

Action Statement

Flora and Fauna Guarantee Act 1988

No. 223

Langi Ghiran Grevillea *Grevillea montis-cole* subsp. *brevistyla*

This Action Statement is based on a draft Recovery Plan prepared for this species by DSE under contract to the Australian Government Department of the Environment, Water, Heritage and the Arts.

Description

The Langi Ghiran Grevillea (*Grevillea montis-cole* subsp. *brevistyla*) is a prostrate to spreading shrub to ~1 m high. The leaves are ovate, 3–7 cm long and 1.5–5.5 cm wide, with five to 15 spreading primary lobes which are further divided into sub-triangular ultimate lobes, each of which ends in a 1–2.5 mm long rigid spine. The new growth is densely hairy with ferruginous or reddish-purple hairs. The mature leaves have a subshiny, bright green upper surface which is almost glabrous, and a dull pale green lower surface which is glabrous or has a scattered to patchy covering of ascending to spreading hairs on the veins. The conflorescences are terminal, decurved, simple, secund, and 2–6 cm long. Individual flowers have a narrow, green to brown perianth with a glabrous inner surface and tomentose outer surface, a 15.5–17 mm long pistil with a villous stipitate ovary, a glabrous bright red style, and a slightly-to-very oblique, greenish-yellow pollen presenter. Flowering occurs from October to November. The fruits are tomentose and have reddish dorsal markings (Smith 1983, Walsh & Entwisle 1996).

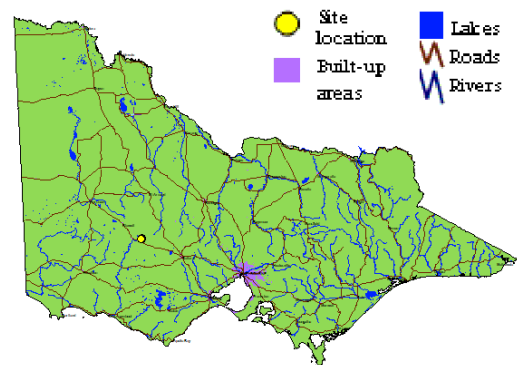
This subspecies may be distinguished from the Mount Cole Grevillea (*G. montis-cole* ssp. *montis-cole*) by its shorter pistil length (Mount Cole Grevillea has a pistil 26–27.5 mm long), and shorter and broader leaves. Leaves showing some secondary division and relatively large floral bracts distinguish *Grevillea montis-cole* from other Victorian 'holly-leaved' *Grevillea* species (Walsh & Entwisle 1996). There are strong grounds for raising the status of this taxon to a species in its own right (N Marriott pers. comm.).

Distribution

Langi Ghiran Grevillea is confined to a small area near the summit of Mt Langi Ghiran,



Langi Ghiran Grevillea
(Photo: DSE/Pritchard)



Distribution in Victoria
(Flora Information System DSE 2007)

approximately 200 km north-west of Melbourne, Victoria (Walsh & Entwisle 1996). The distribution now extends across one kilometre with scattered and isolated populations throughout. Populations range in altitude from 820–900 m above sea level.

Habitat

The known populations of the Langi Ghiran Grevillea occur in open eucalypt woodland, among granite outcrops at ~800–900 m altitude (Walsh & Entwisle 1996). Associated species include Shiny Tea-tree (*Leptospermum turbinatum*), Bundy (*Eucalyptus goniocalyx*), Cranberry Heath (*Astroloma humifusum*), Hairy Correa (*Correa aemula*), Wedge-leaf Hop-bush (*Dodonaea viscosa* subsp. *cuneata*), Violet Kunzea (*Kunzea parvifolia*) and Star Hair (*Astrotricha* sp.) (Royal Botanic Garden herbarium specimen notes).

Abundance

It is estimated that approximately 1500 individuals exist, including 200 seedlings. These plants occur in a number of populations near the Mt Langi Ghiran summit. The extent of range and abundance of Langi Ghiran Grevillea prior to European settlement is unknown.

Important populations

The sole populations of the Langi Ghiran Grevillea occur in the Mt Langi Ghiran State Park.

Life history and ecology

There have been no targeted biological or ecological studies of Langi Ghiran Grevillea. This species occurs where fires are unlikely to be common. The conditions required for recruitment events are unknown. Seedlings of the Langi Ghiran Grevillea were observed on Mt Langi Ghiran in 2002 (J. Downe, pers. obs.) and 2004, suggesting this species may persist without fire. However, the long-term effects of lack of fire on vegetation community structure, and therefore habitat for this species, are unknown. An allelopathic relationship is possible: seedlings found in 2004 were growing amongst dead adult plants. A growth ring count of material harvested from a dead plant indicated that there were 67 growth stages, suggesting that the species is relatively long lived;

Long term objective

To ensure that the Langi Ghiran Grevillea can survive, flourish and retain its potential for evolutionary development in the wild.

Specific Objectives, Actions and Targets

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.

numerous seedlings were observed beneath the dead plant.

Conservation status

National conservation status

The Langi Ghiran Grevillea is listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Victorian conservation status

The Langi Ghiran Grevillea has been listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

It is considered vulnerable in Victoria according to DSE's *Advisory List of Rare or Threatened Plants in Victoria - 2005* (DSE 2005).

Potentially threatening processes

Accidental introduction of Cinnamon Fungus (*Phytophthora cinnamomi*)

Accidental introduction of Cinnamon Fungus by visitors and staff to the site is probably the most immediate and real threat to Langi Ghiran Grevillea, given the highly sensitive nature of closely related taxa.

Inappropriate biomass reduction / fire regimes

The effect of fire on this species is unknown, but the scant information on age structure of the population suggests that frequent fire is required for maintenance of the species. Prescribed fires are difficult to maintain at Mt Langi Ghiran and are unlikely to be implemented. Lightning strikes do not appear to have been sufficient to carry fires in the past. Fires ignited outside the park which could spread to the single known population pose a potential threat to plants.

Native herbivore browsing

Wallabies browse in the area of Langi Ghiran Grevillea plants and may damage individuals.

Previous management action

- Surveys were undertaken by DSE in 2004.
- Land managers and recovery agencies have liaised about the conservation of this species.

Objective I To increase knowledge of biology, ecology and management requirements

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
1. Acquire baseline population data by conducting detailed field and desk top surveys including identification of the area and extent of the population; estimates of the number, size and structure of the population; and inference or estimation of population change.	<ul style="list-style-type: none">▪ Updated records on all state databases (Flora Information System, VROTPop and Herbarium).▪ Target populations accurately mapped.	DSE
2. Assess habitat characteristics and/or condition. Accurately survey known habitat, and collect and analyse floristic and environmental information relevant to community ecology and condition.	<ul style="list-style-type: none">▪ Ecological requirements identified for the completion of essential life history stages, recruitment and dispersal.▪ Core habitat mapped.	DSE
3. Conduct survey to locate suitable habitat. Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference	<ul style="list-style-type: none">▪ Predictive model for potential habitat developed and tested.	DSE
4. Undertake research to identify key biological functions. Evaluate current reproductive / regenerative status, seed bank status and longevity, fecundity and recruitment levels by conducting field based experimental trials. Determine seed germination requirements by conducting laboratory and field trials aimed to identify key stimuli.	<ul style="list-style-type: none">▪ Seed bank/regenerative potential quantified for target populations.▪ Stimuli for recruitment/regeneration identified.▪ Management strategies identified to maintain, enhance or restore regenerative processes fundamental to reproduction and survival.	DSE, Royal Botanic Gardens
5. Analyse population trends. Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data. Collate, analyse and report on census data and compare with management histories.	<ul style="list-style-type: none">▪ Techniques for monitoring developed and implemented.▪ Census data for target populations collected.▪ Population growth rates determined.▪ Population Viability Analysis completed for targeted populations.	DSE

Objective II To secure populations or habitat from potentially incompatible land use or catastrophic loss.

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
6. Erect/maintain structures to restrict or discourage access. Control threats from pest animals, high visitor numbers causing accidental damage by preventing access, caging plants and re-routing tracks.	<ul style="list-style-type: none"> Measurable seedling recruitment/vegetative regeneration and no measurable increase in plant mortality at the Mt Langi Ghiran site. 	DSE, Parks Victoria
7. Erect/maintain signs to restrict or discourage access. Control threats from high visitor numbers causing accidental damage erecting conservation signage.	<ul style="list-style-type: none"> Measurable seedling recruitment / vegetative regeneration and no measurable increase in plant mortality at the Mt Langi Ghiran site. 	DSE, Parks Victoria
8. Establish cultivated plants <i>ex situ</i> to safeguard from the unforeseen destruction of the wild population.	<ul style="list-style-type: none"> Development of effective propagation and cultivation techniques. At least 50 mature plants in cultivation. 	Royal Botanic Gardens

Objective III To improve the condition of habitat

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
9. Control introduced animals.	<ul style="list-style-type: none"> Measurable seedling recruitment / vegetative regeneration and no measurable increase in plant mortality at the Mt Langi Ghiran site. 	DSE, Parks Victoria

Objective IV To increase the number of populations or individuals

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
10. Store reproductive material. Establish a seed bank.	<ul style="list-style-type: none"> Long-term storage facility identified. Seed from target populations in storage. 	DSE, Royal Botanic Gardens
11. Determine seed viability.	<ul style="list-style-type: none"> Seed viability determined. 	Royal Botanic Gardens

Objective V To increase community awareness and support

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
12. Involve community groups and volunteers in recovery activities.	<ul style="list-style-type: none"> Opportunities for involvement identified, promoted and supported. 	DSE

References

- DSE (2005) *Advisory List of Rare or Threatened Plants in Victoria - 2005*. Department of Sustainability and Environment, East Melbourne, Victoria.
- Smith, R.V. (1983) *Grevillea montis-cole* sp. Nov. (Proteaceae) from Victoria, *Muelleria*, 5(3): 223-227.
- Walsh, N.G. & Entwisle, T.J. (1996) *Flora of Victoria, Vol 3: Dicotyledons: Winteraceae to Myrtaceae*, Inkata Press, Melbourne.

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