



Government
of South Australia

Declared Plant Policy

This policy relates to natural resources management under section 9(1)(d) of the Landscape South Australia Act 2019 (the Act), enabling co-ordinated implementation and promotion of sound management programs and practices for the use, development or protection of natural resources of the State. Specifically, this policy provides guidance on the use and management of natural resources relating to the prevention or control of impacts caused by pest species of plants that may have an adverse effect on the environment, primary production or the community, as per object s7(1)(f) of the Act.

yellow burrweed (*Amsinckia* spp.)

Yellow burrweed is a herbaceous annual crop weed. It is tolerant of some herbicides and is difficult to control by cultivation prior to cropping due to staggered germinations. It may also hinder lucerne establishment.

Management Plan for Yellow Burrweed

Outcomes

- No losses to cereal crops or pasture yellow due to yellow burrweed outside the areas where it is already established.

Objectives

- Prevent seed movement to uninfested areas.
- Smaller isolated infestations located and destroyed according to regional management plans.
- Larger infestations of yellow burrweed contained and their impacts reduced.

Best Practice Implementation

- High priority infestations on public or private land controlled under direction of regional landscape boards and Green Adelaide.
- High priority infestations on road reserves controlled by regional landscape boards and Green Adelaide.
- Other infestations controlled in accordance with the priorities in regional management plans.
- Regional landscape boards and Green Adelaide to ensure contaminated seed and fodder is not brought into, or distributed within, the control area.

Regional Implementation

Refer to regional management plans for further details.

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Region	Actions
Alinytjara Wilurara	Limited action
Eyre Peninsula	Contain spread
Green Adelaide	Destroy infestations
Hills and Fleurieu	Destroy infestations
Kangaroo Island	Destroy infestations
Limestone Coast	Contain spread
Murraylands and Riverland	Manage weed
Northern and Yorke	Contain spread
South Australian Arid Lands	Limited action

Declaration

To implement this policy, yellow burrweed is declared under the *Landscape South Australia Act 2019* throughout the whole of the State of South Australia. Its movement or transport on a public road by itself or as a contaminant, or sale by itself or as a contaminant, are prohibited. The Eyre Peninsula, Hills and Fleurieu, Kangaroo Island, Limestone Coast, Murraylands and Riverland, and Northern and Yorke Landscape Boards and Green Adelaide may require land owners to control yellow burrweed plants growing on their land. These authorities are required to control plants on road reserves in their regions, and may recover costs from the adjoining land owners.

Yellow burrweed is declared in category 2 under the Act for the purpose of setting maximum penalties and for other purposes. Any permit to allow its road transport or sale can only be issued by the Chief Executive of the Department for Environment and Water or their delegate pursuant to section 197.

Under the *Landscape South Australia (General) Regulations 2020*, Regulation 27 specifies the conditions under which a person is exempt from the operation of section 186 and may transport wool, grain or other produce or goods carrying yellow burrweed on public roads. Regulation 28 specifies conditions under which a person is exempt from the operation of section 188(2) and may sell wool, grain or other produce or goods carrying yellow burrweed. Note that certain produce or goods may be excluded from these general movement and sale exemptions by Gazettal Notice of the Chief Executive, DEW.

The following sections of the Act apply to yellow burrweed throughout each of the regions noted below:

Sections of Act	Region								
	AW	EP	GA	HF	KI	LC	MR	NY	SAAL
186(1) Prohibiting entry to area									
186(2) Prohibiting movement on public roads	X	X	X	X	X	X	X	X	X
188(1) Prohibiting sale of the plant	X	X	X	X	X	X	X	X	X
188(2) Prohibiting sale of contaminated goods	X	X	X	X	X	X	X	X	X
190 Requiring notification of presence									
192(1) Land owners to destroy the plant on their properties									
192(2) Land owners to control the plant on their properties		X	X	X	X	X	X	X	
194 Recovery of control costs on adjoining road reserves		X	X	X	X	X	X	X	

Review

This policy is to be reviewed by 2025, or in the event of a change in one or more regional management plans for yellow burrweed.

Weed Risk

Invasiveness

Yellow burrweed will grow in most soils but is most invasive in light sandy soils. It favours disturbed areas. Plant density is higher in overgrazed pastures, as well-maintained pastures can provide competitive control.

Once it does establish, the rapid growth of yellow burrweed provides competitive advantage against existing pasture species. However, it requires seed production to maintain a population, thus paddocks adjacent to infestations of yellow burrweed can be free of the weed.

Fodder is important as a means of spread and it is commonly spread in pasture and crop seeds. Seed may also be carried in the gut of sheep and on fleece, and via contaminated machinery.

Human activities, notably the movement of contaminated equipment, vehicles, fodder and livestock, are the most important pathways of spread.

Impacts

Yellow burrweed is a problem of crops and pastures as it is a strong competitor for light, nutrients and particularly nitrogen. It is very competitive with cereal crops and can reduce tiller number in wheat. Before the widespread use of sulfonyl-urea herbicides, cereal crop yields could be reduced by more than 20 percent when infested with yellow burrweed.

The bristly calyx is vegetable fault in wool, and the seeds can taint and discolour flour.

Yellow burrweed is potentially toxic to stock as it contains pyrrolizidine alkaloids similar to those in salvation Jane, and can cause liver damage in stock grazing plants over an extended period.

Potential distribution

Yellow burrweed has the potential to grow in agricultural areas throughout the State. Light sandy soils are most at risk.

Feasibility of Containment

Control costs

Yellow burrweed is easily controlled in cereal crops but is more difficult to control in pastures. It is difficult to control due to the staggered germination of seed. Cultivation is not an effective means of control because of the multiple germination events. Even after several years of cropping, yellow burrweed can still germinate in pastures. To safeguard cereal crop yields, yellow burrweed should be eliminated during the first few weeks of growth.

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Mowing treatment in clover at flowering can greatly reduce population through reduction of seed set. Hand pull and spot spray may be effective for isolated infestations. Although it is not susceptible to phenoxy-acid herbicides, it can be suppressed by some other herbicides routinely used in cereal cropping. Application in the early stages of cereal growth can control yellow burrweed and increase yields.

In marginal cropping areas especially in sandy soils where herbicides are rarely used, the extra cost of yellow burrweed is increased herbicide use and reduction in pastures due to the herbicide use. In heavier soils and higher rainfall areas, it is less of a threat as herbicides are already widely used and the additional costs are likely to be small.

Persistence

As yellow burrweed is an annual plant, its only method of dispersal is seed. Seed production is high with up to 1600 seeds per plant. The hard seed may remain viable in soil for at least five years and thus can germinate up to several years later. Only a small proportion of the seed germinates at one time.

Yellow burrweed is most abundant in the season following cropping in rotational systems. Plants germinate in large numbers after the autumn break as well as staggered germinations after subsequent rains.

Current distribution

Yellow burrweed is found in isolated infestations throughout the agricultural areas of the State. It is present in all regions except the Alinytjara Wilurara. It is most common and widespread in the northern Murray Mallee area of the Murraylands and Riverland region.

State Level Risk Assessment

Assessment using the Biosecurity SA Weed Risk Management System gave the following comparative weed risk and feasibility of containment scores by land use:

Land use	Weed Risk	Feasibility of control	Response at State Level
Grazing southern	medium 88	low 57	manage sites
Grazing rangeland	low 22	high 14	monitor
Crop pasture	high 139	very high 6	destroy infestations
Irrigated vegetables	negligible 8	very high 11	monitor

Considerations

Risk assessment indicates that crop and pasture land uses should be protected through a combination of managing sites, monitoring and destroying infestations. In practice, this is implemented according to the level of infestation in each region. Any infestations in the Green Adelaide, Hills and Fleurieu, and Kangaroo Island regions are small enough to be targeted for destruction. The Murraylands and Riverland region manages the weed where it occurs. In the other regions spread is contained by management of established sites and preventing transport of contaminated produce. Yellow burrweed may be targeted for control

at high priority sites. Only limited action is required in the Alinytjara Wilurara and South Australian Arid Lands regions to prevent its establishment.

Restrictions on movement are necessary to prevent spread and in particular contaminated hay and fodder must not be transported. Extension is an important component of control - buyers must be aware of the risk of fodder and seed contamination. In areas where yellow burrweed is common, efforts should focus on ensuring fodder and grain is free of the weed rather than control of growing plants in paddocks. It is important to keep this weed off clean properties or to recognise and destroy infestations before they spread.

The possibility of biological control is being investigated in California where some *Amsinckia* species are native.

Synonymy

Amsinckia spp., the following names have been applied in S.A.

Amsinckia calycina (Moris)Chater, Bot. J. Linn. Soc. 64: 380 (1971)

Basionym:

Lithospermum calycinum Moris, Enum. Sem. Hort. Taur. 21 (1831)

Taxonomic synonyms:

Amsinckia angustifolia Lehm., Del. Sem. Hort. Hamburg. 1831: 7 (1831)

Amsinckia hispida (Ruiz & Pav.) I.M.Johnston, Contr. Gray Herb. 73:75 (1924)

Lithospermum hispidum Ruiz & Pav., Fl. Peruv. 2: 5 (1799)

Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr., Bot. Gaz. 61: 36 (1916)

Basionym:

Echium menziesii Lehm., Nov. Stirp. Pug. 2: 29 (1830)

Taxonomic synonyms:

Amsinckia intermedia Fisch. & C.A. Mey., Ind. Sem. Hort. Petrop. 2: 26 (1836)

Amsinckia lycopsoides (Lehm.)Lehm., Delect. Sem. Hort. Hamburg. 1831: 1 (1831)

Basionym:

Lithospermum lycopsoides Lehm., Nov. Stirp. Pug. 2: 28 (1830)

In South Australia *Amsinckia* is treated as one complex due to hybridisation and possible heterostyly. Within this complex, *A. lycopsoides* is often a clearly definable species here, but intermediates with other unidentified taxa exist.

Other common names include amsinckia, bugloss fiddleneck, fiddleneck, tarweed, yellow forget-me-not and yellow gromwell.

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Hon David Speirs MP

Minister for Environment and Water

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