Declared Plant Policy
Feral olives (Olea europaea)

Feral olives are evergreen trees that originate from the Mediterranean region. Olives were first introduced to South Australia in 1836, and have since become naturalised especially in woodland habitats. Feral olive trees generally produce smaller fruits than trees in cultivated orchards.

Management Plan for feral olives

Outcomes

- To protect native vegetation from invasion by feral olives
- To protect the olive industry from pests and pathogens harboured by feral olive trees.

Objectives

- Contain the spread of feral olives.
- Existing feral olives are removed from sites of high conservation value.
- Control high priority infestations according to regional management plans.

Implementation

- Biosecurity SA and NRM authorities to increase awareness of the environmental damage caused by feral or unharvested olives.
- High priority infestations that threaten native vegetation assets to be controlled as detailed in regional management plans.

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>Manage weed (native vegetation)</td>
</tr>
<tr>
<td>Alinytjara Wilurara</td>
<td>Limited action</td>
</tr>
<tr>
<td>Eyre Peninsula</td>
<td>Protect sites</td>
</tr>
<tr>
<td>Kangaroo Island</td>
<td>Protect sites</td>
</tr>
<tr>
<td>Northern and Yorke</td>
<td>Manage sites</td>
</tr>
<tr>
<td>South Australian Arid Lands</td>
<td>Limited action</td>
</tr>
<tr>
<td>South Australian Murray Darling Basin</td>
<td>Manage weed (native vegetation)</td>
</tr>
<tr>
<td>South East</td>
<td>Protect sites</td>
</tr>
</tbody>
</table>

Declaration

To implement this policy, feral olives are declared under the Natural Resources Management Act, 2004 throughout the whole of the State of South Australia.
Land owners have a responsibility to control olives (other than trees planted, maintained and harvested for domestic or commercial use) on their land.

Feral olives are declared in category 2 under the Act for the purpose of setting maximum penalties and for other purposes.

The following sections of the Act apply to feral olives throughout each of the NRM regions noted below:

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

Review

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

Weed Risk

Invasiveness

Olives are predominantly outbreeding, and those naturalised in SA appear to be generally self-compatible. Seeds are spread from feral and planted trees by native and pest animals, which swallow the whole fruit and defaecate the seed hours later. Birds that regurgitate the pit instead of swallowing it will generally disperse it no more than 100 metres, but starlings may regurgitate or defaecate some seeds at their roosts up to 40 km away.

Feral olive infestations have been shown genetically to be the offspring of nearby cultivated olive trees.

Impacts

Invasion by feral olives takes place on a slower time scale than most other weeds. Their seeds are long-lived in the soil and slow to germinate, due to both the resistant endocarp and an endogenous dormancy of the embryo even when the endocarp is removed. This endogenous dormancy varies widely between cultivars. Self-sown seedlings establish on roadsides, in bush and abandoned pasture and may be slow-growing at first, with a juvenile period of 5-10 years before they begin to bear fruit. But established olive trees form a dense and permanent canopy that prevents other vegetation from re-establishing. Individual trees live for many centuries and retain the ability to regenerate from stumps after felling or burning, as well as forming a large seedbank in the soil.
Feral olive infestations reduce the abundance and diversity of native plant species, altering the canopy structure of woodlands and preventing native regeneration. Native canopy cover may be reduced by 80% and native species diversity by 50%.

Feral olives are highly flammable due to their oil content and therefore increase fire risk compared to grazing or other horticulture.

Potential distribution

Olives can survive with an annual rainfall as low as 300 mm. However, they are vulnerable to root rot, and will not persist in waterlogged sites.

The majority of feral olive infestations occur in former areas of woodland vegetation. These areas were the first to be cleared and settled, and also provide an optimum environment for olives with 400-600 mm annual rainfall on generally well-drained soils. They are commonest on fertile and slightly acidic soils but will also tolerate alkaline and mildly saline soils. However, olives are not completely absent from uncleared forest or uncleared woodland. Areas with an annual rainfall over 700 mm are less susceptible to invasion, partly because they typically have higher watertables and may suffer transient waterlogging within the root zone.

Feasibility of Containment

Control costs

Mature plants can be controlled by the drill and fill, cut stump or basal barking methods using a non-selective herbicide. Seedlings are best hand pulled. Feral olive control for dense infestations costs at least $15,000 per hectare, with an annual cost of $500 per hectare each year for maintenance.

Persistence

Feral olives are very long lived and accumulate a large seedbank. It’s estimated that individual olive trees in the Mediterranean region are more than 1500 years old.

Feral olives form a stable climax vegetation on some sites and will continue to dominate these sites unless land managers intervene, either by planting and maintaining native vegetation or by adopting some other sustainable land use.

Current distribution

Feral olives have been recorded in the Adelaide Hills, Fleurieu Peninsula, Yorke Peninsula, The Riverland, on Kangaroo Island, in the upper and lower South East, the mid and upper North and in the Kellidie Conservation Park and Mount Dutton on the Eyre Peninsula and West Coast. In the Adelaide Hills western slopes of the Mount Lofty Ranges have extensive infestations.
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>Native vegetation</td>
<td>medium</td>
<td>negligible</td>
<td>manage sites</td>
</tr>
<tr>
<td></td>
<td>98</td>
<td>101</td>
<td></td>
</tr>
</tbody>
</table>

Considerations

Risk assessment indicates a management action at State level of manage sites in native vegetation. However, the local weed risk of feral olives in the Adelaide and Mount Lofty Ranges is high in native vegetation, therefore that region has a management action of ‘manage weed’. In the South East, on Eyre Peninsula and on Kangaroo Island the weed risk is also high in native vegetation. Therefore these regions, where feral olives are more localised, have a management action of ‘protect sites’.

The domestic olive is a group of cultivars and semi-wild forms of *Olea europaea* subsp. *europaea*, a long-lived evergreen tree. Olive cultivation began around 6,000 years ago. Compared to other tree crops, olives have been little modified by selective breeding. Up to 2600 named cultivars are recorded but these are either heterozygous clones selected from spontaneous, uncontrolled crosses or at most a few generations removed from ‘wild’ land races. Scientific breeding programs only began in the late 20th century.

Olives were first introduced to South Australia in 1836. Five selected cultivars from Marseilles were imported by the South Australian Company in 1844, and accessions later arrived from Portugal, Spain, Provence and northern Italy. Feral olive trees generally produce smaller fruits than trees in cultivated orchards, both because the trees are unpruned and because they are no longer under selection for maximum fruit size. The pits of the smaller fruit are more easily dispersed by birds, facilitating their further spread.

The African olive, *Olea europaea* subsp. *cuspidata*, is an environmental weed in New South Wales but is not naturalised in South Australia. This declaration of the whole species covers both subspecies.

Synonymy

*Olea europaea* L., Sp. Pl. 8 (1753).

Taxonomic synonyms:

- *Olea cuspidata* Wall. & G.Don, Gen. Hist. 4: 49 (1837).

There are many named cultivars of olive, including ‘Barnea’, ‘Kalamata’ and ‘Manzanilla’.
References


This draft policy proposes no change to the previous declaration, gazetted in 2015:

Feral olives are declared under the *Natural Resources Management Act, 2004* with the following sections applying throughout the State:

182(2) Requiring landowners to destroy the plant on their properties.
185 Allowing recovery of costs of control on road reserves.