

**Declared Plant Policy**  
under the Natural Resources Management Act 2004



Government  
of South Australia

horehound (*Marrubium vulgare*)

Horehound is an unpalatable perennial herb that increases by seed produced in tiny burrs. It is widespread across South Australia.

**Management Plan for Horehound**

**Outcomes**

- Perennial pastures and native vegetation in medium to high rainfall areas protected from invasion by horehound.

**Objectives**

- Minimise further spread of horehound into any areas suitable for its establishment where it is not yet present.

**Implementation**

- NRM authorities to ensure horehound is controlled around saleyards used by livestock not already contaminated with horehound.
- NRM authorities to ensure prioritised infestations with a potential to contaminate livestock in areas generally free of horehound are controlled.
- Other actions according to the potential impact of horehound in each region.

**Regional Implementation**

Refer to regional management plans for further details.

NRM Region	Actions
Adelaide and Mount Lofty Ranges	Limited action
Alinytjara Wilurara	Manage weed Destroy/prevent new infestations
Eyre Peninsula	Monitor
Kangaroo Island	Manage sites Control new infestations
Northern and Yorke	Manage weed
South Australian Arid Lands	Limited action
South Australian Murray Darling Basin	Manage sites Enforce control of key infestations
South East	Protect sites Buffer zones, control isolated infestations

## Declaration

To implement this policy, horehound is 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 in the Alinytjara Wilurara, Eyre Peninsula, Kangaroo Island, Northern & Yorke, South Australian Murray Darling Basin and South-East NRM regions may require land owners to control horehound plants growing on their land. NRM authorities in these regions are required to control plants on road reserves and may recover costs from the adjoining landowners.

Horehound is declared in category 3 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 regional NRM Board 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 horehound 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								
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								
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
185 Recovery of control costs on adjoining road reserves		X	X	X	X		X	X

## Review

This policy is to be reviewed by 2020, or in the event of a change in one or more regional management plans for horehound.

## Weed Risk

### Invasiveness

In Australia, horehound grows into larger plants with higher seed production than in its native range, producing up to 10,000 seeds annually per square metre.

Its small burrs are well adapted to attach to wool, fur, clothing and similar materials. Sheep, rabbits, kangaroos and emus can easily spread the burrs, which also adhere to vehicles. Water is also an effective dispersing agent, as may be seen along water supply channels in many areas. Horses are known to eat and pass the seeds in a viable condition in faeces.

## horehound policy

Horehound is an opportunistic germinator, with most seeds germinating in response to autumn rainfall, but some delayed germination occurs throughout winter and spring whenever sufficient water is available.

Horehound will grow on very poor soils and is often a pioneer species colonising eroded areas. Infestations may begin on road verges, channel banks, sheep camps and rabbit warrens, from which they encroach into pastures, disturbed native vegetation and occasionally crops.

### Impacts

Horehound is unpalatable to stock and is regarded as fodder only in the pastoral zone. It forms dense populations under high grazing pressure in marginal pastures. The burrs contaminate wool, reducing the value of fleeces, and are a nuisance as they catch in clothing and socks. The meat of animals that are forced to eat horehound is tainted by its strong flavour.

### Potential distribution

Horehound is adapted to a Mediterranean climate similar to conditions across the southern half of SA where annual rainfall exceeds 200 mm. It grows on neutral to alkaline soils, is resistant to levels of frost found in SA, and can survive summer droughts.

## **Feasibility of Containment**

### Control costs

Horehound is controlled by relatively cheap and widely used herbicides, but in the pastures where it dominates the application costs may be high compared to the benefits of control. Two biological control agents, the plume moth *Pterophorus spilodactylus* and the clearwing moth *Chamaesphecia mysiniiformis*, are established in South Australia.

### Persistence

Horehound infestations form a bank of 5,000-15,000 viable seeds per square metre, with individual seeds surviving in the soil for 7-10 years. Although the plants are short-lived perennials that die off during dry years in areas with less than 350 mm annual rainfall, they regenerate densely from seed when wet conditions return. Seedling regeneration also occurs after herbicide treatment. Fire will kill all mature plants and reduce the seed bank by up to 80%. In unimproved permanent pasture, the seed bank may be reduced by autumn control burning in several successive years and reduction in grazing pressure.

### Current distribution

Horehound has spread to its limits in SA, being widespread in all settled and pastoral areas with at least 200 mm annual rainfall.

## **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:

## horehound policy

Land use	Weed Risk	Feasibility of control	Response at State Level
Grazing - southern	high 147	medium 53	protect sites
Native vegetation	low 21	high 20	monitor
Crop/pasture rotation	low 17	high 24	monitor
Perennial horticulture	negligible 1	very high 15	monitor
Forestry	negligible 0	medium 55	limited action
Grazing - rangeland	low 35	low 73	limited action

### Considerations

Horehound is native to the Mediterranean region, temperate Eurasia, and the Middle East. It was introduced as a medicinal plant by the first settlers and retains an established medicinal use in cough syrup and cough drops, as well as a much wider range of reputed medicinal properties. It was naturalised by 1848 and was carried with livestock to its limits in this State as each region was settled.

The losses directly due to horehound are low or zero in most farming systems, but the costs of enforced control and restrictions in movement and sale of contaminated livestock and fodder may be large. In situations where horehound is abundant and causing significant impacts, extension and research are more likely to increase production and reduce losses due to horehound than are enforced control programs.

Risk assessment indicates protecting sites only in southern permanent grazing areas; in practice this is implemented according to the level of infestation in each region.

In the South Australian Arid Lands region there is limited action, landowners are encouraged to manage horehound with no enforced control. There is also limited action in the Adelaide and Mount Lofty Ranges region where horehound has little impact. Horehound is monitored in the Eyre Peninsula and control is at the discretion of landowners.

In the Kangaroo Island region sites are managed to control newly establishing infestations and manage existing horehound populations. An approach of site management is also used in the South Australian Murray Darling Basin region by enforced control only on key roadsides and properties in close proximity to identified key sites and assets.

The Northern and Yorke region manages the weed to prevent further spread between properties. The Alinytjara Wilurara region also aims to manage horehound by destroying new infestations and preventing further establishment, as the weed is not widespread across the region.

The South East region has only localised horehound populations and aims to protect sites by maintaining buffer zones around severe infestations, and controlling isolated infestations to prevent spread.

## Synonymy

*Marrubium vulgare* L., Sp. Pl. 2: 583 (1753)

### Taxonomic synonyms:

*Marrubium apulum* Ten., Prod. Fl. Nap. 34 (1811)

*Marrubium ballotoides* Boiss. & Balansa, Diagn. Pl. Orient. 2, 4: 53 (1859)

*Marrubium germanicum* Schrank ex Steud., Nomencl. Bot. 1: 510 (1821)

*Marrubium hamatum* Kunth, Nov. Gen. Sp. 2: 310 (1818)

*Marrubium uncinatum* Stokes, Bot. Mat. Med. 3: 353 (1812)

Other common names include common horehound, hoarhound, houndsbane, malrove, marrubio, ou xia zhi cao and white horehound.

<p>Hon Ian Hunter MP Minister for Sustainability, Environment and Conservation</p>
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<p>Date: 28 July 2014</p>
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