce all marginal and isolated infestations by 75%
3. Reduce strategically targeted core infestations by 75%
4. Promote best management practices such as revegetation
5. Implement a community awareness program

2.0 STAKEHOLDERS

2.2 Participating Councils

Cabonne	Cootamundra
Cowra	Dubbo
Mid Western Regional	Narromine
Orange	Parkes
Wellington	

2.3 Participating RLPB's

Central Tablelands

2.4 Other Stakeholders

Dept. of Natural Resources
Dept. of Primary Industries (DPI)
Australian Rail Track Corporation
State Forests
National Parks & Wildlife Service
Aboriginal Land Councils
Catchment Management Authorities (CMA's)
Regional Landcare Co-ordinators

3.0 BACKGROUND and JUSTIFICATION

3.1 Weed History and Ecology

Thought to have been introduced from South America at the turn of the century, it was first identified in NSW in 1935. The infestation was found near Yass River, and the species was named Yass River Tussock before becoming known as Serrated Tussock. It has been declared noxious since 1938 and is now a weed of national significance.

This perennial tussock can vary in size, relative to soil fertility, but can grow to 45cm in height. Leaves are tightly rolled and finely serrated. Fresh growth is bright lime green. Small and inconspicuous flowers form towards the ends of branchlets giving the plant a purple appearance during late spring to early summer. Seeds form in late summer and are enclosed in reddish brown or purple bracts giving the plant a golden colour when the seeds are ripening.

Seed production is prolific and one hectare of dense serrated tussock is estimated to produce 2 tonnes of seed per year, which can remain viable for 15 years or longer. Seeds germinate at any time of year but mostly in the autumn and winter. Plants rarely flower in the first year and on poorer soils they may be 4 years old before flowering occurs. Tussocks can persist for up to 20 years producing new flowering stems and some new leaves each year.

Serrated tussock is often mistaken for *Austrostipa* spp, *Austrodanthonia* spp, and *Poa* spp. The small white hairless ligule found at the junction of the leaf and the sheath is the key distinguishing feature of serrated tussock.

3.2 Method and Rate of Spread

Serrated tussock can only spread by seed; it does not spread vegetatively. The seeds are spread principally by wind but can also be spread via stock, machinery, fodder, or soil. It is estimated that wind can carry seed for up to 10 km. When a single mature plant can produce around 140000 seeds per year, significant spread of tussock can occur after just one season. The seed gathers around barriers such as fences or gullies where they germinate and form new, dense infestations.

Infestations are more likely to occur at sites where there is bare ground and lack of other competitive species.

3.3 Distribution and Potential Spread

Current estimates say that in NSW up to 820,000 hectares are now infested with Serrated Tussock, while climatic research has estimated it could infest much of south eastern Australia. It now occurs through much of the tablelands of NSW where it is not restricted to any soil type or rainfall pattern. However it does not cope well with higher temperatures, preventing it from spreading very far west. Typically found in grazing areas, dense infestations can dramatically reduce a paddocks stocking capacity due to its very low grazing value.

3.4 Null Hypothesis

If serrated tussock was ignored the implications would be significant leading to:

- The degradation of natural areas and grazing lands in the tableland areas of the State leading to significant production loss and reduced land prices
- The destruction of indigenous flora and fauna regimes through loss of biodiversity
- The decimation of environmental and natural recreational areas
- Urban invasion especially vacant blocks and parkland, increasing fire hazard

3.5 Justification and Problem Description

Although this is an introduced species, the deceptive 'native' appearance of serrated tussock means it frequently escapes detection by the untrained eye.

It is considered Australia's worst pasture weed. It dominates pastures and invades natural areas forming dense swards that eventually eliminate other plants, particularly on dry infertile soils. Seed production is prolific and a hectare of dense serrated tussock is estimated to produce 2 tonnes of seed per year, which can remain viable for 15 years or longer.

It has no value as a fodder species as it is unpalatable. Sheep and cattle will graze it only if nothing else is available and then due to the high fibrous content and low protein content of the leaves, the animals are unable to digest the plant. Infestations reduce stock carrying capacity with heavily infested areas only able to carry one sheep per hectare. The animals lose weight and may starve to death due to a stomach full of undigested leaves. This results in livestock losses and lower returns to the landholder from their lands. Serrated tussock probably accounts for a greater reduction in pasture carrying capacity than any other weed in Australia.

Seeds remain viable for 14 years and pass through animals unharmed. The seeds can pass through the animals without losing viability, and sheep and cattle void seeds for up to a week after being removed from infested pastures.

3.6 Species Management

As with many weeds no one control method will be successful in controlling serrated tussock. A combination of methods suited to each individual site must be used. Whatever control method is used, it is essential to encourage a dense pasture as soon as possible by sowing suitable species, topdressing, removing feral animals and not grazing in the first year (encouraging re-vegetation of controlled sites to increase competition will be part of this plans public awareness campaign). For example, in many areas of NSW, planting pine trees has controlled serrated tussock. Usually, flowering of serrated tussock is eliminated 6 years after planting, and 4 years later the tussocks die. Planting tree lines can also help reduce wind dispersal of remnant seed by keeping un-infested areas clean.

Manual removal by chipping out rare and isolated plants is the most cost-effective method of control.

Chemical applications in rocky or steep areas followed by fertilizer and seed broadcasting to introduce competition are also successful.

Spot spraying of individual plants provides good control.

Biological control using goats is useful, as they will readily graze the tussock more than other livestock reducing the height, seed production percentage of ground cover and plant density of serrated tussock.

Fungi and bacteria exercise some control of the tussock in South America but there has been limited work done in Australia using these agents.

Ploughing up infestations in arable areas followed by a cropping regime or pasture improvement is also a good option especially in a sensitive area. While ploughing of infested sights can act to bury the seed preventing germination initially, the seeds can remain dormant in the soil for decades, emerging when the soil is disturbed again.

4.0 LEGISLATIVE and REGULATORY SITUATION

4.1 Current Declaration

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

4.2 Declaration Changes

No declaration changes have been sought.

5.0 CONSIDERATIONS and OPPORTUNITIES

5.1 Financial Support for Plan Implementation

Additional funding will be sought at federal, state and regional level.

5.2 Barriers and Contingencies

Barriers

- Adjacent land use – vineyards, organic or chemically sensitive crops place restrictions on any proposed control program
- Lack of follow-up work – resulting in a less effective control program.
- Dispersal mechanisms – spread of seeds by feral animals and weather.
- Inaccessibility - rough country, locked gates, absentee landholders
- Waterways – the use of chemicals along waterways, and reluctance by landholders to use chemical near water in case they are prosecuted.
- Lack of biological agents – effective enough to be of use to occupiers of land
- Difficult/absentee landholders – will not support the plan; will not carry out control work.
- Seed bank – existing seed bank will continue to germinate after initial treatments
- Awareness – lack of knowledge of what the plant looks like

Contingencies

- Drought – the continuation of the drought will make the enforcement of the Act difficult, and make the application of any herbicides less effective.
- Lack of funding – not enough money to complete the plan’s objectives.
- Control costs

5.3 Links to Other Strategies

This Regional Serrated Tussock Management Plan addresses issues raised in the:

- National Weeds Strategy
- NSW Weeds Strategy
- Central West Catchment Management Authority Blueprint
- Serrated Tussock Strategic Plan

6.0 ACTION PLAN

ACTION PLAN FOR CONTROL:	Performance indicator	Who	Addresses which objectives. (Number)
<p>Inspect, map and record all infestations</p> <p>Liaise with neighbouring LCA's/RLPB's sites</p>	<p>Produce maps of infestations within 12 months</p> <p>Update maps by 30 June each year</p> <p>Potential new infestation sites are recorded</p>	<p>LCAs and RLPBs</p>	<p>1.7.1 Identify existing and emerging infestations</p>
<p>All Council roads and reserves to be inspected twice yearly and control programs implemented where necessary</p> <p>Develop individual property plans.</p> <p>Infested properties will be re-inspected</p> <p>Enforce Act</p>	<p>All infestations found will be treated prior to seeding, including follow-up work, by the end of the current season</p> <p>Serrated tussock to become a part of private property inspections</p> <p>All infested properties to be inspected annually during the plan period</p> <p>Act Enforced</p>	<p>LCA's, RLPB's and affected landholders.</p>	<p>1.7.2 Reduce marginal and isolated infestations by 75%</p> <p>1.7.3 Reduce strategically targeted core infestations by 75%</p>
<p>Promote best management practices such as revegetation</p>	<p>Infestations are controlled using integrated weed management programs</p> <p>Landholders with infestations (or at risk of infestation) are given advice regarding integrated weed management</p> <p>Relevant CMA's are</p>	<p>LCA's, RLPB's, DPI and CMA's</p>	<p>1.7.4 Promote best management practices such as revegetation</p>

	approached regarding planting tree lines		
Raise and promote general community awareness throughout the growing season.	Annual TV awareness campaign. Conduct 2 field days. 2 media releases issued. Participate in Weedbuster Week. Produce weed calendars (10,000)	LCAs, RLPBs, DPI	1.7.5 Implement a community awareness program

7.0 MONITOR and REVIEW PROCESS

A monitoring program will be implemented using ongoing inspection programs of infested properties to check the success of control measures and detect new outbreaks. Property owners will be given written reports on the status of their weed infestations.

There will be an annual review of this Serrated Tussock Management Plan to ensure the aim and objectives were met and Performance Indicators were achieved. Participating LCA and RLPB will be invited to be involved with the review process.

8.0 BENEFITS

The benefits of the successful implementation of this Dual Regional Serrated Tussock Management Plan would be:

- Reduced spread of serrated tussock onto prime grazing land equating to higher productivity.
- The protection of native flora and fauna leading to increased biodiversity.
- The reinstatement of natural recreational/environmental areas.
- A reversal in land degradation due to infestations.

9.0 RESOURCES

NSW Department of Primary Industries Primefact 44. produced May, 2006.

NSW Department of Primary Industries, “Identification of Serrated Tussock”, produced December, 2005

Briese *et al*, “New biological control against weeds of South American origin in Australia: *Nassella* tussock grasses and Blue Heliotrope”. Proceedings of the 10th International Symposium on Biological Control of weeds, 1999.

WONS Serrated Tussock Strategic Plan

Weeds CRC Weed management guide – Serrated Tussock.