



FLORA & FAUNA
GUARANTEE

FLORA AND FAUNA GUARANTEE - SCIENTIFIC ADVISORY COMMITTEE

PRELIMINARY RECOMMENDATION ON A NOMINATION FOR LISTING

Grevillea montis-cole subsp. *montis-cole* R.V.Sm. – Mount Cole Grevillea

Date of consideration: 4 March, 6 May, 13 June 2019
Date of receipt of nomination: 20 February 2019
Date of preliminary recommendation: 13 June 2019

File No.: FF/54/3800

Validity: The nomination is for a valid item.

Prescribed Information: The prescribed information was provided.

Name of the Nominator is adequately provided.

Name of the Item is adequately provided.

The nominated taxon is accepted by the Scientific Advisory Committee (SAC) as a valid taxon because it has been formally described and it is accepted as a valid taxon by the National Herbarium of Victoria.

Mount Cole Grevillea is a relatively long-lived, straggling to open semi-erect and spreading shrub 1–1.5 m high, usually with sparse villous 5–15 partite leaves longer than wide, erect to decurved terminal conflorescences, a green to brown perianth (dull purplish inside, a bright red style, a greenish or yellow pollen-presenter and a pistil 26–27.5 mm long), with flowering occurring mostly in October to November and regeneration strictly from seed. Smith (1983) provides a description of the taxon.

Although Mount Cole Grevillea is readily distinguished from the other subspecies, Langi Ghiran Grevillea (*Grevillea montis-cole* subsp. *brevistyla*) by its longer pistil, a recent phylogenetic analysis of southern Holly Grevilleas (Holmes et al. 2014) showed that the two subspecies fall into separate clades and “possibly occupy different niches [subsp. *montis-cole* is found as an understorey shrub in granitic loam soil, whereas subsp. *brevistyla* grows mainly in cracks and depressions in large granite outcrops at more exposed sites at higher altitude].”

Eligibility for listing as a taxon under the Flora and Fauna Guarantee

The nominated item satisfies at least one criterion of the set of criteria prepared and maintained under Section 11 of the *Flora and Fauna Guarantee Act 1988* and stated in Schedule 1 of the *Flora and Fauna Guarantee Regulations 2011*.

Criterion 1.2 *The taxon is significantly prone to future threats which are likely to result in extinction*

Evidence:

The record history of this taxon at Mount Cole (observations and voucher specimens lodged at various herbaria) shows a likely environmental domain contraction in the order of 75% before and after 1997. Before this date, collections are scattered over some 2,570 ha, whereas collections since then suggest an extent of only ~700 ha, mostly centred in the Cave Hill Creek region almost entirely within State Forest. On the basis of vegetation and land use patterns at Mount Cole, associated disturbances such as logging are strongly implicated in this decline. This contraction, combined with the worsening impacts of Climate Change, suggest the current trajectory of decline could reasonably be expected to result in the extinction of the taxon in coming decades (in the absence of appropriate interventions).

Sub-criterion 1.2.1 *The taxon is very rare in terms of abundance or distribution.*

Evidence:

This taxon is entirely restricted to the Mount Cole Range where it occupies an extremely narrow environmental domain that has apparently contracted by ~75% in recent decades. Extant locations are now spread over a very restricted area that is <700 ha (maximum width and length of ~3.3 kms and ~6.5 kms respectively) with the majority of plants occurring in two patches occupying just ~30 ha and supporting estimated numbers that could be a low as 30k to 60k (ranging up into the low hundreds of thousands). In affect this taxon is restricted to just one subpopulation and location that is almost entirely within State Forest where it is highly vulnerable to a wide range of threats.

Sub-criterion 1.2.2 *The threat is currently operating and is expected to operate at a level in the future which is likely to result in the extinction of the taxon.*

Evidence:

Disturbances associated with logging history in particular are strongly implicated in the decline of this taxon. Other key threats include frequent fuel reduction burning or wildlife (that could harm the taxon by increasing mortality and inhibiting regeneration); human recreational impacts through direct destruction and habitat degradation; Climate Change exacerbating fire impacts and reducing the environmental domain at lower elevation; accidental introduction or spread of Cinnamon Fungus driving up mortality rates; and browsing pressure of wallabies, deer and rabbits inhibiting regeneration. The current trajectory of decline collectively driven by these threats could reasonably be expected to result in the taxon's extinction over coming decades in the absence of appropriate interventions. Any locally acting catastrophic events such as successive and frequent wildfires, a sudden outbreak of Cinnamon Fungus or a severe regional drought could potentially wipe out the species very suddenly.

Additional information

- The apparent range contraction evident in the collection/observation record of this taxon is of concern, especially given it is a narrow range endemic vulnerable to a number of significant threats. The apparent decline has been attributed to a number of causes, including: i) the impact of historical timber cutting and the absence of any substantive logging reserves; ii) frequent fuel reduction burning and wildfire; iii) human recreational impacts; and iv) Climate Change.
- The Action Statement (DSE 2008) and National Recovery Plan (Carter *et al.* 2006) for the closely related and nearby Langi Ghiran *Grevillea* points to accidental introduction of Cinnamon Fungus (*Phytophthora cinnamomi*), and native herbivore browsing as further potential threats that might also impact the Mount Cole *Grevillea*.

Documentation

The published information cited has been assessed. Based on the evidence available to it, the SAC believes that the data presented are not the subject of scientific dispute and the inferences drawn are reasonable and well supported.

Preliminary Recommendation of the Scientific Advisory Committee

The Scientific Advisory Committee concludes that on the evidence available the nominated item is eligible for listing in accordance with Section 11(1) of the Act because Primary Criterion 1.2 and sub-criteria 1.2.1 and 1.2.2 of the Flora and Fauna Guarantee Regulations 2011 have been satisfied. The SAC also concludes that no evidence exists to suggest that primary criterion 1.2 cannot be satisfied as a consequence of sub-criteria 1.2.1 and 1.2.2 being satisfied.

The SAC therefore makes a preliminary recommendation that the nominated item be supported for listing under the *Flora and Fauna Guarantee Act 1988*.

Relevant references:

Carter, O., Downe, J. & Murphy, A.H. (2006) National Recovery Plan for the Langi Ghiran *Grevillea montis-cole* subspecies *brevistyla*. Department of Sustainability and Environment, Melbourne.

DSE (2008) *Flora and Fauna Guarantee Act 1988*, Action Statement No. 223, Langi Ghiran *Grevillea* (*Grevillea montis-cole* subsp. *brevistyla*). Department of Sustainability and Environment, Melbourne.

Holmes, G.D., Downing, T.L., James, E.A., Blacket, M.J., Hoffmann, A.A. & Bayly, M.J. (2014) Phylogeny of the holly grevilleas (Proteaceae) based on nuclear ribosomal and chloroplast DNA. *Australian Systematic Botany* 27: 56–77.

Smith, R.V. (1983) *Grevillea montis-cole* sp. nov. (Proteaceae) from Victoria. *Muelleria* 5(3): 223.

Relevant website:

Flora of Victoria: *Grevillea montis-cole* subsp. *montis-cole*

<https://vicflora.rbg.vic.gov.au/flora/taxon/303eb263-9616-4f6c-9760-0bfa720c1988>

Endorsement by the Convenor of the Scientific Advisory Committee

Date

25 March 2019

SIGNED BY



Prof Emeritus Barbara Evans
Convenor