

# Declared Plant Policy

## under the Natural Resources Management Act 2004



### boneseed (*Chrysanthemoides monilifera*)

Boneseed is a shrub introduced from South Africa as an ornamental garden plant, and is now established as a significant weed of native bushland in coastal and inland South Australia.

#### Management Plan for Boneseed

##### Outcomes

- Native vegetation protected from the displacement of native understorey species by boneseed.

##### Objectives

- Spread of boneseed to uninfested areas prevented.
- infestations located and eradicated according to NRM board regional management plans.
- Priority infestations of boneseed contained and their impacts reduced.

##### Implementation

- Community awareness of boneseed maintained through extension and publicity
- All infestations on public or private land destroyed under supervision of regional NRM authorities and in accordance to NRM board regional management plans.
- Biological control of boneseed supported by state and regional NRM authorities.
- Prohibition on the sale of boneseed plants enforced throughout the State.

NRM Region	Actions
Adelaide and Mount Lofty Ranges	protect sites
Alinytjara Wilurara	prevent establishment
Eyre Peninsula	destroy infestations
Kangaroo Island	destroy infestations – regional alert
Northern and Yorke	destroy infestations
South Australian Arid Lands	eradicate
South Australian Murray Darling Basin	contain
South East	contain

## Declaration

To implement this policy, boneseed 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, its entry to South Australia, or the sale by itself or as a contaminant are prohibited. Land owners are required to control any boneseed plants growing on their land. NRM authorities are required to control plants on road reserves, and may recover costs from the adjoining land owners.

Boneseed 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.

The following sections of the Act apply to boneseed 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								
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 one or more regional management plans for boneseed or in its status as a Weed of National Significance. Success will be measured by the number of new infestations recorded.

## Weed Risk

### Invasiveness

Boneseed is fast growing, has high seed production and efficient dispersal methods. The seed is produced in berries and may be dispersed by birds, wallabies and foxes up to a few kilometres.

Seedlings germinate in autumn and quickly establish before the next dry season. Boneseed is able to invade native woodland and sclerophyll forest vegetation with no visible disturbance.

### Impacts

Boneseed establishes under the canopy of native vegetation where it reaches high densities in the shrub stratum under 2 m tall. It displaces native species due to its dense growth.

## boneseed policy

Boneseed invades undisturbed native vegetation, and is a common weed in some conservation parks. It reduces the integrity of native vegetation and excludes much of the native understorey vegetation.

### Potential distribution

Boneseed is adapted to a winter rainfall temperate climate, and grows on many soil types although it does not tolerate waterlogging. There are extensive areas with suitable habitat still free of boneseed on Kangaroo Island, through the Mid North to the southern Flinders, the South-East and on Eyre Peninsula

## **Feasibility of Containment**

### Control costs

Control in native vegetation is implemented by herbicides and hand weeding. Management of infestations can be most effectively achieved by local eradication; however, this is only feasible for small localised populations of boneseed.

Boneseed has been targeted for biological control but the control agents already released, including the tip moth *Comostolopsis* and the seed fly *Mesoclanis*, have failed to establish. The leaf buckler mite *Aceria* and the rust *Endophyllum osteospermi* appear more promising agents.

### Persistence

Boneseed persists after control operations or fires from a large seed bank of dormant seed in the soil. Control programs have reduced the seed source of established plants in many areas, and where seedlings are continually removed some reduction in spread rate is likely to occur. A major problem in co-ordinated control has been a lack of recognition of the plant in the early stages of invasion.

### Current distribution

The distribution of boneseed is disjunct due to short range dispersal from plantings. Boneseed is widespread in the Mt Lofty Ranges, with scattered infestations throughout the, Eyre Peninsula, Yorke Peninsula, SA Murray-Darling Basin and South-East regions. It is absent from Kangaroo Island.

## **State Level Risk Assessment**

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

<b>Land use</b>	<b>Weed Risk</b>	<b>Feasibility of control</b>	<b>Response at State Level</b>
Forestry	negligible 0	medium 34	limited action
Native vegetation	high 139	high 28	contain spread

## Considerations

Boneseed is a former garden plant, no longer in commercial trade but still present in some in gardens. It was introduced to the Adelaide Botanic Garden from South Africa as an ornamental in 1858, and was first recorded growing wild in 1903. By the 1970s it was recognised as an invader of bushland and was declared under the *Pest Plants Act, 1975*.

Risk assessment indicates containment as the management action to protect native vegetation; in practice this is implemented according to the level of infestation in each region. The South Australian Arid Lands region has a single small infestation that can be eradicated, and infestations in the Eyre Peninsula and Northern & Yorke regions are small enough to be targeted for destruction as recognised in the Ten-year Boneseed Management Plan signed by these Boards in 2008. As boneseed is absent from the Alinytjara Wilurara and Kangaroo Island regions, these regions aim to prevent its establishment; as Kangaroo Island has suitable habitat for boneseed, in this regional it is a regional alert species with any infestations to be destroyed. In the other regions, infestations are contained by management of established sites, and may be targeted for control or destruction at high priority sites and to eliminate outlying infestations. The SA Murray Darling Basin and South East NRM Boards aim to contain spread through destruction of outliers and the Murray-Coorong Boneseed Containment Zone.

Boneseed is recognised as a Weed of National Significance and is the subject of a national control strategy (ARMCANZ, 2001). In line with this strategy, sale of boneseed is prohibited in South Australia as in other jurisdictions.

## Synonymy

*Chrysanthemoides monilifera* (L.) Norl., Studies in the Calenduleae 1: 374. (1943).

Basionym:

*Osteospermum moniliferum* L., Sp. Pl. 2: 923 (1753).

Taxonomic synonym:

*Osteospermum pisiferum* L., Syst. Nat., ed. 10. 2: 1234 (1759).

Only the subspecies *monilifera* is found in SA. The subspecies *rotundata* (DC.)Norl., bitou bush, is a weed in the eastern States mainly on coastal dune systems.

## References

Agriculture and Resource Management Council of Australia & New Zealand, Australia & New Zealand Environment and Conservation Council and Forestry Ministers (2000) *Weeds of National Significance: Bitou Bush and Boneseed Strategic Plan*. (National Weeds Strategy Executive Committee: Launceston).

Brougham, K.J., Cherry, H. & Downey, P.O. (2006) *Boneseed Management Manual*. (Department of Environment and Conservation: Sydney).

Hon Ian Hunter MP  
Minister for Sustainability, Environment and  
Conservation

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