Hoary cress is a perennial herb with an extensive, deep horizontal root system. Infestations are difficult to control. Although already present in most agricultural regions, it has a major potential to spread further and cause losses in the better cereal growing areas.

Management Plan for hoary cress

Outcomes

- Minimise the impacts of hoary cress on cropping, pasture, and irrigated horticultural enterprises in SA.

Objectives

- Minimise new infestations of hoary cress in previously uninfested areas.
- Contain established infestations in accordance with regional management plans.
- Prevent the reinfestation of areas cleared of hoary cress.

Implementation

- NRM authorities to develop and implement a plan to ensure infestations on roadsides, public or private land are contained in accordance with regional management plans.
- NRM authorities to prevent the movement of contaminated goods or produce from infested properties.

Regional Implementation

Refer to regional management plans for further details.

<table>
<thead>
<tr>
<th>NRM Region</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelaide and Mount Lofty Ranges</td>
<td>Protect sites</td>
</tr>
<tr>
<td>Alinytjara Wilurara</td>
<td>Limited action – not present</td>
</tr>
<tr>
<td>Eyre Peninsula</td>
<td>Protect sites</td>
</tr>
<tr>
<td>Kangaroo Island</td>
<td>Protect sites – not present</td>
</tr>
<tr>
<td>Northern and Yorke</td>
<td>Monitor</td>
</tr>
<tr>
<td>South Australian Arid Lands</td>
<td>Limited action – not present</td>
</tr>
<tr>
<td>South Australian Murray Darling Basin</td>
<td>Contain spread</td>
</tr>
<tr>
<td>South East</td>
<td>Contain spread</td>
</tr>
</tbody>
</table>
Declaration

To implement this policy, hoary cress is declared under the *Natural Resources Management Act, 2004* throughout the whole of the State of South Australia so that movement of contaminated seed or other produce can be prevented. 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 Adelaide and Mount Lofty Ranges, Alinytjara Wilurara, Eyre Peninsula, Kangaroo Island, Northern and Yorke, SA Murray-Darling Basin and South East regions may require landowners to control hoary cress 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.

Hoary cress 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 hoary cress throughout each of the NRM regions noted below:

<table>
<thead>
<tr>
<th>Sections of Act</th>
<th>Region</th>
<th>AMLR</th>
<th>AW</th>
<th>EP</th>
<th>KI</th>
<th>NY</th>
<th>SAAL</th>
<th>SAMDB</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>175(1) Prohibiting entry to area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>175(2) Prohibiting movement on public roads</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>177(1) Prohibiting sale of the plant</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>177(2) Prohibiting sale of goods or produce carrying the plant</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>180 Requiring notification of infestations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>182(1) Landowners to destroy the plant on their properties</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>182(2) Landowners to control the plant on their properties</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>185 Recovery of control costs on adjoining road reserves</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Review

This policy is to be reviewed by 2020, or in the event of a change in any regional management plan for hoary cress.

Weed Risk

Invasiveness

It is relatively slow-spreading if left unaided, and produces few viable seeds. Hoary cress will readily form new populations from broken pieces of lateral roots and shoots.

Early stage infestations of hoary cress exhibit a rapid rate of expansion. New infestations are often caused by contaminated goods or produce (i.e. grains/seeds, soil movement). They tend to be invasive in nature, although established infestations appear to exhibit slower rates
of expansion. Hoary cress is well adapted to fallows, and is most abundant in paddocks that are left in summer fallow.

Seed is spread in fodder, including pasture and cereal hay, and in screenings from cereal crops.

Impacts

Cereal crops may experience significant yield losses where dense infestations of hoary cress are present. Pasture quality is degraded, and fodder and small seed products (egg lucerne and clover) may be contaminated by hoary cress seed.

Although juvenile hoary cress may be palatable, it has sometimes been suspected of causing stock poisoning in SA.

Hoary cress affects crop-pasture production and results in yield and quality losses, and is a contaminant of fodder and soil products. It is difficult to clean out of lucerne and clover seed, and ripens at approximately just prior to first hay cuts. Juvenile hoary cress may be palatable to stock, although it is of negligible nutritional value.

Once established, hoary cress forms dense pure stands and is very difficult to eradicate. Paddocks that are frequently fallowed may be more susceptible to infestations of hoary cress.

Potential distribution

Many parts of SA are free of hoary cress infestations and are susceptible. Cereal cropping areas are open to further infestation although the impact of the weed may not be high in these systems.

Feasibility of Containment

Control costs

Cost effective herbicide regimes are available for the short term control of hoary cress. Long term eradication is often cost prohibitive, and technically difficult. A combination of cultural, herbicidal and mechanical measures may be required to reduce the impacts of hoary cress on production, which may become expensive.

Management of hoary cress is most commonly achieved through a combination of herbicides and introduction or encouragement of competitive species.

Persistence

Studies have shown that the viability of hoary cress seeds in the field is greatly reduced after three years.

Hoary cress can readily re-establish after eradication measures via regeneration from its root system. Follow-up control is required for at least 2-3 years to ensure regeneration does not occur.

Where irrigation and cultivation is absent and competition is present, hoary cress is less persistent.
hoary cress policy

Current distribution

Hoary cress has been recorded in most NRM regions in SA, with the exception of AW. Most are small localised infestations, with the NY region noting spreading/scattered infestations in some locations.

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:

<table>
<thead>
<tr>
<th>Land use</th>
<th>Weed Risk</th>
<th>Feasibility of control</th>
<th>Response at State Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop-pasture rotation</td>
<td>low 22</td>
<td>very high 14</td>
<td>Monitor</td>
</tr>
<tr>
<td>Vegetables</td>
<td>medium 39</td>
<td>very high 11</td>
<td>contain spread</td>
</tr>
</tbody>
</table>

Considerations

Hoary cress was first detected in SA in 1904, and by the 1930s was considered a major threat to agriculture. In the period 1950 to 1975 it almost disappeared as a problem in SA due to the use of phenoxy-acid herbicides and less frequent summer fallowing. However, since 1970 it has become more abundant at some sites due to the switch to pre-emergent herbicides that control the major annual weeds but not hoary cress, and the decline in pasture phases in rotation.

Risk assessment indicates management actions at State level of monitoring in crop-pasture rotations, while containing spread on land used for vegetable growing. Regional management plans vary according to regional land uses and the presence of the weed.

The South Australian Murray Darling Basin and South East aim to contain spread. Eyre Peninsula and the Adelaide and Mount Lofty Ranges regions protect sites, as does Kangaroo Island where hoary cress is now believed to be extinct. The weed is monitored in the Northern and Yorke regions. Only limited action is required in the Alinytjara Wilurara and South Australian Arid Lands regions, where hoary cress does not occur.
Synonym

*Lepidium draba* L., Sp. Pl. 2: 645 (1753)

Nomenclatural synonyms:
- *Cardaria draba* (L.) Desv., J. Bot. Agric. 3: 163 (1815)
- *Cochlearia draba* (L.) L., Syst. Nat. ed. 10 2: 1129 (1759)
- *Nasturtium draba* (L.) Crantz, Cl. Crucif. Emend. 81 (1769)

Taxonomic synonyms:

Other common names include heart-pod hoary cress, hoary pepperwort, Thanet cress, whitetop, whiteweed and whitlow pepperwort.