

# Declared Plant Policy

## under the Natural Resources Management Act 2004



### dodders (*Cuscuta* spp.)

The 145 species of *Cuscuta* or dodders are annual parasitic weeds that grow attached to a wide range of host plants. They have thread-like leafless stems that twine around the hosts, a wide range of broadleaf herbs and shrubs, attaching by haustoria through which the dodder draws all its water and organic nutrients. Dodders are a threat to production in irrigated crops and forage, and to export markets for lucerne seed and other small seeds from South Australia.

At least three alien species of dodder are already established in South Australia, and are the subject of separate policies for Chilean dodder, golden dodder and red dodder. A few species are native to Australia and are not pests of agriculture.

### Management Plan for Dodders

#### Outcomes

- No dodder contamination of vegetable or forage seed produced in South Australia.
- Susceptible crops protected from dodder parasitism

#### Objectives

- No establishment of additional alien dodder species in South Australia.

#### Implementation

- Prohibitions on sale and movement of contaminated produce enforced by NRM authorities and the Chief Officer.
- Any infestations to be eradicated.

#### Regional Implementation

Refer to regional management plans for further details.

NRM Region	Actions
Adelaide and Mount Lofty Ranges	prevent entry; destroy if detected
Alinytjara Wilurara	prevent entry; destroy if detected
Eyre Peninsula	prevent entry; destroy if detected
Kangaroo Island	prevent entry; destroy if detected
Northern and Yorke	prevent entry; destroy if detected
South Australian Arid Lands	prevent entry; destroy if detected
South Australian Murray Darling Basin	prevent entry; destroy if detected
South East	prevent entry; destroy if detected

## Declaration

To implement this policy, dodders 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, its entry to South Australia, or the sale by itself or as a contaminant are prohibited. Notification of infestations is necessary to ensure these are destroyed. Land owners are required to destroy any dodder plants growing on their land. NRM authorities are required to destroy plants on road reserves, and may recover costs from the adjoining land owners.

Dodders are declared in category 1 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 dodders 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	X	X	X	X	X	X	X
182(1) Landowners to destroy the plant on their properties	X	X	X	X	X	X	X	X
182(2) Landowners to control the plant on their properties								
185 Recovery of control costs on adjoining road reserves	X	X	X	X	X	X	X	X

## Review

Success of the program will be measured by its effectiveness in preventing the establishment of any additional dodder species in SA. This policy is to be reviewed by 2020 or in the event of an incursion of a new dodder species into the State.

## Weed Risk

### Invasiveness

Dodders have high seed production but their seed is not well adapted for long distance dispersal. Some can be transported by birds or by floodwaters, but the dispersal has been chiefly by human activity in transporting contaminated hay, livestock, seed for sowing and vehicles.

As dodders depend on the habitat provided by host plants, they have a high ability to establish within this specialised habitat. Some *Cuscuta* species have a host range confined to a few closely related species but other have a wide range and may parasitise most broadleaf plants. Grasses and woody plants are not potential hosts.

### Impacts

Dodders pose a threat to some vegetable crops such as onions and tomatoes, lucerne grown for hay or seed production, and several other small seed crops. The parasite directly reduces the productivity of infested crops, growing vigorously at the expense of its hosts during the summer growing season.

Seed of many dodders is similar in size to lucerne and some clovers, and therefore requires special techniques to grade out. The reduced yield and increased cost of cleaning may make legume seed production uneconomic. The presence of dodder seed reduces the saleability of seed crops and access to export markets. For example, the USA has a nil tolerance on any dodder seed in imports to exclude any additional dodder species.

### Potential distribution

As all dodders are holoparasites, their habitat is created by the host plants and their distribution is therefore determined by the availability of suitable hosts.

### **Feasibility of Containment**

#### Control costs

Management of dodder on productive land is expensive because it reduces production and must be continued for years to exhaust the seed bank. It may mean taking land out of cultivation and using it for grass pasture. On the other hand, dodder may be controlled in forage crops by effective control of dicot weeds that provide intermediate hosts from which the dodder seedlings climb on to the crop.

Locating and eradicating scattered dodder plants is labour-intensive because they are only distinctive as threads on top of the hosts for a few months or less, but can form seed in a few weeks.

#### Persistence

Hard seed can persist under former infestations for at least 50 years in most dodder species. However, these seed banks in the soil are not mobile and dispersal can be prevented if infestation sites are kept free of host plants and left undisturbed.

#### Current distribution

Not present in South Australia.

### **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:

<b>Land use</b>	<b>Weed Risk</b>	<b>Feasibility of control</b>	<b>Response at State Level</b>
Irrigated pastures	high 135	very high 3	destroy infestations alert
Vegetables	medium 84	very high 2	contain spread alert

## Considerations

Risk assessment indicates destruction of infestations and containment as management actions; these actions are best implemented by preventing entry of dodder species to South Australia.

*Cuscuta epilinum* Weihe is native to Europe and Asia, and was once collected near Melbourne.

*Cuscuta epithymum* (L.) L. is native to Europe, where it grows on many herbaceous plants such as clovers and shrubs such as gorse and lavender. It is scattered in Victoria, Western Australia New South Wales and Queensland and was once found as a nursery weed in SA although it is not now known to be present in this State.

*Cuscuta indecora* Choisy, large-seeded dodder, is native to North and South America, where it is a locally important weed, and in particular a major pest of irrigated lucerne in California. It has similar characteristics to the major parasitic weed golden dodder (*Cuscuta campestris*). It is therefore necessary to prevent the establishment of this additional dodder species in the South Australia. In the 1980s golden dodder along the Murray and Ovens rivers in Victoria was misidentified as *C. indecora*, emphasising the similarity of the two species. Due to its high weed risk, apparent absence from the country and very high feasibility of control, large-seeded dodder is regarded as a State Alert Weed and a high priority surveillance target to increase the likelihood of early detection.

## Synonymy

*Cuscuta* L., all species except:

- the native *Cuscuta australis* R.Br., *Cuscuta chinensis* Lam., *Cuscuta tasmanica* Engelm. and *Cuscuta victoriana* Yuncker.
- *Cuscuta campestris* Yuncker, *Cuscuta planiflora* Ten. and *Cuscuta suaveolens* Ser., which are the subjects of separate policies as they are established pests in SA.

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Minister for Sustainability, Environment and  
Conservation

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