

Victorian
Serrated Tussock
Working Party

progress
report
2007





Port Phillip and Westernport
CATCHMENT MANAGEMENT AUTHORITY



NORTH EAST
CATCHMENT
MANAGEMENT
AUTHORITY



North Central
Catchment
Management Authority



GOULBURN
BROKEN
CATCHMENT
MANAGEMENT
AUTHORITY



EAST GIPPSLAND
CATCHMENT
MANAGEMENT
AUTHORITY



Natural
Heritage
Trust

*Helping Communities
Helping Australia*

A Commonwealth Government Initiative



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Chairman's Report



On behalf of the Victorian Serrated Tussock Working Party (VSTWP) I am pleased to present the 2006 – 2007 progress report. This report describes some of the crucial work done in Victoria over the past year to fight one of Australia's worst invasive plants.

We the Working Party, government at all levels, industry, Landcare, scientists and landowners affected by serrated tussock have come a long way in our thinking about the way we manage this insidious plant.

When we look back to 1995 to what I believe was the tipping point for Victorian communities in regard to the control of serrated tussock, we remember deep concern about the spread of this invasive plant which at that time covered over 130,000 hectares. Through the commitment of all those involved in the fight against serrated tussock we have reduced the infestation area to 82,000 hectares, with much of this remaining infestation under active management.

There is however, much work left for us to do to capitalise on the successes we have already achieved. There are also many threats and hurdles to contend with if we are to continue reducing the current serrated tussock infestation, such as potential changes in government and investment priorities, new threats such 'climate change' which through climate modelling predicts a larger potential area for infestation range in Victoria for serrated tussock to inhabit.

The VSTWP is committed to the delivery of the outcomes described in the Victorian Serrated Tussock Strategy – "Intensifying the attack on serrated tussock". To achieve this goal we continue to work with our wide-range of project partners who are either actively involved in the control of serrated tussock, developing inventive management solutions through research or improving the delivery of policy and legislative instruments.

The "passion and commitment" of landholders, industry, Department of Primary Industries (DPI) staff, the affected urban community, and this Working Party, is there, however the "capacity" to succeed is entirely dependent on the government deciding if it should invest in this area. I along with other community members firmly believe that serrated tussock must be treated wherever it occurs and that investment in this project is an investment for land management and a capacity building focus across the state.

Finally, I would like to thank the community who have supported the Victorian Serrated Tussock Program, DPI staff for implementing the strategy and the members of the Working Party for their contribution and determination.

A handwritten signature in black ink, reading "Peter Lindeman". The signature is written in a cursive, flowing style.

Peter Lindeman
VSTWP Chairperson

Background

Serrated tussock (*Nassella trichotoma*) is a long-lived perennial, drought-resistant tussock grass that occupies over 82,000 hectares in Victoria. Serrated tussock has the potential extend this current area to infest more than 4.6 million hectares due to the vast range of environments it can tolerate and because of the effects of climate change such as extended periods of drought.

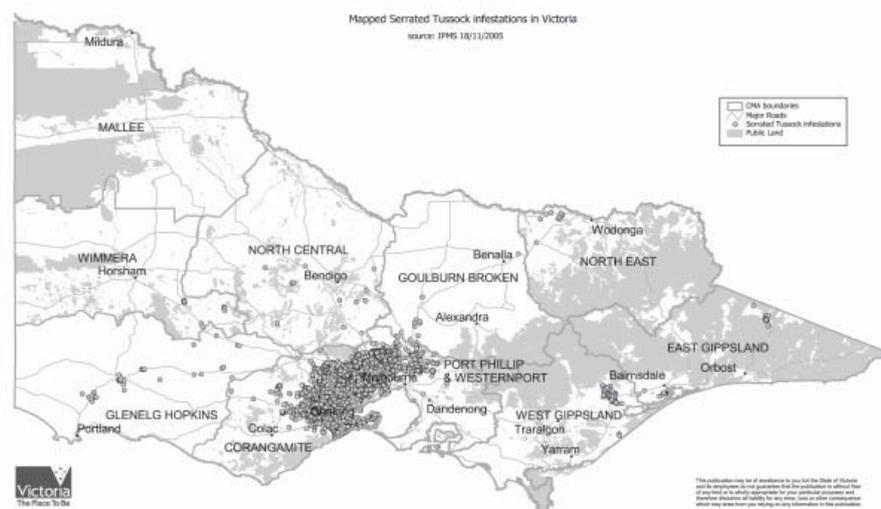
It is one of the worst weeds of pastures, potentially causing near total loss of carrying capacity, and eventually forms a monoculture unless controlled. It is unpalatable to livestock with almost no grazing value, having a very low protein and high fibre content.

Serrated tussock has a long lifespan, high seed production, a large and long-lived seed bank, is drought tolerant and has very effective seed-dispersal mechanisms. It also looks similar to native tussock grasses so can remain unnoticed until significant infestations have developed.

It is a highly invasive environmental and agricultural weed of national significance that is expensive and time consuming to control. Mature plants can produce around 140,000 seeds or between 900 & 3,400 million seeds per hectare, which are easily distributed via wind. The ease of spread, and the difficulty and cost of its control once established, means that serrated tussock is an issue that affects whole communities.

Serrated tussock also poses a threat to Victoria's native grasslands, many of which are listed as critically endangered. Most remnant patches are small, fragmented and highly degraded and exotic stipoid grasses such as serrated tussock are one of the most significant threats facing their existence. It is important to stop the spread of tussock into these areas, as once established control methods are limited.

While serrated tussock control is an ongoing problem, continued work by landowners, DPI and the Working Party has meant that the number of heavily infested properties in Victoria is falling. Significant numbers of previously infested properties are now free of the weed, and major landscape renovation projects are underway in the worst affected areas.



The Victorian Serrated Tussock Working Party

The Victorian Serrated Tussock Working Party (VSTWP) is a community driven group focused on serrated tussock management within Victoria since 1995. The Working Party works in partnership with the DPI and the Department of Sustainability and Environment (DSE) to achieve the goals outlined in the recent strategy: "*Intensifying the attack on serrated tussock 2005-2010*".

The goals of the strategy are:

- All satellite infestations will be identified and controlled by land managers with a view to eradication.
- The spread of serrated tussock will be contained and the density of known infestations will be reduced from the current levels by a further 40 per cent.
- All new infestations of serrated tussock will be mapped and recorded.
- 25 per cent of properties recorded with serrated tussock infestations will be under long-term control defined as a well managed property where the land manager is committed to and understands long-term integrated control methods (including trees, native grasses, pasture or crops).
- All known land managers affected by serrated tussock will be aware of the control options available to them.
- 50 per cent of land managers affected by serrated tussock will be voluntarily preventing the growth and spread of serrated tussock on their property without intervention by DPI compliance officers.
- There will be highly visible landscape changes through the investment of stakeholders in sustainable land management projects such as Grow West and the East Moorabool Gorge Recovery Project.
- The implementation of the serrated tussock project will reflect the principles of the Victorian Pest Management Framework for Action, the Victorian Weed Management Strategy, the National Weeds Strategy and the National Serrated Tussock Strategy.

Delivering the goals of the strategy involves compliance and monitoring programs, research into new technologies for herbicide and pasture management, development of information material, and continuing to build on partnerships with landowners, community groups and local government.

The VSTWP has the following terms of reference:

- Develop and implement detailed strategies;
- Oversee implementation of on-ground work programs;
- Review and allocate current budget allocations;
- Attract further funding through grant submissions;
- Act as a communication link with stakeholder groups;
- Produce annual progress reports; and
- Advise Government of serrated tussock project objectives and targets.

Since the working party's conception, a greater community partnership has developed, resulting in a significant reduction of serrated tussock in core infestations. The Working Party continues to develop new strategies and provide support for programs developed within Victoria to target these infestations.



Defeating the Weeds Menace program

“Intensifying the attack on serrated tussock: targeting isolated infestations for eradication”

The Isolated Infestations Program has continued into 2007 with funding from the Australian Government’s *Defeating the Weed Menace Program*. The aim of the project is to achieve long-term control of isolated serrated tussock infestations, and replace it with native vegetation. Grants received for 2007 provided landowners and Landcare groups with the opportunity to implement long-term control programs to prevent further spread.

Staff in each of the catchments worked with landowners within the target areas to provide extension material and complete property inspections and follow up assistance. To date, the initiative has been a success in all catchments.

Isolated Infestation Catchment	Incentive Funds for 2007
Port Phillip	\$ 2900
Corangamite	\$ 3692
Glenelg Hopkins	\$ 11,830
North East	\$ 5,000
North Central	-
East Gippsland	\$ 34,000
West Gippsland	\$ 14,864

An evaluation of the isolated infestations program within the Corangamite Shire was conducted through a survey which was sent to several landowners. The survey targeted a mixture of landowners; present and absent during inspection and with and without serrated tussock on their property. The aim was to gain an understanding of the quality of the information that landowners received and whether it contributed to their knowledge and management of serrated tussock. The survey was also used to gain an understanding of whether landowners found DPI staff to be knowledgeable and whether they were happy with contact they had with staff.

Overall, the majority of landowners surveyed were happy with the program and the information they received. Most found staff to be knowledgeable and provided them with enough information to identify and manage serrated tussock on their property. The program did not change the majority of landowners’ management plans for their property, but all were going to continue to be vigilant for emerging plants in the future. Areas to consider for future programs, may be verbal follow up contact from DPI staff after inspections and ensuring that landowners are well aware of property inspection times.

The isolated infestations program operating in the Wimmera Catchment has had great success. Only a handful of properties have serrated tussock infestations, and these have been greatly reduced with the program to only a few plants that are appearing each season that are easily removed.



Area on a Wimmera property that was once densely infested with serrated tussock. The area was fenced and work was completed with the help of an Ararat prison works crew. The area is now completely tussock free.



Area on another Wimmera property, now tussock free.

The Glenelg Catchment has also made great achievements through the program. With the dedication of DPI staff and several landowners great improvements have been seen in the area. Brian Howlett, President of Pierrepont Landcare Group, and his partner have shown great dedication to serrated tussock control, and eradication, on their property and promoting this to other landowners within the region. This has been boosted by a hardworking contractor for the region, who is continually monitoring areas for the emergence of new plants, and educating other landowners within the community.

The property that is believed to be the source of the infestation in the region has seen large scale changes, with areas which were once almost 100 per cent covered with serrated tussock, now only scattered with a few plants.

Old quarry site were the source of the infestation for the region is thought to have occurred.



Pierrepont Hill; site of wind blown tussock to other properties.



Area on the property that was once close to 100 per cent covered with serrated tussock. Now only a few scattered plants remain.



It is hoped that with the last year of funding for the program, the majority of the tussock that remains in the region can be targeted and the area will be well on the way to serrated tussock eradication.

Local government programs

GOLDEN PLAINS SHIRE

The Golden Plains Shire has continued to target serrated tussock on all land under council management. Extensive previous control works have seen the serrated tussock burden on council land reduced to a level where generally only maintenance spraying is required. Additionally, council has controlled serrated tussock on major road reserves within the townships of Bannockburn, Inverleigh and Teesdale. Funding has been supplied to target biosite areas along the Geelong-Ballarat Railway and to assist community management committees to control the weed.

Council has continued to provide advice on tussock control to landholders and undertaken one-on-one engagement with landholders with significant tussock infestation within the township boundary. Control of serrated tussock on private land within the township boundary continues to be problematic and resource hungry and has only been undertaken when a significant tussock burden is discovered. Partnership with the DPI has allowed the sharing of landholder information to undertake reminder or enforcement action on the species.

Timely articles through the councils "Golden Gazette" newsletter have been used to raise awareness of the impacts of serrated tussock and the responsibility of landholders to control the species.

HUME CITY COUNCIL

During 2007, Hume City Council has continued to strengthen and build on the existing programs it has in place for serrated tussock control. In certain parts of the city, serrated tussock continues to be problematic; however, with resources from the Department of Primary Industries (DPI) there has been a significant reduction in the size of these infestations.

In 2007, pre-compliance letters were sent to Hume residents in the Bulla, Wildwood and Oaklands Junction areas. Approximately 85 properties, identified by the council's Land Management Officers, were inspected by the DPI. These inspections resulted in the issuing of 25 Land Management Notices and 14 Directional Notices. Subsequent inspections found all but 10 landholders had carried out sufficient works to control and prevent the spread of serrated tussock. Four Infringement Notice fines were issued totalling \$1760.00 and six prosecution files have been referred to the DPI for action in the Magistrates' Court. In addition, four compliance entries were undertaken in which serrated tussock control was carried out to the value of \$12,000.

In addition to this work and with assistance from the Interim Roadside Weed Control program, approximately 140 km of roadside was treated for serrated tussock.

Other programs specifically aimed at serrated tussock and other noxious weeds include the council's two Rate Rebate Incentive schemes, an annual weed control program, land management training and field days for rural landholders, and educational material including a quarterly newsletter - *Hume Weed News*. The council's Weed Advisory Committee also continues to provide a pivotal role in strategic weed management within Hume City.

State Government programs

DEPARTMENT OF PRIMARY INDUSTRIES

The Department of Primary Industries (DPI) is the major service provider to the VSTWP, with funds allocated through the Department of Sustainability and Environment.

Goals and objectives for DPI's programs are based on the 'Victorian Pest Management Framework' and the VSTWP serrated tussock strategy 2005-2010 "*Intensifying the attack on serrated tussock*".

DPI staff working on these programs are dedicated and enthusiastic. They are focused on achieving the strategy's outcomes and being the leading rural service providers within Victoria.

DPI Rural Extension Officers provide landowners with advice and information. This increases the community's understanding of the weeds' impact, encouraging voluntary management which extends beyond legislative requirements.

DPI Compliance Officers provide an essential service from which the whole community benefits. They undertake property inspections to ensure landowners meet legislative requirements, aim at targeting and reducing the most serious areas of infestation to reduce the spread to other properties.

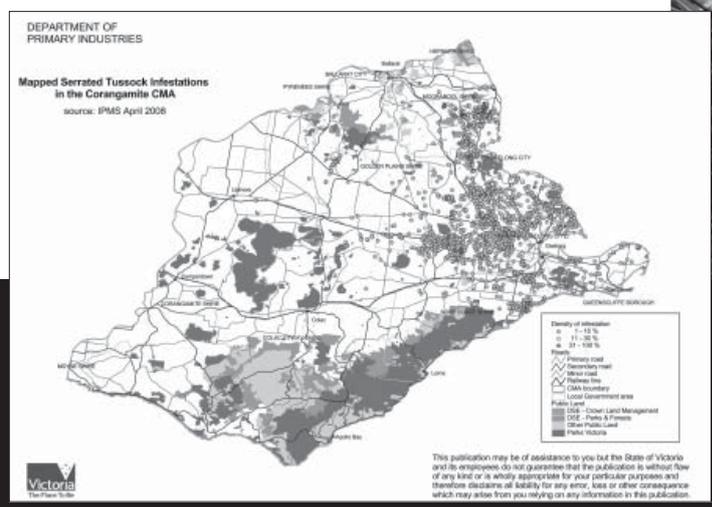
The important work performed by the DPI forms the basis for achieving ongoing reduction within existing core infestations and containing the spread of serrated tussock within the Corangamite and Port Phillip catchments. DPI also treats isolated infestations throughout the rest of the state with the aim of eradication.

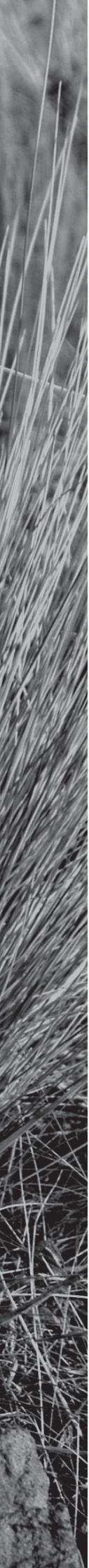
The dedicated DPI staff work to engage and empower the community to implement long-term serrated tussock control programs.

CORANGAMITE CATCHMENT BACKGROUND

In early 2007, project coordinators were involved in a priority setting process to determine priority areas for resources against a range of criteria relevant to the Corangamite and Port Phillip Catchments.

This process aimed to further align with investor outcomes and ensure a consistent process was undertaken by key stakeholders representing industry, local and state government, and landholders,





in deciding ultimately resource allocation. Through this process, *Defeating the Weed Menace* project areas at Winchelsea, Ombersley and Rokewood were finalised. Priority property audits were agreed which involved the inspection of approximately 100 established infestations.

ISOLATED INFESTATIONS PROGRAM

Development of project areas for Corangamite's Isolated Infestations Program occurred through the VSTWP planning process in January 2007.

Meetings were held with Surf Coast, Colac Otway and Golden Plains shires' environmental officers to discuss project delivery. Meetings were also held with Upper Barwon and Woody Yalock Landcare network coordinators to outline project areas and opportunities for synergism. Landcare meetings were also attended by DPI staff at Wurdale and Winchelsea River Care Group to outline project areas and process for the projects delivery.

Overall, 80 property inspections were conducted by DPI staff within the Winchelsea South and Ondit project areas, with only six properties found to contain isolated infestations of serrated tussock. The focus of these initial inspections was to provide identification and management information to landholders who have limited exposure to serrated tussock. One landholder received funds through the federally funded Defeating the Weed Menace Project.

COMPLIANCE PROGRAM

Five serrated tussock prosecutions were heard within the Corangamite Catchment during the period 2006-07 with fines totalling \$9,500.

ROADSIDES AND RESERVES

Serrated tussock roadside infestations in Corangamite are managed through the Good Neighbour Program as a regionally prohibited weed.

Good Neighbour Roadside treatment was completed throughout the catchment and totalled \$23,635. Works were completed during May and June. Four contracts were developed within the region totalling 185 roadsides being treated, encompassing 751 kms. Over eight years of effective roadside control has seen a significant reduction in roadside infestations.

A joint Good Neighbour project application was also submitted in conjunction with DPI Landscape Protection and DSE Crown Land Management focusing on the identification and treatment of serrated tussock on reserves within the catchment.

EXTENSION AND AWARENESS

Property visits were undertaken in the Spring Creek and Deep Creek regions of Torquay, an area not previously resourced, with large established infestations threatening riparian vegetation and remnants adjacent to the tributaries. Property visits were also completed in the Lara and Little River regions, building landholders' capacity to manage established infestations.

Staff participated in a small property information evening at Teesdale. This evening focused on informing landholders within semi-rural regions of a range of issues associated with land management, including serrated tussock management.

Other meetings also attended by DPI staff include a Surf Coast and Inland Plains Network meeting where the group was provided with an outline of a recent serrated tussock project in the Torquay, Moriac and Mt Duneed areas and an upper Moorabool Landcare meeting where staff outlined the delivery of the serrated tussock program over the 2007 calendar year.

Staff presented information regarding serrated tussock control to Burumbeet, Upper Williams Creek, Leigh, Corio, Avalon and SCIPN, Landcare groups. Staff also attended the Ballarat Farm Expo, Anakie and Winchelsea shows, where they displayed information and provided advice on serrated tussock identification and control. Serrated tussock management was also discussed at the Leigh Landcare Group's Escarpment field day.



Anakie Flower Show



Winchelsea Wool Sports Day

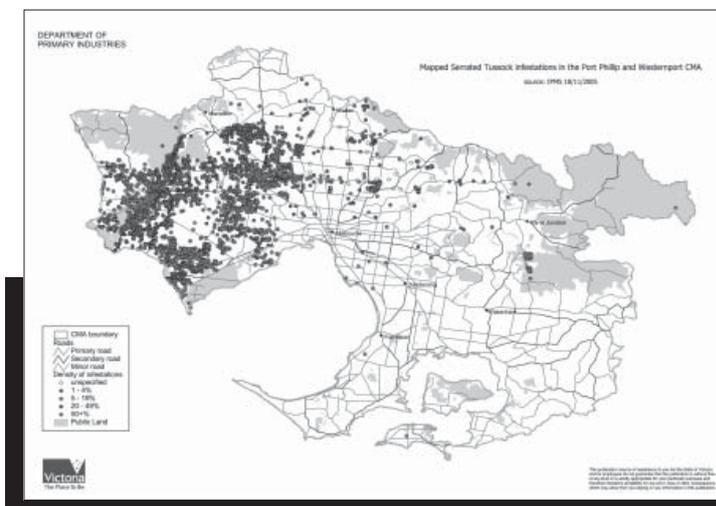


PORT PHILLIP CATCHMENT

BACKGROUND

Serrated tussock is well established in the western region of the Port Phillip and Westernport Catchment, and is a major threat to valuable environmental assets in this area.

Scattered infestations have been recorded throughout other areas of the catchment, with many infestations recorded in the northern catchment areas bordering the Goulburn-Broken Catchment region. The prevention of spread into this catchment is a high priority for the project. The investment in this project is split between the Maribyrnong, Yarra and Werribee sub-catchments.



An issue for this catchment in particular, is Flupropanate resistance in plants. In July 2006 another property with Flupropanate resistant serrated tussock was identified in the Rowsley Valley. The increasing occurrence of properties with resistant plants highlights the need for landholders to adopt an integrated approach to their control programs to reduce the incidence of chemical resistance.

ISOLATED INFESTATIONS PROGRAM

In early June, forty three properties in a 5390 hectare area south of Kilmore (including 'Fairfield' in Macedon Ranges SC) were inspected for serrated tussock. Infestations of serrated tussock were found on 10 properties, totalling 186 hectares (122 hectares on 'Fairfield'). These 10 properties were all issued with Direction Notices.

Seventeen properties were inspected in the Whittlesea Shire. Serrated tussock infestations were identified on nine properties. Within the Nillumbik Shire, 41 properties were inspected in the St Andrews area, with inspections covering 780 hectares. Nine properties were found to still contain serrated tussock.

COMPLIANCE PROGRAM

The compliance sub-project targets the densest infestations within the catchment. Supporting local government rate rebate schemes and contributing to the outcomes of the Multiple Outcome Project in the Werribee catchment, are key compliance activity objectives.

A collaborative approach has been adopted with local government and community groups to identify priority areas and properties to be inspected. This collaborative approach also identifies opportunities to deliver other extension services through workshops, training events and field days, along with opportunities to raise awareness of serrated tussock through media releases and other events.

One hundred and fifty eight Land Management Notices were issued within the catchment. Within the Hume City Council, 88 properties were inspected between 21 May and 31 May 2007 under Notice of Intent to Enter. These inspections resulted in the issuing of 25 Land Management Notices and 14 Directions Notices. **As a result**, one landowner was prosecuted in the Sunshine Magistrates' Court and received a \$400 fine without conviction. Costs of \$11,159 were awarded.

The *Tackling Weeds On Private Land* (TWOPL) project inspected properties within the Pentland Hills area. Fifty two properties were targeted. A targeted enforcement operation was also undertaken involving approximately 40 properties across the Melton and Wyndham shires.

ROADSIDES AND RESERVES

The catchment's project is supported by funding through the state government's Good Neighbour Project (GNP), with an allocation of \$45,000. These funds will contribute to the employment of a project officer who will inspect public land and coordinate activities to ensure integrated control is achieved across the catchment.

The Interim Roadside Weed Control (IRWC) project has concluded in Melton, and continues in the Hume, Wyndham and Moorabool municipalities and the City of Greater Geelong. A further 250 letters have been sent to landowners informing them of the IRWC project.

Interim Roadside Project:

Port Phillip: Serrated Tussock (approximately 546 km)

Hume City Council – 13 roads – 63 km - \$ 9,850
Wyndham City Council – 55 roads 111 km - \$ 9,300
Melton City Council - 26 roads – 125 km - \$ 9,760
City of Greater Geelong – 36 roads – 208 km - \$ 7,900
Moorabool Shire Council - \$ 5,550

LOCAL GOVERNMENT

Local governments working with the DPI within the Port Phillip Catchment include:

- Moorabool Shire Council
- Melton City Council (rate rebate scheme)
- Hume City Council (rate rebate scheme)
- Wyndham City Council (rate rebate scheme)
- Mitchell Shire Council
- Macedon Ranges Shire Council
- Nillumbik Shire Council
- Whittlesea Shire Council
- Brimbank City Council

EXTENSION AND AWARENESS

The extension and education component of the project primarily targeted areas in the north of the catchment. Landowners within the municipalities of Mitchell, Macedon Ranges, Whittlesea and Nillumbik were the target of an extension program aimed at increasing the capacity of landowners in the regions to identify and control serrated tussock. An important objective was to increase landholders' understanding of their legal responsibilities in regard to weed management. Accurate information about the extent of serrated tussock is not well known throughout these areas, however anecdotal evidence suggests that the extent of serrated tussock is possibly much more widespread than currently recorded on the DPI's pest management database - Integrated Pest Management System (IPMS). Property inspections throughout these areas will greatly increase the department's knowledge and ability to make better planning decisions in the future.

Landcare groups that the DPI works with include:

- Rowsley Landcare
- Pentland Hills Landcare
- Coimadai Landcare
- Sunbury Landcare
- Truganina Landcare
- Bullengarook Landcare
- Hume Weeds Advisory Committee

In July 2006, a successful serrated tussock field day was held in partnership with the Macedon Ranges Shire and the Clarkefield Landcare Group. Approximately 50 people attended the field day at a landowner's property in Clarkefield. The team received positive feedback from many participants.

A DPI extension officer held a joint stall with Grow West, Parks Victoria, DSE Flora and Fauna and Ballarat University at the Green Living Expo for World Environment Day to promote serrated tussock management. The day was also reported as a great success.

Serrated tussock work in the Port Phillip and Westernport region was highlighted in the Winter 2007 edition of "Kilmore Weeds and Seymour Trees" newsletter by the Mitchell Shire Council.

Other media articles released include:

- **'Competition can knock out Serrated Tussock!'** submitted for publication in Primary Voice.
- **'Make SERRATED TUSSOCK control your LONG-TERM goal'** submitted for publication in Grow West newsletter.
- **'Landowners take a hit for failing to treat serrated tussock'** published in the Moorabool and Werribee Leader newspapers.

GLENELG HOPKINS CATCHMENT ISOLATED INFESTATIONS PROGRAM

During 2007, approval totalling \$11,830 was given to the Pierrepoint Land Protection Group for isolated infestations of serrated tussock. This program involved 13 landowners which is equal to half the infested area.

COMPLIANCE PROGRAM

Two more neighbouring properties were added to the compliance program resulting in involvement of 35 properties. There has been some landholder angst about changes to the CaLP Act to issue of Direction Notices from Work Plan Agreements as some believe that the focus on compliance seems too aggressive. More extension will be needed in the future to justify and implement changes.

Two plants possibly resistant to glyphosate have been found within the region. A trial was undertaken using 'Tussock' which was effective in killing the resistant plants. The price of this chemical over glyphosate is an issue if resistance becomes more common. Plants in the area are regenerating over the summer period, making it necessary for two control programs, doubling the effort of staff and landowners in the program. If the seasons continue to allow germination over summer then recognition of the extended effort needs to be recognised in work plans. Timeframes for completion of work may also need to be made earlier, so that the effort required later is less. A positive note however, is that five properties have not had any plants emerge.

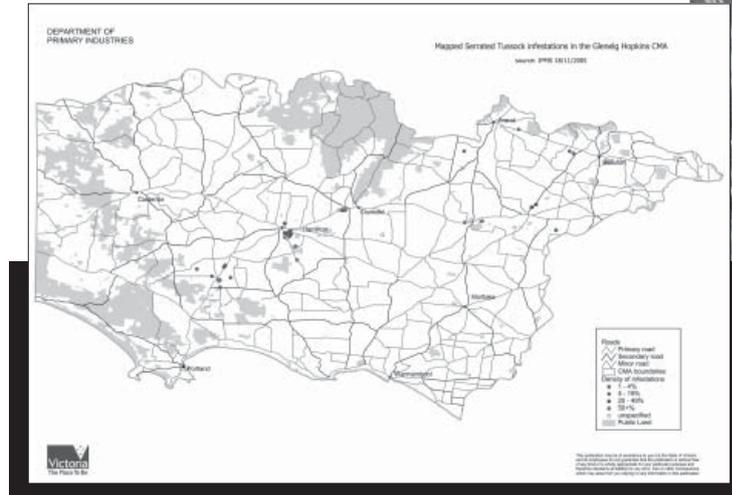
ROADSIDES

Ongoing issues about roadsides still emerge regarding management responsibility. Roadsides this year have been paid for by the DPI with some funds coming out of the group account.

Local council and plant operators are slashing roadsides at inopportune times. There is potential for one per cent of plants to still be growing after completion of control works and roadside slashing is conducted when these plants would be in the seeding stage. Wash-down procedures and vehicle hygiene needs to be brought to the forefront of these equipment operators if slashing is completed at this time in the future.

AWARENESS

Staff gave presentations to the Hamilton North Rotary Club and the Hamilton and Alexandra College year nine agriculture students, to raise awareness of serrated tussock. Two serrated tussock signs have been installed on the Hamilton Highway at Tarrington and Glenelg Highway at Dunkeld.

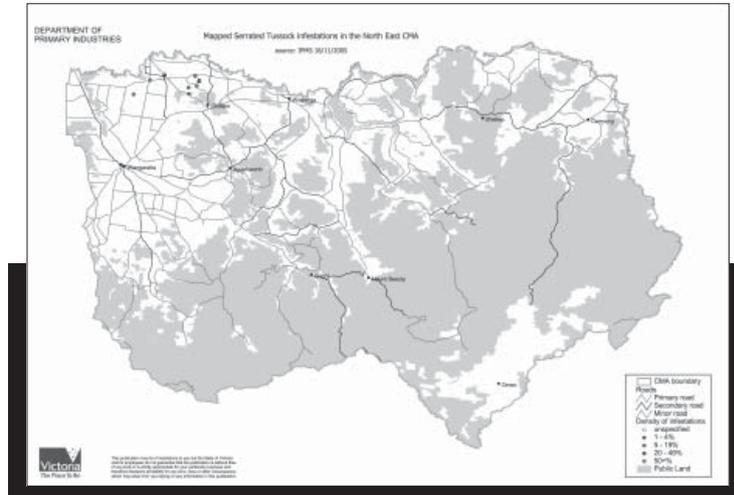


NORTH EAST CATCHMENT

BACKGROUND

The Rutherglen and Chiltern Serrated Tussock Management Plan has progressed well this financial year with a number of new small roadside infestations being identified by the team and by landowners coming forward with some new sites. This demonstrates the effectiveness of the extension program.

Considerable effort has been put in by the local committee - comprising DPI staff, Indigo Shire, North East Catchment Management Authority, the Rutherglen Landcare Group, spraying contractors and land managers - into highlighting the importance of the serrated tussock issue in the area, community education and site treatments.



ISOLATED INFESTATIONS PROGRAM

The Rutherglen LandCare Group was successful in receiving a \$5,000 grant from the Federal Government *Defeating the Weed Menace* Initiative. These funds went towards treating isolated infestations on private land. Infestations were sprayed on four properties which applied for the grant.

Two new serrated tussock infestations were identified; one in Broadford and one in Pyalong. Initial identification and report was made by Mitchell Shire staff following serrated tussock identification training in April. New infestations of serrated tussock in the Port Phillip region on the Goulburn Borken region border will be followed up by Port Phillip DPI staff.

COMPLIANCE PROGRAM

Overall results from the compliance program include the signing of 20 Work Plan Agreements (WPA) covering some 2,500 hectares. WPA commit the landholder to be looking for and treating serrated tussock if found on their property. A number of these signed related to private land but most infestations were along roadsides.

Intensive inspection of 50 km roadsides occurred in areas of known infestation. All sites were mapped and treated for the second time for the year under contract. Contract site numbers are now linked to IPMS records. Two Land Management Notices have been issued to VicRoads for serrated tussock on the Hume Highway and Goulburn Valley Highway.

LOCAL GOVERNMENT

Greg Johnson (DPI) has worked with local government and Greening Australia staff and presented at the 'Enviromarker' workshop organised by Shay Simpson at Indigo Shire. The aim of the workshop was to make contractors and community members aware of the 'Enviromarker' system and its importance to pests and other environmental management programs. A field tour was led at Rutherglen for VicRoads and Indigo Shire employees and contractors to increase their ability to identify serrated tussock in (mostly roadside) work situations.



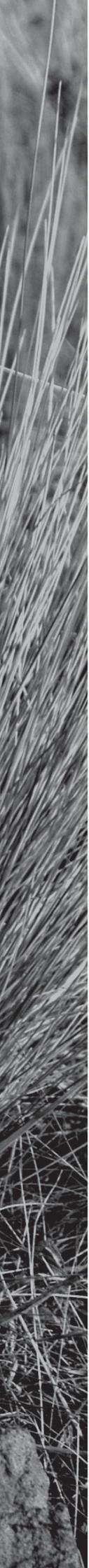
Ian Stones @ Rutherglen Battery Site

(Ian is member of Rutherglen Historical Society and is on a committee responsible for managing the Rutherglen Battery site and associated serrated tussock infestation. Maintenance of this revegetation site is part of the serrated tussock management plan for the area.)

ROADSIDES

'Enviromark' signs indicating the presence of serrated tussock were placed at roadside infestations and were advertised in the local media. Greg Johnson liaised with VicRoads' Mike Kerr regarding serrated tussock signage which is now erected on the Murray Valley Highway and on the Hume Freeway.

Roadside infestation treatments are still being funded by the Good Neighbour Program. Roadside infestations were sprayed in October with one new roadside infestation identified. It is critical that all roadside (and freehold) infestations are treated at least once and ideally twice per year. Ninety eight per cent of infestations are roadsides and these are still ineligible for serrated tussock funding.



A couple of the worst roadside infestations do not appear to be improving, even after a number of years of chemical treatment. These are difficult areas, with serrated tussock growing amongst a variety of other weedy species. Some thought and funding needs to go into developing a longer term revegetation strategy for these areas.

Funding is needed for a broader investigation, survey and treatment of roadside infestations, given that most funding is directed to freehold land.

EXTENSION AND AWARENESS

A general serrated tussock awareness article was published in many local newspapers across the Goulburn Broken and North East regions. An article was also published in local Seymour newspapers.

Greg Johnson, Brian Spencer and Danny Kupsch attended a number of regional events to promote state prohibited and priority weed awareness and management, including the Wangaratta Show, in partnership with Milawa Markwood Landcare Group and the Greta, Moyhu and Whitfield Weed Action Committee.

The Rutherglen Show was also attended with mascot Woody Weed. This was a particularly successful event and highlighted to the local community the importance of locating and eliminating serrated tussock infestations.

Other activities included:

- Henty Field Days with the Eastern Riverina Weeds Advisory Groups (NSW) display.
- Upper Ovens Landcare AGM with Weed Spotter information and weed display.
- Indigo Shire, DPI and Landcare Weed information sessions at Tangambalanga, Yackandandah.
- The Bright Sustainable Gardens Expo with Weed Spotter information and weed display which provided an opportunity to promote the serrated tussock issue to the wider community.

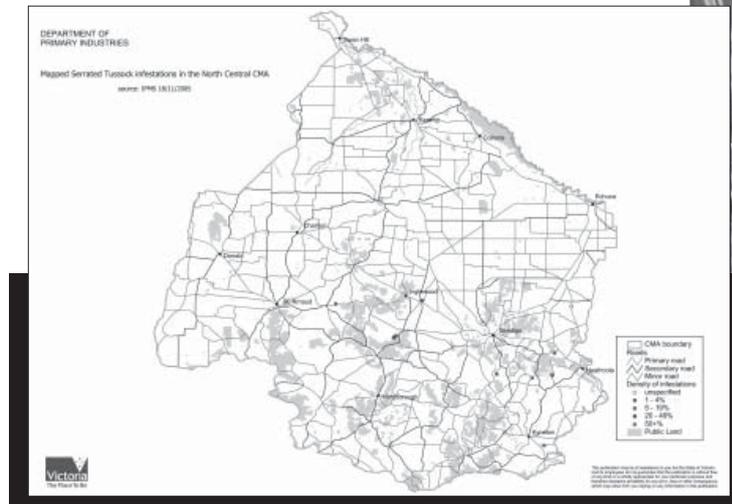
A weeds information display was also established at McNamara's Country Store, Rutherglen in a joint operation with local business, industry and the Rutherglen Landcare Group. This display also provided the starting point for the Rutherglen Weeds Walk attended by 15 community members in conjunction with the DPI, focusing on serrated tussock issues. Post drought, there is an opportunity for extension to current infestation sites to highlight the spread of serrated tussock along roadsides, particularly if travelling stock is allowed on roads in the Rutherglen area.

The year's highlights include: preparedness of the Rutherglen and Landcare communities to work together to firmly establish the project with the DPI and Indigo Shire; and the opportunity for the project team and community to meet with and conduct presentations to former Agriculture Minister, Bob Cameron.

NORTH CENTRAL CATCHMENT

ISOLATED INFESTATIONS PROGRAM

There were no applications for *Defeating the Weed Menace Serrated Tussock Incentive Grants* for North Central, due in part to the small size of infestations on private land. There are currently 10 known serrated tussock infestations in North Central. The large infestation of serrated tussock on private property in Redesdale has reduced in size since the last inspection, with the tussock infestation being treated twice yearly and only around 20 small plants present. An infestation at North Harcourt had approximately 25 plants chipped out during an inspection, similar to last year.



There are six other infestations in North Central with none to a few plants. Three freehold infestations were inspected and no plants were found as land managers are aware and treat serrated tussock when required. A serrated tussock infestation has been controlled at Bridgewater due to the Good Neighbour Project. The medium infestation had approximately 20 plants which were removed during the inspection.

COMPLIANCE PROGRAM

No compliance program was needed for the region.

ROADSIDES

Three roadside infestations were checked with only four plants found on the Northern Highway. VicRoads have been contacted and made aware of the infestation. A roadside infestation at Pipers Creek has also been controlled.

Two Serrated Tussock signs have been placed on the Calder Highway between Malmsbury and Taradale, and on the Mclvor Highway near Axedale.

EXTENSION AND AWARENESS

A Grassy Weeds field day was held in October at Langley near Kyneton. Approximately 30 people attended. The focus of the day was on serrated tussock, chilean needle grass and texas needle grass. DPI Pest Management Officers talked on identification and management techniques. The day was supported by the Macedon Rangers Shire, and the Langley and Baynton Sidonia Landcare groups. This day provided an opportunity to get the message out about serrated tussock and other *Nassella* species.

Three media articles were published in relation to the field day. Articles were written by the Macedon Ranges Shire, DPI and Landcare. One radio interview regarding the field day was also on Bendigo's ABC radio. A media article was also published regarding identifying serrated tussock and managing isolated infestations.

EAST GIPPSLAND CATCHMENT BACKGROUND

The East Gippsland Landscape Protection team is continuing the fight against serrated tussock in eastern Victoria, taking significant steps towards achieving long-term control of serrated tussock in the East Gippsland Catchment.

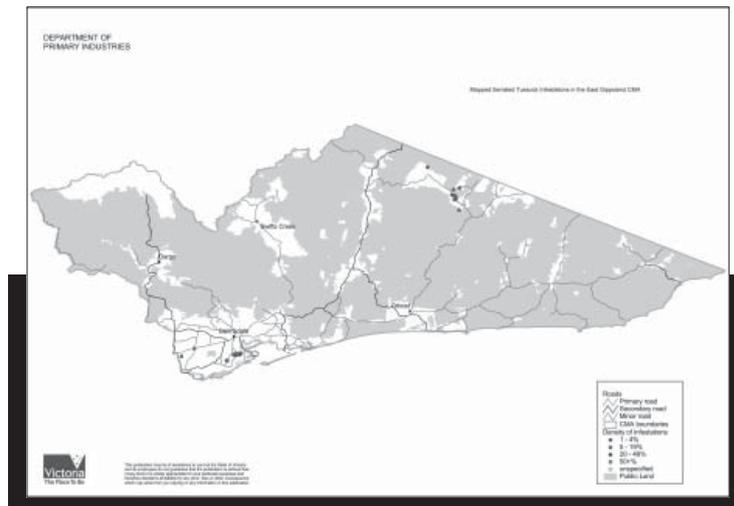
The 2007 serrated tussock control program has focused on developing collaborative partnerships with key stakeholders to ensure that they are aware of the threat posed by serrated tussock, and have the capacity to manage the threat to ensure long-term control is achieved. A targeted extension and compliance program underpins this approach.

This year's program has also been largely assisted by the VSTWP-Defeating the Weed Menace Initiative. Serrated tussock occurs in two distinct locations in the East Gippsland Catchment, around the Bairnsdale district and in the far-east area around the remote settlements of Tubbut and Bonang. The infestations occur primarily on sheep and beef farming enterprises. Severe flooding across the East Gippsland Catchment Region in 2007 may contribute to the further spread of serrated tussock across the region by moving seed across the flood affected area.

ISOLATED INFESTATIONS PROGRAM

One of the landowners in the East Gippsland Catchment secured almost \$34,000, through the VSTWP-Defeating the Weed Menace Initiative this year. Eleven landowners successfully obtained grants for pasture improvement, chemical control and cultivation work on their properties.

An example of landholders who were successful in obtaining a grant this year were beef farmers Brett and Jackie Grumley, situated in the Forge Creek area, approximately 15 kilometres from Bairnsdale.



Brett and Jackie are committed to the long-term control of serrated tussock and have a management plan aimed at breaking their 103 acre farm into smaller 10 acre paddocks. They are planning to cultivate, then sow down two annual pastures before sowing a perennial pasture to manage serrated tussock.

Brett and Jackie said: “Cultivation works for us because it ensures a 100 per cent kill and is relatively cost effective. We spot spray some areas which are unable to be cultivated regularly.”

The grants have enabled the Grumley’s to bring forward some of their long-term cultivation works which otherwise would not have occurred so quickly. As farmers they see real benefits in cultivation and eradicating serrated tussock to increase production, improve soil structure and increase the value of their land.

The Grumley’s along with all landowners involved in this year’s program have expressed their gratitude and they consider themselves fortunate to have been involved, with positive feedback from landowners participating in the grants initiative.

A detailed project plan was developed by project leader, Kelly Pardew to guide project staff in the delivery of the project. The document will form the basis for delivery of future programs but will be reviewed and modified annually.

The Grumley’s property



Brett and Jackie Grumley

COMPLIANCE PROGRAM

All known infestations of serrated tussock were inspected throughout the East Gippsland Catchment in 2006/07 (30 properties). In 2007, nine Directions Notices and one Land Management Notice were issued in accordance with the *Catchment and Land Protection Act 1994*. While one matter is still outstanding, the remaining landowners complied with the Notices.

ROADSIDES

\$5,940 was secured through the Good Neighbour project for roadside spraying of serrated tussock in far east Gippsland. Caitlin Jackson continues to liaise with VicRoads and the East Gippsland Shire regarding weed control along roadsides. This working partnership has enabled staff to get roadside control works completed at the same time compliance and extension programs are being conducted.

LOCAL GOVERNMENT

Meetings between local government, Landcare members and Byron Crowe, Executive Officer of the VSTWP were held in June this year. Tom's Creek, Romawi, Bonang-Cabandandra and Deddick Landcare groups continue to work in partnership with the DPI delivering a coordinated community-driven weed management program. This includes identifying and notifying staff regarding new infestations and promoting the VSTWP assistance programs.

EXTENSION AND AWARENESS

The extension program for 2006/07 focused on properties adjoining known infestations. During this program an additional four properties were identified with infestations. Extension services were provided to these landowners, with project staff continuing to work with these landowners. A number of community engagement activities, were undertaken, some in partnership with key stakeholders. These activities included presentations and interactive displays at the East Gippsland Field Day, during Weed Buster Week and at local schools and TAFE institutes.

Media articles were published in local Bairnsdale and Orbost papers. These include:

- 15/03/07 **'Grant available for eradicating isolated serrated tussock'** - The Primary Producer
- 18/04/07 **'East Gippsland Field Days'** - The Primary Producer
- 07/05/07 **'Getting the edge on serrated tussock'** - The Primary Producer
- 01/10/07 **'Weed buster field day'** - The Primary Producer and Landcare Newsletter
Spring Edition of East Gippsland Landcare Newsletter 'Serrated Tussock Control'
- 5/11/07 **'TAFE students become Weed Spotters'** - Primary Source, DPI News.

Two serrated tussock signs were erected on the highway outside Stratford and Bairnsdale this year. A company working in the local area took particular interest in the sign and visited the Bairnsdale office to ascertain if the areas they were working in were serrated tussock affected areas, how they could identify it and how to minimise the risk of spreading it. They were provided with extension material by project staff, emphasising vehicle and machinery hygiene practices.

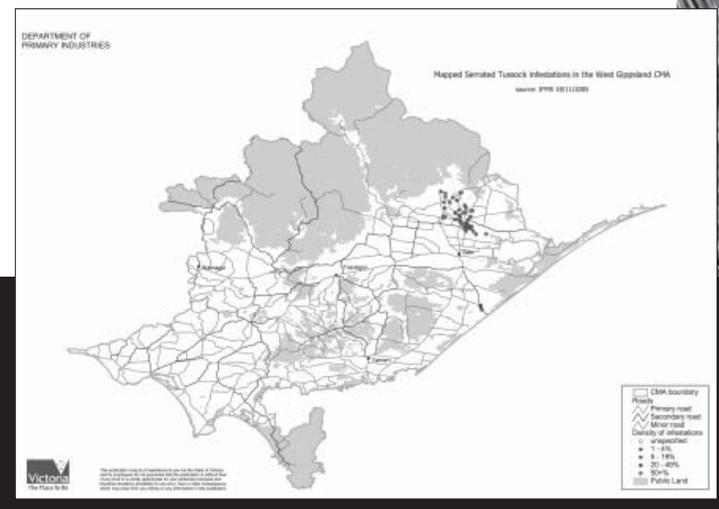
PUBLIC LAND MANAGERS

The Department of Sustainability and Environment actively work in a collaborative partnership with DPI in the control of declared noxious weeds, including serrated tussock on public land. Forge Creek Reserve, which is surrounded by private landowners, is treated in conjunction with the compliance program to minimise the onset of seed and the potential spread of serrated tussock.

WEST GIPPSLAND

BACKGROUND

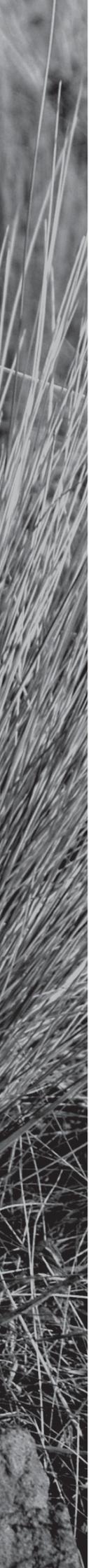
The West Gippsland Serrated Tussock Project Plan 2007/2008 has provided the direction for implementation of regional activities in 2007. Based on the Community Weed Model partnership approach, the project seeks to increase the West Gippsland community's knowledge and capacity to manage serrated tussock; the ultimate aim being eradication from the region. Targeted extension and compliance programs are integral to this approach.



ISOLATED INFESTATIONS PROGRAM

Four West Gippsland landowners applied for Isolated Serrated Tussock Infestation Incentive Grants totalling \$15,164. Three of these were successful, with \$14,864 of grants being approved. On one of these properties, 57 hectares of grazing land has undergone major pasture renovation, being sown with lucerne to assist with long-term control.

Activities in 2007 have again been focused on the outlier infestation centred on the Maffra, Stratford, Briagolong and Seaspray districts in West Gippsland CMA Region. Comprising an area in total of approximately 50,000 hectares, there are less than 120 known infestations in the target area. Property sizes range from small residential blocks, from hobby farm and lifestyle lots to 100 hectare agricultural properties, with some roadsides and public land included. Most infestations are classified as light to medium.



All properties with previously recorded infestations of serrated tussock were included in the program, with scope to include any new sites and the strategic monitoring of areas threatened by prevailing winds from the main infestations.

COMPLIANCE PROGRAM

In accordance with the regional project plan, DPI undertook a coordinated compliance program during June and July 2007 in which 98 properties were inspected by a team of West Gippsland PPA enforcement staff. A high level of control was achieved with only two Land Management Notices and seventeen Directions issued. One prosecution brief for failing to comply with a Land Management Notice was proceeded with.

In conducting an evaluation of the project, 25 properties were identified which demonstrated long-term voluntary control. It is proposed that these properties be removed from next year's compliance program. The overall level of cooperation and assistance from the local community was excellent, with a number of new infestations detected following information received from the public.

Note: *During the compliance operation in June and July a major flood event occurred in West Gippsland, with many properties in the Avon River and Freestone Creek catchments being severely affected. Following an assessment of the impact of the flooding, provision was made for individual circumstances when setting compliance deadlines.*

The river systems, and in particular the Avon River and Freestone Creek catchments are major vectors for serrated tussock spread in the target area. A significant number of properties in the compliance program have boundaries with these waterways, and are at risk of reinfestation from the spread of uncontrolled tussock in the river bed, particularly during flood events.

The 2008 program will focus on issues associated with river management, including land management and ownership aspects, impacts of floods and the changing courses of the waterways. A coordinated approach and the active involvement of key stakeholders will be necessary if such a program is to be effective.

Strategic monitoring of areas outside the major infestations threatened by prevailing winds will also be a key component of the 2008 program.

ROADSIDES

All known infestations of serrated tussock on roadsides in West Gippsland have been treated by contractors, with approximately 18 kilometres sprayed under the Good Neighbour Program. A number of new infestations have also been identified, mapped and treated in the Stratford and Briagolong areas including a small infestation in Stratford township itself.

EXTENSION AND AWARENESS

The extension component of the 2007 program has resulted in more than 70 properties being visited and-or provided with relevant extension material. Other key elements of the program have included active participation in Landcare and community meetings, the conduct of a joint Weed Buster and serrated tussock field day at a farmer's property at Valencia Creek near Briagolong, displays and general liaison with the community on education and awareness issues. This approach has resulted in a number of new infestations being recorded and mapped.

The very strong and productive relationship that exists between DPI staff and the Maffra and District Landcare Network and its local reference group has continued. The success of the extension element of the West Gippsland Serrated Tussock program is largely attributed to the local knowledge and ability of DPI and Landcare Officers to effectively communicate and interact with the local community.

The success of the 2007 West Gippsland Serrated Tussock Project Plan can be largely attributed to the contributions and support from the key stakeholders to the project. These included:

- Wellington Shire Council (through the "Weeds for Trees" project)
- West Gippsland CMA
- VicRoads
- Maffra and Districts Landcare Network and its Local Area Reference Group
- DSE, through Good Neighbour and IRWCS, in addition to the local community.

A newly appointed, dedicated regional serrated tussock Rural Extension Officer will provide ongoing support and improved capacity to deliver key outcomes in 2007/2008.



Compliance Program Summary

Corangamite Catchment

Properties Inspected	353
Hectares Inspected	60,554
Hectares Infested	4,166
Work Plan Agreement issued	121
Notice of Intent to Enter issued	561
Land Management Notices issued	96

Port Phillip Catchment

Properties Inspected	496
Hectares Inspected	52,020
Hectares Infested	16,444
Work Plan Agreement issued	439
Notice of Intent to Enter issued	804
Land Management Notices issued	122

Wimmera Catchment

Properties Inspected	14
Hectares Inspected	42
Hectares Infested	14
Work Plan Agreement issued	3
Notice of Intent to Enter issued	10
Land Management Notices issued	0

North Central Catchment

Properties Inspected	4
Hectares Inspected	2.2
Hectares Infested	1.5
Work Plan Agreement issued	0
Notice of Intent to Enter issued	0
Land Management Notices issued	0

East Gippsland Catchment

Properties Inspected	56
Hectares Inspected	2700
Hectares Infested	644
Work Plan Agreement issued	14
Notice of Intent to Enter issued	52
Land Management Notices issued	0

West Gippsland Catchment

Properties Inspected	76
Hectares Inspected	2,695
Hectares Infested	311
Work Plan Agreement issued	14
Notice of Intent to Enter issued	157
Land Management Notices issued	4

North East Catchment

Properties Inspected	41
Hectares Inspected	2,660
Hectares Infested	17
Work Plan Agreement issued	20
Notice of Intent to Enter issued	0
Land Management Notices issued	0

Goulburn Broken Catchment

Properties Inspected	12
Hectares Inspected	1,165
Hectares Infested	211
Work Plan Agreement issued	3
Notice of Intent to Enter issued	1
Land Management Notices issued	3

Glenelg Hopkins

Properties Inspected	35
Hectares Inspected	1,022
Hectares Infested	65
Work Plan Agreement issued	0
Notice of Intent to Enter issued	40
Land Management Notices issued	2

All catchments

Properties Inspected	1,087
Hectares Inspected	122,860
Hectares Infested	21,874
Work Plan Agreement issued	603
Notice of Intent to Enter issued	1,625
Land Management Notices issued	227

Mobile

Compliance Taskforce

During 2007 the Mobile Compliance taskforce program has provided compliance support to regional staff when requested for individual cases.

2008 will see the Supporting Community Led Action of Pests project rolled out. This is part of the Victorian Government's recently announced Weeds and Pests Initiative (WPI) that provides \$30 million dollars over the next four years. This initiative extends existing pest programs and offers new approaches to protecting Victorian farms from pest animals and noxious weeds.

The DPI recognises that a number of community groups throughout Victoria have adopted a collaborative and strategic approach to pest management and are making significant progress in managing pests. As part of the WPI and in recognition of the leadership shown by community groups, the DPI is implementing a project to provide support to active groups who are strategically managing pests.

The DPI remains firm in its position of only providing such support (eg. compliance) to groups actively involved in (and where possible leading) strategic projects targeting priority pests. This initiative builds on the partnerships and support currently provided to community groups by DPI. It also aims to generate greater understanding of Government's role in supporting community action on priority pests and further encourage community leadership in pest management.

The Tackling Weeds on Private Land Initiative demonstrated the effectiveness of a mobile compliance team in providing support to pest projects around the State and this project will further develop this concept. This mobile compliance approach enables authorised officers to assist community groups and existing DPI projects to implement extension and compliance programs and initiate any subsequent enforcement action as required.

Potential projects for the mobile compliance team to support active community groups between February 2008 and June 2009 are currently being discussed with key stakeholders such as community groups and Catchment Management Authorities.

Landcare

BELLARINE PENINSULA & SWAN BAY ICMC

The serrated tussock project this year centred on a newly discovered outbreak off Anderson's Rd. The infestation noticed by an alert share farmer covered an area of 29 hectares in previously grazed paddocks. Much of the property is being returned to native vegetation through the grant incentive scheme.

Through the services of the Conservation Volunteers Australia CIP program, a team spent two days walking the area and grubbing out individual plants. Some areas were quite thick while in others had plants spread out. Burrows road bordering the property was also treated with numerous plants removed. The landholders played their part by following up and eradicating any left over plants before seed set. Other priority weeds including gorse were also treated at the same time.



A direct seeding project is planned for next year which will continue to add biodiversity to this site and provide roosting opportunities for the critically endangered Orange-bellied Parrot which feed adjacent to the site on the Swan Bay Coastal Saltmarsh.

This site will be monitored and further plants grubbed out as part of next years on ground works projects. We hope to obtain the services of CVA again for this purpose.

This project highlighted how important it is to have skilled community members who are able to identify outbreaks of serrated tussock, landholders willing to do their bit and eradicate it and volunteer resources to assist with the eradication.

This project was submitted for the Weed Warrior awards in which it received runner-up status.

Map of tussock infestation treated.



Moorabool Gorge Recovery Program

The Moorabool Gorge Recovery Program (MGRP) is a community driven project which aims to protect and improve the Moorabool River catchment.

This project has been running for the past six years and is an important partnership between the DPI, Moorabool Shire, Corangamite Catchment Management Authority, Barwon Water and the East Moorabool Landcare Group.

The Victorian Serrated Tussock Working Party supports MGRP by directing the resources of the Department of Primary Industries Serrated Tussock Compliance & Extension Program to support on ground control works.

The main goal of the program is to transform the Moorabool River valley into a diverse and robust wildlife corridor. This will not only protect the existing vegetation along the river but will also improve water quality and address weed and pest issues on the escarpments.

Serrated tussock is a huge problem on the non-arable gorge country and replacing it with native vegetation has widespread benefits.

2007 has been a bit of a catch-up year with confidence in and enthusiasm for revegetation low because of the drought.

Several failed sites were replanted from 2006 and work started on a very large and exciting project on Eclipse Creek. In all approximately 30,000 local trees and shrubs were planted. 155 hectares of remnant vegetation were also protected, and 1.6 kilometres of waterway was improved. Six workshops were run on various topics.

In 2008, the program will be supporting an Evergraze project that is looking at ways to improve the condition and extent of native grasses on escarpment country while reducing the density of serrated tussock. The Evergraze supporting site which has been chosen is located on Moorabool River gorge country near Ballan. Grazing management strategies to reduce the reinvasion of serrated tussock seedlings by encouraging native grass competition will be tested at the site.

The concern to landholders is that through previous set stocking, the gorge country has become dominated with serrated tussock. The paddocks then require blanket spraying with flupropanate, which kills serrated tussock but also native species such as wallaby grass, spear grass and annual grasses. After five to seven years, serrated tussock and broadleaf weeds invade and the paddocks require further spraying treatment.

The group aims to break the cycle of having to use blanket spraying through the use of strategic grazing strategies. They also hope to reduce the need for blanket spraying to spot spraying or patch spraying so that native grass competition can be returned and maintained.

The strategies to be used include the Long Spell Deferred Grazing developed from the Steep Hills project (October to autumn break) and strategic grazing techniques over autumn and winter that maintain 90 per cent groundcover and 1500 kg DM/ hectare.

The theory behind this type of project is that a group of producers can trial new grazing, pasture or animal systems in their local environment which will hopefully lead to significant improvements in profits and natural resource management outcomes. The uptake of any improved practises identified will also occur more rapidly due to the advocacy and involvement of the local landholders.



West Program

Grow West is a major landscape change project aiming to rehabilitate 10,000 hectares of land in the upper Werribee catchment. The Grow West program is currently focusing on creating a number of native vegetation links to enhance biodiversity and create habitat for flora and fauna, manage erosion, reduce the density of weeds, minimise the impacts of salinity and help reduce the effects of greenhouse gases.

The Victorian Serrated Tussock Working Party is a key stakeholder in the Grow West Program by supporting the program from its inception to what it is today. Initially the VSTWP provided direct financial support to help establish the Grow West Program and today continues this support by directing the resources of the Department of Primary Industries Serrated Tussock Compliance Program to support on ground control works.

Major assets within the Grow West project area include a number of parks and reserves including state and national parks, 13 endangered and vulnerable ecological vegetation classes, 121 known sites supporting rare or threatened flora and fauna, four major water catchments supplying potable, stock and irrigation water to communities west of Melbourne, and an agricultural enterprise estimated to yield in excess of \$35 million annually.

The Grow West project ultimately aims to achieve multiple sustainable land management outcomes to enhance environmental condition and subsequently improve the economic and productive value of land within the project area. This objective sees land rehabilitation works such as revegetation, protection and enhancement of remnant vegetation, and establishment of farm forestry, being implemented “hand in hand” with comprehensive pest plant and animal control programs.

The on ground works achieved by Grow West are summarised as follows:

- A total of **46.5 hectares** was revegetated with locally indigenous trees and shrubs. Of this 46.5 hectares, approximately 35 hectares also included fencing and stock exclusion to protect and enhance patches of remnant vegetation including endangered or vulnerable Ecological Vegetation Classes such as Grassy Woodland and Rocky Chenopod Woodland. A Section 173 Agreement and a Trust for Nature Covenant is currently being prepared to protect the long-term viability of work carried out on this 35ha (across two separate properties).
- Site preparation works such as soil preparation and weed control were carried out on a further **83.8 hectares** to allow revegetation to occur in 2007/08.
- On ground works were ultimately achieved using a broad range of approaches such as engaging professional contractors, conducting staff and volunteer planting days, and working directly with landholders who were able to provide in kind works and services.

- Grow West also assisted the Port Phillip and Westernport Catchment Management Authority (PPWPCMA) in fencing off approximately **50 hectares** of significant remnant vegetation within the Grow West project area, through the Drought Employment Program as administered by the State Government under the Australian Government's Exceptional Circumstances drought relief program.
- All of the above revegetation and site preparation work was implemented in conjunction with broad scale pest plant and animal control programs, with particular continued emphasis on serrated tussock and rabbit control.

In October 2006, Grow West officially launched its new website www.ppwpcma.vic.gov.au/grow-west. The website provides information on the environmental, social and economic benefits of the project and will prove to be a major educational and marketing tool for Grow West. It was developed in partnership with the PP&WPCMA and the Grow West Implementation Committee.



Native Grasslands and Serrated Tussock Management

Native grasslands within Victoria are one of Australia's most threatened ecosystems. Only half of one percent of the original two million hectares of lowland grasslands remains in near-natural condition, and they contain the greatest number of species facing extinction.

Lowland native grassland is recognised as one of the Victoria's most endangered vegetation types and the Western (Basalt) Plains Grasslands community is listed as a threatened community under the Flora and Fauna Guarantee Act.

Highly invasive weed species, such as serrated tussock, are one of the most significant threats facing indigenous grasslands in south-eastern Australia, invading some of Victoria's most endangered native grassland remnants and greatly reducing the diversity of native grassland species.

Most remnants are now small, fragmented and highly degraded by weed invasion, property development, grazing and the application of agricultural chemicals. Many grassland remnants occur on private land, and as such may be under threat from activities such as weed control.

The impacts of serrated tussock on threatened species within endangered grasslands are being increasingly recognised by scientists and farmers as a very serious problem. During 2007, the need for a greater emphasis on prevention of serrated tussock spread into native grassland areas, and the careful management of grasslands containing serrated tussock was recognised.

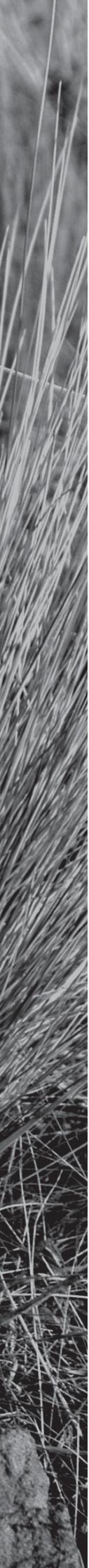
Management strategies for the future will be looking to incorporate natural assets such as native grasslands into any serrated tussock program. The Victorian Serrated Tussock Working Party and the DPI will be working closely with the DSE's BushBroker program in 2008, to provide landowners with a greater incentive to protecting any grassland remnants on their property.

As awareness is continuing to increase as to the value and fragility of Victoria's native grasslands, and the impact that serrated tussock and its control poses to their survival, work has also been focused on asset based protection.

In line with this, a nomination was submitted to the Flora and Fauna Guarantee Act 1988, to have serrated tussock listed as a threatening process to native grasslands within Victoria. If this nomination is accepted it will provide DPI and the working party with greater justification to promote the protection of native grasslands to landowners and local government.

Information has also been gathered from local government on native vegetation assets within each shire to assist the DPI and the working party when planning priority tussock control areas.





Serrated Tussock Partnerships Officer

During 2007, DPI and the VSTWP jointly appointed a new role of Serrated Tussock Partnerships Officer. The role commenced in July and is funded until 2009.

The aim of the role is to increase communication and information flow between key stakeholders dealing with serrated tussock control and to increase awareness of serrated tussock issues across Corangamite and Port Phillip catchments, in line with goals established in the new strategy "*Intensifying the attack on serrated tussock 2005-2010*". The main stakeholders involved are local government and Landcare groups across both catchments, but the role also aims to involve groups such as VicRoads, Melbourne Water and Parks Victoria.

Since commencing the partnerships officer has facilitated regular local government meetings for environment officers in both catchments. These meetings have provided local council's with the opportunity to discuss regional tussock management issues and to give the DPI and the VSTWP the opportunity to keep council members informed of project plans and new information.

The partnerships officer has evaluated the meetings, with all council members agreeing that the meetings are a positive tool and a good opportunity for collaboration. Meetings will continue quarterly in 2008.

The partnerships officer has also attended Landcare meetings of several groups that have either had a long involvement with the DPI's tussock program, or are beginning to see tussock as an emerging issue in their area. These meetings have provided a forum for the partnerships officer to discuss ways to increase local awareness as well as providing information that may benefit groups to continue their tussock management programs, such as grant information, media articles, DPI training, new extension material and information from the working party. Involvement with Landcare groups will continue to develop as the role progresses.

In line with outcomes of the role, a focus has also been increased on development of media and promotional material. The production of a regular newsletter, the "Tussock Times", has commenced and will be an excellent tool to communicate with stakeholders across both catchments. Information included within the newsletter includes DPI and STWP updates, local government information, Landcare events and programs, grant information, success stories, research information and other information that may be of value to landowners.

Articles promoting the DPI's programs have been sent to local government for inclusion within council newsletters to increase landowner's awareness of work being undertaken within the shire. Articles have also been distributed to several Landcare groups, which coincide with seasonal information, for inclusion within their local Landcare newsletter or community notice boards. The working party website has also been updated and includes recent media articles, copies of the newsletter, research articles, facts sheets, program information and what's new.

In 2008, there will be opportunities within the role, to further build on partnerships with the delivery of workshops throughout the region for Landcare groups, and ongoing communications between local government and other key stakeholders.



Research Activities

This project is working to develop integrated management options for serrated tussock. Approaches include chemical control, grazing management, mechanical treatments and biological control.

Biological Control

A project investigating potential biological control agents for *Nassella trichotoma* in Australia has been underway since 1999.

Surveys in Argentina have identified three rust fungi (*Puccinia nassellae*), a smut (*Ustilago* sp.) and a crown rotting fungus (*Corticaceae*) as possible biological control agents of *N. trichotoma*. Unfortunately the rust fungi, *P. nassellae* appears to have a too large host range as it produced a pustule on an Australian native grass, *Austrostipa aristiglumis*, during host specificity testing. Its virulence was also questioned as it was far more prevalent on serrated tussock in shaded situations.

Similarly, it has been decided that the potential of *Ustilago* sp. as a biological control agent is limited, due to technical difficulties regularly encountered in inoculation experiments and the low incidence of the disease commonly observed in the field. Repeated attempts have failed to determine the lifecycle of the *Corticaceae* fungus and its host specificity is also questionable.

At this stage the biological control program in South America is concentrating on Chilean needle grass where several promising agents have been identified. An area that has yet to be investigated are pathogens affecting the serrated tussock seedbank. An observation in Argentina is that they rarely see serrated tussock seedlings. A project to investigate serrated tussock seedbanks and associated pathogens in Argentina could be very rewarding.

Chemical Control

A population of serrated tussock at a property north-west of Melbourne at Diggers Rest in Victoria was confirmed resistant to flupropanate in 2002.

To determine the spread of flupropanate resistance, 87 serrated tussock plants were collected randomly from paddocks and on roadsides within 5 kilometres of the resistant plants in 2003. A pot-dose method of resistance assessment identified plants resistant to flupropanate up to 3.5 kilometres from the site where resistant plants were initially identified. Seeds from these plants showed 0-100 per cent resistance, with sensitive plants often having a low (≤ 5 per cent) level of resistant seed. These results suggest movement of flupropanate resistance through seeds or pollen and show that its spread had occurred within one year of detection.

Identification of a population of serrated tussock resistant to the herbicide flupropanate at Diggers Rest (Figure 1) just north-west of Melbourne has previously prompted a mail survey of 5,000 land managers impacted by serrated tussock across Australia. Out of 400 respondents, nine reported serrated tussock resistance to flupropanate and six reported resistance to glyphosate. Follow-up testing of suspected properties has now confirmed three properties with serrated tussock resistance to flupropanate.

This study has also developed a relatively quick seed bioassay technique for testing for resistance. The extent of serrated tussock resistance to flupropanate identified in this survey flags serious concern about its future viability as a management tool. This study emphasises the importance of promoting integrated management of serrated tussock to help combat resistance.

A second property in Victoria located in the Rowsley Valley (Figure 1) has been confirmed with serrated tussock resistant to flupropanate. At present this problem is being treated as a new and emerging weed issue with considerable Government resources being expended to kill the “resistant serrated tussock” using glyphosate. To determine the extent of this issue, a roadside-paddock serrated tussock randomised block survey has been undertaken at 56 sites over a 100 square kilometre range from the identified resistant property. These samples have been collected and are being grown in preparation for treatment at the recommended rate of flupropanate and compared to known flupropanate susceptible serrated tussock plants.

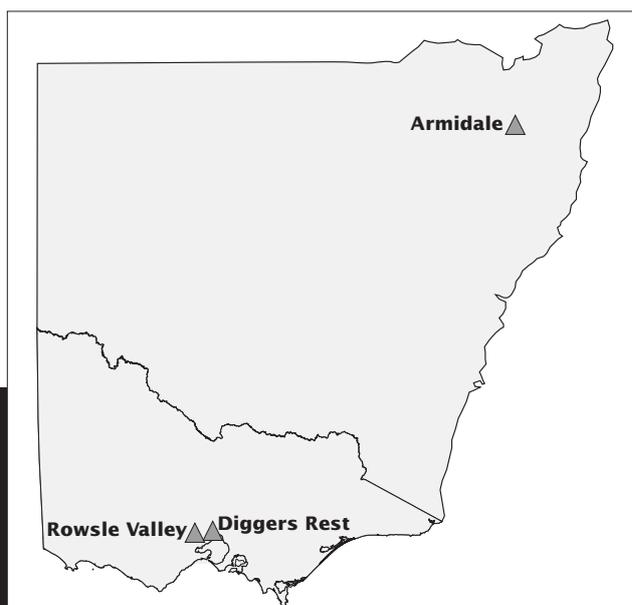


Figure 1: Distribution of properties with serrated tussock resistant to flupropanate in Australia.

Inheritance studies conducted by Sethu Ramasamy from RMIT University show that serrated tussock resistance to flupropanate can be transmitted through pollen (1:2:27 ratio of resistant: inter-mediate resistant: to susceptible). He has also shown that the vast majority (>90per cent) of the panicle seeds produced by serrated tussock are selfing and only 5-10per cent are actively crossing.

Afforestation is a management tool for long-term control of exotic unpalatable grasses. Grass control is required at tree planting to maintain tree vigour and establishment. Flupropanate is a widely used herbicide for managing unpalatable grasses. The impact of a simulated aerial application of flupropanate at the recommended rate (1.49 kg a.i. ha⁻¹) and twice recommended rate (2.98 kg a.i. ha⁻¹) on a native tree trial located in the Rowsley Valley at Glenmore was conducted between 2004 and 2006. Results show that flupropanate does impact on tree survival with approximately one in 40 seedlings dying at 1.49 kg a.i. ha⁻¹ and 1 in 20 dying at 2.98 kg a.i. ha⁻¹. Flupropanate substantially reduced height of black wattle and caused obvious leaf shrivelling-leaf deformation. Flupropanate reduced the height of varnish wattle but did not appear to affect leaf health. Flupropanate did not affect tree heights or cause apparent leaf damage to grey box, yellow gum or drooping sheoak.

Integrated Management

A project was initiated in 1997 to share information about serrated tussock management through a series of structured workshops between farmers, natural resource managers (weeds officers, district agronomists, Shire environmental officers) and weed scientists. As scientists, we are looking for “nuggets of information” from farmers that may help us design some better tools for controlling this weed. Farmers are innovators, inventors and observers of nature, and know the weed well. This project aimed at letting farmers relate and share their serrated tussock experiences with their peers while also hearing about the latest serrated tussock research discoveries and observations.

A total of 206 people attended eight workshops across Victoria, New South Wales, Australian Capital Territory and Tasmania. The majority of participants were farmers (61 per cent), natural resource managers (19 per cent) and scientific officers (19 per cent). A summary of workshop outcomes is provided in Table 1.

Table 1: Workshop summary of most commonly utilised techniques for serrated tussock control.

Preferred Control Technique	Bacchus Marsh	Geelong	Hume	Bathurst	Goulburn	Cooma	Canberra
Chemical	f, g	f, g	f	f	f	f	g
Mechanical	ch, cu, b	ch, cu, b	ch, cu, b	ch	ch	ch, cu	ch
Grazing	se, r	se, r	r	r	se	se	r
Pasture Rehab./ Crop	cp, fe	cp c	cp, c	cp, fe	cp	cp, c	cp, fe
Forestry	p, s, wi	e, wi	wi	-	p, w, e	t, s, e	p, s, t, e, wi

Key:

Chemical:

f=flupropanate; g=glyphosate

Mechanical:

ch=chipping; cu=cultivation; b=burning.

Grazing:

se=set stock; r=rotational.

Pasture rehabilitation:

cp=competitive pastures, c=cropping; fe=fertility

Forestry:

p=pine; w=wattles, s=sheoaks; t=tea-tree; e=eucalyptus, wi=windbreaks.

There were several issues that came out strongly through the workshops. Probably the greatest was the challenges that relate to changes in land use. Changes result from land subdivision and lifestyle changes occurring through a proliferation of hobby farms, absentee landowners, land purchased for developer speculation, and government regulation (Green Wedge). A comment made was: "We need government to help facilitate share farming on these smaller land units to contain the weeds while also making a viable farming business". Absentee landholders and untreated serrated tussock on public land provides an major source of airborne seed for re-infesting agricultural land that in some cases gave farmers a fatalistic "it's too hard" outlook.

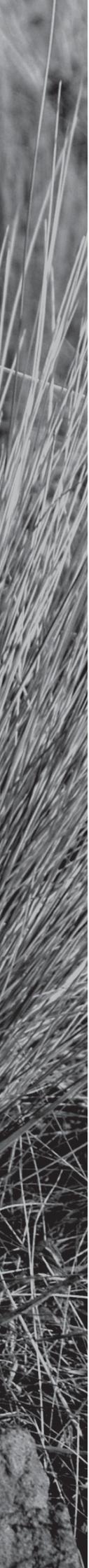
The workshops showed that serrated tussock has resulted in significant land use changes, with many farmers now cropping (at least rotationally) where they had previously only grazed stock.

The workshops highlighted that there is no excuse for having serrated tussock on arable land and emphasised the importance of continued monitoring and follow-up control measures.

The real challenges for serrated tussock are in the non-arable and steep escarpment country where the only real incentives to control it is the threat of legislative prosecutions and being a good neighbour to stop it spreading. However, several good suggestions were put forward including afforestation (potentially for carbon credits), use of tea-tree, and for smaller areas the strategic use of glyphosate for spot spraying using a specially adapted lance to ensure accurate herbicide application. Use of trees as windbreaks to reduce serrated tussock seed spread was prominent in the Victorian workshops (Table 1).

Flupropanate was the herbicide of choice for serrated tussock control across most workshops, particularly in Bathurst, Goulburn, Cooma and Bacchus Marsh (Table 1). However, strategic use of glyphosate for control of serrated tussock in native grasslands was promoted strongly at the Canberra workshop. Glyphosate was generally advocated for spot spraying only, unless for a kill-off prior to a pasture-crop renovation. However, spray topping using low rates of glyphosate to prevent seeding was advocated in some workshops.

Serrated tussock resistance to flupropanate was highlighted as a potential future issue at each workshop and emphasised the importance of an integrated control approach. Many farmers commented on their preference for flupropanate due to its selectivity and residual activity in preventing re-infestation for three to five years. However, it was commented that flupropanate loses its residual activity after fire.



The main issues raised with flupropanate were its detrimental impacts on susceptible native grasses if sprayed at label rates, the potential development of resistance and the long stock withholding period after broadacre application. The issue with glyphosate is its non-selectivity that can result in a 'monoculture of serrated tussock' if replacement species are not planted in the areas treated. Some farmers preferred to use glyphosate as a cheaper option with an 'instant kill' and no long stock withholding period.

Across all workshops, there were comments on the importance of pasture management in tussock control using a range of grazing techniques and maintaining a good pasture (Table 1). Comments included: "Keep the pasture at a height of a beer-can on its side during a bad year and an upright beer-can during a good year," and "We need to shift from managing for stock to managing for grass".

Areas requiring further investigation included:

- Effectiveness of plantations, wind-breaks and ring-lock fencing to prevent serrated tussock seed dispersal and weed spread.
- Research on the effectiveness and establishment of tea-tree and other species for rehabilitation and containment of serrated tussock in steep gorge non-arable situations and potentially for carbon credits.
- Integrated management practices – moving to incorporating serrated tussock management into whole farm or other land-use planning.
- Shortening the with-holding period for flupropanate.
- Assessing adjuvants (oils) for improving flupropanate and glyphosate effectiveness.
- Serrated tussock resistance to flupropanate.
- Application technology to get less off-target damage using glyphosate.
- Timing of chemical control to minimise impacts on beneficial plant species.
- Investigate strategic wide-scale containment/management (particularly from sources of 'seed-rain' from the west).
- Vendor declarations for sale of infested property and the production of a "landowner information CD" to increase serrated tussock awareness when purchasing a new property.

Participants showed a strong passion for several issues that are at the forefront in serrated tussock control. Particular statements noted by the facilitator included:

“Its not a shame having serrated tussock but it’s bloody shameful if you do nothing about it.”

“Lack of ownership of the issue by all parties.”

“Keep at it, keep at it, keep at it!!”

“Government departments are not setting clear targets for serrated tussock control.”

“New landowners are unaware of what serrated tussock is and their management obligations.”

“Lack of community spirit and money invested within environmental groups.”

“You have to adopt ‘a holistic approach’ to tussock control if want any chance of beating it”.

Whatever successful technique was being proposed, participants were unanimous on the idea that you must ‘follow up, follow up, follow up’ on your tussock management and attack it when the infestation is small and manageable so that you have a better chance of controlling it.

The next phase of this project will be getting this information into a serrated tussock best management practice handbook in the Defeating the Weed Menace series.

Beginning in March 2007, a national land manager workshop project was conducted to determine regional farmers’ “Best Practice” solutions to control serrated tussock. Two hundred and six land managers participated in eight workshops across Victoria, New South Wales, Australian Capital Territory and Tasmania. Land managers involved in the workshops were given the opportunity to engage with professionals and peers to develop a serrated tussock management plan based upon their own situations. The outcomes from these workshops are contributing to the development of a national “Defeating the Weed Menace - Serrated Tussock Best Management Practice” handbook. The workshops have also contributed ideas and directions for future research.

This project is currently developing a Weeds of National Significance National Serrated Tussock Best Management Practice manual. It is intended to have this ready for desk-top publishing by the end of June and published and distributed by the end of September 2008.

Publications

Papers

- Fullerton, P.J. McLaren, D.A., Moerkerk M., Grech C. and Wicks B. (2008) Using landmanager workshops to develop serrated tussock best management practices. *Proceedings of the 16th Australian Weeds Conference*, eds R.D. van Klinken, R.D., V.A. Osten, F.D. Pannetta and J.C. Scanlan. (Queensland Weeds Society, Brisbane) pp. 464-466
- McLaren, D.A., Snell, K. and Butler, K. (2008) An assessment of native tree susceptibility to the simulated aerial application of the herbicide flupropanate, for management of exotic unpalatable grasses. *Proceedings of the 16th Australian Weeds Conference*, eds R.D. van Klinken, R.D., V.A. Osten, F.D. Pannetta and J.C. Scanlan. (Queensland Weeds Society, Brisbane) pp. 323-325.
- McLaren, D.A., Merton, E., Pritchard, G., S., Grech, C. and Bonilla, J. (2008) Evaluating the extent of serrated tussock (*Nassella trichotoma*) resistance to the herbicide, Flupropanate in Australia. *Proceedings of the 16th Australian Weeds Conference*, eds R.D. van Klinken, R.D., V.A. Osten, F.D. Pannetta and J.C. Scanlan. (Queensland Weeds Society, Brisbane) pp. 94-96
- Ramasamy, S., Pritchard, G., McLaren, D.A, Bonilla, J., Preston, C. and Lawrie, A.C. (2008) Field survey of flupropanate-resistant *Nassella trichotoma* in Victoria. *Proceedings of the 16th Australian Weeds Conference*, eds R.D. van Klinken, R.D., V.A. Osten, F.D. Pannetta and J.C. Scanlan. (Queensland Weeds Society, Brisbane) pp. 98-100.

Publications: Books

- Ramasamy, S. (2008) Investigations into *Nassella trichotoma* and *Sporobolus fertilis* resistance to the herbicide, flupropanate and biological control of *S. fertilis* using the pathogen, *Nigrospora oryzae*. RMIT University, PhD Thesis (submitted).

Public Publications: Talks

- McLaren, D.A. and Moerkerk, M. 28th June (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Bacchus Marsh*.
- McLaren, D.A. and Moerkerk, M. 27th July (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Geelong*.
- McLaren, D.A. and Moerkerk, M. 17th August (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Attwood*.
- McLaren, D.A. and Moerkerk, M. 9th October (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Bathurst*.
- McLaren, D.A. and Moerkerk, M. 10th October (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Goulburn*.
- McLaren, D.A. and Moerkerk, M. 11th October (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Cooma*.
- McLaren, D.A. and Moerkerk, M. 12th October (2007) Integrated control of serrated tussock. *Serrated Tussock Best Management Practices Workshop, Canberra*.
- McLaren, D.A. 28th February (2008) Biological control of serrated tussock and Chilean needle grass. *Chilean needle grass field day, Michelham Rd Attwood*.

Public Publications: Magazines

McLaren, D.A., Ramasamy, S., Lawrie, A.C., Pritchard, G. and Morfe, T.A. (2007) Serrated tussock herbicide resistance *Under Control* 35: 3.

McLaren, D.A., Palmer, W.A. and Morfe, T.A. (2007) Controlling costs in declaring biological control agents. *Under Control* 35: 7-8.

Financial Account

INCOME

State Government Second Generation Funds	\$255,000
NHT Intensifying the Attack on Serrated Tussock	\$ 79,120
Working Party accumulative revenue	\$367,360
Total Income	\$701,480

EXPENDITURE

Corangamite

Second Generation Project Officers	\$127,500
NHT Intensifying the Attack on Serrated Tussock	
Project Officer	\$79,120
Total catchment expenditure	\$206,620

Port Phillip

Second Generation Project Officers	\$127,500
Total catchment expenditure	\$127,500

Operational commitments and committed grants 2007-2008*

VSTWP operations	\$ 67,360
Partnerships Officer Port Phillip/Corangamite 1 EFT Commitment for 2 years	\$200,000
Project Officer Isolated Infestation Incentives Gippsland .5 EFT	\$ 50,000
PIRVic Serrated Tussock Best Management Workshops	\$50,000
Total commitment	\$367,360*

Total Catchment Expenditure	\$334,120
Operational commitments and committed grants 2006- 2008	\$367,360*
Total Expenditure and Commitments	\$701,480

*Note: Due to emergency response to bushfire, locusts, drought and the movement of staff to new positions there were delays in the delivery of projects like the Defeating the Weed Menace Isolated Infestation Project and expenditure of Working Party accumulative revenue. Extensions have been granted by the Federal Government for the Defeating the Weed Menace Isolated Infestation Project and all of the Working Party funds are committed to new initiatives in 2007/2008.

Appendix One

Stakeholders

Victorian Serrated Tussock Working Party
Department of Primary Industries
Department of Sustainability and Environment
Australian Federal Government
Avalon Landcare
Corio Landcare
Barrabool Hills Landcare
Maude and District Landcare
Swan Bay Catchment Management Committee
Stonehaven Landcare
Bellarine Landcare
Woody Yaloak Catchment Group
Grow West
Maffra and District Landcare Network
East Gippsland Landcare Network
West Gippsland Catchment Management Authority
Yarram Yarram Landcare Group
Geelong Landcare Network
Moorabool Gorge Recovery Project
GroupBonang Landcare Group
Avon Landcare Group
Toms Creek Landcare Group
Romawi Landcare Group
Corangamite Shire
Greater Geelong City Council
Golden Plains Shire
Colac/Otway Shire
Surfcoast Shire
Moorabool Shire
Brimbank Shire
Wyndham City Council
Nillumbik Shire
Hume City Council
Macedon Ranges Shire
Mitchell Shire
Melton Shire
City of Whittlesea
Southern Grampians Shire
Shire of Glenelg

Appendix

Two

Victoria Serrated Tussock Working Party Members

Peter Lindeman - Chair; Landholder representative

Jim Seager - Vice Chair; Landholder representative

John Webb Ware - Treasurer; Landholder representative

James Pettit - Landholder representative

Veronica Burgess - Landholder representative

Andrew Brown - Landholder representative

Graham Simpson - Landholder representative

Brian Frawley - Landholder representative

Byron Crowe - Executive/Serrated Tussock Project Officer, DPI

David McLaren - PIRVIC senior researcher, DPI

Leigh Dennis - Corangamite, CMA representative

Neil Smith - Project Manager, Pest Management

Andrew Hodges - Policy Officer Pest Plants, DSE

David Boyle - Manager Victoria Community Weeds, DPI



Victorian
Serrated Tussock
Working Party

progress
report
2007