

Eyre Peninsula Landscape Board

PEST SPECIES REGIONAL MANAGEMENT PLAN

Olive

Olea europaea

This plan has a five year life period and will be reviewed in 2027.



INTRODUCTION

Synonym(s)

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

Taxonomic synonyms:

- *Olea africana* Mill., Gard. Dict. ed. 8 n. 4 (1768).
- *Olea chrysophylla* Lam., Tabl. Encycl. 1: 29 (1791).
- *Olea cuspidata* Wall. & G.Don, Gen. Hist. 4: 49 (1837)

There are many named cultivars of olive, including 'Barnea', 'Kalamata' and 'Manzanilla'.

Biology

European Olive (*Olea europaea*) is an erect, bushy tree growing up to 12 m tall. It has a deep branched root system. A large lignotuber stores energy and generates new stems. The trunk branches from the base and has rough grey to black bark.

Leaves are narrow, glossy dark green on top and silvery underneath. Small cream flowers with four petals appear in large clusters in late spring.

Mature trees produce thousands of fruit each year, each bearing one seed. The fruit is initially green and becomes purple-black as it ripens over summer. Seeds germinate mainly in autumn and seedlings grow during winter. New plants are several years old before flowering.

New shoots and suckers can develop from the woody roots after the trunk is injured or removed.

Origin

Olives are evergreen trees that originate from the Mediterranean region. They were first introduced to South Australia in 1836 and have since become naturalised especially in woodland habitats.

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. In South Australia, the majority of 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-

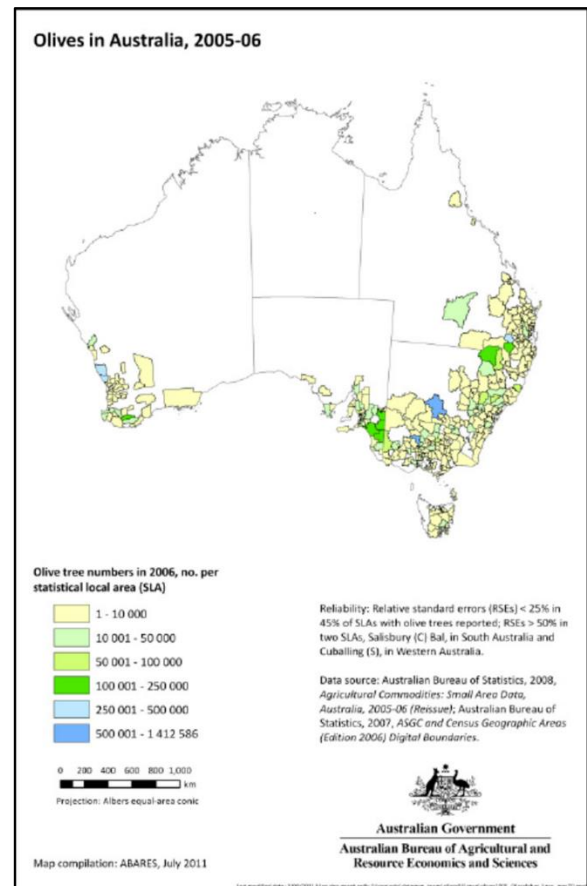


Figure1: Olive growing region and intensity in Australia.

drained soils. They are common 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.

For the purpose of control a distinction is made between olive trees that were deliberately planted and are used and maintained and wildling olives, defined as 1) feral olives that have grown from self-sown seed; or 2) olive trees that are no longer used and/or maintained such that they pose a high risk of giving rise to feral olives.

Wildling olives have been recorded in the Adelaide Hills, Fleurieu Peninsula, Yorke Peninsula, the Riverland, on Kangaroo Island, in the upper and lower Limestone Coast, 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.

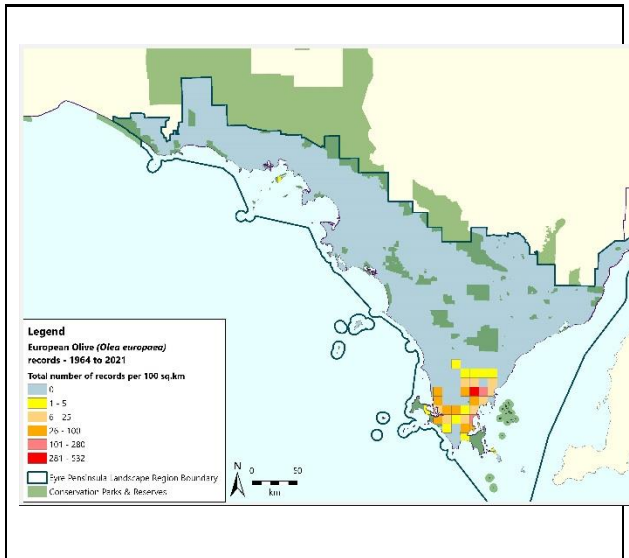


Figure 3: Distribution of *Olea europaea* on Eyre Peninsula using BDBSA data, ALA data and EPLB control data.

RISK ASSESSMENT

Pest risk

Olives were originally outbreeding, but cultivated forms and those naturalised in South Australia, appear to have some degree of self-compatibility. Feral olive infestations have been shown genetically to be the offspring of nearby cultivated olive trees.

Seeds are spread from feral and planted trees by native and pest animals (such as foxes), which swallow the whole fruit and defecate 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 defecate some seeds at their roosts up to 40 km away. Wildling olive fruits are generally smaller than those produced by trees in cultivated

orchards, and may consequently be eaten by a wider range of birds.

Invasion by 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.

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%.

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

Feasibility of control

Prior to starting, development of a long-term weed management plan should be undertaken. This consists of site investigation, development and implementation of an action plan and ongoing monitoring and evaluation. This is essential to ensure that after treatment olives are replaced with desirable plant cover rather than new olive seedlings, regrowth or other weeds. Like most weeds, olive seedlings are susceptible to competition from other plants.

For the long-term control of this weed, once removed, it is important that it is replaced with other suitable vegetation. The vegetation used will depend on the site. It can include the establishment of native vegetation or perennial pastures.

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

Invasive 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.

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. Olive control for dense infestations costs at least \$15,000 per hectare, with an annual cost of \$500 per hectare each year for maintenance.

Status

Within the EP Landscape Board region, a risk management assessment [5] (Table 1) shows wildling olives merit a manage sites management action in native vegetation.

Table 1: Regional Assessment Table

Land Use	Pest Risk	Feasibility of Containment	Management Action
Native vegetation	medium	medium	Manage sites

REGIONAL RESPONSE

Special considerations / Board position

Where wildling olives provide critical habitat for native fauna, a staged conversion / transition from olive habitat to habitat consisting of native flora, able to provide equivalent habitat value for the fauna species, needs to be implemented.

Outcomes

To reduce the impact of wildling olive on key environmental, social and productive sites/assets and prevent spread into unaffected areas.

Objectives

To:

1. Control wildling olive in key sites/assets and control sources of reinfestation within 500m of key sites/assets.
2. Raise community awareness to promote control across the region.

Area/s to be protected

Key sites/assets to be protected are:

- EPBC listed vegetation communities
- Areas containing EPBC listed plant and animal species
- Coastal areas identified in the EP Coastal Action Plan (CAP) with the highest priority conservation values (areas visually displayed in Figure 5.1 of CAP)
- Islands
- Other areas where wildling olive control has already occurred and needs further follow-up control
- Uninfested areas
- Agricultural areas where community interest is large enough to warrant a coordinated approach

Actions

Land managers to:

1. survey and control infestations near key sites/assets annually and supply survey and control information on request to Landscape Board staff;
2. prevent the spread of wildling olive by searching annually for outlier infestations near known infestations; and
3. monitor areas of previous control works and undertake follow-up control works as required.

Landscape Board staff to:

4. facilitate, encourage, compel (develop action plans) control on private land to protect key sites/assets;
5. facilitate, encourage, compel or undertake control on public land, including roadsides, to protect key sites/assets (costs may be recovered from landmanagers);
6. coordinate district control actions across the region to assist community led broadscale control;
7. develop localised annual action plans to achieve the objectives and actions of this management plan;
8. undertake systematic data collection (control and survey numbers, location and date information) and storage in a central spatial database; and
9. provide education on control methods and encourage wider control.

Evaluation

Evaluation of success will be based on:

- annual analysis in November of monitoring and control data to evaluate the success of pest plan actions (including the update of spatial layers);
- identify any gaps in delivery and action as soon as possible; and
- review of this pest management plan every five years.

Declarations

In South Australia wildling olives are declared in category 2 – Provisions: 192 (2), 192 (3) and 194 for the whole state under the *Landscape South Australia Act 2019* (Table 2). Landscape boards may require land owners to control wildling olives growing on their land. Landscape boards are required to control plants on road reserves, and may recover costs from the adjoining land owners.

Table 2: Relevant sections of the *Landscape South Australia Act 2019*. Provisions for the whole of state for wildling olives.

Section	How the section applies
Provision for whole of State	
192(2)	Land owners to control the plant on their properties
192(3)	Land owners to take prescribed control measures
194	Recovery of control costs on adjoining road reserves

2. Besnard, G. H., Henry, P., Wille, L., Cooke, D., Chapuis, E. (2007) On the origin of the invasive olives (*Olea europaea* L., Oleaceae). *Heredity* 99: 608-619.
3. Crossman, N.D. (2002) The impact of the European olive (*Olea europaea* L. subsp. *europaea*) on grey box (*Eucalyptus microcarpa* Maiden) woodland in South Australia. *Plant Protection Quarterly* 17: 140-146.
4. Mekuria, G.T., Collins, G.G., Sedgley, M. (2002) Genetic diversity within an isolated olive (*Olea europaea* L.) population in relation to feral spread. *Scientia Horticulturae* 94: 91-105.
5. Virtue, J.G., 2008, SA Weed Risk Management Guide February 2008. Adelaide: Department of Water Land and Biodiversity Conservation - South Australia. 22.

More information

Contact your local Eyre Peninsula Landscape Board office

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References

1. Besnard G.H., Cheptou, P-O., Debbaoui M., et al. (2020) Paternity tests support a diallelic self-incompatibility system in a wild olive (*Olea europaea* subsp. *laperrinei*, Oleaceae). *Ecol Evol.* 10: 1876-1888.