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Notice of and reasons for the Final Determination

The Scientific Committee, established by the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to list the shrub *Homoranthus elusus* L.M.Copel. 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.

Summary of Conservation Assessment

Homoranthus elusus was found to be eligible for listing as Critically Endangered under Clause 4.5. The main reason for this species being eligible is that the total number of mature individuals is extremely low.

The NSW Threatened Species Scientific Committee has found that:

1. *Homoranthus elusus* L.M.Copel. (family Myrtaceae) is the name currently accepted in NSW.

2. *Homoranthus elusus* was first described by Copeland *et al.* (2011) as an "*Erect shrub*, glabrous. *Leaves* opposite, decussate, punctate, 8–13mm long, 0.2–0.4mm wide, 0.4–0.8mm thick, linear, mucronate, petiolate; blade in side view straight to incurved linear; petiole 0.6–1.1mm long. *Flowering branchlets* undifferentiated, with 2–4 flowers held erect in leaf axils at branchlet apex. *Inflorescence* a monad; peduncles 1.0–1.5mm long; bracteoles caducous, 4–7mm long. *Hypanthium* cylindrical, 5-costate, tuberculate between the ribs, with rounded, multicellular trichomes, 3.8–5.2mm long. *Sepals* 5, the apex distally laciniate with 3–6 slender processes, 2–2.5mm long. *Petals* 5, broadly obovate, the apex obtuse, 2.0–2.5mm long, the margin entire. *Stamens* 10; filaments ~0.6mm long; anthers globose, basifixed, yellow. *Staminodes* 10, alternating with the stamens, distinctly adnate to the adjacent antepetalous stamen. *Style* 8–10mm long, exceeding the hypanthium by 4–6mm at anthesis, minutely hirsute below the papillose stigma. *Ovary* unilocular; placenta sessile, axile-basal. *Fruit* a dry, indehiscent nut, brown. *Homoranthus elusus* is most similar to *H. bruhlii* from which it can be distinguished by its thinner leaves (0.4–0.8mm in *H. elusus* compared with 0.8–1.4mm in *H. bruhlii*). In addition, *H. elusus* also has several rounded, multicellular trichomes between the hypanthium costae – these trichomes are absent from the hypanthia of *H. bruhlii*. Although *H. elusus* was originally identified as *H. biflorus* on the label of the holotype, the two species are not closely related and *H. elusus* can be easily distinguished by the flowering branchlets being undifferentiated. In contrast, the flowers of *H. biflorus* are arranged in pairs on a strongly modified internode that superficially resembles a peduncle."

3. The species is endemic to NSW and is known only from a single population occurring on rocky outcrops on Bluff Rock in Crown land c. 13 km south of Tenterfield. There is only one known location of the species, despite the presence of several hectares of suitable habitat in the immediate area and further suitable habitat in the nearby Bluff Rock Nature Reserve, and past flora surveys in these areas.

4. Targeted surveys in 2003 failed to relocate the species at Bluff Rock, however given the abundance of apparently suitable habitat the species may persist at a very low density. No further surveys have been undertaken there since the species was described in 2011.

5. There are no population size estimates, past or present, however, population size is considered extremely low (<50 mature individuals) as the original collections only refer to individual plants and the surveys in 2003 failed to locate any individuals.

6. *Homoranthus elusus* occurs in scrub and heath patches in crevices of granite outcrops. Associated species include *Mirbelia confertiflora*, *Boronia microphylla* and *Hakea laevipes* subsp. *graniticola*. Flowers and unopened floral buds on the type collection indicate that *H. elusus* flowers in July and August (Copeland *et al.* 2011).

7. Very little is known about the ecology of the species, however, like other species in the genus *Homoranthus* it is likely to be an obligate seeder and killed by fire, relying on soil-stored seed banks for regeneration. Seeds are likely to require fire related cues for germination.

8 Potential threats to *H. elusus* include stochastic events given the very low population size, browsing by feral goats, and fire regimes which inhibit recruitment (too frequent or too infrequent fires).

9 *Homoranthus elusus* L.M.Copel. 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 4.2 – Reduction in population size of species
(Equivalent to IUCN criterion A)
Assessment Outcome: Data Deficient.

(1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:			
	~~(a)~~	~~for critically endangered species~~	~~a very large reduction in population size, or~~
	~~(b)~~	~~for endangered species~~	~~a large reduction in population size, or~~
	~~(c)~~	~~for vulnerable species~~	~~a moderate reduction in population size.~~
(2) - The determination of that criteria is to be based on any of the following:			
	~~(a)~~	~~direct observation,~~	
	~~(b)~~	~~an index of abundance appropriate to the taxon,~~	
	~~(c)~~	~~a decline in the geographic distribution or habitat quality,~~	
	~~(d)~~	~~the actual or potential levels of exploitation of the species,~~	
	~~(e)~~	~~the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.~~	

Clause 4.3 - Restricted geographic distribution of species and other conditions
(Equivalent to IUCN criterion B).
Assessment Outcome: Not Met.

The geographic distribution of the species is:			
	(a)	for critically endangered species	very highly restricted, or
	~~(b)~~	~~for endangered species~~	~~highly restricted, or~~
	~~(c)~~	~~for vulnerable species~~	~~moderately restricted.~~
and at least 2 of the following 3 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 in any of the following:~~	
		~~(i)~~	~~an index of abundance appropriate to the taxon,~~
		~~(ii)~~	~~the geographic distribution of the species,~~
		~~(iii)~~	~~habitat area, extent or quality,~~
		(iv)	~~the number of locations in which the species occurs or of populations of the species.~~
	~~(f)~~	~~extreme fluctuations occur in any of the following:~~	
		~~(i)~~	~~an index of abundance appropriate to the taxon,~~
		~~(ii)~~	~~the geographic distribution of the species,~~
		~~(iii)~~	~~the number of locations in which the species occur or of populations of the species.~~

Clause 4.4 - Low numbers of mature individuals of species and other conditions
(Equivalent to IUCN criterion Clause C)
Assessment Outcome: Not Met.

The estimated total number of mature individuals of the species is:						
	(a)	for critically endangered species			very low, or	
	~~(b)~~	~~for endangered species~~			~~low, or~~	
	~~(c)~~	~~for vulnerable species~~			~~moderately low.~~	
and either of the following 2 conditions apply:						
	~~(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, or~~	
		~~(ii)~~	~~for endangered species~~		~~large, or~~	
		~~(iii)~~	~~for vulnerable species~~		~~moderate,~~	
	(e)	both of the following apply:				
		~~(i)~~	~~a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and~~			
		(ii)	at least one of the following applies:			
			(A)	the number of individuals in each population of the species is:		
				(I)	for critically endangered species	extremely low, or
				~~(II)~~	~~for endangered species~~	~~very low, or~~
				~~(III)~~	~~for vulnerable species~~	~~low,~~
			(B)	all or nearly all mature individuals of the species occur within one population,		
			~~(C)~~	~~extreme fluctuations occur in an index of abundance appropriate to the species.~~		

Clause 4.5 - Low total numbers of mature individuals of species
(Equivalent to IUCN criterion D)
Assessment Outcome: Critically Endangered under Clause 4.5(a).

The total number of mature individuals of the species is:			
	(a)	for critically endangered species	extremely low, or
	~~(b)~~	~~for endangered species~~	~~very low, or~~
	~~(c)~~	~~for vulnerable species~~	~~low.~~

Clause 4.6 - Quantitative analysis of extinction probability
(Equivalent to IUCN criterion E)
Assessment Outcome: Data Deficient.

The probability of extinction of the species is estimated to be:			
	~~(a)~~	~~for critically endangered species~~	~~extremely high, or~~
	~~(b)~~	~~for endangered species~~	~~very high, or~~
	~~(c)~~	~~for vulnerable species~~	~~high.~~

Clause 4.7 – Very highly restricted geographic distribution of species–vulnerable species (Equivalent to IUCN criterion D2)
Assessment Outcome: Vulnerable under Clause 4.7.

For vulnerable species,	the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period.

Dr Anne Kerle
Chairperson
NSW Threatened Species Scientific Committee

Supporting Documentation:

Le Breton T (2019) Conservation Assessment of *Homoranthus elusus* L.M.Copel. (Myrtaceae). NSW Threatened Species Scientific Committee.

References:

Copeland LM, Craven LA, Bruhl JJ (2011) A taxonomic review of *Homoranthus* (Myrtaceae: Chamelaucieae). *Australian Systematic Botany* **24**, 351-374. DOI: 10.1071/SB11015