

Declared Plant Policy

under the Natural Resources Management Act 2004



Government
of South Australia

Noogoora burrs (*Xanthium strumarium*)

The *Xanthium strumarium* complex includes the Californian and Noogoora burrs, both established in SA. The South American and Hunter burrs are also in the group but have not been found in SA, although they are established in the Eastern states. The four species within the complex are all summer annuals native to North America, they can hybridise, are similar in growth and habitat, and are found in mixed stands. For the purpose of this policy they are considered as a group.

Management Plan for Noogoora Burrs

Outcomes

- Losses to the wool industry due to Noogoora burr contamination prevented.

Objectives

- Minimise the impact of Noogoora burr on the wool industry.
- Prevent further spread of Noogoora burr to uninfested areas with suitable habitat.
- Contain the existing infestations.
- High priority infestations eradicated as detected in accordance with regional management plans.

Implementation

- Ensure Noogoora burr infestations, determined as regional priorities by NRM authorities, are destroyed.

Regional Implementation

Refer to regional management plans for further details.

NRM Region	Actions
Adelaide and Mount Lofty Ranges	Manage sites
Alinytjara Wilurara	Monitor
Eyre Peninsula	Limited action
Kangaroo Island	Contain spread - Regional alert
Northern and Yorke	Contain spread
South Australian Arid Lands	Monitor
South Australian Murray Darling Basin	Protect sites
South East	Protect sites

Noogoora burrs policy

Declaration

To implement this policy, Noogoora burrs are declared under the *Natural Resources Management Act, 2004* throughout the whole of the State of South Australia. The movement or transport of the plant on a public road, by itself or as a contaminant, or the sale by itself or as a contaminant is prohibited.

NRM authorities may require land owners to control Noogoora burr plants growing on their land. NRM authorities are required to control plants on road reserves, and may recover the costs from the adjoining land owners. In the SAAL region, notification of infestations is necessary to ensure the weed is monitored.

Noogoora burr is declared in category 2 under the Act for the purpose of setting maximum penalties and for other purposes. Any permit to allow its movement or sale can only be issued by the Chief Officer pursuant to section 188. Under the *Natural Resources Management (General) Regulations 2005*, the transport or movement of grain for milling or wool for cleaning is exempt from the operation of sections 175 and the sale of wool or grain is exempt from section 177(2) if at the time of the sale the person believes on reasonable grounds that the purchaser will remove the plant from the wool or grain before any re-sale.

The following sections of the Act apply to Noogoora burrs throughout each of the NRM regions noted below:

Sections of Act	Region							
	AMLR	AW	EP	KI	NY	SAAL	SAMDB	SE
175(1) Prohibiting entry to area	X	X	X	X	X	X	X	X
175(2) Prohibiting movement on public roads	X	X	X	X	X	X	X	X
177(1) Prohibiting sale of the plant	X	X	X	X	X	X	X	X
177(2) Prohibiting sale of contaminated goods	X	X	X	X	X	X	X	X
180 Requiring notification of infestations						X		
182(1) Landowners to destroy the plant on their properties								
182(2) Landowners to control the plant on their properties	X	X	X	X	X	X	X	X
185 Recovery of control costs on adjoining road reserves	X	X	X	X	X	X	X	X

Review

This policy is to be reviewed by 2020, or in the event of a change in a regional management plan for Noogoora burr. Success will be measured by the number of new infestations recorded by NRM authorities.

Weed Risk

Invasiveness

Large dense infestations are dependent on periodic wet summers. The seed must be in good contact with water to germinate. Low temperatures are lethal to Noogoora burr.

Noogoora burr is dispersed by burrs attached to stock, and also along watercourses by floodwaters. To establish it requires a year with summer rains to provide adequate water to break seed dormancy.

Impacts

The major concern with Noogoora burr is as a contaminant of wool. The burrs contribute to hardheads, which must be cleaned from wool in the scouring as otherwise machinery can be damaged. The cost of the additional cleaning is normally small, but heavily contaminated wool would be discounted severely.

Although Noogoora burr seedlings are poisonous, the main toxin (carboxyatratyloside) is found only in the cotyledons. Cases of stock poisoning are very rare in Australia. However, seedlings of a related species of *Xanthium* caused mass poisoning of humans in Bangladesh during the 2007 famine.

The Noogoora burr group are important weeds in corn, cotton, soybean and sunflowers overseas. There is a small potential for them to become a weed of sunflower in the South East of the state, but they are easily controlled with herbicides in other summer crops.

Potential distribution

In South Australia suitable habitats are restricted to wetlands adjacent rivers, some flood irrigation areas, drains, creeks and flood outs, which are inundated during summer.

Feasibility of Containment

Control costs

The Noogoora burrs have not reached their ecological limits. They are easily controlled while in isolated infestations, but difficult to control when established over large areas in rough pastoral areas.

Persistence

In SA most infestations of the Noogoora burr group have been eradicated easily. This is probably due to unsuitable environments or by controlling the few plants surviving after many dry years. Where it is established in the River Murray wetlands the environment is suitable for Noogoora burr growth and persistence, and eradication has not been possible.

There are few areas of SA suitable for Noogoora burrs to persist. In the pastoral lands, these areas are often the most productive, as they are the accumulation areas for runoff.

In the River Murray area Noogoora burrs are a major host for golden dodder, and since 1988 have been controlled along the River as part of the dodder control program. However, they can persist in dryland areas away from waterways.

Current distribution

Two species of the *Xanthium strumarium* complex are known to occur in SA.

The Californian burr (*Xanthium californicum*) is distributed along the River Murray from the Victorian border to Swan Reach, with occasional plants and small patches downstream from Swan Reach. It is also established on the Gawler River.

The true Noogoora burr (*Xanthium occidentale*) is also found with Californian burr adjacent to the River Murray from Lyrup ferry upstream to the Victorian/NSW border. Other areas include

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5500 ha at Kallioota Swamp on Lake Torrens, small isolated infestations along the Coopers Creek system, and in the Mingary-Cockburn area.

Occasional plants are found throughout the state, especially adjacent to dams, waterholes, saleyards, transport depots and stock holding areas.

Two other species are found in other States and are covered by the declaration although still absent from SA.

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	high 118	high 18	contain spread
Grazing - rangeland	low 21	very high 10	monitor
Irrigated pastures	medium 88	very high 1	contain spread alert
Vegetables	negligible 11	very high 1	monitor
Forestry	negligible 0	very high 2	monitor

Considerations

Noogoora burr was the subject of a major containment campaign from 1960 to the turn of the century. The emphasis on the program was firstly to prevent livestock carrying seed from being sold at saleyards in SA; and secondly to eradicate isolated infestations within the state. The largest cost of this program was borne by producers from interstate who could not sell contaminated stock in SA markets. Control in the River Murray has been very limited due to the large area infested, and inaccessibility.

Risk assessment indicates containment in the irrigated pasture and southern perennial grazing land uses, and monitoring in other land uses. In practice, these actions are implemented according to the level of infestation in each region. They are monitored in the South Australian Arid Lands and Alinytjara Wilurara regions. Only limited action is undertaken on Eyre Peninsula. The Northern and Yorke region aims to contain spread. The South East and South Australian Murray Darling Basin regions aim to protect vulnerable sites. The Adelaide and Mount Lofty Ranges region uses site management for any infestations found. Because Noogoora burrs are absent from Kangaroo Island, they are treated as a regional alert to contain their spread.

Synonymy

Xanthium strumarium aggregate

including, but not exclusively, the following names:

Xanthium californicum Greene, Pittonia 4: 62. (1899).

Xanthium canadense Mill., Gard. Dict. (1768)

Xanthium cavanillesii Schouw., Ind. Sem. Hort. Haun. 14. (1849).

Xanthium italicum Moretti, Giorn. Fis. Chim. Storia Nat. Med. Arti Dec. 2, 5: 326. (1822).

Xanthium occidentale Bertol., Lucub. 38. (1822).

Xanthium orientale L., Sp. Pl., ed. 2. 2: 1400 (1763).

Xanthium pungens Wallr., Beitr. Bot. (Wallr.) 1: 231. (1842).

Other common names for these plants include californian burr, cockleburr, clotburr.

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Conservation

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