



REGIONAL WEED MANAGEMENT PLAN

1.1 Plan Title: *Riverina Prairie & Perennial Ground Cherry Management Plan* as revised 2006

1.2 Plan Proponents / Applicant Contact Details

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

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Signature: Eastern Group Chairman: Date:

Signature: Western Group Secretary: Date:

1.3 Name of Plant(s)

WONS - No

Botanical name: *Physalis viscosa*
Physalis virginiana

Common name: Prairie Ground Cherry
Perennial Ground Cherry

(Note: throughout this document both above species are referred to collectively as Prairie Ground Cherry)

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 all existing infestations and suppress and destroy new infestations preventing further spread of Prairie Ground Cherry across the Riverina.

1.7 Objectives:

- a. Locate and control new infestations of Prairie Ground Cherry within 1 year of discovery.
- b. Reduce areas of rare and isolated infestations by 15% per annum for the life of the plan.
- c. Reduce marginal infestations (Koondrook State Forest) by 15% per annum for the life of the plan.
- d. Reduce core infestations (Central Murray County Council private property) by 20% by the end of the plan.
- e. Minimise the entry of Prairie Ground cherry into the Riverina, through increasing community awareness of this weeds impacts.

2.0 STAKEHOLDERS

2.1 Signatories

The following Local Control Authority (**LCA**) and Rural Lands Protection Board (**RLPB**) members of Western and Eastern Riverina Noxious Weeds Advisory Groups (**W/ERNWAG**): 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

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

3.0 BACKGROUND AND JUSTIFICATION

3.1 Plan Justification and Description of the Problem

Prairie Ground Cherry (*Physalis viscosa*, *Physalis virginiana*), originating from both North and South America, was first recorded in Australia at Melbourne in 1909 and was considered naturalised by 1914. By 1964 it occurred on 409 Victorian properties, an estimated 24,000 ha had some level of infestation.

Prairie Ground Cherry has crept over the border and is now found in 5 (updated to 16 shires in 2006) shires across the Riverina. Culcairn and Corowa Shires first recorded Prairie Ground Cherry in 2001. Jerilderie Shire has one patch located along a railway line of 50m² that has stabilised. Wakool Shire's major infestation is located in State Forest approximately 20ha; rare and isolated infestations found on 2 private properties and 4 roadside locations. Central Murray County Council has the largest infestation, being limited to one property, 5-600 acres. Scattered rare and isolated infestations (approximately 90) occur along local roads and major highways (CMCC).

Note: Since the first print of this plan we (Riverina Weeds Officers) have had Prairie Ground Cherry as a high priority noxious weed. Being only recognised in the above 5 shires, at one of our Advisory group meetings we travelled to the nearest infestation for a brief discussion on identification and control techniques. Since this session PGC has been found in several more shires. This weed is spreading faster than originally thought. Before this plan was developed, 3 weed officers could successfully identify this weed. Now, six months later, 100% of Riverina's weed officers can identify PGC in the field.

Note: 2002 - scattered roadside infestations have been found in Urana, Wagga, Lockhart, Bland, Cootamundra, Gundagai, Jerilderie and Murrumbidgee Shires. Control methods have been put in place.

Note: 2006 – Further roadside infestations (some single) have been found in Balranald, Carrathool, Coolamon, Wentworth & Hay Shires. PGC has not yet been detected in 8 shires across the Riverina.

Prairie Ground Cherry (PGC) has the ability to out compete other vegetation for water and nutrients. It tolerates drought, shade and trampling, but does not persist under constant irrigation; the leaves are also suspected of being toxic to stock but are rarely eaten. Due to this and the location of the current infestations, along the Murray River as well as on the banks of the Billabong creek, it is essential to control this weed before it disperses any further across the state.

Infestations within Riverina at present are restricted to the southern half of the region, mostly those shires bordering onto Victoria. Those infestations not located on neighbouring state boundaries are found on railway lines, roadsides or Abattoirs – assumed to be transported there rather than by another means.

Culcairn Shire found their one and only Prairie Ground Cherry plant at the old Abattoirs site. It was removed, identified and disposed of before it seeded. Jerilderie Shire has one patch on a railway line that is treated every year. The infestation is not increasing in size therefore this site is being kept under control. Corowa Shire discovered 10m² on the Riverina Highway (2000), this patch has been treated and will be monitored further for any new germination. In Wakool Shire approximately 20ha's of Koondrook State Forest is infested with Prairie Ground Cherry. Forestry will treat this weed as part of this plan. Roadside patches in Wakool have been controlled annually for the past three years (since discovery). Private properties in the past haven't been controlled but will be enforced to do so as of now.

The heaviest infestation within our region is in Central Murray County Council on private property. This infestation has been treated the last three years, so far achieving a 50% reduction. Due to the level of infestation on this property and its ease of spread, a 50-metre buffer zone is maintained from the boundary fence in to prevent it from spreading to neighbouring land. Scattered infestations are found throughout this shire on local roads and major highways. These infestations are spot sprayed annually and regularly reinspected for further treatment of germinations. A 20% reduction in new sitings has already been achieved over the last two years.

Extension and education activities are key components of this plan. If people are unable to identify prairie ground cherry, 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, personal contact during inspections and through the provision of printed material to the general public.

3.2 The “Do Nothing” Option

Without this plan and a consistent and coordinated approach, Prairie Ground Cherry has the potential to spread into all Riverina Shires and cause considerable impact on biodiversity and agricultural production – decreasing land values. Should continuing action by land managers be withdrawn, PGC will spread potentially creating larger more damaging dense infestations throughout the Riverina. With this in mind concern exists amongst primary producers, who, in many instances are aware of its impacts and wish to minimise its effects on horticultural, viticultural, grazing and cropping activities before its has the chance to spread further, possible alienating large tracts of land.

Considering the rapid spread of this weed in Victoria, there is a serious and urgent need to increase community awareness and remove this weed before it develops into the current situation in Victoria. Prairie Ground Cherry is thought to be of similar invasiveness and biology to that of Silverleaf Nightshade. Due to the difficulty in controlling Silverleaf Nightshade, it would be recommended that we remove this noxious weed before it to becomes as widespread.

3.3 Distribution of Infestations

The regional map needs to be updated as out of the 25 LCAs in the Riverina, 12 LCAs currently have isolated infestations and a further 5 have found a single infestation that they dealt with immediately. A map will be forwarded on as soon as it is updated.

3.4 Weed Biology

Inhabiting warm-temperate regions, Prairie ground cherry grows mostly on sandy/clay or loam soils. It is a summer-growing, erect, perennial herb of open grazing land occurring in the 300-500mm annual rainfall zone. Prairie ground cherry seeds germinate in spring/summer and small plants with an extensive root system develop over summer. All aerial growth dies in autumn, while the roots remain alive producing new shoots in the following spring. Flowers and fruits are then produced in summer. It grows to about 60 cm high, with branched stems, less than 25cm high, longitudinally ribbed with very short hairs. It has light green, petiolate leaves, alternate but with upper leaves often in pairs, almost hairless to 6cm long with wavy margins. Flowers yellow, bell-shaped, borne singularly on stalks; occur in the axils of the upper leaves from December to March. Five fused petals. The fruit is an orange-coloured globular, sticky berry when ripe, enclosed in a thin, bladder-like case about 2-2.5cm diameter. Seeds are numerous, yellow or light brown, almost round to kidney shaped, flat, about 2cm long and sticky.

3.5 Method and Rate of Spread

Prairie ground cherry is spread by cultivation with pieces of root longer than 1.5cm being capable of producing new plants. The fruit, while enclosed in the bladder, is dispersed effectively by wind and water; without the bladder the sticky fruit adheres to most objects. Fruit is eaten by stock, birds and foxes, with germination enhanced by passing through the digestive tract. Prairie ground cherry is also dispersed in hay.

3.6 Species Management

Continual surveillance by LCA's and education of land managers across the region are the best tools in minimising the spread of Prairie Ground Cherry. If new infestations are spotted, early control measures will be implemented in an effort to remove it. Hygiene measures will be promoted to prevent further spread across the region. Media releases and field days will be run to increase awareness on the potential spread/problems associated with Prairie Ground Cherry. Limited herbicides registered in New South Wales specific to controlling this weed.

3.7 Key Land Managers

All land holders/managers listed below are critical in the success or failure of this plan. If Prairie Ground Cherry were to be left untouched due to the lack of awareness of its potential distribution, the Riverina could end up with severe infestations that would cost the community greatly.

NSW DPI - forestry, Roads and Traffic Authority, Department of Lands, Rural Lands Protection Board's, Local Control Authority's, Landholders/Landmanagers, ARTC.

4.0 LEGISLATIVE AND REGULATORY SITUATION

4.1 Current Declaration

Prairie Ground Cherry is currently declared a Class 4 noxious weed in all LCAs across the Riverina (except Griffith City and Hay Shire). “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”.

4.2 Declaration Changes

A possible alteration is currently being discussed by LCAs – PGC may be more appropriate as a Class 3 noxious weed, as the region applied for a W2 declaration initially. Class 3 (and previously W2) – “The plant must be fully and continuously suppressed and destroyed”.

Also, now that PGC has been found in Hay Shire – declaration may be considered, also Griffith City.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 Financial support to carry out the plan

Prairie Ground Cherry only infests 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. Outside funding opportunities arise through Landcare and other community groups that will be advantageous to the fulfilment of this plan.

An interstate liaison working party has been formed to look into weed and seed transfer across the border. This will improve communication across the border increasing our resources and knowledge on best management practices.

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 and Murrumbidgee (Draft)
- Regional Weed Strategy – Lower Murray Darling

5.5 Barriers and Contingencies

The following barriers will delay or obstruct the operation of this Prairie Ground cherry regional plan.

- Lack of knowledge on control techniques. Limited chemical options. What’s used in VIC isn’t necessarily registered for use in NSW. (Obj b, c, d; Act 2)
- Lack of awareness of impact of PGC. (Obj e; Act 1)
- Lack of knowledge that there are in fact two species – *P.virginiana* and *P.viscosa*. (Obj e; Act 1)

The following contingencies may delay or obstruct the operation of this Prairie Ground cherry regional plan.

- Drought. (Obj a; Act 4)
- Legislation/ control requirements imposed on public lands (or lack of). (Obj c)

6.0 PERFORMANCE INDICATORS AND ACTIONS

Objective a: Locate and control new infestations of Prairie Ground Cherry within 1 year of discovery.		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 Inspect for Prairie Ground Cherry as part of routine property inspection program.	Property inspection programs implemented.	LCA's
2 Control all new infestations.	Infestations controlled within 1 year of discovery.	LCA's, RLPB's, Landholders.
3 New infestations located and mapped.	Map developed and regularly being updated.	LCA's
4 Specific targeted surveys to locate new infestations and trace individual roadside infestations back to source.	Surveys completed between late spring and the end of summer annually.	LCAs
Objective b: Reduce areas of rare and isolated infestations (Wakool roadside patches and 2 private properties; Central Murray CC scattered infestations), by 15% per annum for the life of the plan.		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 All infested properties / roadsides are to be inspected annually.	100% of infested properties / roadsides inspected.	LCA's
2 LCA's, in conjunction with land managers, develop control measures (plan) for private properties.	Control measures developed and all landholders infested with Prairie Ground Cherry have a property plan.	LCA's, Landholders
3 Treat existing rare and isolated infestations on LCA land annually prior to seed set to reduce further spread.	Infestations treated and area's reducing.	LCA's, RLPB's, Landholders
Objective c: Reduce marginal infestations (Koondrook State Forest) by 15% per annum for the life of the plan.		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 All infested areas are to be inspected annually.	100% of infested areas inspected.	LCA's, State Forests
2 LCA's, in conjunction with land managers, develop control measures (plan).	Control measures developed and all landholders infested with PGC have a property plan.	LCA's, State Forests
3 Treat existing marginal infestations annually prior to seed set to reduce further spread.	Infestations treated and area's reducing.	LCAs, State Forests
4 Maintain a 50m buffer zone around marginal infestations to contain and preventing them from infesting clean areas.	50m buffer zone in place and surrounding area's clean.	LCAs, State Forests

Objective d: Reduce core infestations (Central Murray County Council private property) by 20% by the end of the plan.

ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1 All infested areas are to be inspected annually.	100% of infested areas are inspected.	LCA's
2 LCA's, in conjunction with land managers, develop control measures (plan).	Control measures developed and all landholders infested with PGC have a property plan.	LCA's, Landholders
3 Treat core infestations annually prior to seed set to reduce further spread.	Infestations treated and area's reducing.	Landholders

Objective e: Minimise the entry of Prairie Ground cherry into the Riverina, through increasing community awareness of this weeds impacts.

ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
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.	- 3 field days run within the region over the plan period. - Relevant LCA / RLPB staff attend Murray Downs, Henty Field Days & Murrumbidgee Farm Fair. - 3 media releases run over plan period. - Personal contact made with each land manager during inspections where possible.	LCA's, RLPB's, E/ WRNWAG
2. Look in to developing an Identification and information brochure.	Identification brochure developed to increase awareness on this new and emerging weed.	E/ WRNWAG & RNWPO

7.0 MONITOR AND REVIEW PROCESS

Being a five year plan, participants meet each autumn (eg mid March) 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. 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.

Regional Coordinator to prepare annual Regional Group Project Report as at 30th June for the NWAC by September 30th. The preparation of this report will require all participating LCAs and RLPBs receiving funding for this weed to submit a signed financial statement, outlining fund expenditure, to the coordinator for audit purposes along with a written progress report.

8.0 BENEFITS

This plan is aiming at identifying, controlling and managing the existing established prairie ground cherry populations, 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 prairie ground cherry may result in, reduced levels of production, produce being downgraded, difficulties in harvest, or operations being curtailed in an effort to minimise potential further spread. Limiting spread should also protect such industries in other parts of the region, state and country, currently unaffected by infestations, from the negative effects of this weed.
- ◆ The local economy through possible flow on effects of a potential reduction in management/control costs as cost effective IWM options are identified / implemented and infestation levels decline.

It also aims to protect the greater environment, which should additionally benefit regional tourism, whilst improving networks between stakeholders. These benefits will accrue as a result of this plan bringing together stakeholders with an interest in the problems caused by prairie ground cherry. An interest which provides a commonality of purpose across the region for its control.

The cost savings through the control of Prairie Ground Cherry from the increase in productivity will be significant. Once Prairie Ground Cherry is established it is very costly to control (estimated at \$67/ha boomspray app) and due to its very deep root system, single application are very unlikely to be effective. Although at this stage it is difficult to have a precise estimation, improved mapping will provide some indication in the future. For further details see section 3.0.

9.0 RESOURCES

◆ References and Further Readings

Noxious Weeds Act 1993

Ensbey, R. (2001) Noxious and Environmental Weed Control Handbook 2001/2002 – A guide to weed control in non-crop, aquatic and bushland situations. Revised ed, Agdex 647, NSW Ag. Original by Hugh Milvain (1999).

National Weeds Strategy (Australia)

NSW Weeds Strategy

Parsons, W.T. & Cuthbertson E.G. (1992). *Noxious weeds of Australia*. Inkata: Melbourne.

The Western & Eastern Riverina Noxious Weeds Advisory Groups, Weeds Guide Brochures.

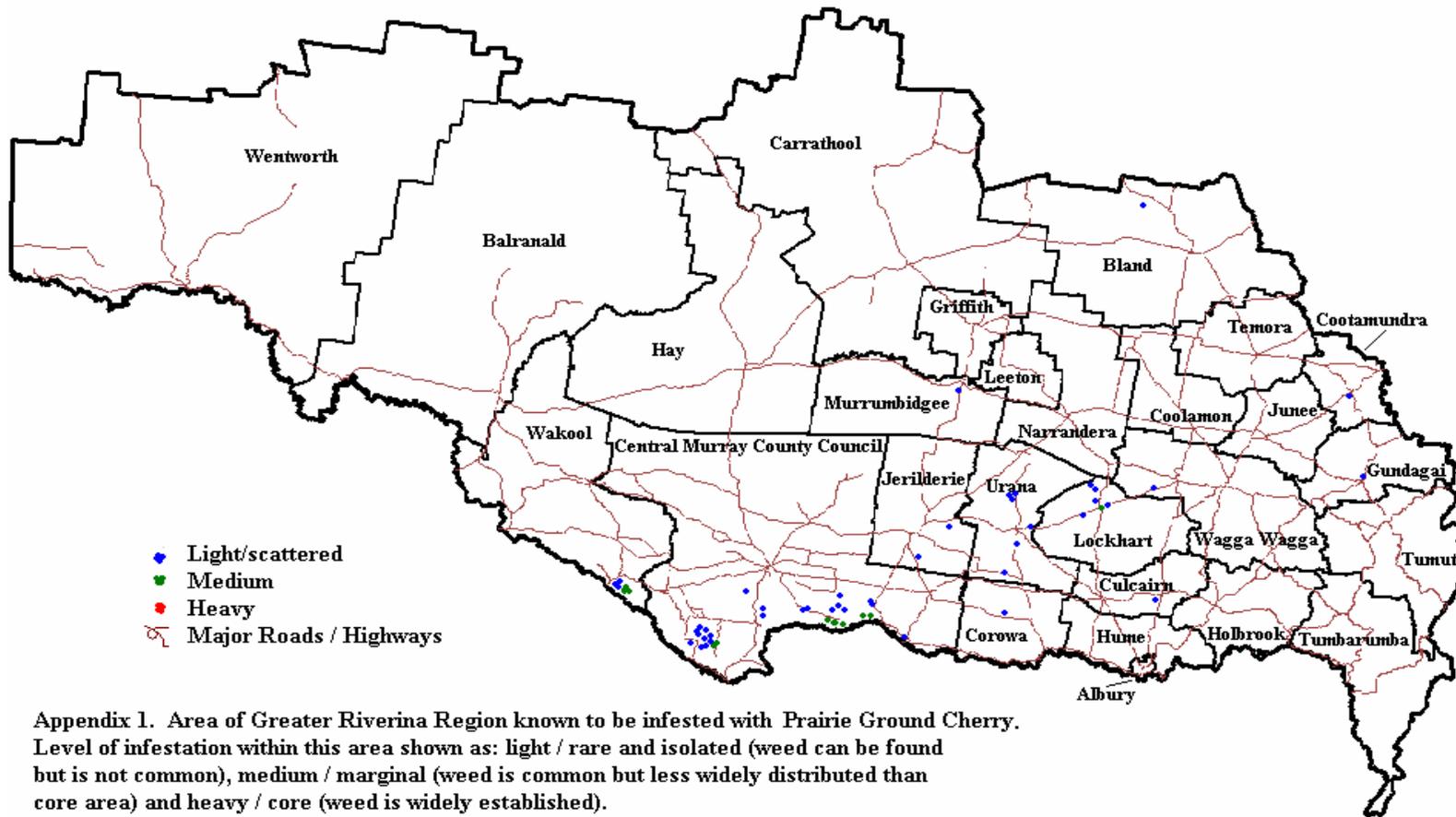
ACKNOWLEDGEMENTS

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 Prairie Ground Cherry across the Riverina



Appendix 1. Area of Greater Riverina Region known to be infested with Prairie Ground Cherry. 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.