

Action Statement

Flora and Fauna Guarantee Act 1988

No. 211

Colquhoun Grevillea *Grevillea celata*

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.

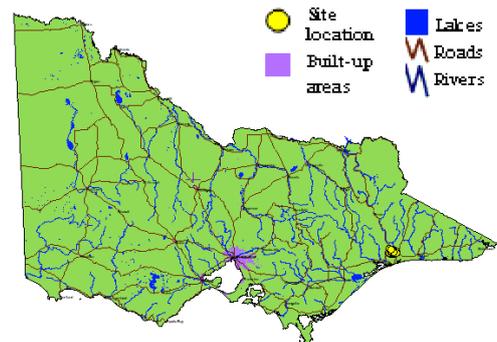
Description

Colquhoun Grevillea (*Grevillea celata*) is an erect and open, to low and dense, root-suckering shrub, 0.4–1.8 m tall (Molyneux 1995). The leaves are elliptic, alternate, hairy and grey-green, to 44 x 18 mm. The lower leaf surface is almost white and densely hairy; the leaf margins are curved under, sometimes almost obscuring the lower surface (DSE 2005a). Flowers appear from July to February, and are red and yellow with curved tubes about 12 mm long. The flowers are hairy outside but densely hairy inside, and split into four lobes to release a red, hairy style to 25 mm long (Molyneux 1995; DSE 2005a). The fruit is a leathery, hairy capsule, longitudinally ridged, which splits to release winged seeds (Walsh & Entwisle 1996).

Colquhoun Grevillea is very similar to Golden Grevillea (*Grevillea chrysophaea*), which does not root-sucker and lacks red coloration on the perianth (Walsh & Entwisle 1996). Another similar species is Cat's Claw Grevillea (*Grevillea alpina*). Cat's Claw Grevillea, however, generally does not root-sucker, and has a more prominent tongue-like nectary and usually a shorter pistil (10 - 20.5 mm versus 18 - 25 mm long in Colquhoun Grevillea) (Walsh & Entwisle 1996).

Distribution

Colquhoun Grevillea is a Victorian endemic and occurs in the Colquhoun State Forest in central eastern Gippsland, east and south of Bruthen in Victoria (Molyneux 1995). The total range of all known populations is approximately 11 km².



Distribution in Victoria
(Flora Information System DSE 2007)

Abundance

It is estimated that between 1000 and 1600 individuals exist. These plants occur in nine populations. The extent of range and abundance of Colquhoun Grevillea prior to European settlement is unknown.

Important Populations

Important populations necessary to the long term survival and recovery of Colquhoun Grevillea occur in the following locations within the Colquhoun State Forest:

Population	Estimated size
Reformatory Rd	60 - 175 plants
Watershed Rd	~40 plants
Dead Horse Creek Rd	80 - 175 plants
Lyles Break	~30 plants
Stony Creek 1	~750 plants
Stony Creek 2	~375 plants
Lambourne Break	25 plants
Lambourne Break A	1 plant
Lambourne Break B	~5 - 28 plants

Habitat

Populations of Colquhoun Grevillea occur in heathy open forest with an overstorey of Yertchuk (*Eucalyptus considiniana*), Mountain Grey-gum (*E. cypellocarpa*), White Stringybark (*E. globoidea*), Red Stringybark (*E. macrorhyncha*), Silvertop Ash (*E. sieberi*) or Messmate Stringybark (*E. obliqua*). Associated species include Spreading Wattle (*Acacia genistifolia*), Myrtle Wattle (*A. myrtifolia*), Sunshine Wattle (*A. terminalis*), Silver Banksia (*Banksia marginata*), Spiny Bossiaea (*Bossiaea obcordata*), Shiny Cassinia (*Cassinia longifolia*), Common Heath (*Epacris impressa*), Silky Guinea-flower (*Hibbertia sericea*), Grey Guinea-flower (*H. obtusifolia*), Holly Lomatia (*Lomatia ilicifolia*), Prickly Broom Heath (*Monotoca scoparia*), Leafy Purple-flag (*Patersonia glabrata*), Handsome Flat-pea (*Platylobium formosum*), Austral Bracken (*Pteridium esculentum*), Blunt Bush-pea (*Pultenaea retusa*), Nodding Blue-lily (*Stypandra glauca*), Hairy Pink-bells (*Tetratheca pilosa*) and Small Grass-tree (*Xanthorrhoea minor*). A good indicator species is Spiny Bossiaea, which is almost always present with Colquhoun Grevillea. Spiny Bossiaea is otherwise scattered throughout the forest, although not uniformly.

Colquhoun Grevillea occurs on red siliceous or pale granitic sands (Walsh & Entwisle 1996), or gravelly clay-loams (N. Walsh *pers obs.*). The species appears to be absent from the black, humic Tertiary sands which often abut the preferred soils (Molyneux 1995). The terrain tends to be flat or to have a slight northerly aspect. Populations occur approximately 140 - 300 m above sea level.

Life history and ecology

Fire appears to be the critical factor limiting the abundance of Colquhoun Grevillea. In many parts of the species' range, cool fuel reduction burns appear to have been very frequent, resulting in high densities of fire-promoted species (notably Austral Bracken (*Pteridium esculentum*)). Colquhoun Grevillea appears to respond slowly

following fire in terms of growth, and/or juveniles may be severely browsed by native herbivores. For these reasons, Colquhoun Grevillea tends to be confined to roadsides and natural forest clearings with high light levels. The best specimens occur in the few populations which are burnt less. A 10-year fire cycle may be most appropriate for Colquhoun Grevillea: anything less may lead to very high cover of Austral Bracken and will not provide suitable habitat.

Conservation status

National conservation status

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

Victorian conservation status

Colquhoun 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 2005a).

Potentially threatening processes

Inappropriate biomass reduction / fire regimes

Plants may be susceptible to fire frequencies of less than ~8 years. Plants generally grow slowly after fire and do not compete well against species such as Austral Bracken.

Weed invasion

Austral Bracken may become weedy where fire regimes are frequent (<10 year interval).

Disease / Insect Attack

Some populations have had many plants severely defoliated by insects with some plants almost devoid of leaves.

Reservation status

No populations of Colquhoun Grevillea occur in conservation reserves.

Grazing / Browsing

Grazing and browsing by native herbivores may threaten populations, particularly shortly after fire.

Road Works

Road works potentially threaten Reformatory Road and Lambourne Break A sites. A population was largely destroyed in the course of upgrading the Bruthen-Nowa Nowa Road. Some 1000 nursery-raised plants were translocated into the same site and anecdotal reports suggest this action has been successful.

Inappropriate Slashing

Road verge slashing at Stony Creek 2 site may threaten the population if the slasher is of an inappropriate height, and/or if slashing is conducted too frequently for plants to reach maturity and reproduce.

Previous management action

- Documented locations have been recorded onto the Flora Information System and VRoTPop databases.
- A survey for populations adjacent to Buchan-Nowa Nowa Road has been conducted to assist in the best alignment for road widening.
- VicRoads has propagated plants and revegetated areas along roadside.
- An area where plants are close to Buchan-Nowa Nowa road has been fenced off.
- Areas where Colquhoun Grevillea occurs have been identified on Fire Operations Plans (no resources for post-fire monitoring).
- Revegetation efforts have been monitored.
- Surveys of the next stage of Nowa Nowa-Buchan Road upgrade are continuing.

Conservation objectives, actions and targets

Long term objective

To ensure that the Colquhoun 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.

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

Action	Targets	Responsible
1. Acquire baseline population data. Conduct 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).▪ 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. Identify disturbance regimes to maintain habitat or promote regeneration and recruitment.	<ul style="list-style-type: none">• Preparation of management prescriptions for ecological burning at Reformatory Road, Watershed Road, Dead Horse Creek Road, Stony Creek 1 Lambourne Break, Lambourne Break B and Lyles Break site.	DSE

5.	Undertake research to identify key biological functions. Evaluate current reproductive/regenerative status, seed bank status and longevity, and 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 for vegetative regeneration.	<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
6.	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 site 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>
7. Negotiate Special Protection Zones in State Forest at Reformatory Road, Watershed Road, Dead Horse Creek Road and Lyles Break sites.	<ul style="list-style-type: none"> Special Protection Zones established. 	DSE
8. Erect/maintain signs to restrict or discourage access. Control accidental destruction by installing appropriate signage.	<ul style="list-style-type: none"> Installation of appropriate conservation signage at Reformatory Rd, Watershed Rd, Dead Horse Creek Rd and Lyles Break, to notify road works contractors of the presence of Colquhoun Grevillea. 	DSE
9. Establish cultivated plants <i>ex situ</i> to safeguard from the unforeseen destruction of the wild populations.	<ul style="list-style-type: none"> Development of effective propagation and cultivation techniques. At least 30 mature plants in cultivation. 	Royal Botanic Gardens
10. Liaise with private landholders. Ensure that information and advice about the recovery of Colquhoun Grevillea has been provided to private land managers and landholders.	<ul style="list-style-type: none"> All relevant private land managers are aware of the species and its management needs. 	DSE
11. Liaise with government agencies. Ensure that information and advice about the recovery of Colquhoun Grevillea has been provided to public land managers, local government authorities and Catchment Management Authorities.	<ul style="list-style-type: none"> All relevant authorities and public land managers are aware of the species and its management needs. 	DSE

Objective III To improve the condition of habitat

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
12. Manage environmental weeds. Control threats from weeds, using selective application of herbicide or hand removal.	<ul style="list-style-type: none"> Measurable seedling recruitment/vegetative regeneration and a measurable reduction in plant mortality Reformatory Road, Watershed Road, Dead Horse Creek Road and Lyles Break sites. 	DSE, Parks Victoria

Objective IV To increase the number of populations or individuals

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
13. 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
14. Determine seed viability.	<ul style="list-style-type: none">▪ Seed viability determined.	RBG
15. Identify potential sites for reintroduction / translocation. Select and evaluate suitable translocation sites that are ecologically and biologically suitable, have secure land tenure and are managed appropriately.	<ul style="list-style-type: none">▪ Criteria for site suitability identified and site selected.▪ Translocation plan prepared.	DSE
16. Establish and maintain a reintroduced / translocated population. Prepare site(s) to achieve maximum survival of translocated plants and implement translocation plan. Maintain and monitor translocated plants.	<ul style="list-style-type: none">▪ Development of successful translocation techniques.▪ At least 30% survival of translocated plants.	DSE, Royal Botanic Gardens

Objective V To increase community awareness and support

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

References

- Carter, O. & Walsh, N.W. (2006) National Recovery Plan for the Colquhoun *Grevillea celata*. Department of Sustainability & Environment: Melbourne.
- DSE (2005a) *Flora Information System 2005* (electronic flora database). Department of Sustainability and Environment: Melbourne.
- DSE (2005b) *Advisory List of Rare or Threatened Plants in Victoria - 2005*. Department of Sustainability and Environment, East Melbourne, Victoria.
- Molyneux, W.M. (1995) *Grevillea celata* (Proteaceae), a new species from central eastern Gippsland, Victoria, *Muelleria*, 8(3): 311-316.
- Walsh, N.G. & Entwisle, T.J. (1996) *Flora of Victoria, Vol 3: Dicotyledons: Winteraceae to Myrtaceae*, Inkata Press, Melbourne.

This Action Statement has been prepared under section 19 of the Flora and Fauna Guarantee Act 1988 under delegation from Mr Peter Harris, Secretary, Department of Sustainability and Environment, July 2008.

Published by the Victorian Government Department of Sustainability and Environment

Melbourne, July 2009

© The State of Victoria Department of Sustainability and Environment 2009

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

ISSN 1448-9902

For more information contact the DSE Customer Service Centre 136 186

Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Accessibility

If you would like to receive this publication in an accessible format, such as large print or audio, please telephone 136 186, 1800 122 969 (TTY), or email customer.service@dse.vic.gov.au. This document is also available in PDF format on the Internet at www.dse.vic.gov.au