

## 1.0 COVER PAGE



NSW DEPARTMENT OF  
PRIMARY INDUSTRIES

# REGIONAL WEED MANAGEMENT PLAN

**1.1 Plan Title:** *Riverina St John's Wort Management Plan* as revised 2006 **No.**

## 1.2 Plan Proponents / Applicant Contact Details

Regional Weeds Advisory Committee: Eastern and Western Riverina Noxious Weeds Advisory Groups

Address: C/o Greater Hume Shire Council, PO Box 382, Jindera NSW 2642

Contact person: Paula Ash

Telephone number: 6026 3800.....Facsimile number: 6026 3957

Email address: [pash@greaterhume.nsw.gov.au](mailto:pash@greaterhume.nsw.gov.au)

Signature: Eastern Group Representative: ..... Date: .....

Signature: Western Group Representative: ..... Date: .....

## 1.3 Name of Plant

**WONS - No**

Botanical name: *Hypericum perforatum*

Common name: St John's Wort

## 1.4 Plan Period

Starting date: 01/07/06

Completion date: 30/06/2011

## 1.5 Area of Operation:

**Region 5**, extending from Tumut in the east to Wentworth / S.A border in the west and Carrathool in the north to the Murray River in the south. The Local Control Authorities and Rural Land Protection Boards this region encompasses are all representatives of the Eastern and Western Riverina Noxious Weeds Advisory Groups (**E/WRNWAG**). The region extends across 4 Catchment Management Authority (CMA) areas, being Murray, Murrumbidgee, Lower Murray Darling and the Lachlan.

## 1.6 Aim:

To control existing infestations and reduce the rate of spread of St John's Wort from core areas to other areas.

## 1.7 Objectives:

- a. Limit St John's Wort increase within the designated core area for the life of the plan.
- b. Limit St John's Wort from spreading outside the designated core area.
- c. Reduce marginal St John's Wort infestations by 20% over the plan period.
- d. Reduce rare and isolated St John's Wort infestations by 50% over the life of the plan.

## **2.0 STAKEHOLDERS**

### **2.1 Signatories**

The following Local Control Authority (**LCA**) and Rural Lands Protection Board (**RLPB**) members of the Eastern & Western Riverina Noxious Weeds Advisory Groups (**E/WRNWAG**): Albury City, Balranald Shire, Bland Shire, Carrathool Shire, Central Murray County Council, Coolamon Shire, Cootamundra Shire, Corowa Shire, Greater Hume Shire, Griffith City, Gundagai Shire, Hay Shire, Jerilderie Shire, Junee Shire, Leeton Shire, Lockhart Shire, Murrumbidgee Shire, Narrandera Shire, Temora Shire, Tumbarumba Shire, Tumut Shire, Urana Shire, Wagga Wagga City, Wakool Shire, Wentworth Shire, Balranald RLPB, Gundagai RLPB, Hay RLPB, Hume RLPB, Murray RLPB, Narrandera RLPB, Riverina RLPB, Wagga Wagga RLPB and Wentworth RLPB.

### **2.2 Other Stakeholders**

The Noxious Weeds Advisory Committee (**NWAC**), NSW Department of Primary Industries (**NSW DPI**), Department of Lands (**DoL**), Murrumbidgee / Murray / Lower Murray Darling / & Lachlan Catchment Management Authorities (**CMAs**), Australian Rail Track Corporation (**ARTC**), Department of Environment and Conservation (**DEC**), Roads & Traffic Authority (**RTA**) and other relevant land managers.

## **3.0 BACKGROUND AND JUSTIFICATION**

### **3.1 Plan Justification and Description of the Problem**

St John's Wort is an extremely invasive weed that has the potential to invade all productive lands, reducing productivity. Due to its hypericin content, this plant has the ability to adversely affect the health of livestock. When eaten by sheep, cattle, goats and horses, the pigmented parts of their body become photosensitised by the hypericin contained within the plant, leading to sunburn and dermatitis, with a subsequent loss in productivity. St John's Wort can also cause abortions in livestock, effect the central nervous system, which may lead to a loss in condition and death.

St John's Wort was introduced to Australia for its medicinal values in the 1860's. Now, one hundred and forty years later, the infestations can be divided into three levels (core, marginal and rare / isolated) throughout the Riverina region. Core infestations being to the east of the Hume Highway; marginal to the west; and rare / isolated plants scattered out to Wentworth (refer to Appendix 1.).

We acknowledge that we have heavily infested areas within the regions east, but we need to protect the majority of the region as well as areas outside our region, that currently have no St John's Wort.

Core areas will be contained and spread from this area will be limited. Within the marginal areas, there are large tracts of land that are not infested. It is these areas that priority will be given to prevent the marginal areas from becoming as heavily infested as the core.

The St John's Wort problem is readily recognised within the marginal and core areas. All Councils are committed to the ongoing control of St John's Wort, which reflects the high expectations of the community.

Extension and Education, along with controlling infestations, is the focus in the rare and isolated areas. St John's Wort is not readily recognised out west and the increase in extension activities should see a rise in public awareness.

An extensive educational program that allows all landowners and interested party to gain knowledge on St John's Wort and methods of control will be implemented through the use of the weed caravan. Media releases, advertising campaigns, field days and distribution of ERNWAG/WRNWAG's weed brochure are other ways of creating awareness on the problems that St John's Wort can cause.

Infestations of St John's Wort result in a loss of bio-diversity in bushland / conservation areas, through competition with native vegetation. The occurrence of St John's Wort on farming land results in a loss of productivity, through competition with pasture species and negative impacts on grazing stock, leading to extensive control costs. If left unchecked wort infestations reduce property values.

### **3.2 The "Do Nothing" Option**

St John's Wort is gradually spreading west across the Riverina, Councils have so far been limiting this spread. If nothing is done, existing core infestations will become denser, making control more difficult, infestations expanding into the marginal areas. Marginal and rare and isolated infestations will develop into core infestations. All grazing and natural vegetated areas are at risk of being infested with St Johns Wort. By implementing this control plan we hope to slowdown and reduce spread throughout the Riverina.

### **3.3 Distribution of Infestations**

Refer to Appendix 1. for distribution in the Riverina.

### **3.4 Weed Biology**

St John's Wort (*Hypericum perforatum*) is an erect bi-formed (autumn/winter and spring/summer forms) perennial herb to 1.2m tall. During autumn/winter, growth is in the form of non-flowering, densely foliated, prostrate stems to 30cm long. In spring/summer, plants produce flowering leafy hairless stems, which are erect and woody.

Leaves are stalkless, opposite and green (lighter on lower surface) to 3cm long. They are a narrow oblong shape, having many tiny oil glands that give them a perforated appearance when held up to the light. Flowering occurs during late spring through to mid summer in the form of golden yellow clusters (does not normally occur in a plant's first year of growth). Fruits are sticky to 10mm long.

The root system is a combination of vertical roots growing to 1m deep and lateral roots (rhizomes) which occur just below the soil surface. Laterals can produce buds that become new plant growth (suckers).

### **3.5 Method and Rate of Spread**

St Johns Wort is mainly spread by seed, plants producing up to 30,000 seeds that remain viable for up to twelve years (Agfact P7.6.1). The main methods of seed dispersal are by water and soil movement (eg. mud on machinery), adherence to animal fur and wool, and as contaminants of produce. Wind may carry seed short distances and any seeds passing through animals can also remain viable.

Spread can also result from rhizome growth. Part of the root system can remain dormant, making it difficult to control.

### 3.6 Species Management

Competition from pasture species is of high importance when managing St John's Wort. To ensure this happens, an integrated control method is needed. Depending on terrain, different methods of control may include:- Grazing Strategies (re: Chris Bourke's Guidelines), Herbicide use in conjunction with grazing and re-establishment of competitive pasture species, Biological control, Use of fertilisers, and keeping abreast of current research. Correct timing of herbicide application and grazing is also important.

New infestations

- Isolated plants/small infestations, manually remove or treat with herbicide before seeding.
- Larger infestations, treat with herbicide and replace with competitive species (if needed).

Existing infestations

- On flat, undulating land, herbicide use and/or cultivation followed by replacing with competitive pasture or crop.
- Steep areas, low value land, the cost of herbicide treatment may exceed the value of the land, so suppression with sheep (grazing) is the best method.

Treatment applied when plants are actively growing, soil moisture is plentiful and plants are starting to flower (October – December, depending on location). Reinspect treated sites to ensure that there are no further germinations or suckering.

Where large infestations occur in natural vegetation, biological control is the only realistic option.

Annually map all infestations in order to monitor the control program.

### 3.7 Key Land Managers

All land holders/managers listed below are critical in the success or failure of this plan.

National Parks and Wildlife Service, State Forests, Roads and Traffic Authority, Department of Land and Water Conservation, Rail Services Australia, Rural Lands Protection Board's, Local Control Authority's, Land holders / Land managers.

## **4.0 LEGISLATIVE AND REGULATORY SITUATION**

### 4.1 Current Declaration

SJW is currently declared a Class 3 noxious weed in the following LCAs across the Riverina. "The plant must be fully and continuously suppressed and destroyed and the plant may not be sold, propagated or knowingly distributed".

Bland Shire; Carrathool Shire; Central Murray County; Corowa Shire; Griffith City; Jerilderie Shire; Leeton Shire; Lockhart Shire; Murrumbidgee Shire; Narrandera Shire; Temora Shire; Urana Shire; Wakool Shire.

SJW is currently declared a Class 4 noxious weed in the following LCAs across the Riverina. "The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority".

Albury City; Coolamon Shire; Cootamundra Shire; Greater Hume Shire; Gundagai Shire; Junee Shire; Tumbarumba Shire; Tumut Shire; Wagga Wagga City.

SJW is not declared noxious in Balranald Shire; Hay Shire; Wentworth Shire.

## **5.0 CONSIDERATIONS AND OPPORTUNITIES**

### **5.1 Financial support to carry out the plan**

The main opportunity to be exploited under this plan is the ability to adopt a coordinated approach to the management of St John's Wort utilising the expertise and knowledge of stakeholders. As the plan progresses, opportunities may arise to obtain funding for preservation / enhancement works on remnants or vegetation restoration works, on private lands, through cooperation with Landcare. The seed of St John's Wort is very small and seedlings are very susceptible to competition, therefore if we tackle small infestations when they are small we can limit the spread via, out-competing it, grazing, chemical and/ biological control.

### **5.4 Links to other Strategies**

- The National Weeds Strategy (Australia)
- The New South Wales Weeds Strategy
- The NWAC Strategy – Noxious Weed Control Extension
- Catchment Action Plans
- Regional Weed Strategy – Murray (Draft)
- Regional Weed Strategy – Lower Murray Darling
- Regional Weed Strategy (Draft)
- Local Council Plans.

### **5.5 Contingencies**

The following barriers will delay or obstruct the operation of this St John's Wort regional plan.

- Lack of awareness of the impact of this weed in rare and isolated areas (Obj d; Act 5)
- Ignorance of control options, difficult to control due to complex biology and narrow window of opportunity when using chemical control. (Obj d; Act3)
- Inappropriate grazing, limits chemical control options. (Obj a; Act 2)
- Conflicting community view relating to the plant's properties, ie. Pharmaceutical qualities. (Obj a; Act 6)
- Inaccessible terrain (Obj a; Act 1)
- Lack of resources for control on Public land. (Obj b; Act 1)

The following contingencies may delay or obstruct the operation of this St John's Wort regional plan.

- Lack of funding support – limits control in widespread areas
- Unfavourable seasonal conditions – above average germinations

## 6.0 PERFORMANCE INDICATORS AND ACTIONS

Objective a: Limit St John's Wort increase within the designated core area for the life of the plan		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 Establish Bio-control sites within core area.	Minimum 60% of effected properties have established bio-control sites over the life of the plan.	LCA's, State Forests (SF) & NPWS.
2 Noxious Weeds Inspectors encourage land managers to use IWM practices such as strategic grazing and the use of fertiliser.	40% of properties implementing IWM by the end of the plan period.	LCA.
3 Treat roadsides, reserves within designated core areas, priority given to neighbouring properties with active control programs.	Minimum 70% of roadsides treated per annum.	LCA, RLPBs
4 Implement control strategies with stakeholders to achieve an integrated control approach.	Control works carried out together.	LCA, SF and NPWS.
5 Survey boundaries.	Initial map was developed by Dec 2002 and is updated annually.	LCA
6 Run extension program outlining the problems this weed can cause within the Riverina.	- At least one specific and three non-specific field days held per year. - At least one specific SJW Media release each year. - Information brochures handed to new land managers.	LCA
7 Encourage RLPBs to not issue grazing permits when St John's Wort is setting seed.	Grazing permits not being issued when St John's wort is setting seed	LCA's, RLPBs
Objective B: Limit St John's Wort from spreading outside the designated core area.		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 Liaise with Government Agencies, particularly on hygiene issues.	Field-staff are familiar with procedures to avoid weed seed dispersal. Development of a standard Operating Procedure.	LCA  ERNWAG/ WRNWAG
2 Inspect land adjacent to core boundary annually.	100% infested properties adjacent to boundaries inspected annually.	LCA
3 Roadside spraying along boundary of core area.	100% roads treated.	LCA
4 Run extension program outlining the problems this weed can cause within the Riverina.	- At least one specific and three non-specific field days held per year. At least one specific SJW Media release each year. Information brochures handed to new land managers.	LCA
5 Encourage RLPBs to not issue grazing permits when St John's	Grazing permits not being issued when St John's wort is setting seed	LCA's, RLPBs

Wort is setting seed.		
<b>Objective c: Reduce marginal St John's Wort infestations by 20% over the plan period.</b>		
<b>ACTIONS</b>	<b>PERFORMANCE INDICATORS</b>	<b>RESPONSIBILITY</b>
1 Treat all roadside, reserve infestations prior to seed set.	100% of roadside infestations treated.	LCA, RLPBs
2 Other infestations treated prior to seed set.	Minimum 70% of infested properties treated.	Land manager and public authorities
3 Inspection of infested properties within the season.	80% of infested properties inspected	LCA
4 Maintain mapping of infestations.	Initial map developed by Dec 2002 and updated annually.	LCA
5 Run extension program outlining the problems this weed can cause within the Riverina.	- At least one specific and three non-specific field days held per year. At least one specific SJW Media release each year. Information brochures handed to new land managers.	LCA
6 Encourage RLPBs to not issue grazing permits when St John's Wort is setting seed.	Grazing permits not being issued when St John's wort is setting seed	LCA's, RLPBs
<b>Objective d: Reduce rare and isolated St John's Wort infestations by 50% over the life of the plan.</b>		
<b>ACTIONS</b>	<b>PERFORMANCE INDICATORS</b>	<b>RESPONSIBILITY</b>
1 Inspect all known infestations of St John's Wort.	100% of all infested properties inspected per annum.	LCA
2 Control all known and new infestations prior to seed set.	All known and new infestations located and treated prior to seed set.	LCA, RLPBs
3 Communicate with land managers to ensure that they effectively treat St John's Wort infestations and report new sightings.	Reduction in the spread of St John's Wort on private property.	LCA and land managers
4 Maintain mapping of infestations.	Initial map developed by Dec 2002 and updated annually.	LCA
5 Run extension program outlining the problems this weed can cause within the Riverina.	- At least one specific and three non-specific field days held per year, using weeds caravan. At least one specific SJW Media release each year. Information brochures handed to new land managers.	LCA
6 Encourage RLPBs to not issue grazing permits when St John's Wort is setting seed	Grazing permits not being issued when St John's wort is setting seed	LCA's, RLPBs

## **7.0 MONITOR AND REVIEW PROCESS**

Being a five year plan, participants meet in March each year to review previous years activities, check are on track to meet the plans overall aim/objectives/performance indicators. All stakeholders' local plans / worksheets to be presented at this meeting to ensure they are achieving performance indicators outlined in this plan. Should they not be met, without an appropriate explanation, group pressure may be applied to encourage them to be met in future years. Participants give progress reports at ERNWAG and WRNWAG meetings, go over planned activities for upcoming season, arrange resource sharing and familiarise each other as to what activities are to be conducted (especially adjoining LCA's). Where appropriate renew plan commitment and discuss Regional Group Project Funding Application for this weed so that it can be developed in time for the May deadline.

RNWPO to prepare annual Group Project Report as at June 30<sup>th</sup> for the NWAC by September 30<sup>th</sup>. The preparation of this report will require all participating LCAs & RLPBs receiving funding for St John's Wort to submit a signed expenditure statement, outlining funds spent, to the coordinator for audit purposes along with a written progress report.

## **8.0 BENEFITS**

This plan aims to protect and thus be of benefit to the following regional endeavours / assets:

- ◆ Primary industries such as agriculture (e.g. grazing and fodder production). As St John's Wort infestations reduce in size through the use of appropriate IWM practices, agricultural land should become more productive as a result of reduced weed competition. Additionally, stock health issues, associated with the hypericin content of this weed, should decline resulting in enhanced animal production. Minimising the spread of this weed should also protect these industries in other parts of the region and state, currently unaffected by infestations, from the negative affects of this weed.
- ◆ The general environment, where infestations reduce biodiversity, inhibit regeneration of native vegetation and result in increased maintenance costs for roadsides. Additionally, infestations in these areas will affect tourism e.g. visitors prefer to experience pristine environments free of weeds.
- ◆ The local economy through flow on effects of reduced control costs / enhanced productivity of industries previously affected by St Johns Wort.

It also aims to improve networks between stakeholders. Benefits will accrue as a result of this plan bringing together people with an interest in the problems caused by St John's Wort, an interest which provides a common focus across the region for its control.

The cost savings through the control of St John's Wort from the increase in productivity will be significant. Although at this stage it is difficult to have a precise estimation, improved mapping will provide some indication in the future.

## **9.0 RESOURCES**

### • References and Further Readings

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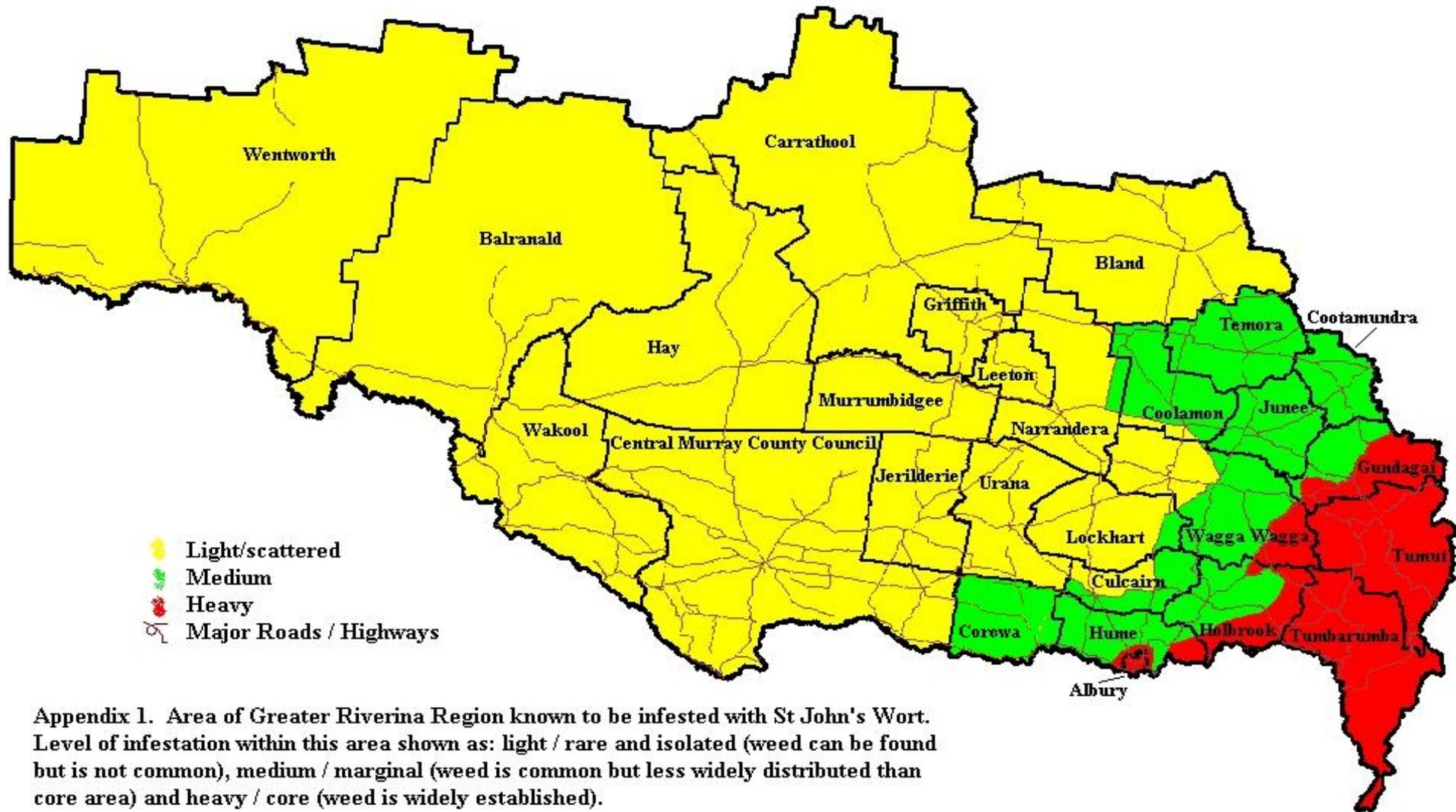
## **ACKNOWLEDGEMENTS**

The authors wish to thank the stakeholders who assisted with the production of this document. Their contributions have enriched this regional weed management plan.

## **DISCLAIMER**

Any recommendations / comments contained in this document or referred literature do not necessarily represent the plan proponents, participants / stakeholders, authors, coordinators or NSW DPI policies or specific views. No person or organisation should act on the basis of the contents of this document or referred literature, whether as to matters of fact or opinion or other content, without first obtaining specific, independent professional advice which confirms the information contained in this document or referred literature.

## Distribution of St John's Wort across the Riverina



**Appendix 1. Area of Greater Riverina Region known to be infested with St John's Wort. Level of infestation within this area shown as: light / rare and isolated (weed can be found but is not common), medium / marginal (weed is common but less widely distributed than core area) and heavy / core (weed is widely established).**

Note: Base map derived from data provided by and copyright of Land and Property Information New South Wales. Road data is copyright of the Australian Land Information Group (AUSLIG). This general image determined by the regions, LCA Weeds Officers (WO) and RLPB Rangers (R). Generally, weed distribution remains similar on LCA and RLPB managed lands.