

REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: St. John's wort Regional Management Plan

1.2 PLAN PROPONENTS

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

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1.3 NAME OF PLANT(S)

WONS Y/N

No

Botanical name(s): *Hypericum perforatum*

Common name(s): St. John's wort

1.4 PLAN PERIOD

Starting date: 1st July 2003 Completion date: 30th June 2008

1.5 AREA OF OPERATION: Southern Tablelands & South Coast Region

1.6 AIM:

To strategically contain and control infestations of St Johns wort

1.7 OBJECTIVES¹:

1. To eradicate all rare and isolated and new infestations
2. To stop the spread of St Johns wort into uninfested or 'absent' areas identified in the 2002 mapping
3. To strategically reduce infestations in marginal and core priority areas
4. To develop and implement protocols to reduce the risk of seed spread
5. To establish best management practices to reduce infestations
6. To promote effective pasture and livestock management in affected grazing land
7. To protect vulnerable high conservation areas from infestation

¹ Time frames and measurable performance indicators are contained within Section 7 – Strategic Actions

ACRONYMS

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

2.0 EXECUTIVE SUMMARY

St Johns wort is a highly invasive species that is impacting pastures, roadsides and natural environments in southeastern Australia. If control works are not undertaken cooperatively and strategically, the range of St Johns wort would expand significantly. Core infestations will rapidly develop which will be difficult and expensive to control. This will impact on threatened species and communities (including the *Natural Temperate Grasslands of the Southern Tablelands and the ACT*) and result in reduced agricultural productivity.

The aim of the St Johns Wort Regional Weed Management Plan (The Plan) is to strategically contain and control infestations of St Johns wort in the Region (Map 1). Objectives of the Plan are listed on the covering 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 St Johns Wort in the Region for the period from 2003 to 2008. 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):** Promotion through education and extension of improved land management practices and where appropriate to the location and landuse – strategic grazing management strategies are to be promoted.
- **Redistribution of biological control agents (Section 6.2.4 and Section 7)**
- **Declaration changes (Section 5.2 and Section 7):** Implementation of enforceable management plans (which may include grazing management strategies) in appropriate LCA areas. A declaration is to also to be recommended for the ACT.
- **Strategic roadside and riparian control (Section 7):** Maintenance of buffer zones along roadsides leaving core areas and strategic and prioritised roadside and riparian control prescriptions and prioritisations are highlighted in the Plan.
- **Improved hygiene and quarantine procedures (Section 6.2.1 and Section 7):** Promotion of hygiene methods and protocols and other initiatives to restrict the movement of St Johns Wort outlined within this Plan is considered essential.
- **Training, extension and education (Section 6.3 and Section 7):** Strategic targeting of extension programs is highlighted within the Plan.

It is anticipated that at a regional scale the successful implementation of the actions contained within the Plan should restrict the spread and reduce the abundance of St Johns wort infestations. This will benefit the Region's agricultural industry, threatened species and communities, the environment, and the community.

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, South East, Warragamba and Southern Catchment Management Board
- South East Catchment Management Board
- NSW National Parks and Wildlife Service
- Department of Land and Water Conservation
- Environment Australia
- ACT Department of Urban Services
- NSW State Forests

3.2 Other Stakeholders

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

- NSW Agriculture
- State Rail Authority
- Country Energy
- Integral Energy
- Roads and Traffic Authority
- Landcare
- Coastcare

4.0 BACKGROUND

4.1 Reason for Plan

St Johns wort is a highly invasive species that is impacting pasture, roadsides and natural environments in southeastern Australia.

Despite being declared noxious throughout the Region, current management strategies have not prevented the continued spread of the species or reduced its impact. A more effective management strategy for the weed is required through a coordinated and integrated approach with involvement from all stakeholders.

Null hypothesis: If control works are not undertaken, the range of St Johns wort in the Region would expand significantly. Core infestations will rapidly develop which will be difficult and expensive to control and may result in reduced agricultural productivity and/or impact upon threatened species and communities.

4.2 Description of the problem

St. John's wort contains the alkaloid hypericin, which causes photosensitisation in mammals that ingest it, resulting in blisters on weakly pigmented parts of exposed skin. The level of hypericin is higher in the narrow-leaf than the broad-leaf form, and changes throughout the year. Hypericin levels start to rise rapidly in spring when the new shoots reach a height of 5-10 cm and are greatest in early summer when the plants are in full flower.

When desired forage is scarce, livestock may consume St Johns wort and then suffer blistering and itching on light-haired or un-pigmented skin areas, such as the mouth and ears. Animals affected by this lose weight, are difficult to manage and may lose market value. Livestock may even die of dehydration or starvation because of swelling and soreness of the mouth. Drying does not destroy Hypericin, so hay made from an infested pasture is still poisonous (Lamp and Collet 1989).

The *Natural Temperate Grasslands of the Southern Tablelands and the ACT* are listed as an endangered ecological community under the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999*. Remnant sites with these communities in the Region also provide habitat for a wide range of threatened species under the Commonwealth and NSW threatened species legislation including the striped legless lizard (*Delmar impar*), little whip snake (*Suta flagellum*), grassland earless dragon (*Tympanocryptus lineata pinguicolla*), mauve burr-daisy (*Calotis glandulosa*) creeping hopbush (*Dodonea procumbens*), Monaro golden daisy (*Rutidosis leiolepis*) and Austral toad-flax (*Thesium australe*).

St Johns wort, as well as a range of other weeds including, serrated tussock (*Nassella trichotoma*) and African lovegrass (*Eragrostis curvula*) are seen as threatening processes to temperate grasslands through modification of community composition and habitat (Environment Australia Website 2002).

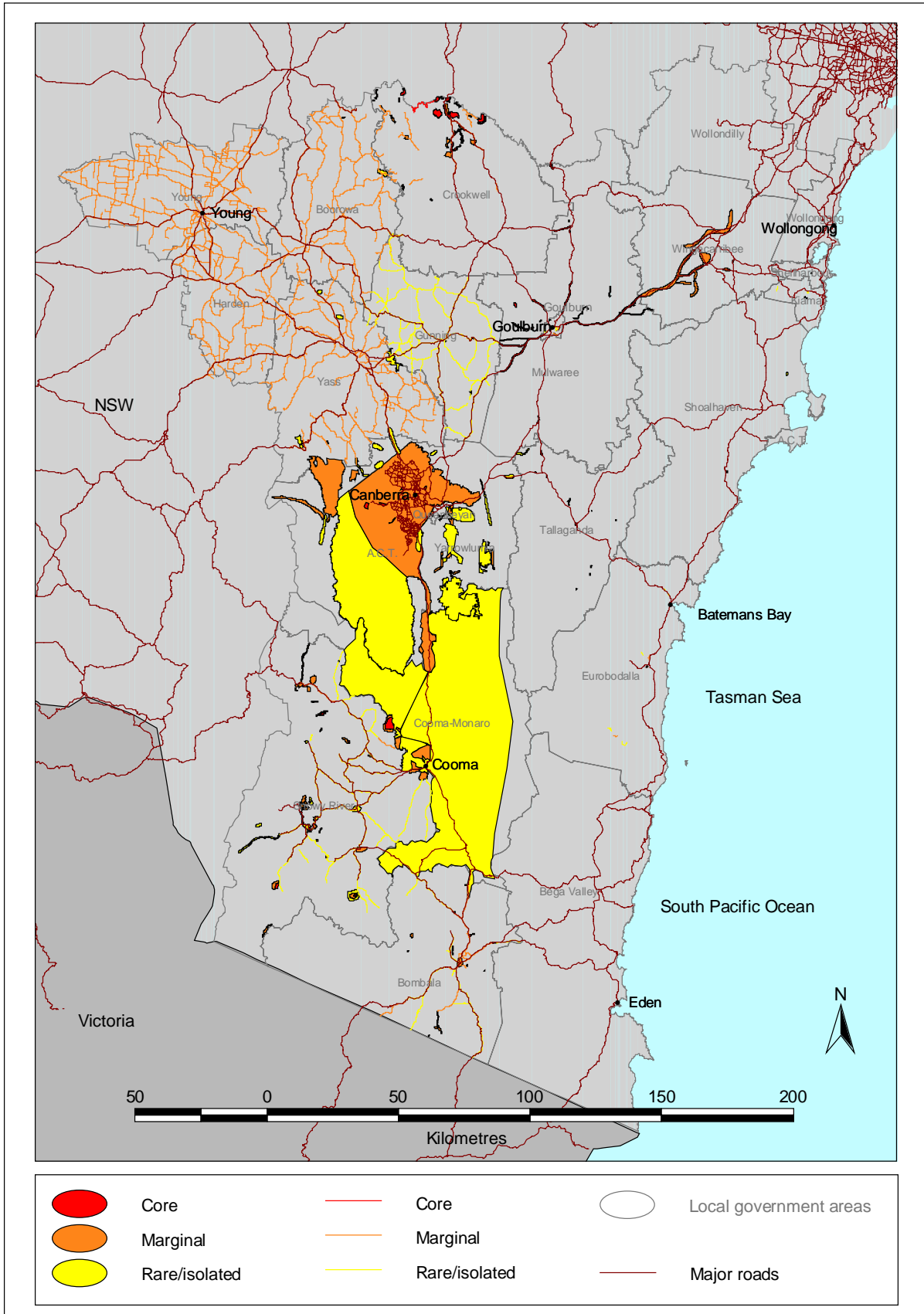
4.3 Distribution of infestations

St. John's wort is native to Europe, Asia and North Africa. It was first introduced into Australia from Europe for ornamental and medicinal purposes in the 19th Century. It currently infests 200,000 ha in both NSW and Victoria, 80% of this is within natural vegetation, particularly grasslands and open woodlands (Briese 2000).

St John's wort is found in grasslands, open *Eucalyptus* and *Callitris* woodlands, and along riverbanks, as well as in cleared pasture and forest plantations. It is common on less intensively managed lands such as traveling stock reserves, commons, water catchment reserves, roadsides, powerline easements and road and rail verges (Blood 2000).

St John's wort affects all LCAs within the region particularly on roadsides within the Southern Tablelands. Map 1 shows the distribution of St Johns wort in the Region.

Map 1: St Johns Wort distribution and density



4.4 Weed biology / ecology

There are a number of forms of St John's wort in Australia, the most common being the narrow-leaf form. It is a perennial herb with two growth stages. In autumn and winter it is a flat low rosette from 10-60cm in width, with spindly non-flowering stems and a dense mat of leaves. In spring and summer it becomes erect and twiggy and produces one or more woody flowering or non-flowering stems from 30-120 cm high (Briese 2000). The individual plant form and size depends on habitat. Deep soils favour the development of larger, multi-stemmed plants with vertical roots and long-lived crowns. In shallow or stony soils, plants are smaller with fewer stems, lateral roots proliferate and suckering becomes more common.

Flowering is followed by the formation of reddish-brown seed capsules that contain small cylindrical black seeds approximately 1mm long. Seeds fall from the capsules in autumn, when the erect stems die. Seeds require mild temperatures, light and rainfall to germinate and can remain viable for approximately 12 years.

Depending on the intensity and timing, fire generally favours St John's wort as the plant can reshoot after being burnt. A low intensity fire may stimulate suckering from surviving lateral roots and thereby increase weed density. Due to its recovery ability fire in autumn months may particularly favour St John's wort as it can subsequently become dominant in the months when it is too cold for other species to germinate.

4.5 Method and rate of spread

St John's wort reproduces from seed or by suckering. A single plant can produce up to 30,000 seeds annually. Seeds are dormant for 4 to 6 months, requiring mild temperatures, light and rainfall to wash off the inhibitor but may remain viable in the soil for as long as 12 years (NSW Agriculture 2001). It usually sets seed without pollination, but can also outcross (Briese 2000). Shoots from the lateral roots may produce new crowns in spring and autumn. An individual plant may spread concentrically by suckering from lateral roots at a rate of 30 cm per year. This is the main method by which existing infestations are maintained.

The relatively large and heavy seed means that it is transported only short distances by wind (*i.e.* less than 10 m per year) (Briese 2000). The main methods of long distance spread and colonisation into new areas is by sticky fruits adhering to the coats or hair of animals and movement in water, hay, fodder, machinery and motor vehicles.

4.6 Roles and responsibilities of land managers

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

- Private landholders; who are to control St Johns Wort on their own land and participate in regional/catchment/Land Care groups
- Roadside and easement managers (RTA, State Rail, Councils, ACTEW / AGL, Australian Pipeline, Country / Integral Energy); who are to ensure adequate plant and equipment hygiene and that their works/operations are conducted in such away to reduce the risk of St John's wort spread. Councils are to control St Johns Wort and create buffer zones along roadsides.

- Land management authorities (Environment Australia, Sydney Catchment Authority, Defence, DWLC, ACT Department of Urban Services, Rural Lands Protection Boards, NSW National Parks and Wildlife Service, Forest industries, and local councils); who are required to restrict movement of weeds and ensure control is undertaken on crown lands especially in threatened grassland and woodland communities and 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; and to assess projects submitted for funding under Commonwealth and State natural resource management grant programs.

5.0 LEGISLATIVE SITUATION

5.1 Current declaration

With the exception of the Southern Slopes County Council (Booroowa, Harden, Yass and Young) who have declared St Johns Wort as a W3 weed, all LCAs in the Region have declared St Johns Wort as a W2 noxious weed under *the Noxious Weeds Act 1993*. Under the *Noxious Weeds Act 1993* (NSW) W2 weeds must be fully and continuously suppressed and destroyed and W3 weeds must be prevented from spreading and numbers and distribution reduced.

5.2 Declaration changes

Presently, St Johns wort is not declared as a pest plant in the ACT under the *Land (Planning and Environment) Act 1991* (ACT). A declaration is proposed and should take into effect prior to the end of 2003.

Further declaration changes in the Region are probable as economic realities place questions on the ability to enforce W2 and W3 declarations in heavily infested lands or where a W2 declaration may divert funding or resources from more problematic weed species. In these areas the cost of control is far greater than the economic return from the land or the amount of control required is unfeasible with current resources. A W3 or W2 declaration in LGAs, which have extensive areas of St Johns wort, may become onerous and difficult to enforce and may divert funding or resources from more problematic weeds

A new declaration is recommended that would allow councils to develop individual management plans for landholders. These management plans will be enforceable and will allow a more flexible and strategic approach to the control of St Johns wort in core areas. This strategy would enable more efficient use resources as it could focus on creating buffer or strategic control areas nominated by the council or on the protection of threatened grassland or woodland communities. The majority of LCAs within the Region could benefit from this type of declaration.

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 unambiguous when referring to such plans.

A change in declaration may also allow selective wild-harvesting to occur in the Region if it becomes economically feasible (See Section 6.1).

6.0 CONSIDERATIONS AND OPPORTUNITIES

6.1 Opportunities to be exploited

There is a renewed interest in St Johns wort as a herbal remedy for depression and a large market for these products presently exists in Europe, North America and Australia. A number of private companies have been formed in the past few years to wild-harvest St Johns wort for the extraction of hypericin. Although profits have been unreliable, this could still remain a viable alternative to expensive control methods in core areas where St Johns wort is not declared a W2 noxious weed.

The CSIRO in conjunction with NSW Agriculture and Landcare have released successful biological control agents throughout the region. Agent dissemination programs throughout the Region are recommended to capitalise on this apparent success.

Other opportunities to be investigated include:

- Noxious Weed Grant scheme for control on Council and RLPB land (administered through NSW Agriculture);
- grants to Landcare, Rivercare and Bushcare groups that meet objectives of Catchment strategies and Natural Heritage Trust;
- vacant crown land funding (administered by DLWC);
- Regional Biodiversity Conservation incentives; and
- Catchment Management Boards, Natural Heritage Trust and envirofunds

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. 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 grazing management extension programs to landowners and occupiers.
- Improve roadside control. Additional funding could allow every road-side to be checked for all noxious weeds, and infestations controlled and rehabilitated every year.
- Increasing the distribution of biological control agents.

6.1.2 Other opportunities

Joint ventures may be pursued through:

- coordinated control programs with Rural Lands Protection Boards on and adjoining Travelling Stock Reserves;
- coordinated programs through the Snowy Monaro Biodiversity Conservation Strategy;
- coordinated control programs with NSW National Parks & Wildlife Service and ACT Department of Urban Services as St John's wort is a major threat to many state and nationally listed threatened species and communities; and
- Coordinated programs with road, rail and utilities managers for the control of St Johns Wort.

6.2 Species management

6.2.1 Prevention

Competitive pasture and application of superphosphate to maintain the vigour of the pasture is one of the best defences against St Johns wort invasion. However, once an infestation is established, containment is the priority. This may include the quarantining of areas to stop movement of seeds. Stock routes and other areas through which stock move should be kept clear of St Johns wort as spread occurs through the attachment of seed capsules to animals. Plant, equipment, material and stock hygiene are also important in reducing the species spread. Methods to restrict movement of St. Johns wort seed include:

- promoting on-farm quarantine techniques, for example, using holding paddocks for contaminated stock prior to or after transportation, minimising stock movement from infested paddocks to clean paddocks and cleaning of on- or off-farm vehicles that have passed through wort.
- identification training for land managers, road-side management authorities and utility employees, and landholders. This should focus primarily in localities where St. John's wort is absent, rare and/or isolated;
- development and dissemination of contact lists, maps and web sites to improve communications between weed officers, land management authorities and roadside, utility easement and corridor managers
- suppression of St Johns wort along roadsides.
- ensuring hygiene requirements are included in road maintenance tender or contract specifications.
- creating buffer zones between infested paddocks and uninfested paddocks by spraying or by sowing a phalaris or other appropriate pasture species.

Councils, weed officers and road and utility easements authorities should undertake the following as a minimum:

- Avoid where possible organising and travelling/working in known St. John's wort areas when seeding (late summer to autumn depending on the conditions) and only travel through St. John's wort areas when it is absolutely necessary;

- If working in clean and infested areas work from the clean areas towards the infested areas;
- Develop and implement procedure manuals for the prevention of the spread of noxious weeds and plant and animal diseases and ensure relevant employees/contractors are aware of the provisions of the procedure manual;
- Utility easement managers are to obtain up-to-date weed distribution maps from local weed officers or from the Regional Weeds Committee;
- Regular maintenance work along roadsides and utility easements is to be avoided during seeding period (late summer – autumn depending on the conditions);
- Contact the land management authority prior to entering known St. John's wort areas;
- Vehicles and all other tools and equipment are to be cleaned before leaving, or immediately after leaving, any known St. John's wort areas. Cleaning of vehicles and tools is to be carried out in accordance with the requirements of the land manager or by the following methods (adapted from Country Energy unpub.):
 - Liaise with the landowners/managers as to the availability of washdown facilities;
 - Use portable or existing washdown facilities immediately after working in known St Johns wort infested areas and before leaving the area; and
 - Carry out cleaning in, or as near as possible to, the infested area.
- When washdown facilities are not available, vehicles and tools area to be broomed down to the best of the employees or contractors ability.

6.2.2 Herbicide control

St Johns wort is relatively easy to control, however as the seedbank remains viable for 12 years, established core infestations may be more difficult to control. Many different herbicides are used to control St Johns wort with good effect with herbicides registered for control. Consideration should always be given to the impact of the herbicide on other vegetation, *e.g.* Glyphosate will kill grasses and Picloram can kill legumes and other broad-leaf plants. Herbicides should be applied as per registration and when the plants are actively growing and soil moisture is plentiful. The best time to apply herbicide is when the plant is flowering (NSW Agriculture 2002).

Late winter spraying, while in rosette stage, is also effective (if rosettes are visible) and causes minimal clover and desirable plant damage.

6.2.3 Pasture and grazing management

Improved pastures are the best defense against invasion of St Johns wort. The addition of fertilizer and clover seed is a cost-effective way to build up the production and resistance of a pasture to weed invasion. Pasture management should focus on maintaining competitive communities where St. John's wort will find it difficult to establish. Cultivation and sowing down arable land to an appropriate pasture provides sufficient competition to control the weed.

Selective or prescriptive grazing can be particularly advantageous in areas where herbicides cannot be applied, for example, near watercourses or where it is prohibitively expensive (large inaccessible locations). Winter grazing before flowering is a successful form of control. On hilly, steep low value land, the cost of herbicide treatment may exceed the value of or economic return from the land, so suppression with grazing animals is the best option. Experimental results to date indicate that the heavy grazing of broad-leafed types of St John's wort, from late autumn to early spring, by merino wethers with at least 4 months wool growth, is safe, and will suppress St Johns wort. Safe grazing of narrow-leafed types is also possible from early July to mid September. Sheep should always be moved off wort infested pastures when new season St Johns wort shoot growth reaches 5 cm in height. If such grazing is heavy, and is repeated annually, it should suppress the weed (Briese 2000).

Grazing plans tailored to fit the specifics of the site should be developed in situations where prescribed grazing is desirable. Sheep do not graze an area uniformly, consequently, methods such as, e.g. herding, fencing or the placement of salt licks should be employed to concentrate activities in an area (Olsen and Lacey 1994 in Tu *et al.* 2001). Grazing should be closely monitored and animals promptly removed when the appropriate amount of control has been achieved and/or before desirable native or pasture species are impacted.

6.2.4 Biological control

Several biological control agents exist for St John's wort. The foliage-feeding beetle (*Chrysolina hyperici*) and a mite (*Aculus hyperici*) are two that have been released in the Region. The establishment of the mite was successful (73% within 3 years) throughout the weed's range and its performance as a control agent has been encouraging. Studies at two sites at Mount Alexander, Victoria, (CSIRO entomology web site 2001) have showed that within 5 years of the mites' release, St Johns wort infestations decreased by 12% and 29%. Corresponding sites kept free of the mites increased by 58% and 65% over the same period.

Redistribution of biocontrol agents will maximise the effectiveness especially in areas where other forms of control are not an option. Both agents can be redistributed easily (Briese 2000) so there is potential to build up agent numbers by initiating new releases.

Biological control, however, is only seen as a very long-term solution due to the massive seedbank on roads, reserves and paddocks and the apparent resistance of some St Johns wort populations in NSW to mite attack (CSIRO entomology web site 2002).

With the further introduction of biological control, improved pasture, grazing management and strategic fertilising it is anticipated that herbicide control will gradually reduce.

6.3 Extension and education

St Johns wort currently has a high profile in the community, with the majority of landholders, land managers and the public being well aware of the problem. Nevertheless, the existing programs should be maintained.

The following initiatives and programs are proposed:

- Ensure that the latest information on the control of St Johns Wort is available to landholders and participants at weed seminars and field days;
- Increase participation in stock and pasture management training through initiatives such as Prograze;
- Liaise closely with Rural Land Protection Boards to combat the spread and introduction of St. Johns wort through travelling stock;
- Promote biological control establishment and spread by community groups and Landcare; and
- Promotion of grazing management strategies

Strategic targeting of extension programs is an important ancillary measure to other aspects of a strategic and integrated weed control program. The extension and education program identified in the plan is premised upon the following strategies;

- Extension programs are to be integrated with other weed management activities where possible *i.e.* inspection programs, field days or Landcare initiatives;
- Targeting awareness and identification programs where there are new or absentee landholders, or landholders who do not “work” the land, and in rare and isolated, and absent areas;
- Targeting extension and training towards landuse change options in areas with intractable weed infestations;
- Aligning the detail and volume of extension materials and programs with the scale of the weed problem;
- Undertaking extension programs in partnership with organisations such as Landcare;
- Targeting extension post drought or other disasters particularly where fodder has been imported or restocking programs implemented;
- Targeting areas effected by wildfires and wildfire suppression activities (*i.e.* where disturbances such as control lines have been established particularly through existing infestations)

6.4 Links to other strategies

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

The regional Plan is also consistent with the target outcomes of the Murrumbidgee, South East, Warragamba and Southern Catchment Management Blueprints. Details of supporting links are contained within Appendix 2 (p.23).

6.5 Barriers and contingencies

Barriers and contingencies identified in Table 1 may limit the success of St Johns wort programs. Actions identified in the Plan to overcome these barriers and contingencies are identified in Table 1.

Table 1: Responses to identified barriers and contingencies

Barrier / Contingency	Responses	Strategic Actions (Section 7)
Natural disasters can promote St John's wort spread and density	<ul style="list-style-type: none"> Implementation of Disaster Strategy Actions and priority given to areas affected by recent wildfires 	Action 12 and 13
<p>The skills, motivation, money or infrastructure to control St Johns wort may not exist for some private landholders, occupiers and government departments.</p> <p>St Johns wort occurs in agricultural areas where the economic return from the land is often less than the costs of controlling the weed, or the weed occurs in non-arable land where rehabilitation will be extremely difficult.</p>	<ul style="list-style-type: none"> Government departments are to be signatories to the implementation of the Regional Plan. Plan is to support targets of the Catchment Management Blueprints. Development of incentive schemes, tailored property weed management plans, pasture and grazing management schemes, effective distribution of best practice management guidelines and extension and training initiatives. 	<p>Section 2.1 and Appendix 2</p> <p>Actions 5, 11 and 12</p>
Biological control agents are not distributed throughout the Region	<ul style="list-style-type: none"> Increased distribution of biological control agents scheduled 	Action 4
It is difficult to control seed spread resulting from movement of plant, equipment, materials and livestock from infested areas to clean areas	<ul style="list-style-type: none"> Promotion and Implementation of quarantine and hygiene protocols for properties, roadsides, utility easements and those who work in SJW infested areas. Promotion of risk-minimising fodder feeding and stock movement practices during natural disasters. 	Action 6 and Action 9
Land rehabilitation may be required after control works to avoid reinvasion	<ul style="list-style-type: none"> Use of property weed management plans as a control tool; encouragement of community groups such as Landcare; promotion of pasture training programs; effective dissemination of best-practice management; and the promotion of off-target mortality reduction methods 	Actions 8, 9, 11 and 12.
Coordination and cooperative management is currently lacking along roadsides and riparian zones	<ul style="list-style-type: none"> Seeking dialogue with roadside and easement managers, focus on clean catchments and managing roadsides strategically based on infestation levels. 	Action 6
The continued subdivision of rural land has created many landholders who do not require their land for their income and who derive no benefit from expensive control programs	<ul style="list-style-type: none"> Rural- residential and rural lifestyle extension strategy (currently in production) is to be implemented. 	Action 13
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"> Encouragement and assistance to landowners with clean properties in core areas. Management strategies are to be developed in intractable infestation areas that use effective grazing regimes and other long-term management techniques. 	<p>Action 5</p> <p>Action 5</p>

7.0 ACTIONS AND PERFORMANCE INDICATORS

Strategic actions for control of St Johns wort 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 St Johns Wort Regional Weed Management Plan, which are to:

- prevent and initiate rapid control of new infestations;
- control rare and isolated infestations (Appendix 1) as a priority;
- significantly reduce marginal infestations and core (Appendix 1) infestations in priority areas;
- promote grazing management as a control and management tool;
- integrate St Johns wort control with best land management practices and other weed management programs; and
- seek regional cooperation to overcome barriers (Section 6.5) to effective St Johns wort management.

ACTION	Performance Indicator	Who is to be responsible (add others involved)	Objective number	
Mapping				
1	a) Complete more accurate mapping of St Johns wort (wort) throughout the Region (e.g. at 1:25 000 scale (or larger). b) Standardise mapping methodology across the Region c) Update mapped information (preferably on GIS) at least every second year. d) See also Action 2 and Action 4 (mapping in Absent and Core Areas)	a) More accurate map produced by July 2004 (note that ID is difficult outside flowering, therefore should be completed between November and February). b) Pilot cooperative mapping project to be undertaken prior to Dec 2003. c) Maps updated at least every second year.	ST&SCNPC and LCAs, NSW Ag., NPWS, ACT DUS, DLWC	1 and 2
Strategic response				
2	'Absent areas' a. Areas identified as absent to be remapped as 'absent-confirmed', and 'absent – not confirmed'. b. Confirmed absent areas to be inspected or surveyed every five years c. 'Absent – not confirmed' areas to be prioritised for surveying programs.	a. Next update of maps to include new classifications. b. Confirmed absent areas are checked prior to 2008. c. '25% of 'absent but not confirmed' areas surveyed prior to each map update.	All stakeholders	1 and 2

ACTION	Performance Indicator	Who is to be responsible (add others involved)	Objective number	
3*	<p>Rare and Isolated populations</p> <p>a) All known isolated and rare infestations eradicated^{*1} or reduced to an acceptable level^{*2}.</p> <p>b) All locations with rare and/or isolated populations to be inspected annually.</p> <p>c) Rare and isolated infestations in otherwise clean catchments are prioritised</p>	<p>a) Currently known isolated and rare infestations eradicated^{*1} by July 2006. The eradication work schedule is as follows: Year 1: seek funding and map exact locations of isolated infestations (with GPS), Year 2 - 3: 50% of eradication work occurs annually and is verified through annual reports.</p> <p>b) Annual reports indicate inspections occurred and infestations controlled or compliance achieved.</p> <p>c) Rare and isolated populations in otherwise clean catchments eradicated by July 2007</p>	<p>ST&SCNPC and affected LCAs, Landholders, occupiers and land managers</p>	1
4	<p>Marginal populations</p> <p>a) All known marginal infestations significantly reduced.</p> <p>b) Marginal populations in otherwise clean catchments are prioritised for control</p> <p>c) Encourage and train Landcare and Bushcare groups to redistribute biological control agents to marginal areas</p>	<p>a1) At least 25% of properties affected inspected annually and appropriate action taken within 1 year of inspection.</p> <p>a2) Currently known marginal infestations reduced by 75% (region-wide) by July 2008. 25% of control work occurs annually and is verified through annual reports.</p> <p>a3) Majority of sites where control has occurred are rehabilitated within 1 year.</p> <p>b) Marginal populations in otherwise clean catchments reduced by 75% by July 2008.</p> <p>c) Groups participating in the redistribution of biological control agents by Nov 2004.</p>	<p>Affected LCAs, Landholders, occupiers, land managers and Landcare (a3)</p>	3
5	<p>Core populations</p> <p>a) Identify and map those parts of existing core areas where:</p> <ul style="list-style-type: none"> - control programs over next 5 years could reduce ranking to marginal - grazing management of wort is feasible - control is a priority (e.g. boundary of core areas, threatening or in threatened communities) <p>b) Develop management strategies for these areas, such as grazing plans, buffer zones and or revegetation plans</p> <p>c) Undertake strategic control in priority core infestations</p> <p>d) Encourage and train Landcare or Bushcare groups</p>	<p>a) Core area mapping completed by July 2005</p> <p>b) Core areas mapped and strategies documented by Dec 2005</p> <p>c) Identified priority core areas are reduced to 50 % of current distribution by July 2008</p> <p>d) Landcare groups participating in the redistribution of biocontrol agents</p>	<p>Affected LCAs, Landcare, Catchment Management Boards and NSW Agriculture</p>	3, 5, 6 and 7

ACTION		Performance Indicator	Who is to be responsible (add others involved)	Objective number
	to redistribute biological control agents to all core areas			
6*	<p>Highway and road populations</p> <p>a) Approach RTA regarding joint control ventures</p> <p>b) Create strategic buffer zones where wort is actively suppressed for at least 3 - 5 m out from the edge of the bitumen along roadsides. leaving core infestations.</p> <p>c) Full roadside control undertaken in rare and isolated areas</p> <p>d) Full control of roadsides in marginal areas which then pass through into rare, isolated or absent areas.</p> <p>e) Full control particularly where roadside infestations occur within otherwise clean catchments.</p> <p>f) RTA, councils and utility and easement managers to develop and adopt hygiene protocols for working in wort infested areas.</p> <p>g) RTA and utility and easement managers to be provided with SJW distribution maps.</p>	<p>a) Correspondence to RTA and SRA sent by March 2004</p> <p>b) c) d) and e) annual control programs are undertaken along roadsides. Cooperative programs in place by Dec 2004.</p> <p>f) Protocols developed and in place by November 2004.</p> <p>g) RTA and all utility and easement managers receive SJW distribution maps on an annual basis.</p>	<p>ST&SCNPC, Affected LCAs, NSW Agriculture and Councils</p>	4
7	<p>Infestations along waterways</p> <p>a) Infestations in otherwise clean catchments or sub-catchments are prioritised for control</p>	<p>a) Infestations in otherwise clean catchments or sub-catchments are identified by Nov 2004.</p> <p>b) All rare and isolated infestations in otherwise clean catchments are eradicated by August 2006.</p> <p>c) All marginal infestations in otherwise clean catchments are eradicated by August 2008.</p> <p>d) All core infestations in otherwise clean catchments are reduced 75% by August 2008.</p>	<p>All stakeholders</p>	4
Prevention, regulation and rehabilitation				
8	<p>a) Declaration as a pest plant to be sought for the ACT</p> <p>b) Support declaration changes as outlined in Section 4.2.</p>	<p>a) St Johns wort is declared in the ACT by December 2003</p> <p>b) Declaration changes discussed in extraordinary ST&SCNPC meeting by June 2004. Implementation of changes within a</p>	<p>ACTDUS(a) ST&SCNPC (b)</p>	4

ACTION		Performance Indicator	Who is to be responsible (add others involved)	Objective number
		year of year of acceptance by NSW Ag., NWAC, Councils and other authorities		
9*	<p>a) Develop and promote local and on farm quarantine and hygiene methods as outlined in Section 6.2.1</p> <p>b) In consultation with RTA, and other utility stakeholders, develop code of practice and protocols for road-side maintenance as outlined in Section 6.2.1</p>	<p>a) Extension material concerning quarantine and hygiene methods developed and promoted by LCAs through means outlined in Strategic Action No.10, by July 2005.</p> <p>b) Roadside maintenance codes of practice and protocols developed and implemented throughout the region by July 2003</p>	ST&SCNPC, NSW Agriculture, RTA and other utilities, Landcare and Catchment Management Boards	5
10	<p>a) NPWS and ACT Department of Urban Services identify strategies for protection of threatened grasslands and grassy woodlands</p> <p>b) This information is to be included in revised Regional Plans</p>	<p>a) NPWS and ACT Department of Urban Services has addressed a ST&SCNPC meeting by July 2004 or have produced Recovery Plans for threatened species/communities that address wort threat mitigation strategies</p> <p>b) Strategies outlined in Recovery Plans are included in revised plan</p>	ST&SCNPC, NPWS and ACT Department of Urban Services	7
Training, Education and Extension				
11	<p>a) Continually update best practice management, including treatment details relevant to the region (e.g. Agfacts, or CRC best management brochures)</p> <p>b) In affected and potentially affected LCAs, information on identification, impacts and control of wort (e.g. Agfacts, or CRC best management brochures) to be disseminated in one or more of the following:</p> <ul style="list-style-type: none"> - Rates notices - Council pamphlets - Field day material - weed seminars and field days <p>Absentee and small acreage landholders to be specifically targeted</p> <p>c) Initiate cooperative species identification and management training (and not only for St Johns Wort) for Weeds Officers, Catchment Officers, Landcare Coordinators and agronomists, easement and corridor managers, and</p>	<p>a) Updates provided as information increases, with comments from the Region whenever updates occur. Input or comments on possible changes sent to NSW Ag. and CRC prior to 2007 if updates do not occur prior to 2007.</p> <p>b) Information regarding wort sent to all landholders within rare and/or isolated and marginal areas by December 2004. Actions regarding information dissemination through listed means (Action 9b) are to be reported in annual reports</p> <p>c) At least one cooperative training session held annually throughout the region and 100% of targeted people can distinguish St Johns wort outside flowering period prior to January 2007.</p> <p>d) Appropriate extension information included with inspection notices</p>	ST&SCNPC, NSW Agriculture, CRC Weeds, and affected LCAs,	5, 6

ACTION		Performance Indicator	Who is to be responsible (add others involved)	Objective number
	selected field staff in land management authorities. d) Extension material, including information identifying relevant programs, is to be disseminated to landholders with inspection notification			
12*	a) Promote sustainable pasture and grazing management training schemes such as 'Prograze' b) Prograze (or equivalent) courses in core areas to be modified to target grazing management plans for the control of wort.	a) Landholders throughout the region are provided information regarding pasture and grazing management training schemes such as prograze or equivalent. Each LCA to hold at least one 'Prograze' (or similar) course annually b) Courses in core wort areas have been modified.	NSW agriculture with LCA involvement	5, 6
Other actions				
13	a) Disaster strategy to be developed to include St Johns wort control during and after drought and fire. b) Implement relevant actions in Regional Disaster Strategy particularly promoting appropriate drought fodder feeding techniques. c) Implement Regional Rural-Residential / Rural Lifestyle Extension Strategy (currently in production)	a) Disaster plan developed by mid 2003 and implemented by end 2003. b) Relevant disaster strategy actions implemented as soon as practicable and at least by July 2004. c) All actions within the Extension Strategy completed within 4 years of its completion.	ST&SCNPC	4

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

*2 reduced to an 'appropriate level' means the population can be "maintained at a level where it has insignificant environmental and economic effect, with a minimum and preferably decreasing expenditure/effort". 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 1)

It is anticipated that at a regional scale the application of the above actions should restrict the spread and reduce abundance of existing St Johns wort infestations. Development of pasture and grazing management skills, provision of education / extension programs and promotion of adequate hygiene techniques are essential if the Plan is to succeed. It is anticipated that by following this Plan, the range and potential impacts of St Johns wort will be controlled.

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 address target outcomes of catchment management blueprints and any modifications to actions and performance indicators that 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 key 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.

9.0 BENEFITS

Efforts to restrict the spread and abundance of existing St Johns wort infestations as outlined in this Plan will benefit industry, the environment and the community.

The agriculture industry will benefit through increased land productivity, reduction in areas of unproductive land, increased grazing potential through pasture improving and fertilizing, and a reduction of photo-sensitisation in livestock.

The environment will benefit through St Johns wort control works, extension / education initiatives and joint ventures with NSW National Parks and Wildlife Service, through the alleviation of threatening processes affecting native flora and fauna species (see Section 4.2.1). Native grasslands are rare and marginalised, thus control of competitive introduced species such as St Johns wort may assist in conserving these vegetation communities and ultimately, assist in the conservation of biodiversity.

The community will benefit through St Johns wort control by avoiding trickle-down economic impacts from the agricultural sector.

10.0 RESOURCES

References

Briese, D. 2000 *Best practice management guide no.7 St Johns wort*. CRC Weed Management systems.

Blood, K. 2001. *Environmental weeds - A field guide for SE Australia*. Jerram & Associates - Science publishers, Victoria.

Lamp, C. and Collet, F. *A field guide to weeds in Australia*. Inkata Press Pty Ltd. Melbourne and Sydney.

NSW Agriculture 2001 *St Johns Wort Control: Agfacts P7.6.1*

Tu, M., Hurd, C., and Randall, J.M. 2001 *Weed control methods Handbook: Tools and techniques for use in natural areas*. Wildlands Invasive species Program. The Nature Conservancy. United States of America

Web addresses

www.ea.gov.au/epbc/biodiversityconservation/index.html

www.entri.csiro.au/research/weedmgmt/weedsdespatchthirteen.html

Appendix 1: Density classes used to map St Johns wort

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

^{*1} '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.

^{*2} 'Short term' means less than 5 years.

^{*3} Significantly reduce means reduce by approximately 75% from 2002 levels of distribution and abundance in 5 years

^{*4} '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.

^{*5} '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.

^{*6} '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.

^{*7} 'Rare' means a species is very uncommon, but unlike isolated may be scattered over a wider area at a very low density.

^{*8} '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	Biodiversity Management Target 3 – 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"> The aim and objectives of the Regional Plan are consistent with this target All new and known rare and isolated infestations eradicated or an appropriate level by July 2006 All known marginal infestations reduced by 75% by July 2008 Annual control roadside control is to occur Core areas will be prioritised and strategically managed and infestations reduced by 50 % by July 2008. 	Section 1.6 and 1.7 Action 3 Action 4 Action 6 Action 5
	Biodiversity Management Action 2 – Develop and implement integrated control ² strategies for priority weeds.	<ul style="list-style-type: none"> The plan incorporates and promotes a range of strategies to manage St Johns wort, including, pasture and grazing management, legislation, herbicide control, exclusion techniques, extension and education. Successful implementation of the Regional Plan will be consistent with this action. The Regional Plan supports the objectives of the ACT and NSW Biodiversity Strategy and the NSW and Regional Weeds Strategy 	Section 6.4

² 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.)	Biodiversity Management Target 4 – 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"> • surveying 'clean areas' • eradicating new infestations • Rare and isolated infestations in otherwise clean catchments are prioritised for control • Controlling roadsides entering clean areas and prioritising control in relatively clean catchments • Providing community and agency extension programs 	<p>Action 2</p> <p>Action 3</p> <p>Action 3</p> <p>Action 6</p> <p>Action 11</p>
	Biodiversity Management Action 5 - Maintain the weed and pest free status of all areas that are free of pests and weeds	See comment for BMT4	
	<p>BMA 10 – 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"> • review of current systems; • Research into biological and biological and other forms of control • Trialing of innovative approaches 	<ul style="list-style-type: none"> • There are no specific actions to negotiate reform or to establishing monitoring trials. This work is currently being effectively carried out by research organisations such as NSW Agriculture, CRC Weed Management Systems and CSIRO • Biological control agents are to be distributed throughout the Region • 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. 	<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.)	Social and economic management target (SEMT) 1 – 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>The Regional Plan supports this target through:</p> <ul style="list-style-type: none"> Identifying additional resourcing and funding opportunities Strategic targeting of training, education and extension programs Property/weed management plans will be developed and enforced in areas where economic realities place questions on the ability to enforce W2 declarations. 	<p>Section 6.1</p> <p>Section 6.3 and Action 11</p> <p>Section 5 and Action 8</p>
Southern	<p>Sustainable Land Use Program</p> <p>Catchment Target - By 2012 the area of land affected by land degradation problems including weed infestations, will not exceed the 2003 baseline</p> <p>Management Target – by 2005, a regional weed control strategy will be implemented for priority weeds</p>	<ul style="list-style-type: none"> The Plan aims to considerably reduce the spread and reduce the impact and density of existing SJW infestations. The aims and objectives of the Regional Plan are consistent with this target. All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006 All known marginal infestations reduced by 75% by July 2008 Annual roadside control is to occur Core areas will be prioritised and strategically managed and infestations reduced by 85% by July 2008 The plan will be consistent with the ST&SCNPC Regional Weed Strategy (currently in production) 	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 6</p> <p>Action 5</p> <p>Section 6.4</p>
	<p>L1.1 Establish a working group to :</p> <ul style="list-style-type: none"> Agree on priority weeds Create a regional priority weeds map; and Negotiate reduction targets with state and local government and major stakeholders 	<ul style="list-style-type: none"> St Johns wort has been identified as a priority weed on social, environmental, and economic grounds by all major stakeholders in the Region A St Johns wort weed map has been created during the development of the Regional Plan. SJW reduction targets (including time-frames) for rare and isolated, marginal and core infestations, have been agreed to by major stakeholders in the Region 	<p>Section 3 and Section 4</p> <p>Map1</p> <p>Actions 3, 4 and 5</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	L1.2 - 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"> • Information and training that addresses dispersal of weeds and land management for weed control • Protocol to manage new weeds • Code of practice for infrastructure developments that may create conditions favourable for weeds 	<ul style="list-style-type: none"> • 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 • Funding and resource opportunities for landholders, occupiers and stakeholders are outlined in the Plan. • Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers Incentive schemes (e.g. monetary, equipment hire, tax rebates) and joint ventures are to be developed and implemented. • Methods to raise public awareness of SJW and its impacts are listed. Targeting of extension programs to increase effectiveness and efficiencies are detailed within the Plan. • Hygiene protocols/methods are to be developed and promoted. Councils, RTA and other utility stakeholders are to develop codes of practice and protocols for roadside and easement maintenance. • New infestations of SJW are to be eradicated within a year of detection. 	<p>Section 6.3 and Action 11</p> <p>Section 6</p> <p>Section 6.3 and Action 11</p> <p>Section 6.3 and Action 11</p> <p>Section 6.2 and Actions 6 and 9</p> <p>Action 3</p>
	L1.4 – Develop and implement mechanisms that provide incentives for landholders to adopt best practices for weed control	<ul style="list-style-type: none"> • Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers. • Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan 	Section 6.3 and Action 11

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Southern (cont.)	L1.5 – Support programs for the biological control of weeds	<ul style="list-style-type: none"> Biological control agents are to be distributed regionally 	Section 6.2 and Action 5
	L 2.5 - Implement pasture management programs to promote sustainability through maintenance of soil health	<ul style="list-style-type: none"> 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 12
	L 2.7 - 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"> Sustainable pasture and grazing training programs will be promoted. 	Action 12
	<p>Biodiversity Program</p> <p>Management Target 4 - 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>Management Target 5 – By 2005, collaborative programs will be in place to manage targeted pest species</p>	<ul style="list-style-type: none"> SJW has been identified as a threatening process for the <i>Natural Temperate Grasslands of the Southern Tablelands and the ACT</i> which is listed as an endangered ecological community under the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>. SJW in these areas will be prioritised for control. 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. 	<p>Section 4 and Action 5</p> <p>Section 3</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Warragamba	<p>Soil and Land Condition Management Target (SLMT) 1 – 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"> • Maintenance of the pest free status of all areas of land infested by pest plants and animals. • By 2007, reduce the rate of infestation of priority pest plants and animals (noxious, environmental and production) by 50%; and • Management for long-term sustainable reduction in pest plants and animals. 	<ul style="list-style-type: none"> • The Plan aims to considerably reduce the spread and reduce the impact and density of existing SJW infestations. The aims and objectives of the Regional Plan are consistent with this target. • All new and known rare and isolated infestations are to be eradicated or an appropriate level by July 2006 • All known marginal infestations reduced by 75% by July 2008 • Annual roadside control is to occur • Core areas will be prioritised and strategically managed and priority infestations reduced by 50% by July 2008 • The plan will be consistent with the ST&SCNPC Regional Weed Strategy (currently in production) 	<p>Section 1.6 and 1.7</p> <p>Action 3</p> <p>Action 4</p> <p>Action 6</p> <p>Action 5</p> <p>Section 6.4</p>
	<p>Soil Land Condition Management Action (SLMA) 1/d – 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"> • The development of the plan reflects the identification of SJW as a priority weed by key stakeholders within the Southern Tablelands and South Coast Region. The area of infestations has been identified (Map 1). 	<p>Section 3 and Section 4</p>

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Warragamba (cont)	SLMA2/a – 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"> • surveying of 'clean areas' • eradicating new infestations • prioritising for control, rare and isolated infestations in otherwise clean catchments • Control of roadsides entering clean areas • Declaration in the ACT • Community and agency extension programs especially targeted within areas currently clean of St Johns wort. 	Section 7 – strategic actions
Lachlan	Vegetation and Biodiversity Management Target (VBMT 4) - 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"> • SJW has been identified as a declared weed under the Noxious Weed Act, for the LGAs covered by this Plan. • Key stakeholders, within the area covered by this Plan, have been consulted and are signatories for the implementation of the Plan. • The plan incorporates and promotes a range of strategies to manage SJW, including, pasture and grazing management, legislation, herbicide control, exclusion techniques, and extension and education. Successful implementation of the Regional Plan will be consistent with this action. 	<p>Section 5</p> <p>Section 3</p> <p>Section 7 – Strategic Actions</p>
	Vegetation Action (VA) 34 – 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"> • The extent of the SJW problem and impact within the Region has been documented throughout the Plan. SJW impacts on the catchment's economy, threatened species and communities, land values, grazing enterprises, and social values of rural communities. 	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.)	VA35 – Develop integrated management plans for the control and management of the identified weed and pest animals	<ul style="list-style-type: none"> The plan incorporates and promotes various strategies to manage SJW including pasture and grazing management, legislation, herbicide control, extension and education. 	Section 7 – Strategic Actions
	VA36 - Support the implementation of the integrated weed and pest management plans	<ul style="list-style-type: none"> Strategies requiring extra funding are highlighted throughout the plan Regional Plan has been developed to assist PAP and Noxious Weeds Grant funding applications. Funding and resource opportunities for landholders, occupiers and stakeholders are highlighted in the Plan. Regional Plan is linked and supports all Catchment Management Blueprints 	Section 6.1.1 Section 6.1 Section 6.4 and Appendix 2
	VA37 – 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"> On-farm, road-side and utility easement, hygiene practices are to be implemented based on best practice hygiene protocols. Training, education and extension programs will be aimed at weed and land managers, landholders and occupiers Methods to raise public awareness of SJW and its impacts are listed within the Plan. Targeting of extension programs to increase effectiveness and efficiencies are also detailed within the Plan. 	Section 6.2, Action 6 and Action 9 Action 11 and Action 12 Section 6.4 and Action 11
	VA38 - Implementation of integrated management plans for the control and management of the identified weeds and pest animals	<ul style="list-style-type: none"> The Plan provides details to assist in the integrated management of SJW.. ST&SCNPC and LCAs, in association with respective catchment Management Boards, are to coordinate stakeholders and implement Regional Plan. 	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
Lachlan (cont.)	VA39 – 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"> No specific actions are detailed within the Regional Plan. 	
Murrumbidgee	Soil Management Target 6 activities – 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"> 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 	Section 3
	BMA 4 – control weeds	<ul style="list-style-type: none"> The plan will facilitate the integrated control of SJW 	

Catchment	Relevant management targets / actions of the Catchment Management Blueprint	Regional Plan	
		Actions that support CM Blueprint	Details
	<p>BMT3 Activities –</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>BMT4 Activities -</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"> • The Plan is consistent with the draft Regional Weed Strategy. • The plan will facilitate the integrated control of SJW • Sustainable pasture and grazing training programs (such as Prograze) will be promoted. • High conservation value areas are prioritised for control. An integrated and prioritised system of road-side control is detailed within the Plan. • SJW has been identified as a threatening process for the <i>Natural Temperate Grasslands of the Southern Tablelands and the ACT</i> which is listed as an endangered ecological community under the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>. 	<p>Section 6.4</p> <p>Action 12</p> <p>Action 6 and Action 5</p> <p>Section 4</p>
	<p>BMA2 – Implement grazing management</p>	<p>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'.</p>	<p>Action 12</p>

