

# REGIONAL WEED MANAGEMENT PLAN

**1.1 PLAN TITLE:** Fireweed Regional Weed Management Plan

## 1.2 PLAN PROPONENTS

Regional Weeds Advisory Committee: Southern Tablelands & South Coast Noxious Plants Committee

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Date:

## 1.3 NAME OF PLANT(S)

**WONS** Y/N

No

Botanical name(s): *Senecio madagascariensis* Common name(s): fireweed (or variable groundsel)

## 1.4 PLAN PERIOD

Starting date: 1<sup>st</sup> July 2003

Completion date: 30<sup>th</sup> June 2008

**1.5 AREA OF OPERATION:** Southern Tablelands and South Coast Region

**1.6 AIM:** To restrict expansion of the fireweed and reduce the impact and spread of existing core infestations.

## 1.7 OBJECTIVES<sup>1</sup>:

1. To slow the spread of fireweed into uninfested or 'absent' areas identified in the 2002 mapping.
2. To control all rare, isolated and new infestations.
3. To slow the spread of fireweed along road and rail corridors.
4. To obtain noxious weed declarations in LCAs where fireweed is currently absent, rare, or isolated.
5. To apply long-term effective management strategies for the management of marginal and core infestations.
6. To promote pasture management in fireweed-affected areas

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<sup>1</sup> Time-frames and measurable performance indicators are contained within Section 7 –Strategic Actions

## **ACRONYMS**

<b>ACT</b>	Australian Capital Territory
<b>ACTDUS</b>	ACT Department of Urban Services
<b>ACTWWG</b>	ACT Weeds Working Group
<b>BLCS</b>	Bush and Land Care Services
<b>BMA</b>	Biodiversity Management Action
<b>BMT</b>	Biodiversity Management Target
<b>CMB</b>	Catchment Management Boards
<b>CMBp</b>	Catchment Management Blueprint
<b>CRC</b>	Cooperative Research Centre
<b>DLRA</b>	Department of Lands and Rural Affairs (formerly Department of Lands and Water Conservation)
<b>LCA</b>	Local Control Authority
<b>LGA</b>	Local Government Area
<b>NHT</b>	Natural Heritage Trust
<b>NSW</b>	New South Wales
<b>NSW Ag</b>	NSW Agriculture
<b>NSWNPWS</b>	NSW National Parks and Wildlife Service
<b>NWAC</b>	Noxious Weeds Advisory Committee
<b>RIRDC</b>	Rural Industries and Research Development Corporation
<b>RLPB</b>	Rural Lands Protection Board
<b>RTA</b>	Roads Traffic Authority
<b>SCA</b>	Sydney Catchment Authority
<b>SEMT</b>	Social and Economic Management Target
<b>SLMA</b>	Soil and Land Condition Management Action
<b>SLMT</b>	Soil and Land Condition Management Target
<b>SRA</b>	State Rail Authority
<b>ST&amp;SCNPC</b>	Southern Tablelands and South Coast Noxious Plants Committee
<b>VA</b>	Vegetation and Biodiversity Action
<b>VBMT</b>	Vegetation and Biodiversity Management Target
<b>WONS</b>	Weeds of National Significance

## 2.0 EXECUTIVE SUMMARY

Fireweed competes strongly with pasture species, is toxic to livestock and may be responsible for illness, slow growth and poor conditioning of cattle. It has a considerable capacity to spread and can be dispersed considerable distances by wind and human mediated vectors. It has not reached its potential in the region and it is likely that the species will spread inland and along the coast, south of its present core distribution (Map 1). The current costs associated with prevention and control in rare and isolated infested areas is relatively small but a lack of immediate, cooperative action will result in major control costs in the future. Livestock and milk production in the region may be also be significantly reduced (losses of up to 62% in pasture productivity have been recorded).

The aim of the Fireweed Regional Weed Management Plan (The Plan) is to restrict expansion of the fireweed and reduce the impact and spread of existing core infestations in the Region (Map 1). Objectives of the Plan are listed on the cover page.

Councils of the Region, Department of Lands and Rural Affairs, Catchment Management Boards and NSW NPWS are major signatories of the Plan. Implementation of the Plan by these stakeholders, and other land managers and authorities listed within the Plan (Section 3 and Section 4.6) is considered critical to its success.

The Plan details strategies for the management of fireweed in the region for the period from 2004 to 2009. These strategies include:

- **Mapping of infestations (Section 7):** Improvement to the accuracy of location map (Map1) with input from all land management authorities; standardisation of techniques and criteria, and updates to the map every two years.
- **Prioritising operational and control response (Section 7):** Operational responses have been prioritised within 'absent', 'rare and isolated', 'marginal' and 'core' infestations. Further prioritisations are based on the 'cleanliness' of catchments.
- **Improvement to grazing, pasture and land management practices (Section 6.2 and Section 6.3):**
- **Declaration changes (Section 5.2 and Section 7):** Implementation of enforceable management plans and split declarations in appropriate LCA areas. W2 declaration is to be sought for the Crookwell and Queanbeyan City Council.
- **Strategic roadside control (Section 4.5 and Section 7):** Major roads and thoroughfares leading into uninfested areas are to be targeted for control and is seen as critical to reduce the speed of fireweed spread. The establishment of 5 m buffer zones has been recommended along strategic roadsides.
- **Training, extension and education (Section 6.3 and Section 7):** Identification training and extension initiatives and promotion of fireweed as a potential threat, is to focus within areas currently less-, but potentially affected by fireweed.

It is anticipated that at a regional scale the successful implementation of the actions contained within the Plan should slow the spread of fireweed, and reduce the abundance and impact of existing infestations. This will provide benefits to the community and agricultural industries of the region through the maintenance of property, hay, silage and dairy economic values and will improvements to pasture and livestock management of the Region.

### **3.0 STAKEHOLDERS**

#### **3.1 Signatories**

The following organisations have signed an agreement to implement the Plan

- Councils of the Southern Tablelands and South Coast – Bega Valley, Bombala, Cooma-Monaro, Crookwell, Eurobodalla, Goulburn, Gunning, Wollongong, Shellharbour, Kiama, Mulwaree, Queanbeyan, Snowy River, Shoalhaven, Southern Slopes (Boorowa, Harden, Yass and Young), Tallaganda, Wingecarribee, Yarrowlumla
- Rural Lands Protection Boards
- Murrumbidgee, Southern, Lachlan, South East and Warragamba Catchment Management Boards
- NSW National Parks and Wildlife Service
- Department of Land and Water Conservation
- Environment Australia
- ACT Department of Urban Services

#### **3.2 Other Stakeholders**

The following organisations have been involved in the planning process, either through notification or actual participation:

- NSW Agriculture
- National Farmers Association
- Landholders / Dairy Farmers / Cattle Producers
- Landcare
- Coastcare
- Roads and Traffic Authority
- Country and Integral Energy
- State Rail Authority

### **4.0 BACKGROUND**

#### **4.1 Reason for Plan**

Fireweed competes strongly with pasture species and is toxic to livestock. It may be responsible for illness, slow growth and poor conditioning of cattle (Natural Resources and Mining 2001). It also has a considerable capacity to spread. For instance, a hectare of lightly infested fireweed can produce 1 million seeds each year and the seeds can be dispersed considerable distance by wind and far greater distances by human mediated vectors. It has not reached its potential in the region and it is likely that the species will spread inland and along the coast, south of its present core distribution (Map 1).

A lack of awareness means the species has the potential to go unnoticed and quickly spread to presently clean areas. Currently, the costs associated with prevention and control in rare and isolated infested areas is relatively small and a lack of immediate, cooperative action will result in major control costs in the future.

*Null hypothesis:* If control activities are not undertaken in the next five years, the species is likely to extend its current distribution and disperse south along the coast and inland along major thoroughfares. It is also anticipated that fireweed infestations will infill extensive areas that are currently uninfested on the South Coast and spread into the Southern Tablelands. Livestock and milk production would be reduced if fireweed control is not undertaken.

## **4.2 Description of the problem**

Fireweed has no significant native predators or pathogens and has the potential to produce an enormous amount of wind dispersed seed each season. It competes strongly with existing pasture plants for light, moisture and soil nutrients, particularly phosphorous and nitrogen. This competition can lead to the further deterioration of pastures and a reduction in overall grazing area. Losses of up to 62% in pasture productivity have been recorded in weed infested pastures monitored from August-September (NSW Agriculture 2001).

All growth stages of fireweed contain pyrrolizidine alkaloids that, if ingested, damage the liver of livestock. Common effects of fireweed poisoning are reduced weight gain in livestock and/or low milk production. Symptoms of more severe poisoning are loss of appetite, aimless wandering, jaundice, and abdominal straining with rectal eversion. Severe poisoning potentially can result in death through chronic liver sclerosis (NRM 2001).

Unless fireweed poisoning is severe it can be difficult to detect. Mild symptoms can be mistakenly attributed to a variety of other problems such as effects of poor quality pasture, gastrointestinal parasites, and/or a low protein diet.

Fireweed is generally unpalatable to cattle, so poisoning is most likely to occur when fireweed is dense and stock cannot feed selectively, or when there is a shortage of pasture and hungry stock are less selective about food.

Sheep and goats are less susceptible to fireweed poisoning and can graze in fireweed infested paddocks for at least one season. Toxins found in fireweed, however, are able to taint the milk of goats. Goats used for milk production cannot graze in fireweed infested paddocks.

Fireweed remains toxic in conserved fodder such as hay and silage and will lower the price of these products in known fireweed areas. In some cases buyers refuse to buy conserved fodder from known fireweed areas for fear of introducing fireweed onto their properties. There has also been a trend for heavily infested properties to be devalued (ST&SCNPC 1999).

The only viable short-term control for fireweed is spraying or handpulling. Both these options are costly and time consuming and may need to be repeated several times during a single season depending on the amount of germination.

## **4.3 Distribution of infestations**

Fireweed is native to Madagascar and southeastern Africa. The earliest recording of fireweed within Australia was in Sydney in 1918. It spread slowly at first, but aided by modern transport and rural practices it has dramatically increased its range.

Fireweed has established itself along the entire NSW coast. Its potential distribution is not known, as it is very adaptable, drought tolerant, can grow on a wide range of soils and can tolerate a small amount of waterlogging. It is most prolific in well drained, lighter-textured, acid soils of low-medium fertility.

The majority of Local Control Authority (LCAs) areas of the Southern Tablelands and South Coast Region have fireweed (refer to Map 1). Core infestations exist in the Shoalhaven City and Bega Valley Shire as well as the Illawarra Noxious Weeds Authority area (which comprises the Municipality of Kiama, the Shire of Shellharbour and Wollongong City). It is especially abundant between Wollongong and Nowra.

Major roads such as the Princes, Hume and Federal Highways and the Sutton Road within the Gunning, Goulburn and Mulwaree Shires have marginal and core infestations.

#### **4.4 Weed biology / ecology**

Fireweed is an annual or a short-lived perennial. It is a daisy-like herb that can vary greatly in size and shape depending on environmental conditions. In dry harsh conditions it may be less than 20 cm tall with narrow leaves, no branching and few flowers. In ideal conditions fireweed will grow to 50 cm tall with multiple branches, long wide leaves (6cm x 2cm) and about 100 flowers.

Germination of seed depends mainly on rainfall but is also stimulated by light and by mild temperatures. Optimum temperatures for germination of fireweed occur between 15-27°C and as a result in coastal areas fireweed can germinate over much of the year. Most seed, however, germinates from March to June (NSW Agriculture 2001). Plants can produce flowers 6-10 weeks after emergence.

Seeds can germinate immediately after they are released from the flower head. The plant is therefore, able to produce several generations in one season. The seed has a germination percentage soon after maturity of around 90% (NSW Agriculture 2001). It is not known how long seed will remain viable in the field, but observations of recently disturbed paddocks and subsequent infestations suggest it can be a number of years.

Fireweed usually begins to die back in late spring/summer. The top growth dies leaving the base and the roots which in ideal conditions may last though the summer and re-grow in the following autumn. When conditions are ideal, a small percentage of plants can continue to grow throughout the whole year.

#### **4.5 Method and rate of spread**

Fireweed seedlings grow rapidly and can be flowering within 6-10 weeks of emerging. Each plant produces from 2 to 200 flowers and 25,000 to 30,000 viable seeds (NSW Agriculture 2001). Seeds are small, cylindrical in shape, and 2-3 mm long. Flowers and seeds are produced continuously over the growing season. Even light infestations of fireweed can produce 1,000,000 seeds per hectare. Each seed is light-weight and has a silky pappus (parachute) that enables it to be carried by the wind. Seeds also have rows of short hairs that can loosely attach to animals.

Although fireweed is usually spread long distances by wind, human-mediated vectors can result in region-wide dispersal. It can be spread great distances in pasture and grass seed, hay, turf, mulch, hydro-mulch and with stock transport. Many property owners show a reluctance to purchase fodder and sometimes cattle from known fireweed areas (ST&SCNPC 1999), however, this caution can be lost during droughts, with a consequential accelerated spread of fireweed.

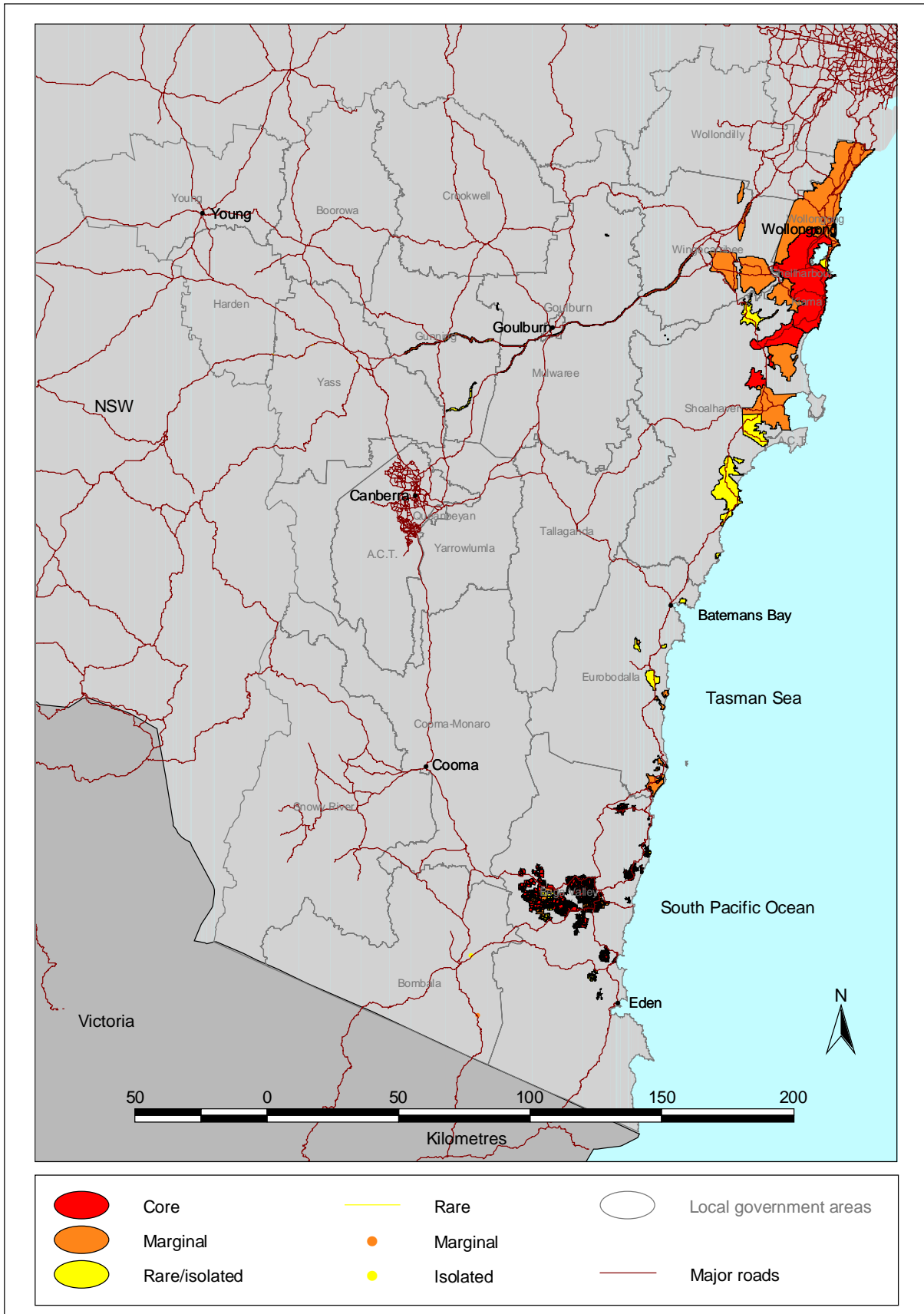
A major method of spread occurs within the 'wind-tunnel effect' on high-speed roads, where the seed is sucked along by the vortex created by the movement of high-speed vehicles (ST&SCNPC 1999). This is obvious along the Princes, Hume and Federal Highways (Map 1). The establishment of buffer or control zones 5 metres wide along major roads leaving core areas is recommended. This strategy is to be used along roadsides that leave core areas and where adjoining properties are not yet affected by fireweed. This strategy is designed to make more efficient use of resources as control is targeted at fireweed populations contributing to this method of spread.

#### **4.6 Roles and responsibilities of land managers**

Implementation of the Regional Plan by the following land managers and authorities is considered critical to its success:

- Private landholders; who are to control fireweed on their own land and participate in regional/catchment/landcare groups;
- Roadside, easement and corridor managers (e.g. RTA, local councils, State Rail, Actew / AGL, Australian Pipeline, Country / Integral Energy etc.); who are to ensure adequate plant and equipment hygiene is undertaken; that their works/operations are conducted in such a way to reduce the risk of fire weed spread; and that they participate in cooperative management programs.
- Land management authorities (Environment Australia, SCA, local councils, Defence Department, DLRA, ACT Department of Urban Services, Rural Lands Protection Boards, NSW National Parks and Wildlife Service, NSW State Forests, and local councils) to ensure compliance by staff to restrict the movement of fireweed; to implement cooperative management programs; and to ensure control is undertaken on crown lands, where critical to support strategies on local agricultural lands.
- Catchment Management Boards to prepare and implement Catchment Management Blueprints; to provide clear direction and cooperation of all land managers; to develop cooperative management programs; and to assess projects submitted for funding under Commonwealth and State natural resource management grant programs.

**Map 1: Fireweed distribution and density**



## 5.0 LEGISLATIVE SITUATION

### 5.1 Current declaration

The current declarations for the LCAs within the region are shown in Table 1. Under the *Noxious Weeds Act 1993* (NSW), W2 weeds must be fully and continuously suppressed and destroyed. W3 weeds must be prevented from spreading and numbers and distribution reduced. Under the *Land (Planning and Environment) Act 1991* (ACT) an order may be given to control pest plants.

Fireweed is not declared a noxious weed in the Illawarra Noxious Weeds Authority Area. Instead the strategy is to establish, through voluntary actions, a buffer zone with adjoining LCA areas (ST&SCNPC 1999). Effective community extension and a good neighbour approach is essential for this to be successful.

**Table 1: Current fireweed declarations**

LCA	Current Declaration	Proposed Declaration
Illawarra District Weeds Authority	-	No change
ACT	Declared	Declared
Bega Valley	W2	See Section 5.2
Bombala	W2	No change
Cooma-Monaro	W2	No change
Crookwell	-	W2
Eurobodalla	W2	No change
Goulburn	W2	No change
Gunning	W2	No change
Mulwaree	W2	No change
Queanbeyan	-	W2
Shoalhaven	W2/W3	See Section 5.2
Snowy River	W2	No change
Southern Slopes	W2	No change
Tallaganda	W2	No change
Wingecarribee	W2	No change
Yarrowlunla	W2	No change

### 5.2 Declaration changes

Declaration changes (Table 1) for local councils in the Region are probable as economic realities place questions on the ability to enforce W2 and W3 declarations in core areas where the cost of control is far greater than the economic return of the land. W2 declarations in LCAs with extensive core infestations may also become onerous and difficult to enforce especially when the weed infests a wide range of land uses including urban, rural residential areas, roadsides and waste areas.

A new declaration is required that would allow councils to develop individual management plans for affected landholders. The management plans would be enforceable and the strategy will allow a more flexible and strategic approach to the control of core areas. For instance, a

Plan could target buffer or strategic control areas. LCAs that are suitable for this type of declaration include the Shoalhaven and the Illawarra.

The implementation of enforceable management plans in W2 declared areas is currently being investigated through NSW Agriculture. If this is acceptable, many LCAs within the region should consider the use of this strategy. In the interim and where local weed officers consider appropriate, the attachment or inclusion of property or weed management plans to weed notices is recommended. To ensure compliance, these plans must be agreeable to all parties and unambiguous. Notices must also be explicit when referring to such plans.

The opportunity for sub-regional or split declarations is recommended for LCAs with areas of isolated core infestations. For instance, to contain the spread and reduce infestations in parts of the region with core infestations a W3 declaration is maintained while other parts of the LGA with marginal to rare to nil infestations would remain at W2 level. LCAs that should consider this type of declaration include the Bega Valley.

A W2 declaration for fireweed is proposed for Crookwell Shire and the Queanbeyan City Council. A W2 declaration is suitable as fireweed is not yet present and 'suppression and destruction' is feasible.

## **6.0 CONSIDERATIONS AND OPPORTUNITIES**

### **6.1 Opportunities to be exploited**

Funding sources to be investigated include:

- Noxious Weed Grant scheme for control on Council and RLPB land (administered through NSW Agriculture)
- Catchment Management Boards
- Vacant Crown Land funding (administered through DLWC)
- Funding from easement management authorities such as RTA and State Rail

#### **6.1.1 Priority for additional funding**

Additional funding opportunities are to be actively and continually sought through the means described above. The following is a list (not necessarily in order) of priority uses for additional funding:

- The employment of property weed management planning officer (for all weeds). The position would develop standard property management proforma and provide extension and implementation training to all weed officers. The Officer would also be involved in providing pasture and grazing management extension programs to landowners and occupiers.
- Improve control for priority roadsides and rail-lines. Additional funding could allow all priority roadsides and rail lines (*i.e.* roads and rail lines leaving core/marginal areas to clean areas) to be checked for fireweed (and other noxious weeds), and infestations controlled and rehabilitated every year.

### **6.1.2 Other opportunities**

Joint ventures may be pursued through:

- The Alan Fletcher Research Station who are conducting herbicide trials including residual control methods. Conclusions from trial investigations along with information concerning successful local practices should be identified and promoted across the region.
- Joint control / funding efforts between private landholders, Local government and State Government e.g. NSW NPWS, SRA and RTA

No specific agreements have been reached on the above opportunities, however given the threat potential of this and other similar weeds a forum to investigate the above opportunities is recommended.

## **6.2 Species management**

The best control for fireweed incorporates integrated management strategies, including herbicides and mechanical methods but more importantly the maintenance of vigorous permanent pastures that compete strongly with fireweed seedlings. Grazing strategies should also be employed, such as using appropriate stocking rates and using sheep and goats (where feasible) with other livestock to control fireweed.

A vigorous permanent pasture can be achieved by sowing suitable competitive pasture species, appropriate grazing management and fertiliser application. A dense autumn-winter cover will reduce fireweed populations and this can be achieved by sowing winter pasture species, allowing standover of summer pasture feed, or combinations of winter/summer pastures.

Although slashing may provide a good visual effect it only delays flowering and seeding and can also damage the pasture, making conditions more favourable for fireweed (NRM 2001). Fireweed also remains toxic after being cut and becomes more attractive to stock increasing the likelihood of poisoning (NSW Agriculture 2001). Pastures contaminated with fireweed should not be baled or made into silage and fireweed plants should be removed prior to making of hay or silage. Mulching cuts plants into smaller pieces that are spread more evenly around the paddock, minimising the poison risk. However, mulched fireweed-infested paddocks should not be grazed for at least two weeks (NSW Agriculture 2001).

A number of herbicides are currently register for fireweed. Optimal timing and application of chemical is essential for maximum benefit. A pasture should be vigorously growing before spraying with herbicide so as to ensure strong competition against the next generation of fireweed plants.

Boom spraying is an effective application method in open pasture. However it is essential that this is followed-up by spot spraying or pulling and bagging any regrowth or missed plants. Boom spraying is also suitable for follow-up treatment, as it allows destruction of immature plants which may other-wise grow to re-seed the area before they can be noticed. Weed wiping equipment using appropriate chemicals has given excellent results in trials where fireweed is taller than the pasture (NSW Agriculture 2001).

Although potential biological control agents have been identified, including insects and rusts (NSW Agriculture 2001), new agents are not expected to be released in the near future (NRM 2001). Two moths imported from Madagascar were host tested but they fed on important non-target plants and no releases were made. Finding suitable bio-control agents will be difficult because of the large number of desirable species within the Senecio family (e.g. *Senecio lautus*) and limited funding. Agencies and industry bodies, such as, Rural Industries Research Cooperation, NSW Dairy Farmers Association, NSW Agriculture, CSIRO and the CRC should be encouraged and supported to further research biological control.

More detailed information regarding the control and management of fireweed through pasture improvement, cultivation, herbicide, slashing/mulching, biological control, and grazing is contained within NSW Agriculture Fireweed Agfact, P7.6.26 (NSW Agriculture 2001).

### 6.3 Extension and education

Research indicates that farmers learn and develop new skills through “farm networks, direct hands-on involvement in field days and specific demonstrations of new technologies and techniques rather than through traditional educational institutions” (Noxious Weeds Advisory Committee 1996). Most landholders, within fireweed infested areas, are readily able to identify fireweed and implement control measures. However, integrated control of the species and limiting the potential for infilling of established infestations should be encouraged through innovative extension and education programs. The following initiatives are proposed:

- improved coordination among Councils regarding extension and education programs: the potential widespread distribution of fireweed in the Region means that coordinated media releases, radio segments and field days immediately prior to the optimal control period (*i.e.* May-July) may achieve improved fireweed control regionally. In addition, a coordinated approach to Weedbuster Week should be arranged to maximise dissemination of regional weed information;
- develop and promote pasture management training schemes such as ‘Prograze’;
- education of absentee and residential landholders on noxious weed control obligations e.g. leaflet and Agfacts distributed with rates notices

Land managers in presently clean, uninfested areas may not readily recognise fireweed or immediately prioritise fireweed for weed control. Land-managers and the community within these regions must be convinced of the threat potential and the benefits of preventing its establishment rather than implementing control when the weed has become established. The following extension and education programs and actions are proposed for the LCAs that are currently free or have minimal fireweed infestations but are potentially threatened by future fireweed incursions:

- Notification of Landcare, Coastcare, Weed Officers, National Park staff *etc.* to the threat potential of fireweed via a letter and accompanying pamphlet (e.g. fireweed Agfact) detailing identification features, ecology, threat potential, control techniques and contact details for notification;
- Publicise the threat potential of the weed in currently unaffected councils during weedbusters Week (printed media and radio);

## 6.4 Links to other strategies

The Fireweed Regional Plan is consistent with the goals of the ACT and NSW Biodiversity Strategies, NSW Weeds Strategy and the Draft Regional Weeds Strategy (currently in production).

The Regional Plan is also consistent with the target outcomes of the Lachlan, Murrumbidgee, South East, Warragamba and Southern Catchment Management Blueprints. Details of supporting links are contained within Appendix 2 (p.21).

## 6.5 Barriers and contingencies

Barriers and contingencies identified in Table 2 may limit the success of fireweed management programs. Actions identified in the Plan to overcome these barriers and contingencies are identified in Table 2.

**Table 2: Responses to identified barriers and contingencies**

Barrier / Contingency	Responses	Strategic Actions (Section 7)
Drought can promote fireweed spread and density	<ul style="list-style-type: none"> <li>Implementation of Disaster Strategy Actions and promotion of pasture management programs</li> </ul>	Action 10 and 13
There is community apathy about the fireweed problem. This is highlighted by the extent of fireweed in urban areas. Community apathy could result in the spread of fireweed into new areas	<ul style="list-style-type: none"> <li>Extension programs will target the community through newspaper articles, newsletters and pamphlets attached to rate notices, Weedbuster weeks and through other identified extension programs.</li> </ul>	Action 8 and 9
Private landholders may not have the skills, motivation, money or infrastructure to control fireweed. Absentee, small acreage and suburban landholders may be less committed to fireweed control	<ul style="list-style-type: none"> <li>Development of tailored property weed management plans; promotion of pasture and grazing management training programs, effective distribution of best practice management guidelines and extension and training initiatives.</li> <li>Rural- residential and rural lifestyle extension strategy (currently in production) is to be implemented.</li> </ul>	Action 8, 9, 10 and 13
Fireweed is not recognised as a new and emerging weed species in many LCAs and may therefore receive less funding from agencies such as the Department of Agriculture.	<ul style="list-style-type: none"> <li>Documentation of fireweed spread and improved mapping.</li> </ul>	Actions 1 and 2
Wind dispersed seeds means that it is impractical to attempt to use local quarantine and hygiene methods as a major form of local control	<ul style="list-style-type: none"> <li>Priority control in areas currently fireweed free and other priority areas. Encouragement and assistance to landowners and occupiers with clean properties in core areas.</li> <li>Promotion of risk-minimising fodder feeding and stock movement practices during natural disasters as per the Natural Disaster Weed Strategy.</li> </ul>	Action 3, 4 and 6  Action 12

Barrier / Contingency	Responses	Strategic Actions (Section 7)
Land rehabilitation may be required after control works to avoid reinvasion	<ul style="list-style-type: none"> <li>Use of property weed management plans as a control tool; promotion of pasture training programs; effective dissemination of best-practice management; and the promotion of off-target mortality reduction methods</li> </ul>	Actions 7, 8, 9, 10 and 11
Coordination and cooperative management is currently lacking along roadsides and rail lines	<ul style="list-style-type: none"> <li>Seeking dialogue with roadside and easement managers, focus on clean catchments and managing roadsides and rail lines strategically.</li> </ul>	Action 5
The maintenance of effective on-going control in core areas may be difficult and may result in the infestation of currently clean properties within these areas.	<ul style="list-style-type: none"> <li>Encouragement and assistance to landowners with clean properties in core areas.</li> </ul>	Action 5

## 7.0 ACTIONS AND PERFORMANCE INDICATORS

Strategic actions for control of fireweed during the period 2003 - 2008 are given below. Actions flagged with an asterisk (\*) are considered essential components of the plan.

Actions have been guided by the aims and objectives and also by the underlying strategic directions of the Fireweed Regional Weed Management Plan, which are to:

- prevent and initiate rapid control of new infestations;
- control along roadsides entering 'clean' areas
- control rare and isolated infestations (Appendix 1) as a priority;
- significantly reduce marginal infestations and core infestations (Appendix 1) in priority areas;
- promote grazing and pasture management as a control and management tool;
- integrate fireweed control with best land management practices and other weed management programs; and
- increase community awareness of fireweed.

ACTION	Performance indicator	Who is to be responsible (add others involved)	Objective number
<b>Mapping</b>			
1	a) Revise 2002 mapping to ensure consistency across land tenure and LCAs. b) Update mapped information (preferably on GIS) at least every second year.	a) 2002 maps revised in 2004. b) Maps updated at least every second year.	<b>ST&amp;SCNPC, All Stakeholders</b>  1

	<b>ACTION</b>	<b>Performance indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>
2	<p><b>'Absent areas'</b></p> <p>a) Areas identified as absent to be remapped as 'absent-confirmed', and 'absent – not confirmed'.</p> <p>b) Confirmed absent areas to be inspected or surveyed every five years</p> <p>c) 'Absent – not confirmed' areas to be prioritised for surveying programs.</p>	<p>a) Next update of maps to include new classifications.</p> <p>b) Confirmed absent areas are checked prior to 2008.</p> <p>c) '50% of 'absent but not confirmed' areas surveyed prior to each map update.</p>	<p><b>ST&amp;SCNPC, All stakeholders</b></p>	<p>1 and 2</p>
<b>Strategic response</b>				
3	<p><b>New, Rare and Isolated populations</b></p> <p>a) * Any new infestations are to be treated within the same season and eradicated*<sup>1</sup> within 1 year of detection</p> <p>b) Density and/or distribution of rare and isolated infestations reduced by 100%</p> <p>c) All locations with rare and/or isolated populations to be inspected annually</p> <p>d) Rare and isolated infestations in otherwise clean catchments are prioritised</p>	<p>a) New infestations eradicated</p> <p>b) Currently known rare and isolated infestations reduced by 100% by July 2008. At least 20% of the required work (region wide) to occur each year and verified through annual reports.</p> <p>c) Annual reports indicate inspections occurred and compliance achieved</p> <p>d) Rare and isolated population in otherwise clean catchments eradicated by August 2005.</p>	<p><b>All Stakeholders</b></p>	<p>2</p>
4	<p><b>Marginal Populations</b></p> <p>All known marginal infestations significantly reduced</p>	<p>Prior to July 2008 at least 80% of properties affected are inspected and appropriate action taken within one year of inspection</p>	<p><b>Affected LCAs</b></p>	<p>6</p>
5*	<p><b>Road and rail populations</b></p> <p>a) Accurately map the extent of current infestation along strategic road and rail-line corridors such as Princes Hwy, Sutton Road, and the Hume and Federal Highways.</p> <p>b) Create strategic buffer zones where fireweed is actively suppressed for at least 5m out from the edge of the bitumen along the Sutton Rd, Princes, Hume and Federal Highways and other strategic road and rail corridors.</p> <p>c) Create strategic buffer zones where fireweed is actively suppressed for 5 m out from the edge of the road surface along roadsides leaving core areas.</p> <p>d) Full control of roadsides in marginal areas which then pass into rare, isolated or absent areas</p>	<p>a) Fireweed along these roads and rail-lines accurately mapped by Dec 2004</p> <p>b) c), d) and e) Annual control programs are undertaken along targeted roads and rail-lines</p> <p>f) Correspondence to RTA and SRA sent by March 2005</p>	<p><b>Affected LCAs, NSW Agriculture and ST&amp;SCNPC</b></p>	<p>3</p>

	<b>ACTION</b>	<b>Performance indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>
	<ul style="list-style-type: none"> <li>e) Full control in otherwise clean catchments</li> <li>f) Approach RTA and SRA regarding joint control ventures</li> </ul>			
6	<p><b>Core populations</b> Encourage and where possible assist landowners with clean properties in core areas</p>	Actions recorded in annual reports	<b>Affected LCAs</b>	5
<b>Prevention, regulation and rehabilitation</b>				
7*	<ul style="list-style-type: none"> <li>a) Seek declaration as a W2 noxious weed in the Crookwell Shire and the Queanbeyan City Council (see Section 5.2)</li> <li>b) Support declaration changes outlined in Section 5.2</li> </ul>	<ul style="list-style-type: none"> <li>a) Submission sent in by December 2003. Fireweed declaration approved.</li> <li>b) Implementation of changes within a year of acceptance by NSW Ag., NWAC, Councils and other authorities</li> </ul>	<b>LCAs, NSW Ag.</b>	4
<b>Training, education and extension</b>				
8	<ul style="list-style-type: none"> <li>a) All Councils to include fireweed awareness as part of their extension program for noxious weeds in the area</li> <li>b) All LCAs will write articles that will be delivered to the community through newspapers, newsletters, council rate notices, journals etc at the appropriate time of the year.</li> <li>c) Initiate cooperative species identification and management training (and not only for fireweed) for Weeds Officers, Catchment Officers, Landcare Coordinators and agronomists, easement and corridor managers, and selected field staff in land management authorities.</li> </ul>	<ul style="list-style-type: none"> <li>a) and b) Actions recorded in annual reports.</li> <li>c) At least one cooperative training session held annually throughout the region.</li> </ul>	<b>ST&amp;SCNPC, Councils, NSW Ag.</b>	1, 2 and 5
9*	<ul style="list-style-type: none"> <li>a) Landholders /managers in uninfested or relatively less-infested LCAs to be informed of fireweed – identification, threats and control methods. Leaflets or Agfacts are distributed with rates notices, Catchment Management Boards, during Weedbusters week and through correspondence to land management agencies</li> </ul>	<ul style="list-style-type: none"> <li>a) Actions recorded in annual reports. Agfacts have been distributed to landholders and land managers in lightly infested LCAs by 2004.</li> </ul>	<b>Councils, NSW Ag.</b>	1, 2 and 3

<b>ACTION</b>		<b>Performance indicator</b>	<b>Who is to be responsible</b> (add others involved)	<b>Objective number</b>
10*	<ul style="list-style-type: none"> <li>a) Promote pasture improvement and management as a way of controlling fireweed (and other weeds) at field days and in information brochures</li> <li>b) Promote sustainable grazing and pasture management training programs such as 'Prograze'</li> </ul>	<ul style="list-style-type: none"> <li>a) Pasture improvement and management methods in the suppression of fireweed and other weeds are specifically addressed at all field days during 2003-2008.</li> <li>b) Each catchment management area to hold at least one 'Prograze' (or similar) course annually</li> </ul>	<b>NSW Ag with LCA involvement</b>	6
11	<ul style="list-style-type: none"> <li>a) Promote methods of reducing off-target mortality at field days and in information brochures</li> <li>b) Ensure council spray contractors undertaking chemical control are trained in the identification of ST, in the calibration of equipment and the interpretation of chemical labels</li> </ul>	<ul style="list-style-type: none"> <li>a) Methods of reducing off-target mortality during weed control are specifically addressed at all field days during 2003-2008. Fireweed brochures include methods of reducing off-target mortality</li> <li>b) By Dec 2003 all council spray contractors are to be trained in fireweed identification and hold qualifications of Chemcert, SMARTtrain or equivalent</li> </ul>	<b>Councils, NSW Ag.</b>	5
<b>Other actions</b>				
12	<ul style="list-style-type: none"> <li>a) Investigate opportunities listed in Section 6.1</li> </ul>	<ul style="list-style-type: none"> <li>a) A forum to investigate opportunities for increased funding or joint ventures for all weeds (not just fireweed) has been held by Dec 2004.</li> </ul>	<b>ST&amp;SCNPC, NSW Ag. CMBs</b>	1, 2, 3, 5, and 6
13	<ul style="list-style-type: none"> <li>a) Disaster strategy to be developed to include fireweed management during and after drought.</li> <li>b) Implement relevant actions in Regional Disaster Strategy particularly promoting appropriate risk reduction and pasture management techniques</li> <li>c) Implement Regional Rural-Residential / Rural Lifestyle Extension Strategy (currently in production)</li> </ul>	<ul style="list-style-type: none"> <li>a) Disaster plan developed by mid 2003 and implemented by end 2003.</li> <li>b) Relevant disaster strategy actions implemented as soon as practicable and at least by July 2004</li> <li>c) All actions within the Extension Strategy completed within 4 years of its completion.</li> </ul>	<b>ST&amp;SCNPC, LCAs, NSW Ag.</b>	1, 5, & 6

\* refer to Appendix 1 for definition of "eradicate"

It is anticipated that at a regional scale the application of the above actions should restrict the spread and infilling of existing fireweed infestations. Encouraging fireweed control across all tenures, focusing on immediate treatment of new infestations, control along major road corridors and provision of education / extension programs are essential if the Plan is to succeed.

## 8.0 MONITOR AND REVIEW PROCESS

Stakeholders will provide an annual progress report that details their success in meeting the performance indicators within the Plan. This includes an updated distribution map required at least every second year. A brief regional report will be submitted to NWAC with a copy to Catchment Management Boards each year. The regional report will also address target outcomes of Catchment Management Blueprints and the Regional Weed Strategy and any modifications to actions and performance indicators, which may improve the outcomes of the Plan.

The Plan is to be reviewed and updated after five years *i.e.* prior to July 2008.

In the event of a stakeholder failing to meet an objective as given in the Plan, the Committee will assist the stakeholder to meet requirements, *e.g.* determine an appropriate action for the stakeholder and / or other members of the Committee. If the stakeholder is still unable to meet the objective, the Committee will review the mechanism and performance indicators related to the required action.

The Regional Plan will remain flexible and monitor techniques, impact levels and chosen management methods and ensure that the latest knowledge and technology are utilised to provide the best outcome within the five-year currency of the Plan.

## 9.0 BENEFITS

Benefits to industry following implementation of the Fireweed Regional Plan include:

- maintaining property, hay, silage and cattle and dairy economic values within affected LCAs;
- improved pasture and livestock management;
- substantial cost saving associated with the prevention of fireweed; and
- protection of the Kangaroo Rye Grass seed, turf and other extractive industries in the region.

The wider community will also benefit through fireweed control by avoiding the trickle-down economic impacts from the agricultural sector.

## 10.0 RESOURCES

### References

Natural Resources and Mines (Queensland) (2001) *NRM facts: Fireweed* *Senecio madagascariensis*.

New South Wales Agriculture, 2001 *Agfact P7.6.26 – Fireweed*. Obtained from web address: [www.agric.nsw.gov.au/reader/7387](http://www.agric.nsw.gov.au/reader/7387).

Noxious Weeds Advisory Committee, 1996. *A Noxious Weed Strategy for New south Wales*. NSW Agriculture, Orange

Southern Tablelands and South Coast Regional Noxious Plants Committee (2000) *Regional Weed Management Plan for Fireweed*.

Wilson , C.G., 1992. *Agnote no. 515: Fireweed Primary Industries and Fisheries (Northern Territory)*

## Appendix 1: Density classes used to map fireweed

Density / distribution class	Comment
Core	<p>A 'core' area is where, using realistic resource levels and advances in technology<sup>*1</sup>, it is NOT FEASIBLE in the short term<sup>*2</sup> to:</p> <ul style="list-style-type: none"> <li>- significantly reduce<sup>*3</sup> the density and distribution of the species, OR</li> <li>- maintain the current density and distribution of the species, with a decreasing amount of expenditure/effort<sup>*4</sup></li> </ul> <p>Note: Although core areas are ultimately likely to be lower priority areas, they will continue to require at least site specific control measures.</p>
Marginal	<p>A 'marginal' area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the short term to,:</p> <ul style="list-style-type: none"> <li>- significantly reduce<sup>*3</sup> the distribution and density of the species, or</li> <li>- maintain the density and distribution of the species, with a decreasing amount of expenditure/effort</li> </ul>
Rare and/or isolated	<p>A 'rare and/or' isolated area is where, using realistic resource levels and advances in technology, it IS FEASIBLE in the short term to:</p> <ul style="list-style-type: none"> <li>- eradicate<sup>*5</sup> the species where it occurs as an isolated<sup>*6</sup> population</li> <li>- where the population is rare<sup>*7</sup> to: <ul style="list-style-type: none"> <li>- eradicate the species, OR</li> <li>- maintain it at a level where it has an insignificant environmental and economic effect<sup>*8</sup>, with a minimum and preferably decreasing expenditure/effort</li> </ul> </li> </ul>
Absent	<ul style="list-style-type: none"> <li>- requires a high level of certainty that weed is absent. Rare and/or isolated may be a better class to use if uncertain.</li> <li>- may represent all of the area not covered by the first 3 classes</li> <li>- where possible, indicate what environmental constraint or history is causing the absence</li> </ul>

<sup>\*1</sup> 'realistic resource levels and technology advances' should be based upon your experience over the last 5 years with some informed judgement on what is expected over the next five years. If in doubt assume a continuation of the same level of funding and effort. Resources include funding and labour. Technology includes new control techniques such as biological control and integrated management.

<sup>\*2</sup> 'short term' means less than 5 years.

<sup>\*3</sup> Significantly reduce means reduce by approximately 75% from 2002 levels of distribution and abundance in 5 years

<sup>\*4</sup> 'Decreasing expenditure/effort' means that the amount of funding, resources and effort (including 'non-costed' labour from private land owners/managers) to control the weed over the past five years will decrease over the next five years.

<sup>\*5</sup> 'Eradicate' means: (a) remove or destroy all above ground biomass of the weed species population. This definition recognises the weed seed bank will remain viable and follow up work may be required beyond the term of this plan.

(b) remove populations of the weed from the local area to the extent that little or no follow up is required *i.e.* the weed seed bank is largely exhausted. It is recognised that this may not be achievable within the currency of the plan.

<sup>\*6</sup> 'Isolated' means the population is considerably separate from other local populations (*i.e.* seed source from other local populations can not re-establish the local population) and is small enough to be eradicated. If eradicated it is assumed re-invasion is unlikely to occur.

<sup>\*7</sup> 'Rare' means a species is very uncommon, but unlike isolated may be scattered over a wider area at a very low density.

<sup>\*8</sup> 'Insignificant environmental and economic effect' means that the level of expenditure and effort required to keep the species at a 'rare level' is insignificant, and the population does not 'adversely and significantly' affect natural (including biodiversity), cultural and social values.

## Appendix 2: Supporting actions and links to Catchment Management Blueprints

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East	<b>Biodiversity Management Target 3</b> – by 2012 the area of public and private lands and waters (within specified sub-regions as per map on page 9) infested with the high priority weeds will not exceed year 2000 levels.	<ul style="list-style-type: none"> <li>• The aim and objectives of the Regional Plan are consistent with this target</li> <li>• All new and known rare and isolated infestations eradicated or an appropriate level by July 2006</li> <li>• All known marginal infestations significantly reduced</li>   <li>• Annual control roadside control is to occur</li> <li>• Assistance will be provided to landowners with clean properties in core areas</li> </ul>	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 5</p> <p>Action 6</p>
	<b>Biodiversity Management Action 2</b> – Develop and implement integrated control <sup>2</sup> strategies for priority weeds.	<ul style="list-style-type: none"> <li>• The plan incorporates and promotes a range of strategies to manage fireweed, including, pasture and grazing management, legislation, herbicide control, extension and education. Successful implementation of the Regional Plan will be consistent with this action.</li>   <li>• The Regional Plan supports the objectives of the ACT and NSW Biodiversity Strategy and the NSW and Regional Weeds Strategy</li> </ul>	<p>Section 6.4</p>

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<sup>2</sup> Authors clearly meant that programs are comprehensive, linking with all land management programs including the control of other weeds, pest and threatening processes.

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East (cont.)	<b>Biodiversity Management Target 4</b> – by 2005 the processes will be in place to maintain the weed and pest free status of all areas that are weed free of pests and weeds (as at 2001 levels). The processes will include a combination of community education information sharing and coordination of all land managers	<p>The Plan places high priority on controlling all rare, isolated and new infestations. Actions listed within the Plan to meet this target include (Section 7);</p> <ul style="list-style-type: none"> <li>• surveying 'clean areas'</li> <li>• eradicating new infestations</li> <li>• Rare and isolated infestations in otherwise clean catchments are prioritised for control</li> <li>• Controlling roadsides entering clean areas and prioritising control in relatively clean catchments</li> <li>• Providing community and agency extension programs</li> <li>• Hygiene protocols/methods during droughts are to be developed and promoted</li> </ul>	<p>Action 2</p> <p>Action 3</p> <p>Action 3</p> <p>Action 5</p> <p>Actions 8, 9 and 10</p> <p>Action 13</p>
	<b>Biodiversity Management Action 5</b> - Maintain the weed and pest free status of all areas that are free of pests and weeds	See comment for BMT4	
	<p><b>BMA 10</b> – Negotiate reform for weed control and establish monitoring trial zones for a South East regional approach. This may include:</p> <ul style="list-style-type: none"> <li>• review of current systems;</li> <li>• research into biological and biological and other forms of control</li> <li>• trialing of innovative approaches</li> </ul>	<ul style="list-style-type: none"> <li>• There are no specific actions to negotiate reform or to establishing monitoring trials. Work is currently being effectively carried out by research organisations such as NSW Agriculture, Alan Fletcher Research Station, CRC Weed Management Systems and CSIRO</li> <li>• Biological control agents are not expected to be released during the term of the plan.</li> <li>• The Regional Plan remains flexible to allow innovation and new methods. Conclusions from trial investigations along with information concerning successful local practices are to be promoted across the region.</li> </ul>	<p>Section 6.2</p> <p>Section 6.1 and Action 11</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
South East (cont.)	<p><b>Social and economic management target (SEMT) 1</b> – Develop a package of the most effective combination of incentives, regulation and extension programs to achieve catchment targets in the face of rural adjustment and demographic change for weed and pest control programs by 2005</p>	<p>The Regional Plan supports this target through:</p> <ul style="list-style-type: none"> <li>Identifying additional resourcing and funding opportunities</li> <li>Strategic targeting of training, education and extension programs</li> <li>Property/weed management plans will be developed and enforced in areas where economic realities place questions on the ability to enforce W2 declarations.</li> </ul>	<p>Section 6.1 Section 6.3 and Action 11 Section 5 and Action 8</p>
Southern	<p><b>Sustainable Land Use Program</b></p> <p><b>Catchment Target</b> - By 2012 the area of land affected by land degradation problems including weed infestations, will not exceed the 2003 baseline</p> <p><b>Management Target</b> – by 2005, a regional weed control strategy will be implemented for priority weeds</p>	<ul style="list-style-type: none"> <li>The Plan aims to considerably reduce the spread and reduce the impact and density of existing fireweed infestations. The aims and objectives of the Regional Plan are consistent with this target.</li> <li>All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006</li> <li>All known marginal infestations reduced by 75% by July 2008</li> <li>Annual roadside control is to occur</li> <li>Core areas will be prioritised and strategically managed and infestations reduced by 85% by July 2008</li> <li>The plan will be consistent with the ST&amp;SCNPC Regional Weed Strategy (currently in production)</li> </ul>	<p>Section 1.6 and 1.7 Action 3 Action 4 Action 5 Action 6 Section 6.4</p>
	<p><b>L1.1 Establish a working group to :</b></p> <ul style="list-style-type: none"> <li>Agree on priority weeds</li> <li>Create a regional priority weeds map; and</li> <li>Negotiate reduction targets with state and local government and major stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Fireweed has been identified as a priority weed on social, environmental, and economic grounds by all major stakeholders in the Region</li> <li>A fireweed weed map has been created during the development of the Regional Plan.</li> <li>Fireweed reduction targets (including time-frames) for rare and isolated, marginal and core infestations, have been agreed to by major stakeholders in the Region</li> </ul>	<p>Section 3 and Section 4 Map1 Actions 3, 4 and 6</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	<b>L1.2</b> - Develop and implement an integrated weed control strategy, incorporating investment options.	This will be detailed in the Regional Weed Strategy (currently in production)	
	<p>L1.3 Support the implementation of best management practices for the control of weed species by landholders through education, incentive programs and government planning instruments particularly:</p> <ul style="list-style-type: none"> <li>• Information and training that addresses dispersal of weeds and land management for weed control</li> <li>• Protocol to manage new weeds</li> <li>• Code of practice for infrastructure developments that may create conditions favourable for weeds</li> </ul>	<ul style="list-style-type: none"> <li>• The Plan details actions to provide education and extension programs for private landholders and occupiers to raise awareness and best practice control techniques, and land and pasture management techniques</li> <li>• Funding and resource opportunities for landholders, occupiers and stakeholders are outlined in the Plan.</li> <li>• Methods to raise public awareness of fireweed and its impacts are listed. Targeting of extension programs to increase effectiveness and efficiencies are detailed within the Plan.</li> <li>• New infestations of fireweed are to be eradicated within a year of detection.</li> </ul>	<p>Section 6.3 and Actions 9, 10 and 12</p> <p>Section 6</p> <p>Section 6.3 and Action 8</p> <p>Action 3</p>
	<b>L1.4</b> – Develop and implement mechanisms that provide incentives for landholders to adopt best practices for weed control	<ul style="list-style-type: none"> <li>• Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers.</li> <li>• Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan</li> </ul>	Section 6.3 and Actions 8, 9 and 10
	<b>L1.5</b> – Support programs for the biological control of weeds	<ul style="list-style-type: none"> <li>• Research into biological control agents are to be supported</li> </ul>	Section 6.2
	<b>L 2.5</b> - Implement pasture management programs to promote sustainability through maintenance of soil health	<ul style="list-style-type: none"> <li>• The implementation of the Plan will promote pasture improvement and management at field days, in information brochures and through sustainable grazing and pasture management training programs such as 'Prograze'</li> </ul>	Action 9

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	<b>L 2.7</b> - Promote the adoption of best management practices for sustainable agriculture and land use through education and incentive programs and in government planning instruments	<ul style="list-style-type: none"> <li>Sustainable pasture and grazing training programs will be promoted.</li> </ul>	Action 9
	<p><b>Biodiversity Program</b></p> <p><b>Management Target 4</b> - By 2012, areas of high conservation value will be managed for conservation and priority actions for threatened species recovery plans will be implemented</p> <p><b>Management Target 5</b> – By 2005, collaborative programs will be in place to manage targeted pest species</p>	<ul style="list-style-type: none"> <li>MT4 - No specific actions are detailed within the plan</li> <li>MT5 - Implementation of the Regional Plan is to occur prior to 2004. Key stakeholders have been consulted and are signatories for the implementation of the Plan.</li> </ul>	Section 3
Warragamba	<p><b>Soil and Land Condition Management Target (SLMT) 1</b> – By 2012, the whole community aims to reduce the area infested by pest plants and animals to below 2002 levels through:</p> <ul style="list-style-type: none"> <li>Maintenance of the pest free status of all areas of land infested by pest plants and animals.</li> <li>By 2007, reduce the rate of infestation of priority pest plants and animals (noxious, environmental and production) by 50%; and</li> <li>Management for long-term sustainable reduction in pest plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>The Plan aims to considerably reduce the spread and reduce the impact and density of fireweed infestations. The aims and objectives of the Regional Plan are consistent with this target.</li> <li>All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006</li> <li>All known marginal infestations reduced by 75% by July 2008</li> <li>Annual roadside control is to occur</li> <li>The plan will be consistent with the ST&amp;SCNPC Regional Weed Strategy (currently in production)</li> </ul>	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 5</p> <p>Section 6.4</p>
	<p><b>Soil Land Condition Management Action (SLMA) 1/d</b> – Identify, in consultation with key stakeholders, the priority weeds (noxious, environmental and production), pest animals, including pest fish, for each subcatchment and the area of infestation or numbers, as relevant</p>	<ul style="list-style-type: none"> <li>The development of the plan reflects the identification of fireweed as a priority weed by key stakeholders within the Southern Tablelands and South Coast Region. The area of infestations has been identified (Map 1).</li> </ul>	Section 3 and Section 4

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Warragamba (cont.)	<b>SLMA2/a</b> – In consultation with key stakeholders, develop and implement integrated strategies for pest plant and animal control that agree on goals / strategies that keep clean areas clean, and also identify priority actions for pest plants, animals and fish. These strategies should ensure that areas free of pest plants and animals remain un-infested, as well as incorporate consistent, timely and appropriate local management of pest and weed control. Barriers to management and the current programs of individuals and organisations need to be reviewed	<p>Key stakeholders have been consulted. The Plan is integrated and prioritises efforts to keep clean areas clean through</p> <ul style="list-style-type: none"> <li>• surveying of ‘clean areas’</li> <li>• eradicating new infestations</li> <li>• prioritising for control, rare and isolated infestations in otherwise clean catchments</li> <li>• Control of roadsides entering clean areas</li> <li>• Declaration in the Queanbeyan City and Crookwell Shire councils</li> <li>• Community and agency extension programs especially targeted within areas currently clean of Fireweed.</li> </ul>	Section 7 – strategic actions
Lachlan	<b>Vegetation and Biodiversity Management Target (VBMT 4)</b> - All identified terrestrial and aquatic weed and pest plant animals of concern for the Lachlan Catchment are managed through integrated management across land tenures	<ul style="list-style-type: none"> <li>• Fireweed has been identified as a declared weed under the Noxious Weed Act, for many LGAs covered by this Plan.</li> <li>• Key stakeholders, within the area covered by this Plan, have been consulted and are signatories for the implementation of the Plan.</li> <li>• The plan incorporates and promotes a range of strategies to manage fireweed, including, pasture and grazing management, legislation, herbicide control, and extension and education. Successful implementation of the Regional Plan will be consistent with this action.</li> </ul>	<p>Section 5</p> <p>Section 3</p> <p>Section 7 – Strategic Actions</p>
	<b>Vegetation Action (VA) 34</b> – Identify the terrestrial and aquatic weeds and pest animals of concern, develop status reports on the extent of the problem and the impacts of these on catchment health	<ul style="list-style-type: none"> <li>• The extent of the fireweed problem and impact within the Region has been documented throughout the Plan. fireweed impacts on the catchment’s economy, threatened species and communities, land values, grazing enterprises, and social values of rural communities.</li> </ul>	Section 4.2 and 4.5 and Map 1

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Lachlan (cont.)	<b>VA35</b> – Develop integrated management plans for the control and management of the identified weed and pest animals	<ul style="list-style-type: none"> <li>The plan incorporates and promotes various strategies to manage fireweed including pasture and grazing management, legislation, herbicide control, extension and education.</li> </ul>	Section 7 – Strategic Actions
	<b>VA36</b> - Support the implementation of the integrated weed and pest management plans	<ul style="list-style-type: none"> <li>Strategies requiring extra funding are highlighted throughout the plan</li> <li>Regional Plan has been developed to assist PAP and Noxious Weeds Grant funding applications.</li> <li>Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan.</li> <li>Regional Plan is linked and supports all Catchment Management Blueprints</li> </ul>	Section 6.1.1  Section 6.1 Section 6.4 and Appendix 2
	<b>VA37</b> – Community education and awareness programs targeted at how to limit the spread of weeds and pest animals of concern within the catchment	<ul style="list-style-type: none"> <li>Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers</li> <li>Methods to raise public awareness of fireweed and its impacts are listed within the Plan. Targeting of extension programs to increase effectiveness and efficiencies are also detailed within the Plan.</li> </ul>	Action 11 and Action 12  Section 6.4 and Action 8
	<b>VA38</b> - Implementation of integrated management plans for the control and management of the identified weeds and pest animals	<ul style="list-style-type: none"> <li>The Plan provides details to assist in the integrated management of fireweed.</li> <li>ST&amp;SCNPC and LCAs, in association with respective catchment Management Boards, are to coordinate stakeholders and implement Regional Plan.</li> </ul>	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Lachlan (cont.)	<b>VA39</b> – Develop and provide appropriate cost sharing arrangements to support the implementation of the integrated management Plans, with varying levels of public investment based on community gain versus private gain. Priority given to the weeds and pests that are identified as having a greater impact on catchment health	<ul style="list-style-type: none"> <li>No specific actions are detailed within the Regional Plan.</li> </ul>	
Murrumbidgee	<b>Soil Management Target 6 activities</b> – facilitate the development of a regional weeds strategy incorporating a regional protocol for prioritising weed management actions in order to prevent new, problem weeds and manage existing weeds. Encourage the adoption of the strategy by private and public managers.	<ul style="list-style-type: none"> <li>The Regional Plan can be readily adopted as part of the Regional Weeds Strategy. Key stakeholders have been consulted and are signatories for the implementation of the Plan</li> </ul>	Section 3
	<b>BMA 4</b> – control weeds	<ul style="list-style-type: none"> <li>The plan will facilitate the integrated control of fireweed</li> </ul>	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Murrumbidgee (cont)	<p><b>BMT3 Activities –</b></p> <p>Identify, develop and implement integrated weed and pest control strategies. Manage problem weeds in context on the Regional Weed Management Plan.</p> <p>Research and encourage the adoption of best management practices to improve grazing management of native perennial pastures to enhance productivity and biodiversity.</p> <p>Manage medium and high conservation value stock routes and roadsides by controlling stock grazing and removing weeds</p> <p><b>BMT4 Activities -</b></p> <p>Identify weeds within the catchment that are having a detrimental effect on listed threatened species/ communities, especially those weed species which are included on the Alert list of Weeds and Weeds of National Significance. Implement control actions with particular reference to specified Commonwealth and State legislation. Any proposed on-ground actions should be done with reference to any relevant strategies such as those developed for the 20 weeds of National Significance and the National Weeds Strategy</p>	<ul style="list-style-type: none"> <li>• The Plan is consistent with the draft Regional Weed Strategy.</li> <li>• The plan will facilitate the integrated control of fireweed</li> <li>• Sustainable pasture and grazing training programs (such as Prograze) will be promoted.</li> <li>• An integrated and prioritised system of road-side control is detailed within the Plan.</li> </ul>	<p>Section 6.4</p> <p>Action 12</p> <p>Action 5</p>
	<b>BMA2 –</b> Implement grazing management	The implementation of the Plan will promote pasture improvement and management at field days, in information brochures and through sustainable grazing and pasture management training programs such as 'Prograze'.	Action 10

