

1.0 Cover Page



REGIONAL WEED MANAGEMENT PLAN

1.1 Plan Title: *Riverina's Hardhead thistle Management Plan* No. **XXX**

1.2 Plan Proponents / Applicant Contact Details

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

Address: C/- Hume Shire Council, PO Box 70, ALBURY NSW 2640

Contact person: Paula Ash

Telephone number: 02 6051 3916

Facsimile number: 02 6021 6852

Email address: pash@humeshire.nsw.gov.au

Signature: Eastern Group Representative: Date:

Signature: Western Group Representative: Date:

1.3 Name of Plant(s)

WONS - No

Scientific name: *Acroptilon repens* (L.) DC. Common name: Hardhead thistle / Creeping Knapweed

1.4 Plan Period

Starting date: 01/07/2004

Completion date: 30/06/2009

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**).

1.6 Aim:

To control all existing Hardhead thistle infestations, remove new infestations and prevent further spread into and across the Riverina.

1.7 Objectives:

- a. Locate and identify all new infestations of Hardhead thistle in the Riverina.
- b. Contain and treat all new infestations of Hardhead thistle before flowering.
- c. Contain and reduce existing infestations by 20% per annum for the life of the plan.
- d. Minimise the entry of Hardhead thistle into the Riverina, through increasing community awareness of this weeds impacts.

2.0 STAKEHOLDERS

2.1 Signatories

The following Local Control Authority (**LCA**) members of the Eastern and Western Riverina Noxious Weeds Advisory Groups (**E/WRNWAG**): Albury City, Balranald Shire, Bland Shire, Carrathool Shire, Central Murray County, Coolamon Shire, Cootamundra Shire, Corowa Shire, Culcairn Shire, Griffith City, Gundagai Shire, Hay Shire, Holbrook Shire, Hume 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

LCA and RLPB members of the Eastern and Western Riverina Noxious Weeds Advisory Groups (**E/WRNWAG**). The Noxious Weeds Advisory Committee (**NWAC**), NSW Agriculture (**NSW Ag**), Department of Infrastructure Planning and Natural Resources (**DIPNR**), Murrumbidgee / Murray / Lower Murray Darling / & Lachlan Catchment Management Boards (**CMBs**), NSW National Parks & Wildlife Service (**NPWS**), Roads and Traffic Authority (**RTA**), State Forests of NSW (**SF**) Murrumbidgee Irrigation (**MI**), Rail Infrastructure Australia (**RIA**) and Murray Irrigation Ltd (**MIL**).

3.0 BACKGROUND AND GENERAL FACTS

3.1 Reason for Plan and Description of the Problem

Creeping Knapweed or Hardheads (*Acroptilon repens*) arrived in Australia at the start of the 20th century and were considered naturalised in Victoria by 1907. It is now a major problem weed in the Murray River Irrigation Area and the Victorian Mallee, and is of major concern to the Riverina.

Hardheads are an extremely vigorous and efficient competitor for water and nutrients. The extensive root system stores food and makes the plant very hardy. It is an aggressive weed of cultivation, especially in irrigated and dryland crops and pastures, and can become the dominant weed when conditions are suitable. It forms dense, smothering patches and releases allelopathic chemicals that can suppress the growth of other plants. Although it is grazed freely, this plant may be poisonous to livestock if eaten in large amounts. Prolonged contact with hardheads may also cause skin sensitisation and dermatitis in humans.

At present there are only 7 existing and 4 eradicated infestations in the Riverina, all being confined to the southern half of the region bordering with Victoria. The first recorded infestation in the Riverina was in Wakool shire in 1976 on private property, thought to have been introduced in seed. This infestation still exists along with 4 other isolated roadside and private property patches in the shire.

A Balranald farmer reported an infestation on his property back in 1991. It was controlled immediately and there have been no return plants. Two sites have also been found during roadside spraying of road shoulders in Balranald Shire. The 1st infestation (12 plants) was found in 1997 and sprayed immediately. It is being closely monitored and any regrowth is treated. To prevent further spread, stock has been prevented from grazing this section of the roadside. The 2nd infestation (approximately 10 plants) discovered in 1999, was found prior to seeding and was eradicated. The site is checked every couple of months and there have been no return plants.

The first and only reported infestation in Corowa shire was discovered on private property at Savernake in 1999 and again found on the same property in 2003. It was found on a small irrigation channel in the middle of a paddock and has spread along the channel for about 500 metres. The affected farmer is in the process of eradicating it.

Central Murray County Council have two known infestations. The first near Tocumwal was discovered in 1994 and treated; constant monitoring has not seen any return plants. The other infestation on private property is treated and thought eradicated, yet isolated plants are still being found occasionally. Another suspect sighting turned out to be a false alarm. There are also some infestations restricted to the Broken Hill district in the extreme west, north of Wentworth shire.

At present these are the only known infestations of Hardhead Thistle in the Riverina. The main concern for this region is the level of hardhead thistle infestation in Victoria just over the Murray River and the general lack of awareness of Hardhead thistle in the Riverina. Infestations in the Northern irrigation region of Victoria appear to be heading south with new infestations being found in previously clean areas just this season – due to stock or hay movements (starting on roadsides). Infestations found in the Riverina are only in those shires directly north of infestations in Victoria.

With the current drought, a lot of fodder and stock are being moved readily interstate and this is one weed that landholders may be unknowingly introducing to clean properties. This weed is not commonly known across the Riverina. DPI has an excellent education program running with their landholders and we are keen to continue this throughout the Riverina.

Null Hypothesis

Considering the rapid spread of this weed in Victoria, there is a serious and urgent need to increase community awareness and remove current infestations before they develop into the present situation in Victoria. They are quite vigilant about this weed and it is still being found in clean areas. Once established, hardheads have the ability to reduce yields by up to 75%. They form dense patches that will shade out crops and pastures. It is also a major weed of vineyards and orchards, spreading not only on cropping land but irrigation as well. If we can prevent it from establishing in private property, we will save the community greatly. Once Hardheads have established they are extremely difficult to eradicate. If no control were to be undertaken Hardheads will become an endemic weed of the Riverina, infesting a similar range of the other deep rooted perennial already found here (Silverleaf nightshade and Prairie ground cherry).

3.2 Distribution of Infestations

Refer to Appendix 1. for distribution of Hardheads in the Riverina (individual shire maps) and Appendix 2. for distribution of Hardheads in Northern Victoria.

3.3 Weed Biology/ Ecology

An erect, rhizomatous, perennial herb standing 30-90cm tall (mostly 45cm). Resembling a spine-free thistle, it reproduces from creeping roots and by seed. Seedlings emerge late winter to early spring and form rosettes, most of which do not produce flowering stems in the first summer. During this time they develop an extensive root system to a depth of 2-2.5metres. Although seed is viable, seedlings are not common. The root system extends both laterally and vertically. The roots are long lived – one patch in Canada so far surviving 80 years despite numerous attempts at eradication.

3.4 Method and Rate of Spread

Infestations of Hardheads increase by lateral root extension as well as by seed. Seed is not dispersed to any significant extent by wind. It may be dispersed by water (along channels), contaminated farm machinery and in fodder and agricultural seed such as Lucerne. Seed viability is increased by 80% after passing through the digestive tract of livestock. It can also adhere to their coats. The main means of dispersal is by movement of root fragments by cultivation. Segments as short as 2.5cm are capable of shooting to form new plants. Equipment hygiene is really important to avoid spread onto clean properties.

3.5 Roles and Responsibilities of Land Managers

All land holders/managers listed below are critical in the success or failure of this plan. If hardheads were to be left untouched due to a lack of awareness of its potential distribution, the Riverina could end up with severe infestations that would cost the community greatly. Roads and Traffic Authority, Department of Infrastructure Planning and Natural Resources, Rural Lands Protection Boards and Local Control Authorities.

4.0 LEGISLATIVE AND REGULATORY SITUATION

4.1 Current Declaration

<u>Council</u>	<u>Current Declaration</u>
Balranald	W3
Central Murray County	W3
Wakool	W3

4.2 Declaration Changes

Eastern and Western Riverina Noxious Weeds Advisory Groups will look into which shires should have this weed declared and whether a W3 declaration is sufficient enough for the above three shires.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 Opportunities to be exploited

Hardheads only infest a small portion of this region. There is a significant opportunity to limit the spread of this weed. At present this weed is not commonly recognised, an extensive awareness campaign will lift the profile of this weed. External funding opportunities exist through the NHT, Catchment Management Blueprints, Landcare and other fund sources that could significantly accelerate implementation of this plan.

A tri-state liaison committee has been formed to look into weed and seed transfer across both the Victorian and South Australian borders. This will improve communication across the border increasing our resources and knowledge on best management practices.

5.2 Species Management

Control of hardheads is difficult as they persist in very adverse conditions and are not susceptible to many herbicides. Early detection and eradication of small patches using herbicides is recommended. Competitive ground covers will effectively compete with Hardheads in horticultural crops. For further information refer to our flier “Good Management Practices for Hardhead Thistle control”.

Farmers 25 odd years ago were undertaking the same control practices then as is being recommended now – fencing the infestation off, keeping away from it and treating it.

5.3 Extension and Education

Extension and education are key components of this plan. If people are unable to identify Hardhead thistles, are unaware of the potential problems it can cause and lack an understanding of management options, then they are unlikely to act. Extension activities will address these issues and be delivered through field days, workshops, media releases, personal contact during inspections and through the provision of printed material to the general public.

A flier on deep rooted perennial weeds as well as a flier on “Good Management Practices for Hardhead thistle control” were developed by DPI in Echuca and have been modified to target landholders in the Riverina. This will be distributed to all weed officers/rangers (by Dec 2003) to be distributed to land holders.

A television advertising campaign “Weeds Don’t Have Borders” was aired in northern Victoria and southern Riverina late 2002. When the next campaign is organised, footage of Hardheads will be introduced to further increase awareness of this new and emerging weed.

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 Management Blueprints.
- ❖ North Central Catchment Management Authority Species Specific Action Plan.

5.5 Barriers and Contingencies

The following are potential barriers / constraints that exist that may result in reduced performance during the plan period. Possible solutions, contingencies are also given.

POTENTIAL BARRIERS / CONSTRAINTS	POSSIBLE SOLUTION, CONTINGENCIES
Lack of awareness of problems Hardhead thistles cause	Incorporate issue into extension programs, ie Field days, media releases and information brochures. Spot field days
Lack of knowledge on control	Distribute good management practice guide – see section 5.2.

Local and government associated road works in proximity to existing infestations (slashing, grading or realignment works). Machinery hygiene.	Liaise with bodies on identification and current management and hygiene practices. Possibly provide them with a current infestation map, and erect signage in infested areas.
Roadside grazing when plant is flowering and setting seed.	Liaise with RLPBs – restrict grazing on infested roadsides or fence off infestations while in seed.

6.0 PERFORMANCE INDICATORS AND ACTIONS

OBJECTIVE	ACTION	PERFORMANCE INDICATOR	BY WHOM
<p>a. Locate and identify all new infestations of Hardhead thistle in the Riverina.</p>	<p>1. Hold Hardhead thistle identification field day in Wakool and Corowa Shires.</p> <p>2. Inspect all roads and highways during spring to early summer</p> <p>3. Inspect for Hardhead thistle as part of routine property inspection program during spring/summer.</p> <p>4. Inspect all saleyards in south/western part of region during spring/summer.</p> <p>5. Field staff and landholders encouraged to report and map any new sightings of Hardhead thistle to build on existing database.</p>	<p>1. By February 2004 all LCAs and RLPBs in the south-western part of the region able to identify Hardhead thistle in the field.</p> <p>By February 2005 all LCAs and RLPBs in the north-eastern part of the region able to identify Hardhead thistles in the field.</p> <p>2. All roads in south west inspected between September and January each year.</p> <p>All roads in north east inspected once every two years.</p> <p>3. Property inspection programs implemented.</p> <p>4. Sale yards / stock yards inspected.</p> <p>5. Map developed and regularly being updated with any new infestations.</p>	<p>1. Wentworth, Hay, Balranald, Wakool, CMCC, Corowa, Murrumbidgee, Jerilderie, Urana, Hume, Culcairn and Lockhart Councils.</p> <p>Carrathool, Griffith, Leeton, Narrandera, Bland, Temora, Cootamundra, Coolamon, Junee, Wagga Wagga, Gundagai, Tumut, Tumbarumba and Holbrook Councils.</p> <p>2. LCAs.</p> <p>LCAs</p> <p>3. LCAs</p> <p>4. LCAs, RLPBs and other stakeholders.</p> <p>5. LCAs, RLPBs and landholders</p>

	6. Pursue declaration in areas outlined in section 4.2.	6. Changes effective within 12 months of the plan being approved.	6. LCAs
b. Contain and treat all new infestations of Hardhead thistle before flowering.	<ol style="list-style-type: none"> 1. Treat and / remove new infestations. 2. Reinspect and treat any germination at old infestation sites annually (late winter to early spring). 3. Map and maintain detailed records of infestations. 	<ol style="list-style-type: none"> 1. Infestations treated and / removed prior to flowering. 2. Old sites re-inspected and any germination treated prior to flowering. 3. Regional map regularly updated. 	<ol style="list-style-type: none"> 1. LCAs, RLPBs and Landholders 2. LCAs 3. LCAs and RLPBs
c. Contain and reduce existing infestations by 20% per annum for the life of the plan.	<ol style="list-style-type: none"> 1. All properties and roadsides that have been/are infested are to be inspected annually to monitor infestation levels and deliver extension material. 2. Treat existing infestations prior to seed set to contain the infestations and reduce further spread. 3. LCAs, in conjunction with land managers, develop property weed management plan to ensure best control practices are undertaken. 4. Follow-up inspection of existing infestations after treatment; any regrowth to be treated and monitored. 	<ol style="list-style-type: none"> 1. 100% of infested properties and roadside are inspected each year. This includes old sites as well as existing. 2. 100% of existing infestations are treated prior to seed set to contain and prevent its spread. 3. All infested private properties have current property weed management plans. 4. Monitoring of sites ongoing – all existing infestations re-inspected and re-growth treated. 	<ol style="list-style-type: none"> 1. LCAs 2. LCAs, RLPBs and Land managers. 3. LCAs and Land managers. 4. LCAs inspecting. Land managers treating regrowth.

<p>d. Minimise the entry of Hardhead thistle into the Riverina, through increasing community awareness of this weeds impacts.</p>	<p>1. Run extension program targeted at relevant land managers, industries and the general public; based on outlining the problems this weed can cause while increasing its recognition.</p>	<p>1. - 3 field days run within the region over the plan period. This includes spot field days, when a plant is found, neighbouring properties and shires notified and meet for Id and control advice. - Relevant LCA/RLPB staff attend Murray downs, Henty Field days and Murrumbidgee Farm Fair. - 3 media releases run over plan period. - deep rooted perennials flier distributed to all Weed Officers by December 2003 - All weed officers up to date on best management practices by December 2003. Flier distributed to landholders as infestations are found. - personal contact made with each land manager during inspections where possible.</p>	<p>1. LCAs, RLPBs, E/WRNWAG.</p>
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7.0 MONITOR AND REVIEW PROCESS

Being a five year plan, participants meet each autumn to review previous years activities, check are on track to meet this 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 these plans. Should they not be met, without an appropriate explanation, group pressure may be applied to encourage them to be met in future years. The group will go over planned activities for upcoming season, arrange resource sharing and familiarise each other as to what activities are to be conducted (especially adjoining LCAs). 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 1st of May deadline.

8.0 BENEFITS

This plan is aiming at identifying, controlling and managing the existing established Hardhead thistle infestations, and encouraging the removal of any further new infestations by working in conjunction with stakeholders and others. By doing the above the following regional endeavours/assets will be benefited:

- Primary industries such as agriculture / horticulture where hardhead thistles result in: reduced levels of production, produce being downgraded, difficulties in harvest, or operations being reduced in an effort to minimise potential further spread. Limiting spread within the Riverina will also protect industries in other parts of the region, state and country that are currently unaffected by infestations of Hardhead thistles.
- The local economy through flow on effects of reduced control costs / enhanced productivity of industries previously affected by Hardhead thistles.

It also aims to heighten awareness of regional weed issues and improve networks between stakeholders. Benefits will accrue as a result of this plan bringing together people with an interest in the problems caused by Hardhead thistles, an interest which provides a common focus across the region in preventing its establishment. The cost savings through prevention of new Hardhead thistle infestations, although difficult to quantify, will be significant.

9.0 RESOURCES

♦ References and Further Readings

- Landcare notes LCO215. (1998). *Hardheads/Russian Knapweed*. Victorian Department of Natural Resources and Environment.
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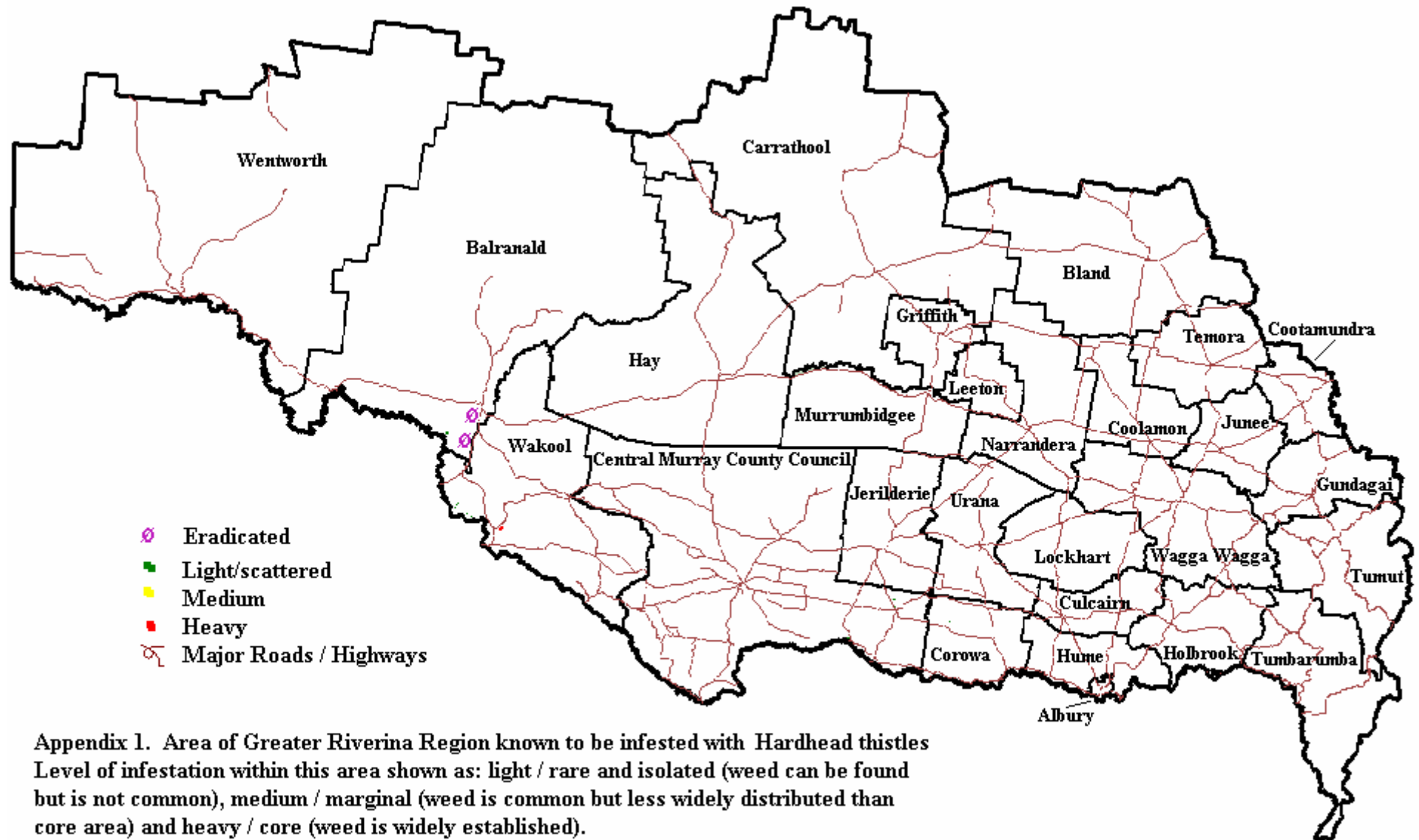
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ACKNOWLEDGEMENTS

The authors wish to thank the stakeholders who have provided all the information to produce this document. Their contributions have enriched this 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 Agriculture's 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.



Appendix 1. Area of Greater Riverina Region known to be infested with Hardhead thistles
 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.

Appendix 2.

Infestations of Hardheads in the Northern Irrigation Districts of Victoria.

Produced by DPI, June 2003.

