

NSW Threatened Species Scientific Committee

Notice of and reasons for the Final Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to list the shrub *Pimelea cremnophila* L.M.Copel. & I.Telford as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Listing of Critically Endangered species is provided for by Part 4 of the Act.

The NSW Threatened Species Scientific Committee has found that:

1. *Pimelea cremnophila* L.M.Copel. & I.Telford (family Thymelaeaceae) is described as an “erect shrub to 2.5 m high. Stems red-brown, hirsute with strigose white antrorse hairs to 3 mm long, glabrescent with age. Leaves opposite, petiolate. Petioles 1 mm long, densely hairy; lamina narrow-elliptic to narrow-ovate, acute, 10–37 mm long, 2.5–6 mm wide, abaxial surface hirsute with scattered white strigose hairs, the hairs denser and longer toward the margins. Inflorescence axillary or terminal, 1–4 flowered; peduncle c. 1 mm long, strigose; bracts leaf-like. Flowers functionally male, bisexual or functionally female, subsessile. Male flowers with hypanthium 6–8 mm long; sepals 3–4 mm long; stamens 2, rarely 3; anthers narrow-oblong. Bisexual flowers protandrous with hypanthium 4–6.5 mm long; sepals 3–4 mm long, stamens similar to male flowers; ovary c. 1.5 mm long, with erect hairs at apex; style eventually exerted; stigma brush-like. Female flowers with hypanthium 3–4.5 mm long; sepals 1.5–2.5 mm long; staminodes minute; gynoecium similar to bisexual flowers. Fruit dry ovoid, enclosed in the persistent base of the hypanthium, pale green. Seeds ovoid 3–3.5 mm long with minute longitudinal, foveate furrows, red brown” (Copeland and Telford 2006).
2. *Pimelea cremnophila* is endemic to New South Wales (NSW) and is known only from Oxley Wild Rivers National Park, approximately 40 km east of Walcha in the New England Tablelands Bioregion. A single population occurs along the rim of the Macleay River gorge at 1,050–1,090 m a.s.l. (Copeland and Telford 2006).
3. *Pimelea cremnophila* occurs on exposed cliff tops or more sheltered cliff-side sites with south-westerly to south-easterly aspects in shallow skeletal loam soils over metasediments (Copeland and Telford 2006). The habitat is open forest of *Eucalyptus campanulata*, *E. retinens* and *Allocasuarina littoralis* with a shrubby understorey including *Acacia blakei* subsp. *diphylla*, *Maytenus silvestris*, *Prostanthera rhombea*, *Dodonaea rhombifolia*, *Astrotricha longifolia*, *Ozothamnus obcordatus*, *Persoonia media*, *Callistemon* sp. nov., *Correa reflexa* var. *reflexa*, *Lepidosperma elatius* s. l., *L. laterale*, *Rhodanthe* sp. nov. and *Notodanthonia longifolia* (Copeland and Telford 2006). In addition, several species have been noted in herbarium collections to co-occur with *P. cremnophila* including *Logania albiflora*, *Leiocarpa serpens*, *Lomandra longifolia*, *Gonocarpus oreophilus*, *Persoonia linearis* and *Ozothamnus diosmifolius*. *Pimelea cremnophila* is likely to flower throughout spring as flowers, floral buds and young fruits have been observed in October (Copeland and Telford 2006).
4. The number of mature individuals is estimated to be very low with fewer than 100 plants occurring in the only known extant population (L. Copeland *in litt.* May 2016).
5. *Pimelea cremnophila* was first observed by botanists in Oxley Wild Rivers National Park in 2002, and the population, at three known sites, was monitored in 2003–2004 and 2008 (L. Copeland *in litt.* May 2016). A brief search of the two northernmost sites of *P. cremnophila* in

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November 2015 failed to relocate individuals. Surveys to locate additional populations have been conducted in suitable habitat within Oxley Wild Rivers National Park since 2006, including a major survey in 2012–2013, but all have failed to locate new stands (L. Copeland *in litt.* May 2016).

6. The geographic distribution of *Pimelea cremnophila* is very highly restricted. The area of occupancy (AOO) and extent of occurrence (EEO) were estimated to be 4 km². The AOO is equivalent to a single 2 x 2 km grid cell, the scale recommended for assessing AOO by IUCN (2016).
7. Threats to *Pimelea cremnophila* include grazing by feral goats, extreme drought conditions and inappropriate fire regimes (Copeland and Telford 2006). Evidence of grazing by feral goats has been observed (L. Copeland *in litt.* May 2016). Mortality of mature individuals was also observed during 2002–2003, potentially correlated with extreme drought during this period (Copeland and Telford 2006). The forecast increase in the frequency and intensity of drought associated with anthropogenic climate change may therefore be a threat to this species. The population dynamics of *P. cremnophila* are currently poorly characterised but the species is suspected to be an obligate seeder and therefore vulnerable to high frequency fires preventing successful recruitment and replenishment of the soil-stored seedbank. ‘Anthropogenic Climate Change’, ‘Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758’ and ‘High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition’ are listed as Key Threatening Processes under the Act.
8. *Pimelea cremnophila* L.M.Copel. & I.Telford is eligible to be listed as a Critically Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing an extremely high risk of extinction in Australia in the immediate future as determined in accordance with the following criteria as prescribed by the *Biodiversity Conservation Regulation 2017*:

Clause 4.3 - Restricted geographic distribution of species and other conditions
(Equivalent to IUCN criterion B)

The geographic distribution of the species is:	
	(a) for critically endangered species very highly restricted.
and the following conditions apply:	
	(d) the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations,
	(e) there is a projected or continuing decline of the following:
	(i) an index of abundance appropriate to the taxon,
	(ii) the geographic distribution of the species.

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Clause 4.4 - Low numbers of mature individuals of species and other conditions
(Equivalent to IUCN criterion Clause C)

The estimated total number of mature individuals of the species is:			
	(a)	for critically endangered species	very low.
and the following condition applies:			
	(d)	a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species):	
	(i)	for critically endangered species	very large.

Clause 4.5 - Low total numbers of mature individuals of species
(Equivalent to IUCN criterion D)

The total number of mature individuals of the species is:			
	(a)	for critically endangered species	extremely low.

Dr Marco Duretto
Chairperson
NSW Threatened Species Scientific Committee

Exhibition period: 01/12/17 – 26/01/18

Proposed Listing date: 01/12/17

References:

Copeland LM, Telford IRH (2006) *Pimelea cremnophila* (Thymelaeaceae), a new species from the New England Tablelands escarpment of northern New South Wales. *Telopea* **11**, 111–115.

IUCN Standards and Petitions Subcommittee (2016) Guidelines for Using the IUCN Red List Categories and Criteria. Version 12. Prepared by the Standards and Petitions Subcommittee. <http://www.iucnredlist.org/documents/RedListGuidelines.pdf>