Conservation Assessment of *Homoranthus floydii* Craven & S.R.Jones (Myrtaceae)

NSW Threatened Species Scientific Committee – 19/05/2022

Homoranthus floydii Craven & S.R.Jones (Myrtaceae)

Distribution: Endemic to NSW
Current EPBC Act Status: Not listed
Current NSW BC Act Status: Not listed

Proposed listing on NSW BC Act and EPBC Act: Vulnerable

Summary of Conservation Assessment

Homoranthus floydii was found to be eligible for listing as Vulnerable under Criteria B1+B2 (a) (b iii) and Criterion D1.

The main reasons for this species being eligible are that its geographic distribution is restricted, it occurs in a limited number of threat-defined locations, there is inferred continuing decline in habitat quality as a result of frequent fire at some locations, and the species has a low total number of mature individuals.

Description and taxonomy

Homoranthus floydii was described by Harden (2002, p.219) as a "Sparse, erect shrub to 1.5 m high; glabrous. Leaves laterally compressed, narrow-elliptic to oblanceolate, incurved, usually 5–10 mm long, 1–1.5 mm thick, <0.3 mm wide; subsessile. Flowers solitary or in pairs on undifferentiated branches, yellow to reddish; peduncle 9–16 mm long; bracteoles 7.5–9 mm long, caducous. Hypanthium obconical, 7–8 mm long, 5-ribbed, glabrous or rarely with multicellular trichomes between the ribs in the lower half. Sepals 1.5–3 mm long, apex long-acuminate, not lobed. Petals broad-elliptic or broad-obovate 1.3–2 mm long, margins entire. Style 8.5–9 mm long. Flowers Aug. and Sept."

The species is distinguished from other NSW species of *Homoranthus* by the combination of flowers held erect (rather than pendulous) on long peduncles (6 to 16 mm long), with the apex of each sepal long-acuminate (rather than divided into multiple long thin processes).

Ecology

Craven and Jones (1991) summarised the habitat of *Homoranthus floydii* as "sandstone in heathy woodland of *Eucalyptus gummifera*, *E. planchoniana, E. pyrocarpa* and *Banksia serrata*."

Harden (2002, p.219) describes the habitat of *Homoranthus floydii* as "woodland with heath understorey on skeletal sandy soils." Collection notes attached to herbarium specimen records available through the ALA include the following:

- "Growing on sandstone plateau in woodland of *Eucalyptus baileyana, E. pyrocarpa."*

- "On moderate upper slopes of steep valley between sandstone slabs. Heathy woodland of *Eucalyptus gummifera, E. pyrocarpa, E. planchoniana* and *Banksia serrata..."*
- "Dry sclerophyll forest on cliff top. Skeletal sandy soil on sandstone."
- "Dry sclerophyll forest, on moderate slope to creek tributary. Sandy soil over sandstone."
- "On top of vertical westerly facing cliff. Skeletal sandy loamy over sandstone..."

Sheringham (*in litt.* Feb 2020) described the species' habitat as follows:

> "The species occurs in outcropping sandstone sites with shallow soils, sometimes on exposed sandstone escarpments, but also more sheltered mid and lower slopes near creeks and waterfalls. The associated species at the Tallawudjah site includes an overstorey of *Eucalyptus pyrocarpa, Corymbia gummifera, Eucalyptus planchoniana*. There is a smaller tall shrub small tree layer of *Leptospermum trinervium* and *Angophora robur*. A dense small shrub layer of *Banksia oblongifolia, Lambertia formosa, Leptospermum polygalifolium, Xanthorrhoea* sp. and a ground layer of *Lomandra glauca*. The areas closer to the escarpment rim … perhaps are sheltered from fire and there is more shrub development, including *Homoranthus floydii*.
>
> The vegetation in Sherwood Nature Reserve is a low woodland with *Eucalyptus planchoniana, Eucalyptus baileyana, Corymbia gummifera, Eucalyptus pyrocarpa* with shrubs *Leptospermum trinervium, Lambertia formosa* and *Monotoca scoparia* and ground layer of *Caustis blakei, Lomandra glauca* and *Ptilothrix deusta*."

Plotting corrected ALA and BioNet records of *Homoranthus floydii* in GIS against the NSW seamless geology mapping of Philips *et al.* (2015) indicates that currently known records of the species are entirely restricted to areas of outcropping Kangaroo Creek Sandstone. This is a massive, quartzose, medium to coarse-grained fluvial channel sandstone unit (Philips *et al.* 2015), which outcrops across the lower Clarence River catchment in an elongated N-S arc roughly 120km long, with Sherwood NR at the southern edge of its curve.

Homoranthus floydii appears to be an obligate seeder, with adults killed by fire and the species recruiting from seed post-fire. Sheringham (*in litt.* July 2021) revisited a known subpopulation approximately 18 months after it had been burnt by a December 2019 wildfire and reported that all previously adult plants had been killed by the fire, and at the time of his visit large numbers of post-fire recruits of various ages were present, from recently emerged seedlings to older plants in bud and likely to flower in October 2021. He concluded that the species is an obligate seeder, with a primary juvenile period of 2-3 years (Sheringham *in litt.* July 2021). This time to maturity is corroborated by sighting notes from a record of the species by Benwell on 26 September 1997 at Walters Ck in Tallawudjah NR, which indicate that the species there had "…seedling recruits up to 3yrs old, flowering…".

The NSW Flora Fire Response Database (FFRD 2014 update) lists five other *Homoranthus* species and 11 taxa in the closely related genus *Darwinia* but has only limited data describing their fire response. Based on the juvenile period for *H. floydii*

of 3 years, and available FFRD data for lifespan and minimum and maximum maturity across those related taxa with similar fire response (obligate seeder), growth form (erect medium shrub), and habitat (dry shrubby forest on near-coastal sandstone), the lifespan of *H. floydii* plants in the absence of fire is estimated as at least 10 years.

Generation length for *H. floydii* is unknown. IUCN (2019) offer 6 alternatives for estimation of generation length, with option 6 suitable for plants with seed banks. Under this option, generation length = "juvenile period + either the half-life of seeds in the seed bank or the median time to germination, whichever is known more precisely. Seed bank half-lives commonly range between <1 and 10 years." Soil seedbank half-life, and median time to germination, are unknown in *H.floydii*, but the common half-life range suggests a potential generation length of between 4 and 13 years.

Distribution and Abundance

Craven and Jones (1991) first described *Homoranthus floydii* and summarised its distribution as "New South Wales: Sherwood Nature Reserve, near Glenreagh, in the Coffs Harbour district." Harden (2002, p.219) described *H. floydii* as "rare, in the Glenreagh area west of Coffs Harbour. NC." Sheringham (*in litt.* February 2020) described the species' distribution as follows:

> "Only known from four locations: Waihou Plateau (Sherwood Nature Reserve); Huntleys Nob (Sherwood Nature Reserve), and Tallawudjah Nature Reserve. …. A population at McGills Road on private land was burnt in recent fires."

For this Conservation Assessment, records for *Homoranthus floydii* were compiled from multiple sources:

- Atlas of Living Australia database (ALA 2021: https://www.ala.org.au/),
- NSW BioNet database (http://www.bionet.nsw.gov.au/),
- Locations reported by Sheringham (undated), Sheringham (*in litt.* Oct 2020), Sheringham (*in litt.* July 2021) and Sheringham (*in litt.* Sept 2021).

Records were combined and duplicates removed. Site co-ordinates in the combined set were corrected for a small number of records where plotted locations in GIS did not match detailed location description. The resulting compilation indicates that currently known records of *Homoranthus floydii* are predominantly within Sherwood NR and Tallawudjah NR but include recent records from private land north of Tallawudjah NR in similar habitat to that in the reserve.

Based on corrected site records combined from BioNet, ALA and *in litt* reports, imported into the Kew GeoCat tool (Bachman *et al.* 2011), the AOO for *Homoranthus floydii* is 48km², and EOO is 116 km². The GeoCat tool calculates EOO using a minimum convex polygon enclosing all mapped occurrences of the species, and AOO based the number of 2 km x 2 km grid cells occupied by the species, as recommended by IUCN (2019).

Combining information from Table 3 of Sheringham (*in litt.* Oct 2020) with other reports of additional plants, suggests a total population across all currently known records of 1048 individuals. This consists of:

- Sheringham (*in litt.* Oct 2020) Table 3 total figure of 787 individuals,

- report of 22 individuals from Waihou Trig associated with NSW Herbarium record NSW277565 (which appears to have been included in wrong row of Table 3 so had not been included in that total),
- report of 223 individuals from McGills Road property (Sheringham *in litt.* July 2021),
- report of 16 individuals from roadside near Waihou trig (Sheringham *in litt.* Sept 2021)

Following revisits to many known sites, Sheringham (*in litt.* Feb 2020) advised that of the plants observed during surveys, "most individuals are mature flowering individuals." At that time there were an estimated 712 mature individuals. There have since been further records of mature individuals (e.g. Sheringham *in litt.* Sept 2021).

There are currently no data available on population trends in *Homoranthus floydii*. Recent targeted survey and incidental sightings have added new records of the species from new areas, including private lands outside the reserve system, but it is unknown whether the total population is declining, stable or increasing.

Threats

Habitat disturbance and loss, including road maintenance

The majority of current known records of *Homoranthus floydii* are located within formal conservation reserves, with low to nil threat of habitat loss. However, some threats do apply within reserves, and habitat loss may occur for subpopulations existing on private lands.

Sheringham (*in litt.* Sept 2021) reported that a subpopulation of the species along Sherwood Rd within Sherwood NR was subject to disturbance from road maintenance works: "Some plants had been impacted by the road grading, and others are vulnerable to future grading works."

Sheringham (*in litt.* July 2021) reported that the species is present on private lands north of Tallawudjah NR and noted that this area includes rural-residential properties which may be subject to "…disturbance including clearing for house construction, logging and felling of trees, roads and fire".

Pathogens

The highly invasive exotic pathogen known as myrtle rust, *Austropuccinia psidii*, is recognised as a major threat to native Australian plants in the Myrtaceae family. "Introduction and establishment of exotic rust fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae" is listed as a key threatening process (KTP) in Schedule 3 of the NSW Biodiversity Conservation Act. Myrtle rust spores are readily dispersed by wind and animals, and less than 12 months after its first Australian detection on the NSW Central Coast in 2010, *Austropuccinia psidii* had been detected as far away as the Cairns region of north Queensland. The pathogen rapidly became widespread along much of the NSW coastal fringe (OEH 2011). In a review of myrtle rust impacts on Australian biota, compiled by Makinson (2018), 7 species of *Homoranthus* are reported as known to be host species subject to 'natural' infection (i.e. on wild or open-cultivated plants) by this pathogen, of which 3 are known to have Moderate Susceptibility and the other 4 have not yet been rated. The distribution of *Homoranthus floydii* fits entirely within the "east Australian infection zone" (Makinson 2018) of myrtle rust and the species has almost certainly been exposed to infection by

the pathogen. However, at least to date, there have been no reports of myrtle rust infection being observed in the species from multiple post-2010 records including an extensive survey in late 2019 that visited many known subpopulations and counted individual plants.

Pest species

There are currently no reports of pest animal species threatening *Homoranthus floydii*. Its relatively dry, sandy habitat is not currently threatened by weed invasion.

Climate change

Climate projections for the NSW North Coast region include increases in minimum / maximum temperatures of 0.5-1.0 / 0.4-1.0°C to 2030 and 1.6-2.5 / 1.5-2.4 °C to 2070, with increases in annual number of hot days and decreases in number of cold nights (OEH 2014). Annual rainfall patterns are projected to change, with a decrease in winter rainfall and increases in autumn and spring rainfall. These projected rainfall changes have some bearing on Forest Fire Danger Index (FFDI) projections, with likely decreases in incidence of severe fire weather in autumn. However, there are also projected small increases in average and severe FFDI values in spring and summer, which are the seasons of annual prescribed burning and peak fire risk.

Potential responses of *Homoranthus floydii* and its habitat to these projected changes cannot be inferred with any certainty. Current mean annual winter minimum and summer maximum temperatures in its AOO are roughly 7°C and 27.5°C and average annual rainfall 1345 mm. It occurs across a reasonably broad elevation range of roughly 100 to 400 metres above sea level, in a variety of landscape positions, suggesting some tolerance for a range of temperatures and soil moisture conditions. But how the species – and its habitat and co-occurring species, including competitors, pollinators, seed predators, pathogens etc. - might respond to projected shifts in any individual component from climate models is unknown, let alone across the suite of potential changes in all modelled components.

Fire

Homoranthus floydii appears to be a long-lived shrub that is an obligate seeder. Its habitat is a component of the Dry Sclerophyll Forest formation (shrubby subformation) of Keith (2004), for which the fire interval guidelines of Kenny *et al*. (2004) suggest an acceptable inter-fire interval of between 7 years (minimum) and 30 years (maximum) for the maintenance of native biodiversity.

Table 1 summarises the fire history since 2000 of 12 areas of known *Homoranthus floydii* records, based on intersection of spatially corrected species records against DPIE fire history layer (accessed 20 July 2021) in GIS. All areas have experienced at least 1 wildfire over this 20-year period and one area has had 5 fires, with most areas having had 2 (6 areas) or 3 fires (3 areas). During this period, five areas have experienced burning regimes with an inter-fire interval shorter than the recommended seven years for shrubby dry sclerophyll forest habitat: the Sydney Heads area and two areas in the southeast of Tallawudjah NR, and two areas on private property to the north of this reserve. A recent visit to one of these sites on private property (Sheringham *in litt.* July 2021) reported a count of 191 seedling *H. floydii* plants that had emerged post-fire.

Sheringham (*in litt.* Feb 2020) advised that "Frequent fire is leading to decline of habitat quality at the Sydney Heads site in Tallawudjah Nature Reserve with the loss of smaller shrubs and dominance of grasses."

Table 1: General incidence of mapped wildfires, since 2001/02 fire season, at areas known to support subpopulations of *Homoranthus floydii*.

Area Label	2001/02 Kookaburra Rd	2002/03 Sherwood Ck	2002/03 Black Swamp/ Kremnos	2002/03 Athol Glen	2005/06 Sherwood Rd	2009/10 Black Swamp	2012/13 Featherstone Rd	2013/14 Morrows Rd	2014/15 Fish Hole Ck	2014/15 McGills Rd	2017/18 Sherwood Ck Rd	2018/19 Walters Ck	2019/20 Liberation Trail
Sydney Heads			burnt						burnt				burnt
Walters Ck			burnt						burnt				
Tallawudjah southeast 2			burnt			burnt			burnt			burnt	
Tallawudjah southeast 3			burnt			burnt			burnt			burnt	burnt
Stoney Ridge Rd Biobank			likely burnt							burnt			burnt
McGills Rd BCT			likely burnt							burnt			burnt
Middle Creek								burnt			partly burnt[1]		
Sherwood Rd	burnt							burnt					
Waihou Bluff								burnt					
Waihou Trig					partly burnt[2]			burnt					
Conglomerate Trail				burnt				burnt					
northeast corner SnakeCk		burnt					burnt						

[1]records on southern edge in mapped fire extent
[2]record SE of trig not burnt

Other threats

Sheringham (*in litt.* Feb 2020) suggests that low population size represents a current threat to the species, from inbreeding and susceptibility to stochastic events.

Threat-defined locations

Assessment against IUCN criteria includes consideration of 'threat-defined locations' based on the most serious plausible threat to a taxon (IUCN 2019, p.60). The current most serious plausible threat to *Homoranthus floydii* appears to be high fire frequency (recurrent fires at a frequency which does not allow replenishment of soil seedbanks). Its habitat is considered to require a minimum inter-fire interval of at least 7 years (Kenny et al. 2004), while data in the NSW Flora Fire Response Database (FFRD 2014 update) suggest minimum fire intervals of five to 10 years for related taxa of *Homoranthus* and *Darwinia*. Intersection of fire mapping against areas of known *H. floydii* records indicates a wide diversity in fire histories for these areas over the last 20 years (Table 1), with at least eight different 'threat-defined locations' based on different histories. Two of these locations have experienced minimum fire intervals of less than five years (Tallawudjah southeast, and Middle Creek), and two others have had at least one inter-fire period of only five years (Sydney Heads, and private lands north of Tallawudjah). Other locations have had minimum inter-fire periods of between eight and 12 years.

Assessment against IUCN Red List criteria

For this assessment it is considered that the survey of *Homoranthus floydii* has been adequate and there is sufficient scientific evidence to support the listing outcome.

Criterion A *Population Size reduction*

Assessment Outcome: Data Deficient.

Justification:

No quantitative estimates of any change in population size for *Homoranthus floydii* are available, and there are no data suitable to estimate, infer, project or suspect any change in population size. The species is assessed as Data Deficient under this criterion.

Criterion B *Geographic range*

Assessment Outcome: Vulnerable.

Justification: Based on current known records, *Homoranthus floydii* has an EOO of 116 km^2, which fits within the B1 thresholds for Endangered (>100 km^2 and <5,000 km^2). The species has an AOO of 48 km^2 which fits within the B2 thresholds for Endangered (>10 km^2 and <500 km^2).

In addition to these thresholds, at least two of three other conditions must be met - and if the species only meets a lower threat category in these sub-criteria than for the EOO and/or AOO threshold, its overall threat category for Criterion B is that lower category. These conditions are:

a) The population or habitat is observed or inferred to be severely fragmented or there is 1 (CR), ≤5 (EN) or ≤10 (VU) locations.

Assessment Outcome: Vulnerable

Justification: The *Homoranthus floydii* population and its habitat do not meet the IUCN (2019) definition of severely fragmented.

The number of threat-defined locations is considered to be eight based on differences in fire history across known records. This number of locations fits within the thresholds for Vulnerable under this sub-criterion (>5 and ≤10).

b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals

Assessment Outcome: Met for b (iii).

Justification: Available data and observations do not indicate any changes to EOO, AOO, area or extent of habitat, number of locations or subpopulations, or number of mature individuals. However, continuing decline in habitat quality for the species, due to frequent fire, is inferred. Sheringham (in litt. Feb 2020) reported that frequent fire is leading to decline of habitat quality in at least one location, and fire history data indicates that some other locations have experienced similar or greater fire frequency in the last 20 years.

c) Extreme fluctuations.

Assessment Outcome: Not met.

Justification: There is no evidence that the population size or distribution area of *Homoranthus floydii* undergo extreme fluctuations (*sensu* IUCN 2019 p.44). The species is a reasonably long-lived woody shrub; although it appears to be an obligate seeder (with adults killed by fire and replaced from a soil-stored seedbank), fire history data indicate a complex mosaic of fire history across the many sub-populations, with the entire population never burnt in a single fire event.

Criterion C Small population size and decline

Assessment Outcome: Not met.

Justification: Current knowledge of the number of mature individuals of *Homoranthus floydii* indicates that this species' population fits within the thresholds for Endangered (>250 and <2500 mature individuals).

In addition to this threshold, at least one of two additional conditions must be met (and if the species only meets a lower threat category in the sub-criteria, its overall threat category for Criterion C is that lower category). These conditions are:

C1. An observed, estimated or projected continuing decline of at least: 25% in 3 years or 1 generation (whichever is longer) (CR); 20% in 5 years or 2 generations (whichever is longer) (EN); or 10% in 10 years or 3 generations (whichever is longer) (VU).

Assessment Outcome: Not met.

Justification: The available observations and data do not indicate a continuing decline in the number of mature individuals.

C2. An observed, estimated, projected or inferred continuing decline in number of mature individuals.

Assessment Outcome: Not met.

Justification: The available observations and data do not indicate a continuing decline in the number of mature individuals.

In addition, at least 1 of the following 3 conditions:

a (i). Number of mature individuals in each subpopulation ≤50 (CR); ≤250 (EN) or ≤1000 (VU).

Assessment Outcome: VU.

Justification: Across 7 subpopulations named by Sheringham (*in litt.* Feb 2020) and Sheringham (*in litt.* Oct 2020), the number of individuals reported per subpopulation ranged from 7 to 516. It is not clear how many of these were mature individuals, but from his own surveys Sheringham (*in litt.* Feb 2020) advised that "most individuals are mature flowering individuals." These figures suggest that *Homoranthus floydii* is VU under this sub-criterion.

a (ii). % of mature individuals in one subpopulation is 90-100% (CR); 95-100% (EN) or 100% (VU)

Assessment Outcome: Not met.

Justification: Reported numbers suggest that the largest subpopulation of *H. floydii* contains roughly 50% of the species' current total known population, and it is assumed that a similar pattern applies for mature individuals, in the absence of more precise numbers and based on advice from Sheringham (*in litt.* Feb 2020) that "most individuals are mature flowering individuals".

b. Extreme fluctuations in the number of mature individuals

Assessment Outcome: Not met.

Justification: There is no evidence that the number of mature individuals of *H. floydii* is subject to extreme fluctuations

Criterion D Very small or restricted population

Assessment Outcome: Vulnerable under Criterion D1

Justification: Current known records of *Homoranthus floydii* indicate a total population size of more than 250 and less than 1000 mature individuals.

To be listed as Vulnerable under D, a species must meet at least one of the two following conditions:

D1. Population size estimated to number <50 (CR), <250 (EN) or < 1,000 (VU) mature individuals

Assessment Outcome: Vulnerable

Justification: Total population size summed across all current known records of *Homoranthus floydii* to September 2021 is 1048 plants. Early advice from

Sheringham (*in litt.* Feb 2020) was that a high proportion of the then-total may be mature individuals; however, this revised total figure now includes over 200 plants from a recently resurveyed site dominated by post-fire seedling and juvenile plants (Sheringham *in litt.* July 2021). In combination, these data suggest that the total number of mature individuals is greater than 250 but less than 1000.

D2. Restricted area of occupancy (typically <20 km^2) or number of locations (typically <5) with a plausible future threat that could drive the taxon to CR or EX in a very short time.

Assessment Outcome: Not met.

Justification: The AOO for *Homoranthus floydii* based on current known records is 48km^2. The most serious plausible threat to the species is too-frequent fire and based on fire mapping over the last 20 years the species is considered to occur in at least 8 threat-defined locations, each with a different fire history pattern. The species does not fit the thresholds under criterion D2 for AOO or number of locations.

Criterion E Quantitative Analysis

Assessment Outcome: Data Deficient.

Justification: No quantitative estimates of *Homoranthus floydii* probability of extinction over a given time period are possible based on current available data, and the species is assessed as Data Deficient under this criterion.

Conservation and Management Actions

This species is currently not listed on the NSW BC Act 2016. Following publication of a Final Determination by the NSW Threatened Species Scientific Committee, a conservation project will be developed by the NSW Department of Planning and Environment under the Saving our Species (SoS) program. The conservation project will identify priority locations, critical threats and required management actions to secure the species in the wild for the next 100 years. For more information about the SoS program please visit https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program

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Expert Communications

Sheringham P (undated) Survey of Shannon Creek *Homoranthus floydii*. A report prepared by Paul Sheringham, Species Project Coordinator. Saving our species.

Sheringham P (*in litt.* Feb 2020) Nomination of *Homoranthus floydii* Craven & S.R.Jones as Vulnerable under the NSW *Biodiversity Conservation Act* 2016.

Sheringham P (*in litt.* Oct 2020) Response to TSSC request for further information.

Sheringham P (*in litt.* July 2021) Post-fire survey on McGills Rd property.
Sheringham P (*in litt.* Sept 2021) Observations of additional threat to the species.

APPENDIX 1

Assessment against *Biodiversity Conservation Regulation 2017* criteria
The Clauses used for assessment are listed below for reference.

Overall Assessment Outcome:
Homoranthus floydii was found to be Vulnerable under Clause 4.5 (c).

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: Vulnerable under Clause 4.3 (b)* (d) (e iii).
* Although *Homoranthus floydii* meets the thresholds for highly restricted geographic distribution (EOO and AOO) for an endangered species, two of the three other required conditions are only met at the vulnerable level.

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 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: Vulnerable under Clause 4.5 (c).

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: Not met.

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.