



REGIONAL WEED MANAGEMENT PLAN

1.1 PLAN TITLE: **Silverleaf Nightshade**

1.2 PLAN PROPONENTS

Regional weed advisory committee: Macquarie Valley Weeds Advisory Committee

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Signature: Chairman: Date:

1.3 NAME OF PLANT(S)

WONS n

Botanical name: *Solanum elaeagnifolium*

Common name: Silverleaf Nightshade

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 Silverleaf Nightshade 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):

- Cabonne Council
- Dubbo City Council
- Mid Western Regional Council
- Narromine Shire Council
- Orange City Council
- Parkes Shire Council
- Wellington Council

Participating County Council:

- Castlereagh Macquarie County Council
- Upper Macquarie County Council

Participating Rural Lands Protection Boards:

- Bourke
- Brewarrina
- Central Tablelands
- Coonabarabran
- Coonamble
- Dubbo
- Hillston
- Moree
- Mudgee
- Narrabri
- 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

The capacity of Silverleaf Nightshade to completely replace desirable plant species makes it a threat to agriculture production in the Macquarie Valley. The plant can also have a detrimental effect on animal health due to its hypericum content; this is especially so in cattle and horses.

It is a summer growing plant with deep and spreading perennial rhizomatous root system from which new aerial growth appears each year. It competes strongly with crops and natural pasture and can be hard to eradicate.

Silverleaf Nightshade is located in the central region of the Macquarie Valley. It is imperative that the plant is contained and reduced in these areas so not to contaminate the larger cropping areas of the western parts of the Macquarie Valley.

The competitiveness of Silverleaf Nightshade seriously affects agriculture production in the central part of the Macquarie Valley Weeds Advisory Committee area.

It is difficult to control once established, the cost of control is prohibitive and depending on season conditions several inspections and treatment are required.

Silverleaf Nightshade is of major concern to effected LCA's, RLPB's and landholders as a single plant can produce 4500 seeds and it has long seed viability. Silverleaf Nightshade has the ability to grow in all climatic and topographical zones that occur in the Macquarie Valley.

Its capacity to replace desirable native pasture and its potential to cause stock and crop losses make it a huge threat to the agricultural communities in our region.

LCA's and RLPB's must annually control Silverleaf Nightshade on all roads and reserves to prevent infestations moving to clean areas. Motor vehicles, road graders and travelling stock are the main vehicles for spreading Silverleaf Nightshade on roads and reserves.

3.2 THE 'DO NOTHING' OPTION

LCA's must continue to have the ability to minimise the spread of Silverleaf Nightshade because if nothing is done, effects include:

- A continuing spread of Silverleaf Nightshade
- If it is allowed to spread and become established it has the ability to ruin the profitability of commercial crops.
- Its allopathic capacity will ruin native pasture.
- When allowed to become established it will become the dominant species in improved pasture.
- Would allow stock losses through poisoning to increase.
- A decrease in land productivity.
- A decrease in land values.
- A restriction on types of agriculture production
- Increased cost to good land managers.

3.3 DISTRIBUTION OF INFESTATIONS

In the Macquarie Valley, core infestations are scattered throughout the Dubbo City Council, Wellington Council and Mid Western Regional Council. Rare and Isolated infestations are found throughout all of the other participating Councils in this plan.

3.4 WEED BIOLOGY

Silverleaf Nightshade is an erect herbaceous shrub-like, multi-stemmed, summer growing perennial to one metre tall with an extensive underground root system. Its seeds germinate in autumn with much root growth in first few months. New roots emerge from lateral roots each spring. Plant stems are erect and branching towards the top. They are often covered with reddish prickles which are fine and straight. These prickles may also appear on petioles and leaves. All parts of the plant are covered with hairs. Leaves are silvery white, stalked, alternate, veined, and oblong-lanceolate to 15cm long. Leaf margins are undulated and often scalloped. Flowering commences in November and continues through until March. Flowers are purple to violet and sometimes white to 3.5cm in diameter. First flowers appear in lateral positions. They are supported on small stems. Fruiting occurs from December to March and they normally ripen within 4 to 8 weeks. Fruits are a smooth globular berry 8 to 14mm in diameter and are green prior to ripening when they become a mottled yellow to orange colour. There are approximately 75 seeds in each fruit. Seeds are brown, smooth, flattened, and rounded to 4mm in diameter.

3.5 METHOD AND RATE OF SPREAD

Silverleaf Nightshade's potential areas of spread are in all soil types within the annual rainfall belt of 250mm—600mm of the Macquarie Valley. Each plant can produce 60 berries each containing 75 seeds. Cultivation encourages the spread of Silverleaf Nightshade breaking the root system and stimulating regrowth.

Silverleaf Nightshade can be spread by cultivation (as mentioned above), machinery (road graders), birds and livestock. Seeds have been reported to remain viable following digestion

by animals. The transport of fodder between regions also has the potential to spread Silverleaf Nightshade.

Silverleaf Nightshade also has the potential to spread via flooding of the river and creek systems of the Macquarie valley and infest the western crop growing areas of the valley.

3.6 SPECIES MANAGEMENT

Silverleaf Nightshade has its greatest impact on land management practises in late spring and summer causing problems to crop and pasture production and the health of livestock.

As with most species, Silverleaf Nightshade requires integrated weed management to achieve successful control.

- Slashing – does not prevent the plant from flowering even under hot conditions the plant will flower close to the ground.
- Stock should not be allowed to graze fruiting plants as this can lead to increased seed dispersal
- All stock should be quarantined and all machinery/vehicles thoroughly cleaned before leaving infested paddocks.
- Cultivation is not an effective control.
- Competitive pasture will suppress the growth of Silverleaf Nightshade; this is particularly so with active growing summer plants like Lucerne
- Application of herbicides may need to be repeated over a number of years to completely eradicate Silverleaf Nightshade.
- Biological agents have been introduced in Australia over many years but none have yet to prove their effectiveness.

These control measures would be carried out with the co-operation of landholders, LCA's, RLPB's, Dept of Primary Industry, Landcare Groups and any other interested community group.

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

Class 4: 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	
<ul style="list-style-type: none"> • Cabonne Council • Castlereagh Macquarie County Council • Dubbo City Council • Mid Western Regional Council • Narromine Shire Council 	<ul style="list-style-type: none"> • Orange City Council • Parkes Shire Council • Upper Macquarie County Council • Wellington Council

4.2 DECLARATION CHANGES

No alteration to existing declaration 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:

- Sand quarrying and soil mining operations
- Spread by road maintenance equipment
- Landholders failing to control Silverleaf Nightshade and government agents.
- Landholders lack of knowledge to use alternative methods to control the weed.
- Spread by vehicles, stock, agricultural produce birds and water

Contingencies:

- Variable season conditions
- Resource shortfall, lower than expected funding support
- Flooding
- Increased cost – Chemical, labour and contractor cost

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	Existing infestations on LCA/RLPB lands reduced by 40%	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 Existing core infestations on private lands reduced by 10% Existing marginal infestations on private lands reduced by 20% Existing rare and isolated infestations on private lands reduced by 30%	Landholders & LCA weed officers

1.7.2 Prevent new weed problems	Inspect for Silverleaf Nightshade as part of routine property inspection program	Silverleaf Nightshade 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 adhered to	LCA weed officers & RLPB rangers
	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	Silverleaf Nightshade 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

7.0 MONITOR AND REVIEW

There will be an annual review of the Silverleaf Nightshade 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

To have control work carried out by LCA's and RLPB's on land under their control will further reduce the spread of Silverleaf Nightshade onto privately occupied land and if landholders control Silverleaf Nightshade the benefits will be :-

- Minimised health risk to stock
- Increased agricultural productivity
- Clean fodder production from previously infested areas
- Improved land values
- Increased profits from produce grown in the Macquarie Valley

9.0 RESOURCES

- Cunningham, G.M., Mulham, W.E., Milthorpe, P.L. and Leigh, J.H. (1981) "*Plants of Western New South Wales*" N.S.W. Government Printing Office.
- Parsons, W.T. and Cuthbertson, E.G. (1992) "*Noxious Weeds of Australia*" Inkata Press.