Eyre Peninsula Landscape Board

PEST SPECIES REGIONAL MANAGEMENT PLAN

Polygala myrtifolia

Myrtle-leaf milkwort

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

INTRODUCTION

Synonyms

Polygala myrtifolia L., Sp. Pl. 2: 703 (1753), *Polygala amoena* Thunb., Prodr. Fl. Cap. 2: 120 (1800), *Polygala myrtifolia* var. *amoena* (Thunb.) Harv., Fl. Cap. 1: 83 (1860), *Polygala myrtifolia* var. *grandiflora* Hook, Bot. Mag. 64: t.3616 (1837). **[6]**.

The name *Polygala grandiflora* has also been misapplied to *P. myrtifolia* **[6]**.

Other common names include: Polygala, Bellarine pea, parrot bush **[6]**.

Biology

Myrtle-leaf milkwort, *Polygala myrtifolia,* is a woody erect shrub reaching a height of mostly 1-2 m on Eyre Peninsula. Leaves are dense, oval shaped and 1- 4 cm long, growing very close to the stem, and grouped at the ends of branchlets. Flowers are pea-like, pinkish-purple and occurring on the ends of leafy branches. Plants flower at around two years old. Myrtle-leaf milkwort can bloom almost all year round, although the main flowering season is from late winter to spring. Fruits are green at first, with flattened, heart-shaped pods to 1 cm wide. Two small seeds are released from the pod when ripe.

The seed has a hard, dark brown protective shell that is long lived. Several sites on southern Eyre Peninsula have had seedlings controlled annually for over 10 years.

Origin

Myrtle-leaf milkwort, *Polygala myrtifolia* L. is native to South Africa and KwaZulu-Natal where it is widely distributed in coastal and near-coastal mountainous areas of the eastern and western Cape Province **[1]**.

The earliest collection of *P. myrtifolia* in Australia was from Melbourne in 1886, but the plant was available from nursery catalogues in Adelaide from at least 1845 **[2]**. Myrtle-leaf milkwort was reported as naturalised in Victoria in 1887, near Perth in 1911, and South Australia in 1926. It has subsequently become naturalised in native vegetation in coastal areas of New South Wales and Tasmania **[2]**.

In Victoria and South Australia, large infestations occur on calcareous soils with a history of land disturbance.

On Eyre Peninsula the epicentre of the infestation is south of Port Lincoln in the Sleaford Bay area, where it seems the plant has escaped from garden planting that occurred circa early 1900's **[2].**

Carter *et al.* (1990) documented the spread of Myrtle-leaf milkwort.

> *"By 1970, after sheep were removed, it had spread to form a continuous infestation over 100ha, with odd plants and clumps up to 2.4 km away".* (Alcock, unpublished report)

By 1990, Myrtle-leaf milkwort had spread up to 20 km from the areas recorded in 1970, and covering a total area of more than 40,000ha **[2]**. The largest infestations were continuous over 500 ha's, other patches were up to 40 ha and extending as sparsely spaced plants **[2].**

Distribution

Myrtle-leaf milkwort is found in the higher rainfall areas of southern Australia (Figure 2). It is found in coastal regions of South Australia (SA) from southern Eyre Peninsula, east to the Victorian border (Figure 3).

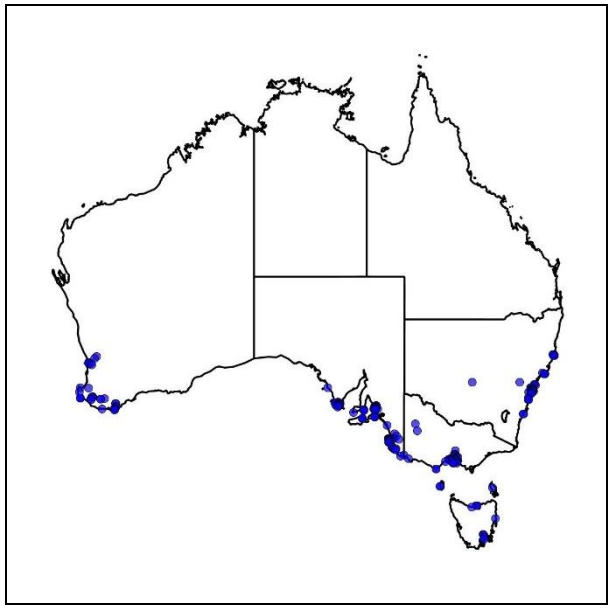


Figure 1: Australian distribution of Myrtle-leaf milkwort, *Polygala myrtifolia*. Source: Australia's Virtual Herbarium (2012) www.chah.gov.au/avh

The species is commonly found in coastal areas on shallow soils over calcrete or deep calcareous sands **[2]**. It is known to establish in dune systems, coastal bluffs, shrub lands and woodlands **[3]**. Furthermore, it also establishes in heathlands and heathy woodlands, mallee, low grassland, grassy woodland, dry sclerophyll forests and riparian vegetation **[7]**. It is also found inland in the Mallee and Wimmera regions of Victoria.

In 2010, a survey was undertaken to map the extent of Myrtle-leaf milkwort across southern Eyre Peninsula. The survey information has been used by agencies and volunteer groups to identify priority sites and to develop strategies for containment and site protection.

In the following years a number of isolated infestations have been recorded inland on southern Eyre Peninsula at Big Swamp, Wanilla and Ungarra.

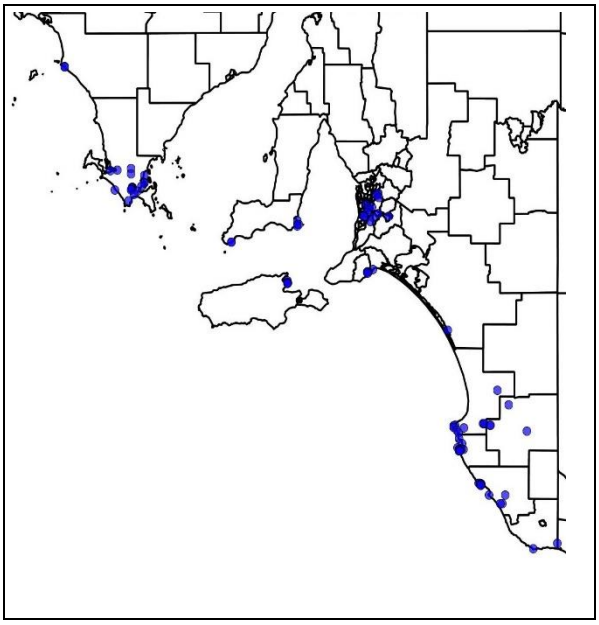


Figure 2: Distribution of Myrtle-leaf milkwort, *Polygala myrtifolia*, in South Australian. Source: Australia's Virtual Herbarium (2012) www.chah.gov.au

RISK ASSESSMENT

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national framework for environmental management (including the recognition of nationally threatened species and ecological communities), thereby directing resources towards the delivery of improved environmental protection. The EPBC Act applies where declared pest species threaten any listed species or ecological community or where its control may have adverse effects on matters of national environmental significance on Commonwealth land **[5]**.

South Australian weed risk assessment process

The Primary Industries and Regions SA (PIRSA) Biosecurity SA division, in cooperation with the then Natural Resources Management (now Landscape) Boards developed the Biosecurity SA Weed Risk Management System **[8]** to rank the importance of pest plants, standardise the prioritising of these plants for control programs and to assess weed species for declaration.

The Biosecurity SA Weed Risk Management System uses a series of questions to determine weed risk and feasibility of control for a species within a specific land use type. The result of the assessment is used to determine and prioritise weed management actions within each land use type.

Weed risk characteristics assessed include; invasiveness (i.e. its rate of spread); economic, environmental and social impacts, and potential distribution (total area) of the weed.

Appropriate management objectives are determined and can be prioritised using a risk matrix which compares weed risk scores against feasibility of control scores. Pest plants that have both high weed risk and are feasible to control have higher priority management objectives e.g. eradication. Conversely, species that are not feasible to control will not rank as a high priority, monitoring or limited management action may be the most appropriate management objective.

The risk matrix categorises each weed species into one of nine risk categories for regional management:

1. ALERT: to prevent species which pose a significant threat arriving and establishing in a management area.
2. ERADICATE: remove from a management area.
3. DESTROY INFESTATIONS: significantly reduce the extent in a management area.
4. CONTAIN SPREAD: prevent the ongoing spread in a management area.
5. PROTECT SITES: prevent spread to key sites/assets of high economic, environmental and/or social value.

6. MANAGE WEED: reduce the overall economic, environmental and/or social impacts through targeted management.
7. MANAGE SITES: maintain the overall economic, environmental and/or social value of key sites/assets through improved general weed management.
8. MONITOR: detect any significant changes in the species' weed risk.
9. LIMITED ACTION: species would only be targeted for coordinated control if its presence makes it likely to spread to land uses where it ranks as a higher priority.

Pest risk

Myrtle-leaf milkwort, *P. myrtifolia,* is tolerant of coastal conditions; poor soil, dry conditions and exposure to salt. It readily establishes where disturbance has occurred as well as in undisturbed native vegetation.

The seed is spread by water, ants, vehicles and machinery and dumped garden refuse. Myrtle-leaf milkwort seed is known to have been spread by turtle doves in Victoria **[4],** it is not known whether birds are vectors on Eyre Peninsula. The hard coated seed can remain viable in the soil for more than 10 years. Germination is stimulated by fire and disturbance.

A prolific seeder, myrtle-leaf milkwort forms a closed, dense understorey canopy, reducing biodiversity within native vegetation but particularly in the understory flora due to competition **[4].**

Native vegetation communities invaded by myrtle-leaf milkwort on southern Eyre Peninsula include:

Drooping sheoak (*Allocasuarina verticillata*) woodland; Red gum (*Eucalyptus camaldulensis* var. *camaldulensis*) woodland; Coastal white mallee (*Eucalyptus diversifolia* ssp. *diversifolia*) mixed mallee woodlands; Coast beard-heath *(Leucopogon parviflorus*) mixed shrubland > 1 m; Swamp honey-myrtle (*Melaleuca brevifolia*), Salt paper-bark (*M. halmaturorum),* Dryland Tea Tree (*M. lanceolata*) shrubland >1 m, and Coast daisy bush (*Olearia axillaris)* shrubland >1 m **[4]**.

There is currently no direct evidence that dense thickets of myrtle-leaf milkwort increases fire risk **[4]**.

Adair (2012) also lists myrtle-leaf milkwort as a host for Cucumber Mosaic Virus which poses an additional threat to vegetable and ornamental gardens.

Feasibility of control

Management options for the control of myrtle-leaf milkwort include:

Manual removal: hand-pull small plants before they flower. Slashing plants during the height of summer is effective, when soil conditions are dry and induce moisture stress on plants.

Chemical control: application of glyphosate herbicide is effective on seedlings and mature plants. Cut and swab mature plants with metsulfuron methyl herbicides is effective, as are picloram based gels on freshly cut stumps, however care is required to minimise non-target risks with these chemicals.

Fire: intense fires will kill mature plants and stimulate mass germination of the soil seedbank. Follow-up control before the seedlings reach maturity is critical.

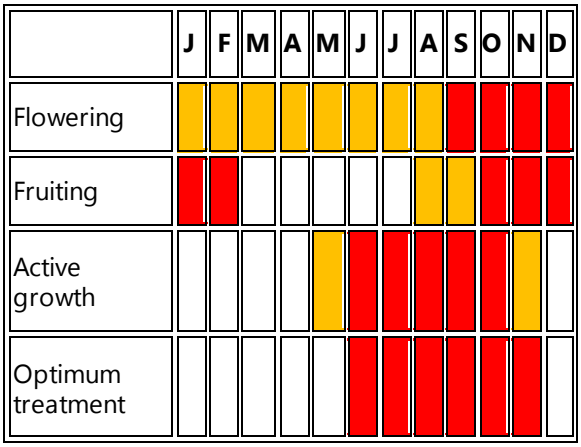
Natural or biological control: Seedlings are susceptible to drought stress causing high seedling mortality over summer.

Adair (2012) considers a range of South African invertebrates and a rust fungus as potential for biological control agents for myrtle-leaf milkwort in Australia. The Victorian Government is investigating biological agents, however, none are currently available for use in Australia.

As the seed is hard-coated, and can remain in soil for many years, follow-up control is essential for all methods. Prompt control of new infestations prevents seed set and will reduce overall control time.

A planned and strategic approach has commenced on Eyre Peninsula targeting control at outlier sites and protecting significant environmental assets including Lincoln and Coffin Bay National Parks and Kellidie Conservation Park.

Management calendar



Legend Yes Occasionally

Status

The Eyre Peninsula Landscape Board risk management assessment rates myrtle-leaf milkwort as **'protect sites'** in native vegetation (Table 1).

Table 1: Regional Assessment

Land Use	Pest Risk	Feasibility of Control	Management Action
Native vegetation	High	Medium	Protect sites

REGIONAL RESPONSE

Special considerations / Board position

A State level Declared Plant Policy and Management Plan **[6]** exists for myrtle-leaf milkwort (*Polygala myrtifolia*). The policy provides State level outcomes, objectives and implementation actions for regional Landscape authorities.

The Eyre Peninsula Landscape Board pest management response supports the State polygala policy.

The potential for new infestations remains high as Myrtle-leaf milkwort occurs in many gardens across Eyre Peninsula.

Outcomes

To reduce the impact of myrtle-leaf milkwort on key environmental sites/assets, control at outlier sites and prevent spread into unaffected areas.

Objectives

1. Identify and protect key assets under threat from myrtle-leaf milkwort.
2. Encourage investment in trials and research for alternative control options, including biological.

Area/s to be protected

Key sites/assets to be protected are:

- EPBC listed vegetation communities
- Areas containing EPBC listed plant and animal species

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 myrtle-leaf milkwort 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 land managers);
6. carry out opportunistic monitoring for sale myrtle-leaf milkwort plants at markets and community events;
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

Myrtle-leaf milkwort (*Polygala myrtifolia*) is declared under the *Landscape South Australia Act 2019* throughout the State of South Australia. The movement or transport of the plant on a public road or by itself or as a contaminant, its entry to the State, or the sale by itself or as a contaminant is prohibited. Landscape Boards may require land owners to control polygala plants growing on their land. Landscape Boards are required to control plants on road reserves, and may recover control costs from the adjoining land owners **[6]**.

Polygala is declared in Category 2 under the *Landscape South Australia Act 2019* 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 Executive pursuant to Section 197 **[6]**.

The following sections of the Act apply to polygala in the Eyre Peninsula Landscape Board region:

Table 2: Relevant sections of the Landscape South Australia Act 2019, which apply to whole of State *PIRSA_online* [6].

Section	How the section applies
186 (1)	Prohibited to bring the plant into South Australia"
186 (2)	Prohibiting movement on public roads
188 (1)	Prohibiting sale of the plant
188 (2)	Prohibiting sale of contaminated goods
192 (2)	Land owner must keep controlled the plants on their land
194	Landscape Board authority may recover costs from land owners for control of plants on adjoining road reserves

More information

Contact your local Eyre Peninsula Landscape Board office

www.landscape.gov.au/ep/contact-us

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References

1. Adair, R.S., A; Stajsic, V and Gajaweera, R., 2012. The biology of Australian weeds 61. 'Polygala myrtifolia' L. 119-130. Plant Protection Quarterly, 27(4): p. 11.
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