Australian Government
Department of the Environment, Water, Heritage and the Arts

Significant impact guidelines for the critically endangered spiny rice-flower (*Pimelea spinescens* subsp. *spinescens*)

Nationally threatened species and ecological communitites
EPBC Act policy statement 3.11

Introduction

The spiny rice-flower, *Pimelea spinescens* subsp. *spinescens*, is listed as critically endangered under the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Listed threatened species and ecological communities are a matter of national environmental significance. Under the EPBC Act an action will require approval from the minister if the action has, will have, or is likely to have a 'significant impact' on a matter of national environmental significance.

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. You should consider all of these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance.

This policy statement is designed to assist you to determine whether a proposed action is likely to have a significant impact on the spiny rice-flower. The policy statement applies to grassland habitat across the current and historic range of the subspecies, from south-western to north-central Victoria, including around Melbourne. This policy statement is based on the best available information, including:

- EPBC Act listing advice
- national recovery plan
- scientific literature
- consultation with species experts, and
- application of the national environmental legislation (EPBC Act).

This policy statement builds on the information and explanations in *EPBC Act policy statement 1.1 Significant impact guidelines – Matters of national environmental significance*.

How to interpret and apply these guidelines

The thresholds outlined in this policy statement are not designed to be prescriptive, but rather to clarify the level and types of impact likely to be significant at a national level, having regard for the biology, ecology and threats of the subspecies.

If you are planning an action in grassland habitat within the range of the spiny rice-flower you should consider the following:

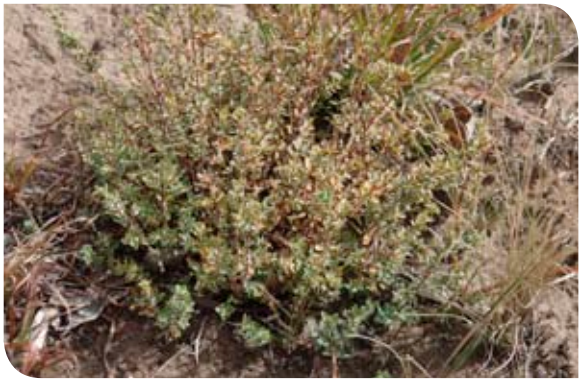
- Does my site support the spiny rice-flower?
  - Consider vegetation, habitat, records and surveys on and near to the site (see page 5).
- What impacts, both direct and indirect, could result from my action?
- Could any of these impacts exceed the thresholds outlined in page 6?
- What measures could be taken to reduce the level of impact (see page 8)?

If you think that your action is likely to have a significant impact on a matter of national environmental significance, or if you are unsure, you should refer the action to the federal minister. The minister will make a decision within 20 business days on whether approval is required under the EPBC Act. Substantial penalties apply for taking an action that has, will have or is likely to have a significant impact without approval.

What other laws protect the spiny rice-flower?

The spiny rice-flower is also listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*. The listing of a species, subspecies or ecological community on the EPBC Act threatened species and ecological communities list recognises the importance of the matter from a national perspective, and does not replace listing under state, regional or local legislation or regulations.

Judgements on impacts may differ between Commonwealth, state and local decision making processes, due to the different scales of consideration. Any person undertaking an action that may affect the spiny rice-flower should consider their obligations under all relevant Commonwealth, state and local laws. Specific proposal submissions, permits and approvals may be required.



Ecology of the spiny rice-flower

The subspecies

The spiny rice-flower is a long-lived (30 to 50 years and possibly up to 100 years) grassland sub-shrub growing 5 to 30 cm in height. Plants have pale green, fleshy, oval leaves and small cream flowers which appear from April to August. Spiny stems distinguish both the spiny rice-flower and Wimmera rice-flower from other rice-flower plants. The spiny rice-flower is distinguished from the Wimmera rice-flower by its hairless flowers. Plants have a very large tap root (≥1.5 m deep). The subspecies is pollinated by insects, although the specific pollinator species are unknown.

Habitat

The spiny rice-flower occurs in grassland habitats including native temperate grasslands, grassy woodlands and open shrublands.
It occurs on basalt-derived soils in south-western Victoria and sedimentary soils in north-central Victoria. In the southern portion of the range the ground layer is commonly dominated by kangaroo grass, wallaby grass and spear grass while in the north it is generally dominated by wallaby grass or spear grass.

The spiny rice-flower is found within the ecological community known as 'Natural temperate grassland of the Victorian volcanic plain', a critically endangered ecological community listed under the EPBC Act (see EPBC Act policy statement 3.8) and associated with a Victorian Ecological Vegetation Class (EVC) known as Plains Grassland (EVC 132). The subspecies is also found in several other Victorian EVCs: Plains Grassy Woodland (EVC 55), Plains Woodland (EVC 803), and Plains Grassland/Grassy Woodland Mosaic (EVC 897).

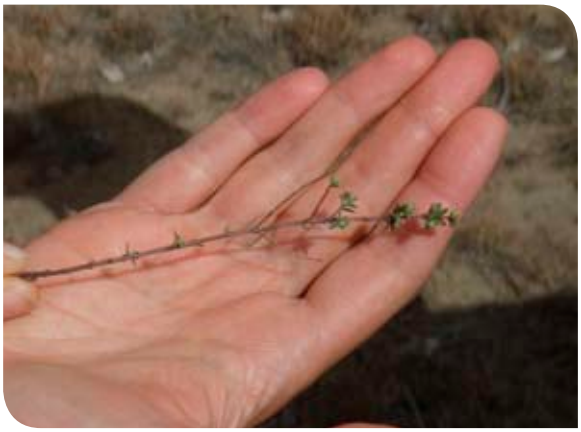
Table 1: Life cycle of the spiny rice-flower

Long lived, slow growing plant with large tap-root (≥1.5 m)	• Will tolerate, and may even benefit, from low level of disturbance, such as fire. Heavy grazing, and/or frequent or intense fires are detrimental. • Foliage sensitive to herbicide use; rootstocks sensitive to disturbance (particularly if uprooted, damaged or displaced).
Dioecious reproduction, equal sex ratio of populations	• Male and female plants required for reproduction. • Limited evidence suggests sex ratio roughly 50:50. However, some populations may be dominated by one sex either across the whole population or in patches. • Small populations particularly vulnerable to random events and effects of low genetic diversity. • Seed germination thought to be triggered by fire, followed by rain (current management practices make this a rare combination, particularly in more developed areas of the range).
Pollinated by insects	• Rely partly or wholly on invertebrates for pollination. • Possibly also rely on ants for seed dispersal. • Low seed set may be related to reduced insect activity across fragmented habitats. • Pollinators potentially vulnerable to insecticide use (including spray drift).

Principal threats to the spiny rice-flower

The spiny rice-flower is sensitive to certain development activities due to its:

- Isolated, fragmented and restricted distribution
  - populations around Melbourne are at the greatest risk due to encroaching urban and industrial development, and
- Small and declining populations
  - isolated populations, most now with very small numbers of individuals (<100 plants), and
  - gene flow between populations low or absent.
- Low levels of recruitment
  - seed germination appears to be limited, with most populations consisting of relatively old individuals, and
  - the lack of seed germination and recruitment means that the number of individuals at most sites is decreasing.



In addition, the spiny rice-flower is poorly represented in conservation reserves, with the majority of sites on roadsides, rail corridors or private land.

The principal threats most relevant to judgements on significance are loss, degradation, modification and fragmentation of habitat through:

- removal of vegetation
- altered fire regimes
- weed invasion, and
- changes to agricultural practices (for example fertiliser application, ploughing and overgrazing).

Survey guidelines for the spiny rice-flower

Some recommendations for conducting surveys for the spiny rice-flower are outlined below. Surveys should:

- maximise the chance of detecting the subspecies
- determine the context of the site within the broader landscape (for example amount of habitat on and near site, presence of nearly populations, threats and impacts in surrounding areas)
- be conducted by a suitably qualified person, and
- account for uncertainty and error.

Consideration should be given to the timing, effort, methods and area to be covered in the context of the proposed action. If surveys are conducted outside recommended periods or conditions, survey methods and effort should be adjusted to compensate for the decreased likelihood of detecting the species.

Survey recommendations

The spiny rice-flower can be difficult to find when it is not in flower, and is easily overlooked in general vegetation surveys. Transect surveys should undertaken when the plant is in flower (April to August) at any location containing suitable habitat for the spiny rice-flower.

Multiple surveys may be required in areas to ensure adequate survey effort, due to the low detectability of the subspecies. Surveys conducted following a low-intensity burn may have the best change of detecting the subspecies, particularly in overgrown areas where small plants may be difficult to detect. However, sufficient time must be allowed for the subspecies to regenerate from fire, or other disturbances (for example four to six months after fire, three months after cessation of grazing).

Where it is not possible to conduct surveys in the recommended manner the precautionary principle should be used. In these circumstances failure to detect the spiny rice-flower should not be considered indicative of its absence.

Habitat assessment

In addition to undertaking surveys for the spiny rice-flower, the following habitat characteristics should be assessed. This assessment will help provide context and may provide further indication of the likely presence (or absence) of the subspecies at a site:

- habitat quality (note habitat quality relative to other nearby areas will provide context, but is not indicative of the likely presence/absence of this subspecies)
- site history and time since last management event (for example grazing, cropping, biomass management, fertiliser/pesticide/herbicide use, fire), including current management regime
- proximity to other known populations, including on adjacent sites, and
- presence of similar habitat connecting the site to occupied areas or other areas of grassland or grassy woodland.

What sorts of actions are likely to have a significant impact on the subspecies?

Significant impact judgements must be made on a case by case basis and with consideration for the context of the action. The potential for a significant impact on a listed threatened subspecies will depend on:

- the intensity, duration, magnitude and geographic extent of the impact
- the sensitivity, value and quality of the environment on and around the site
- the cumulative effect of on-site, off-site, direct and indirect impacts, and
- the presence of this and other matters of national environmental significance.

There is a real chance or possibility of a significant impact on the subspecies if the action results in, or exceeds, the following impact thresholds.

Table 2: Significant impact thresholds for the spiny rice-flower

Ecological element affected	Impact threshold	Comment
Contiguous habitat area • 'Contiguous habitat' is a similar and connected area that supports a population of spiny rice-flower.	Any fragmentation of a population	Connectivity is particularly important for maintaining and supporting gene flow given the limited dispersal ability of this subspecies. "Fragmentation" may include, but is not limited to: incomplete clearing leaving isolated smaller patches and/or the introduction of a physical barrier to plant dispersal (for example solid fences, transport corridors, walking tracks, easements).
Population viability (medium to long-term) • A 'population' of spiny rice-flower refers to a collection of individual plants occurring close together but separated geographically from other such collections. Land use and management practices may limit the geographic extent of populations.	Loss of >5 individuals.	Given that recruitment (through germination of seeds) appears to be very limited, the loss of even small numbers of plants from a current population could have a significant impact on the persistence and recovery of the subspecies.
Extent of occurrence • Populations at or near the edge of the range	Any loss of individuals from any population which occurs on the edge of the spiny rice-flower's current known distribution.	The range of the spiny rice-flower has been greatly reduced, and populations at the edges of the current distribution may be particularly important.

Notes:

The elements and thresholds in the table above give guidance to the level of impact that is likely to be significant for the subspecies at a site. They are not intended to be exhaustive or prescriptive, but rather to highlight those actions that threaten the persistence and recovery of the spiny rice-flower.

Habitat and/or populations may, and often will, extend beyond the site boundaries, particularly when management practices remain relatively consistent.

What does this mean for actions in spiny rice-flower habitat?

If you plan an action that may have a significant impact then you should refer the proposal to the minister before commencing the action. The minister will decide, within 20 business days, whether assessment and approval is required under the EPBC Act. More information on referral and assessment is available at www.environment.gov.au/epbc/assessments/process.html.

How can my action avoid having a significant impact on the spiny rice-flower?

Mitigation includes all measures undertaken on the site of the action to avoid or reduce its impacts. When planning an action, consider at the very earliest stages how to:

- reduce the level of the impact to below the significant impact thresholds outlined in this policy statement where possible
- monitor the performance of the mitigation measures (for example by using performance indicators measured at seasonally/annually nominated times), and
- feedback into an adaptive management plan, to quickly react to any changes in performance.

Mitigation and management actions must:

- make avoiding impacts the priority, followed by impact reduction
- avoid negative impacts on other matters of national environmental significance, and
- be consistent with relevant recovery, conservation or action plans.

Table 3: Examples of mitigation measures for the spiny rice-flower

Avoiding impacts	• Retain habitat patches known or likely to contain the spiny rice-flower, and manage for the subspecies (see "Managing habitat" below). • Re-site roads or easements so as to avoid habitat disturbance. • Avoid soil disturbance (for example from vehicles), particularly at or near the root-zone or in wet soil. • Avoid broad-scale herbicide use (see "Managing habitat" below). • Avoid grazing.
Minimising impacts	• Develop an environmental management plan that addresses the threats on site and draws together measures to reduce them. • Maintain hygiene on maintenance and construction vehicles and machinery passing through spiny rice-flower habitat, to ensure that weeds are not spread. • Avoid landscaping that would introduce weeds or non-Indigenous plants into site. • Fence populations to minimise risk of accidental damage or destruction of plants (for example from construction activities, recreational users, pest animals, rubbish dumping or unauthorised vehicle movement through an area). See Long & Robley (2004) for appropriate fence design. • Erect appropriate signage to inform construction workers and the general public of the conservation significance of the site.
Managing habitat	• Implement a biomass management program: – Develop and implement a fire management plan of cool, quick mid-Autumn fires. Summer fires, when spiny rice-flower is not actively growing may also be appropriate. • Control and reduce weeds in the area, taking care to avoid drift of herbicides onto native vegetation. e.g. through carefully applied and targeted spot-spraying or "wiping". • Improve degraded areas of habitat on the project site, and manage for the spiny rice-flower. Revegetated areas should be established prior to the removal of occupied habitat. Note however, that revegetation can be both intensive and expensive. • Fence habitat on at least three sides to limit use as a thoroughfare, and erect interpretive/ educational signage to highlight conservation significance. • Use sealed roads and footpaths outside the reserve boundary to limit the spread of weeds and help control fire. • Control vertebrate pests (for example rabbits) where these animals are a threat.

Source: Long, K. and Robey, A. 2004. Cost effective feral animal exclusion fencing for areas of high conservation value in Australia. Arthur Rylan Institute, DSE, Heidelberg, Vic.

Translocation

Translocation does not reduce the impact of an action. Translocation of the spiny rice-flower is not considered to mitigate or offset the impact of an action as it has not been shown to be successful for the subspecies (that is, translocated plants have not reproduced).

In limited circumstances, where very small numbers of individuals of a subspecies are proposed for translocation and the proposal is consistent with best practise, then translocation may be considered for salvage purposes, in addition to appropriate mitigating measures. Such translocation may be tried as an experiment and must be undertaken in association with a fully costed and funded monitoring program and adaptive management strategy with clearly stated criteria for identifying success. Additional permits may be required to undertake salvage translocation.

Where can I get more information?

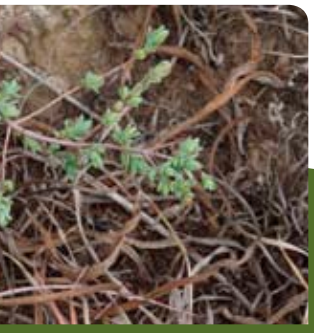
The background paper to this policy statement is available at the department's website www.environment.gov.au/epbc/guidelines-policies.html, and provides the biological and ecological context to the survey guidelines, significant impact thresholds and mitigation measures. The Victorian Department of Sustainability and Environment (DSE) also have a fact sheet and action statement for the spiny rice-flower: see www.dse.vic.gov.au.

Other EPBC Act policy statements will help you to understand the EPBC Act and your obligations. They are available from the department's website www.environment.gov.au/epbc/guidelines-policies.html, or by contacting the community information unit by email: ciu@environment.gov.au or by phone: 1800 803 772.

The protected matters search tool and Victoria Wildlife Atlas can provide a good starting point for determining the likelihood of having matters of national environmental significance in your area.

Further information including details on other listed threatened species and ecological communities is at the department's species profiles and threats database (SPRAT) at: www.environment.gov.au/cgi-bin/sprat/public/sprat.pl.

PHOTO CREDITS
All images taken by T. Ward, DEWHA



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