



REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: **Prickly Pear and Harrisia Cactus**

1.2 PLAN PROPONENTS

Regional weed advisory committee: Macquarie Valley Weeds Advisory Committee

Address: C/- Cabonne Council, PO Box 17, Molong NSW 2866

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Signature: Chairman: Date:

1.3 NAME OF PLANT(S)

WONS n

Botanical name: *Cylindropuntia* species

Common name: Prickly Pears

Opuntia species except *O. ficus-indica*

Harrisia spp

Harrisia Cactus

Note: For the purpose of this plan, Prickly Pears will include *Harrisia* spp. where declared

1.4 PLAN PERIOD (not to exceed five years)

Starting date: 01/07/2008

Completion date: 30/06/2013

1.5 AREA OF OPERATION:

All Local Control Authorities (LCA's) and Rural Lands Protection Boards (RLPB's) of the Macquarie Valley Weeds Advisory Committee.

1.6 AIM

To successfully manage Prickly Pear and Harrisia Cactus in the Macquarie Valley.

1.7 OBJECTIVES

1.7.1 Considerably reduce impacts of existing weeds

1.7.2 Prevent new weed problems

1.7.3 Improve coordination and cooperation

1.7.4 Raise awareness of weeds issues within region

2.0 STAKEHOLDERS

2.1 SIGNATORIES

Participating Councils (LCA's):

- Bogan Shire Council
- Bourke Shire Council
- Brewarrina Shire Council
- Cabonne Council
- Cobar Shire Council
- Dubbo City Council
- Mid Western Regional Council
- Narromine Shire Council
- Orange City Council
- Parkes Shire Council
- Unincorporated area of Western Division
- Wellington Council

Participating County Council:

- Castlereagh Macquarie County Council
- Upper Macquarie County Council

Participating Rural Lands Protection Boards:

- Bourke
- Brewarrina
- Coonabarabran
- Coonamble
- Dubbo
- Molong
- Mudgee
- Nyngan
- Walgett

2.2 OTHER STAKEHOLDERS

- NSW Department of Primary Industries (DPI)
- State Forests
- NSW Department of Environment and Climate Change (DECC) – National Parks and Wildlife Service (NPWS)
- Department of Lands
- Catchment Management Authorities (CMA's)
- Regional Landcare Coordinators
- Aboriginal Lands Councils
- Service providers – Country Energy, Telstra, Australian Rail Track Corp (ARTC)

3.0 BACKGROUND AND JUSTIFICATION

3.1 PLAN JUSTIFICATION AND DESCRIPTION OF PROBLEM

Many of the Pear/Cactus species were introduced to New South Wales and Queensland in the mid to late 1800's as garden ornamentals, hedges and for use with cochineal insect to produce dye. Their origin is generally from South American countries, particularly Argentina and Paraguay. The rapidity with which Prickly Pears increased in Australia has been regarded as one of the botanical wonders of the world. It is estimated the Prickly Pear covered 4,000,000 hectares of land in NSW and QLD by the year 1900, and 24,000,000 hectares by 1920. Half of this area was so densely covered that it was useless for production and the land was in many cases abandoned by its owners. Until the introduction of the *Cactoblastis cactorum*, the Pear was infesting 400,000 hectares per year.

A large number of rare and isolated infestations occur across the region. The numbers of clusters of infestation have been reduced in recent years but the individual plants are spreading and becoming a source of considerable annoyance to adjoining landholders. The plants form thick clusters which render grazing land unusable. The thorns of the plants inflict injuries to stock causing economic losses to landholders.

Prickly Pear is the common term for many cactus species. There are 800 species of cactus, but only 8 Prickly Pears that pose a threat in NSW.

- Tiger Pear (*Opuntia aurantiaca*)
- Common Pear (*Opuntia stricta*)
- Velvety Tree Pear (*Opuntia tomentose*)
- Araluen Pear (*Opuntia stricta & dillenii*)
- Riverina Pear (*Opuntia paraguayensis*)
- Harrisia Cactus (*Harrisia* spp.)
- Devil's Rope (*Cylindropuntia imbricata*)

There exists a significant ecological impact associated with allowing the proliferation of the Pears & Cactus as a rapid displacement of native vegetation occurs with almost a total loss of native species bio-diversity within a thicket.

3.2 THE 'DO NOTHING' OPTION

It was found in the past that Pear & Cactus species are highly adaptable to Australia's climatic conditions and soil types. If not for the introduction of biological control measures that were introduced, it is thought many millions of hectares of agricultural and native land would now be devastated by these plants. Although today there are effective control measures to prevent the large outbreaks of the past, the biological agents have become limited as they are unable to survive without the host to feed on and under some climatic conditions found in NSW. This allows isolated pockets of Pear and Cactus to survive and spread, particularly along water courses. If left unchecked degradation of land will occur and economic losses will be generated from injuries to stock as well as the cruel injuries inflicted on native fauna that will largely go untreated:

- The difficulty of control.
- The rate of spread when left unchecked
- The degradation of pastoral land.
- The harmful aspects to stock and native species.

3.3 DISTRIBUTION OF INFESTATIONS

Prickly Pear species are found throughout the region infesting stock routes, road and rail corridors, vacant crown land and reserves. Neighbouring private land is also affected in grazing areas.

3.4 WEED BIOLOGY

Prickly Pears are usually erect succulent shrubs growing from 60cm – 3m in height depending on variety.

Pears have a leafless segmented branch like structure, green to bluish in colour. Some species have a central woody trunk while other species are formed by jointed segmented pieces.

Small, scale like leaves are produced below the areolas on young segments only, and are shed as segments mature. The branches are commonly confused as leaves but are correctly described as pads.

Spines are usually very sharp and may occur singly or in a group from each areola. In some species the spines are almost absent. Some spines are strong enough to penetrate a leather boot. Spines are used by the plant to attach pads or segments to animals, allowing them to be spread. They also can be a defence mechanism preventing the plant being grazed or damaged. The flowers are fairly large, usually yellow but on different varieties they can either be white, deep orange, red, pink or purple.

The tough outer skin of the fruit is usually red when ripe but may also be purple, orange, or yellow. It has a pear shape and can be 2.5cm to 8cm in length.

Prickly Pear seeds will remain viable and germinate for at least 20 years, although some species have sterile seeds due to their suspected hybrid nature.

Pear species usually have shallow fibrous roots or can be underground tubers. Some species have bulbs under the ground and can give rise to new pads if plants are destroyed by bush fire, stock or are buried.

3.5 METHOD AND RATE OF SPREAD

Prickly Pear species spread by seeds and segments. The main form of distribution is by seeds however segments, which are readily detached from the parent plant by animals, wind or flood waters, take root where they lodge. Prickly Pear species produce a heavy crop of fruit each summer, which is very palatable to animals and birds, particularly crows, emus and magpies. The tough coated seeds pass undamaged through the digestive system and quickly germinate where dropped. The seeds can remain viable for very long periods and are capable of germinating for at least 20 years after production.

Today the potential for spread is enormous. The plant still infests sensitive areas of the catchment. With a number of dry years experienced by the Macquarie Valley, the existing plants have had the potential to build up a large seed and segment bank. With the possibility of a flood or a number of wet years imminent, the risk of a major outbreak is certainly possible. Plants are distributed through a number of means, from fruit carried by birds and segments of the plant transported by animals and along water ways by the action of water. Each segment of a plant can produce a viable plant and reproduction can occur relatively quickly.

3.6 SPECIES MANAGEMENT

Historically, the main control methods were burning and grubbing but these treatments were mostly ineffective. Spraying with arsenic pentoxide was used with some success, but effective control was not achieved until the introduction of the insect *Cactoblastis cactorum*. The introduction of biological agents has miraculously reversed the widespread infestations of Prickly Pear, however, once equilibrium between the insect and plant was reached the effectiveness of the *Cactoblastis cactorum* was reduced. This was due to many factors including climate (particularly in NSW) and loss of food source for the insect. This is allowing outbreaks to occur and re-establish with no biological control present. Careful management practices can continually suppress core infestations by reintroducing biological agents that will limit seed production by stressing the plants, reducing their ability to produce seed. In isolated and rare infestations, strategic spraying to again prevent seed set and follow up monitoring of these sites will ensure that Prickly Pear in these areas will be eradicated by the end of the plan.

The focus of the plan is that isolated plants will be treated. An integrated management plan for larger infestations will be implemented. Biological control will be used in areas of numerous plant numbers, chemical application where isolated plants occur.

3.7 KEY LAND MANAGERS

- LCA's
- RLPB's
- Landholders
- National Parks
- State Forests

- Department of Lands
- Service providers – Country Energy, ARTC
- RTA

4.0 LEGISLATIVE AND REGULATORY SITUATION

4.1 CURRENT DECLARATION

Prickly pear (*Cylindropuntia* species and *Opuntia* species except *O. ficus-indica*) and Harrisia Cactus (*Harrisia* species) are class 4 noxious weeds throughout NSW. 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 and the plant may not be sold, propagated or knowingly distributed.

4.2 DECLARATION CHANGES

No change to the current declaration status is anticipated.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 FINANCIAL SUPPORT TO CARRY OUT THE PLAN

The majority of the financial support for this plan will be provided as part of LCA/RLPB weed control programs. Further support will be sought through DPI's group project funding program. Any other funding source deemed relevant by MVWAC will also be explored.

5.2 LINKS TO OTHER STRATEGIES

- Australian Weed Strategy
- NSW Invasive Species Plan
- MVWAC Regional Weed Strategy
- Catchment Action Plans

5.3 BARRIERS AND CONTINGENCIES

Barriers to overcome when addressing the plan:-

- The limitations of some biological control agents and the need of constant reintroduction of these agents to infestations.
- Preventing the spread from infested areas from stock, animals, birds and vehicles.
- Access to private land particularly absentee owners and controlling Prickly Pear on private property.
- Coordinating control measures on numerous parcels of land, controlled by different authorities and landholders that neighbour each other.
- Communicating the need to identify and control Prickly Pear spp. to the general public and stakeholders.
- Identifying all infestations in the region.

Contingencies to overcome when addressing the plan:-

- Inspecting areas of rough terrain and inaccessible regions (hilly, heavily vegetated country, wetlands and water courses).
- Rapid increase in spread through water courses in wet seasons and the control measures required in sensitive wetland areas.

6.0 ACTION PLAN

Objective	Action	Performance indicator	By whom
1.7.1 Considerably reduce impacts of existing weeds	All public lands to be inspected annually	100% of all roadsides, reserves and Travelling Stock Routes (TSR's) inspected.	LCA weed officers & RLPB rangers
	Control methods to be carried out on all infestations on LCA & RLPB lands as seasonal conditions allow	Groups 1 & 3 and Parkes and Narromine Existing infestations on LCA/RLPB lands reduced by 60% Group 2 Existing infestations on LCA/RLPB lands reduced by 20%	LCA weed officers & RLPB rangers
	All private properties identified as having infestations are to be inspected annually and regulatory action taken as required	100% of identified properties inspected Groups 1 & 3 and Parkes and Narromine Existing core infestations on private lands reduced by 10% Existing marginal infestations on private lands reduced by 30% Existing rare and isolated infestations on private lands reduced by 40% Group 2 Existing rare and isolated infestations on private lands reduced by 10%	Landholders & LCA weed officers
1.7.2 Prevent new weed problems	Inspect for Prickly Pear and Harrisia Cactus as part of routine property inspection program	Prickly Pear and Harrisia Cactus is included in the inspection routine	LCA weed officers & RLPB rangers
	Aspects of the rapid response program to be implemented when a new infestation is discovered	100% of located new infestations recorded and mapped 100% of new infestations treated 100% of new infestations to be monitored and follow-up treatment programs implemented	Landholders, LCA weed officers & RLPB rangers
	All infestations to be contained to prevent new weed problems	Buffer zones established around sites known to be infested	Landholders, LCA weed officers & RLPB rangers
1.7.3 Improve coordination and cooperation	All infestations to be recorded and mapped	Maps produced and updated regularly Data recording standards	LCA weed officers & RLPB rangers

		adhered to	
	Plan implementation to be monitored and reviewed	Review process (as outlined in section 7.0) carried out	RPO, LCA weed officers & RLPB rangers
	Actively seek partnerships with other weed management agencies	Partnerships developed where necessary	RPO, LCA weed officers & RLPB rangers
	Develop on-ground management plans with neighbouring landholders, LCA's and RLPB's	Plans of management entered into and partnerships developed with neighbouring landholders, LCA's and RLPB's	LCA weed officers & RLPB rangers
1.7.4 Raise awareness of weeds issues within region	Prickly Pear and Harrisia Cactus to be part of a regional weeds awareness program	Advertisements on television Field days held Displays at local shows attended by Weed Officers Weed pamphlets distributed to landholders during property inspections Weed Calendars distributed by LCA's and RLPB's	DPI, RPO, LCA weed officers & RLPB rangers

NB:

Group 1	Cabonne Council
	Mid Western Regional Council
	Orange City Council
	Wellington Council
	Upper Macquarie County Council
Group 2	Dubbo City Council
	Narromine Shire Council
	Parkes Shire Council
	Castlereagh Macquarie County Council
Group 3	Bogan Shire Council
	Bourke Shire Council
	Brewarrina Shire Council
	Cobar Shire Council
	Unincorporated area of Western Lands

7.0 MONITOR AND REVIEW

There will be an annual review of the Prickly Pear and Harrisia Cactus Regional Management Plan to ensure the performance indicators are realistic and are being met. Member LCA/RLPB's weed officers and rangers will participate in the review process. This would include discussions on increases or decreases of range, new incursions, successful management strategies, expectations and results.

8.0 BENEFITS

The benefits of controlling Prickly Pears within the Macquarie Valley Weeds Advisory Committee area will be substantial to the agricultural industry as well as native land, allowing users, fauna and flora to access these areas.

9.0 RESOURCES

- Cunningham GM, Mulham WE, Milthorpe PL and Leigh JH (1981) “*Plants of Western New South Wales*” Inkata Press
- Lamp L, and Collet F (1989) “*A Field Guide to Weeds in Australia*” Inkata Press
- Parsons WT and Cuthbertson EG (2001) “*Noxious Weeds of Australia*” CSIRO Publishing
- PP29 Facts Pest Series – Prickly Pear identification and their control. Published by The State of Queensland (Department of Natural Resources, Mines and Energy)