



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.

sagittaria (*Sagittaria platyphylla*)

Sagittaria is an emergent aquatic plant that is rare in South Australia. In the eastern States it is a problem weed that obstructs drains and irrigation channels. It resembles giant arrowhead, *Sagittaria montevidensis*, which is not known in South Australia, but is established in New South Wales and Victoria, and is the subject of a separate policy.

Management Plan for Sagittaria

Outcomes

- Maintain waterways free of blockages by water weeds.
- Maintain wetlands free of major weed threats.

Objectives

- Eradicate current infestations on the Murray and in dams in the Mount Lofty ranges
- Prevent further introduction of sagittaria to waterways and wetlands.

Best Practice Implementation

- Any infestations of sagittaria discovered to be treated as incursions and destroyed.
- To prevent introduction or spread, any sale and movement to be prohibited.
- Regional landscape boards and Green Adelaide to inspect waterways, wetlands and drainage channels for the presence of aquatic weeds.

Regional Implementation

Refer to regional management plans for further details.

sagittaria policy

Region	Actions
Alinytjara Wilurara	Limited action
Eyre Peninsula	Prevent entry or sale; destroy if detected
Green Adelaide	Prevent entry or sale; destroy if detected
Hills and Fleurieu	Prevent entry or sale; destroy infestations
Kangaroo Island	Prevent entry or sale; destroy if detected
Limestone Coast	Prevent entry or sale; destroy if detected
Murraylands and Riverland	Contain spread
Northern and Yorke	Prevent entry or sale; destroy if detected
South Australian Arid Lands	Limited action

Declaration

To implement this policy, sagittaria is declared under the *Landscape South Australia Act 2019* throughout the whole of the State of South Australia so that cultivation, sale and movement of plants can be prevented. Its entry to the State, movement or transport on a public road by itself or as a contaminant, or sale by itself or as a contaminant are prohibited. Notification of the presence of plants is necessary to ensure any incursions are promptly destroyed. Land owners are required to destroy any sagittaria plants growing on their properties. Regional landscape boards and Green Adelaide are required to destroy any sagittaria plants on road reserves, and may recover costs from the adjoining land owners.

Sagittaria is declared in category 1 under the Act, for the purpose of setting maximum penalties and for other purposes. Any permit to allow its entry, 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 sagittaria on public roads, or bring them into the State. 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 sagittaria. 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 sagittaria 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	X	X	X	X	X	X	X	X	X
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	X	X	X	X	X	X	X	X	X
192(1) Land owners to destroy the plant on their properties	X	X	X	X	X	X	X	X	X
192(2) Land owners to control the plant on their properties									
194 Recovery of control costs on adjoining road reserves									

Review

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

Weed Risk

Invasiveness

Sagittaria spreads by seeds and rhizome fragments which may be carried in flood waters, on birds or by machinery used in dredging or excavation. The seeds have small hooks and are produced in large numbers; these characteristics, and their capacity to float, aid their dispersal.

It spreads locally by stolons which develop from the base of the plant during the growing season, extending up to 30 cm before forming either a dormant corm or additional stem and leaf growth. Sprouting of corms is determined by the temperature of the surrounding water and mud. Seed germinates in very moist mud when temperatures rise in spring.

Impacts

Sagittaria competes with native aquatic vegetation and also interferes with flood irrigation and channel drainage schemes. It normally grows as an emergent with leaf blades above the water surface, but can also survive as a fully submerged plant in clear water. Its rate of spread, difficulty of control and the potential to completely dominate an environment makes it a greater problem for irrigation than many other aquatics. Sagittaria also has the ability to invade wetlands and permanently alter their biology.

Sagittaria leaf and stem material is readily grazed by cattle and sheep with no ill effects but makes an unknown contribution to their nutrition.

Potential distribution

Sagittaria may invade wetlands, header, lateral and drainage channels on the flood irrigated areas adjoining the Murray River, as well as dam spillways, ponds and water courses throughout the State. The drainage systems of the upper Limestone Coast are at risk if sagittaria is introduced to that region. It tolerates a high level of salinity, for example growing on the sea coast in the Mississippi Delta within its native range.

Feasibility of Containment

Control costs

Control is difficult as infestations would occur in water or areas of deep mud. This restricts access with herbicide application equipment. Herbicide use would also be complicated by the close proximity of infestations to water resources used for irrigation, human and livestock consumption and to plants susceptible to off-target damage.

Sagittaria is not controlled by a single application of any available herbicide. Physical removal of plants and corms has been effective in some areas, but is expensive.

Persistence

The rhizomes of sagittaria enable it to persist invisibly under water or in temporarily dried-out wetlands. It is only noticeable when in active growth or flowering.

Current distribution

Sagittaria has been found in several dams and ponds in the Hills and Fleurieu region where it was planted, and is also likely to persist in some ornamental garden ponds in urban areas. It has now disappeared from most sites on the Murray River but may still persist in places where it is almost permanently submerged.

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
Aquatic	medium 84	very high 3	contain spread

Considerations

Sagittaria was first recorded in South Australia in 1964 from the Torrens Gorge, and in 1966 on the River Murray between Mannum and Walker Flat. A survey of the river in 1983 found a total of 20 hectares of sagittaria along the main channel and backwaters, upstream of Mannum and in the Wall Flat Irrigation Area. With the abandonment of flood irrigation in favour of piped irrigation, sagittaria has now disappeared from most sites and any remnant infestations on the Murray are hard to locate.

Risk assessment indicates containment as the management action at State level; this is implemented by destroying infestations as found in the regions where sagittaria can grow.

Sagittaria has been recognised as a Weed of National Significance and is the subject of a national control strategy.

A form of *Sagittaria platyphylla* has formerly been sold in Australia as 'chain sagittaria' or *Sagittaria teres*. Other *Sagittaria* species are sold as the vegetable 'duck potatoes' under various names including *S. sagittifolia*, *S. sinensis* and *S. trifolia*. As these names have sometimes been loosely applied, it is possible that some of this material is actually *S. platyphylla*.

Synonymy

Sagittaria platyphylla (Engelm.) J.G.Sm. , N. Amer. Sagittaria 29: t. 26 (1894).

Nomenclatural synonym:

Sagittaria graminea Michaux, Flor. Bor. Am. 2:396 (1803)

var. *platyphylla* Engelm. in A. Gray, Man. Bot. N.U.S. edn 5: 494 (1867).

Taxonomic synonyms:

Sagittaria mohrii J.G. Sm. Ex Mohr, Bull. Torrey Bot. Club 24: 19, t. 290 (1897).

Sagittaria teres S.Watson, Manual ed. 6: 555 (1890).

Other common names include arrowhead, elliptic-leaved arrowhead, chi gou and nar gou.

Hon David Speirs MP

Minister for Environment and Water

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