



BioCondition Vegetation Assessment

Mount Emerald Wind Farm Offset Site

June 2024



4 elements

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1.0 Introduction

BioCondition assessments on the Mount Emerald Wind Farm (MEWF) Offset Site have been completed by 4 Elements Consulting on behalf of RATCH Australia Corporation Ltd (RATCH). This has been completed as part of the Mount Emerald Offset Management Plan monitoring requirements.

The purpose of these BioCondition assessments is to provide detailed information on a range of vegetation communities that are present within the MEWF Offset Site and repeat this effort annually to monitor vegetation condition over time. It is important that the widest variety of regional ecosystems are captured in the baseline round of the surveys to detect any future changes to vegetation condition across the site. For this purpose, a total of 18 permanent sites have been located throughout the MEWF Offset Site. The first round of monitoring occurred over two consecutive years (2018/19) (see 4 Elements, 2022). From this point forward it is expected that all 18 BioCondition plots will be monitored annually. A summary of survey results for the latest survey period (June 2024) is provided in the below report body. Annual surveys will continue until 2028 as per the Offsets Area Management Plan (RPS, 2016).

1.1 Site Threatened Flora

To offset impacts to threatened flora caused by the construction of the Mount Emerald Wind Farm, a biodiversity offset (MEWF Offset Site) was established and subsequently gazetted as a Nature Refuge in 2018 under the *Nature Conservation Act 1992*. A baseline survey was conducted over this property (Gleed, 2018) with one of the key aims being to determine the presence of threatened flora listed under the *EPBC Act 1999* (EPBC Act) and *Nature Conservation Act 1992* (NC Act). A total of eight (8) listed species were recorded in this survey with seven (7) of these species being present on the Mount Emerald Wind Farm Project Site.

All listed threatened flora that was known to be present from the baseline survey have been recorded at the MEWF Offset Site in the current round of monitoring. Four (4) additional species have also now been recorded in subsequent surveys and are included under a conservation listing since the baseline survey which include *Zieria fordii*, *Diuris oporina*, *Comesperma anemosmaragdinum* and *Dendrobium fellowsii*. This now brings the total number of threatened species present within the MEWF Offset Site to 12 species. All listed threatened species protected pursuant to the EPBC Act and/or NC Act that are present on the MEWF Offset Site are listed below:

- ▶ *Acacia purpureopetala* (purple-flowering wattle) - Critically Endangered (EPBC Act), Vulnerable (NC Act)
- ▶ *Comesperma anemosmaragdinum* - Endangered (NC Act)
- ▶ *Diuris oporina* (northern donkey orchid - Near Threatened (NC Act)
- ▶ *Grevillea glossadenia* - Vulnerable (EPBC Act), Vulnerable (NC Act)
- ▶ *Dendrobium fellowsii* (native damsel orchid) - Vulnerable (NC Act)
- ▶ *Homoranthus porteri* - Vulnerable (EPBC Act), Vulnerable (NC Act)
- ▶ *Melaleuca sylvana* - Endangered (NC Act)

- ▶ *Melaleuca uxorum* - Endangered (NC Act)
- ▶ *Plectranthus amoenus* - Vulnerable (NC Act)
- ▶ *Prostanthera albohirta* - Critically Endangered (EPBC Act), Critically Endangered (NC Act)
- ▶ *Prostanthera clotteniana* - Critically Endangered (EPBC Act), Endangered (NC Act)
- ▶ *Zieria fordii* (Ford's stink-bush) – Critically Endangered (NC Act)

The BioCondition monitoring survey locations have been selected to include threatened flora populations so that the survey plots may act as a monitoring tool of the health of threatened flora populations on the site. Most species present on the MEWF project site are represented within a BioCondition transect except for *Melaleuca sylvana* and *Diuris oporina*.

2.0 Methodology

The methodology of this year's BioCondition sampling follows closely the work of the previous three (3) monitoring periods (4 Elements, 2019, 4 Elements, 2020 and 4 Elements, 2022). The methods used for the BioCondition assessments followed those described by Eyre *et al.*, (2017). The method works on a series of plots and transects nested within a survey area of 10,000 m² (1 ha).

The location of the BioCondition sites provides the opportunity to monitor a subset of the threatened flora populations present on the offset site. All new records of threatened flora are recorded and collected for submission to the herbarium when traversing the offset site. All threatened flora species present within any BioCondition plot are recorded and tallied in the results summary tables for each site (see Section 3). Any sign of dieback or disease are recorded along with any flowering, fruiting, and juvenile plant recruitment to monitor population health and persistence over time. An opportunistic weed survey is also undertaken during site traverse.

2.1 Time of Survey

The survey period was conducted over five (5) non-consecutive days between 5 June - 25 June 2024. This timing is considered appropriate for flora assessment when prevailing cool wet conditions promote plant growth and reproduction. Although some ground forbs and herbs were dormant at the time of survey, several plants which are dormant in the early wet are producing active growth in the early dry season. This includes the listed threatened species *Diuris oporina*. Many other plant groups including grasses were readily detectable and could often be confidently identified to species level.

2.2 Survey Limitations

Under the MEWF Offset Area Management Plan (RPS, 2016), the schedule of two (2) replicates for each of the Offset properties' Regional Ecosystems (REs) was determined to be a requirement under the MEWF approval with conditions (EPBC 2011/6228). Although this monitoring schedule uses the BioCondition conditional assessment (Eyre *et al.*, 2017) to assess vegetation condition, a BioCondition score is only applicable for three (3) of the 18 plots surveyed (see **Table 1** & **Appendix A** below). The remaining 15 sites are unable to be compared to a benchmark score as RE benchmarks are not currently published by the Queensland Herbarium.

Every effort was made to provide two replicate sites for each of the discreet remnant vegetation communities and relevant sub-categories mapped under the RE Description Database Version 13 (REDD 2023). Due to difficulty in accessing some REs associated with steep and loose rocky terrain, not all could be replicated twice. RE 7.12.57a was only sampled with a single replicate due to difficulty in site access. Other REs were rare on site occurring only at a single location and therefore, these REs were also only sampled utilizing a single replicate. These included the vine forest and riverine communities of RE 7.12.9, RE 7.12.7c, RE 7.3.26a and RE 7.2.16a. These REs are also not represented on the Mount Emerald Wind Farm site and therefore not considered as high a

priority for monitoring. All other REs have two (2) independent replicates for future monitoring. A summary of sampled vegetation communities is provided in **Table 1**.

For some REs (e.g. RE 7.12.65k and RE 7.12.57a), a 100 m transect within the plot was not possible due to the limited extent of the community on narrow rock outcrops or within narrow rocky gullies. A 50 m transect was used in these situations and data extrapolated to the 1 ha survey area. Where a 50m transect was utilised it is listed in (**Table 1**) below.

Table 1 Bio-condition Sampling Frequency on the MEWF Offset Site

Regional Ecosystem (REDD)	Survey Number	No. of Replicates	Transect Length (m)	BioCondition Benchmark Published
RE 7.12.65k	Site 2, Site 17	2	50	Yes
RE 7.12.58	Site 1, Site 18	2	100	No
RE 7.12.57a	Site 15	1	50	Yes
RE 7.12.57c	Site 3, Site 16	2	100	No
RE 7.12.30d	Site 4, Site 8	2	100	No
RE 7.12.26e	Site 10, Site 12, Site 13, Site 14	4	100	No
RE7.12.27	Site 9	1	100	No
RE 7.12.16a	Site 6	1	25	No
RE 7.12.9	Site 5	1	25	No
RE 7.12.7c	Site 11	1	100	No
RE 7.3.26a	Site 7	1	100	No

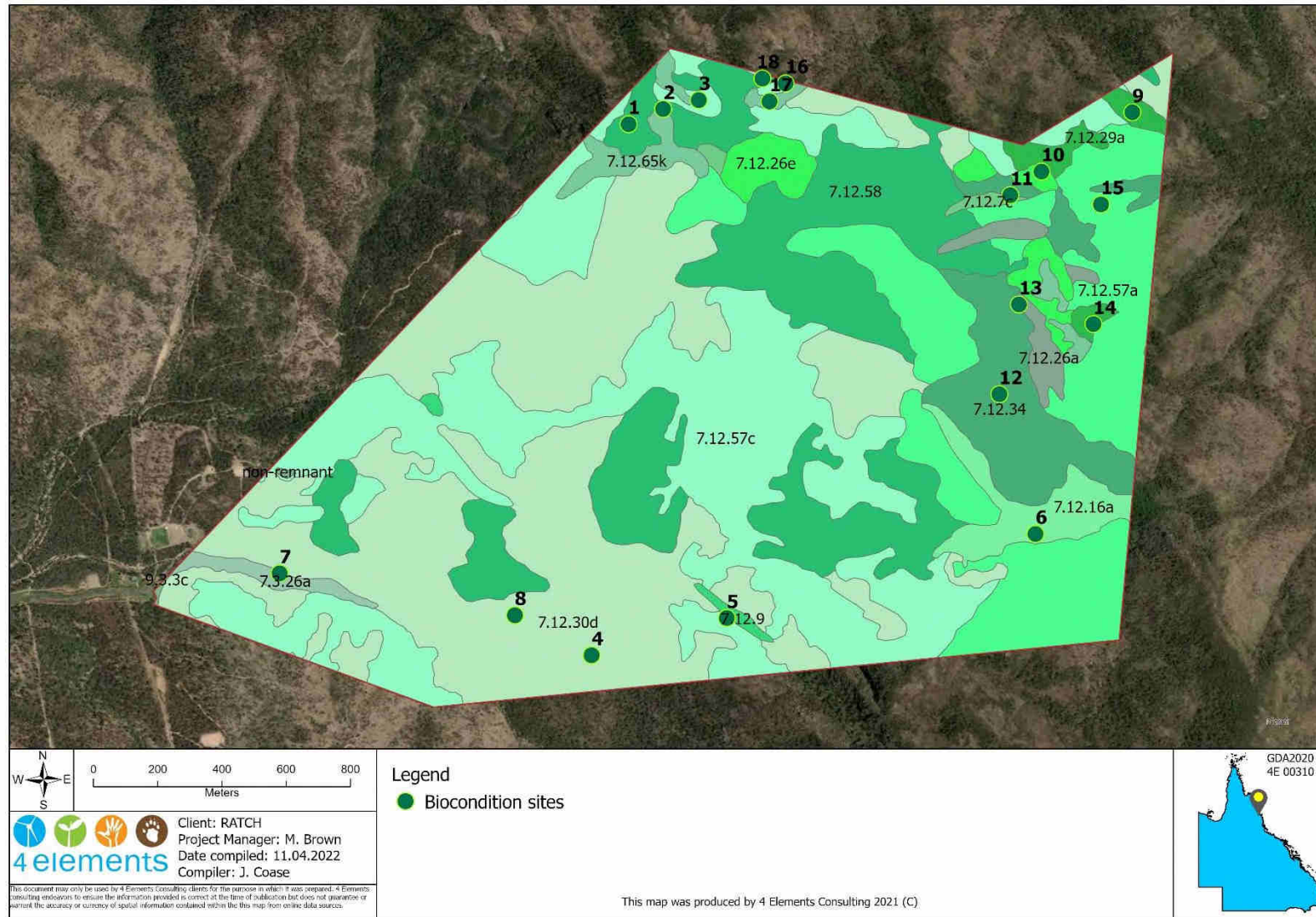


Figure 1 MEWF Offset Bio-condition Assessment Plot Locations

3.0 Bio-condition Report Summary

The current round of monitoring can provide a benchmark assessment for a total of three (3) of the 18 sites surveyed. These scores are provided in **Appendix A** for each of the sites. The lowest of the three (3) scored sites was site 17 (RE 7.12.65k) with 87.8% and the highest score was for site 15 (RE 7.12.57a) with 100%. All other surveyed sites are provided in **Appendix B** as a raw data spread. When further benchmarks are published by the Queensland Herbarium, remaining sites can be scored in line with the BioCondition system.

Given the lack of disturbance history and the lack of existing weed cover within most of the surveyed plots it is likely that all sites would record a high benchmark score if one was available. A single plot (Site 7) located in the southwest of the property had a high proportionate weed cover of 13% invasive grass. The combined total of 19% invasive species cover is very high for this site. The location of Site 7 being within an ephemeral creek bed provides the context for the elevated weed incursion. Ephemeral creeks have a natural annual disturbance regime whereby high floods disturb the ground layer and disperse naturalised weed seeds throughout the system. The dry season then provides natural dieback of annual herbs and grasses which then provides bare ground ideal for weed disturbance. All weeds recorded were naturalised low priority species which provide little threat to the surrounding upslope habitats. All other BioCondition sites recorded weed cover of less than 5% which would provide the maximum benchmark score for this parameter.

4.0 Discussion

The Mount Emerald Offset Site is a biodiversity offset that was gazetted in 2018 as a Nature Refuge under the *Nature Conservation Act 1992*. The site is well selected as an offset property for the MEWF project site which is the neighbouring property located directly to the north. Vegetation communities present on the MEWF project site are represented on the Offset Site, as are the listed threatened species under both the *EPBC Act 1999* and the *NC Act 1992*. All are represented in healthy populations distributed widely across the Offset Site.

Within the 18 BioCondition permanent plots, a total of 11 sites contained listed threatened flora as listed under both state and federal legislation. Threatened species were mostly associated with drier and more structurally open regional ecosystems (7.12.30d, 7.12.57c, 7.12.58 and 7.12.65k). These regional ecosystems are the same as those represented on the MEWF project site where threatened species are clustered. All species that are present within the MEWF Offset Site are now included in this BioCondition assessment monitoring plan for the Offset Site except for *Diuris oporina*, *Prostanthera clotteniana* and *Melaleuca sylvana*. An additional threatened species, *Dendrobium fellowsii*, listed as Vulnerable pursuant to the *Nature Conservation Act 1992* was recorded in three (3) of the permanent BioCondition plots during this round of monitoring. These individuals were found within REs 7.12.26e, 7.12.29a and 7.12.34. Conditions for this species are not considered favourable on the MEWF project site due to the prevailing drier and rockier conditions present within that property. There exist numerous locations for this species to occur throughout the high elevation forested peaks of the Offset Site and further incidental records are likely during the monitoring phase which is to continue annually until 2028.

No evidence of phytophthora dieback (infestation by *Phytophthora cinnamomi*) or myrtle rust (infestation by *Austropuccinia psidii*) was recorded at any of the 18 BioCondition sites. These fungal pathogens are common in the lower, eastern parts of the Wet Tropics bioregion. Non-native flora species were generally very low in abundance and/or absent from many of the sites. Common weeds included *Praxelis clematidea* and *Melinis minutiflora* which are both present across similar habitat in the Wet Tropics due to the ability to wind-disperse. Otherwise, ground cover was between 0-1% for herbaceous weeds. No woody weeds have been detected in any of the 18 BioCondition plots. *Lantana camara* (lantana) is present across the Offset Site although it is never recorded forming dense entanglements and is restricted to minor isolated incursions along edges of vine forest and wet sclerophyll habitats. Feral pig wallowing and digging was not present at any of the 18 BioCondition sites; however, it was recorded occasionally during site traverse between plots.

Due to the lack of reference sites within the Wet Tropics bioregion, a BioCondition score for each of the surveyed vegetation communities cannot be achieved currently. Once reference sites are collected and published by the Queensland Herbarium for the REs present on the Offset Site, this may then occur. As was found in the field surveys for the initial site assessment (RPS, 2016) the ecological condition of the Offset Site is considered to be "pristine" with low disturbance recorded and high abundance of threatened flora species. After the completion of three (3) annual rounds of BioCondition monitoring, this remains the case. Continued annual monitoring of

the 18 permanent BioCondition plots will provide quantitative monitoring of threatened species health and distribution until 2028.

5.0 References

- 4 Elements (2022) BioCondition Survey - MEWF Offset Site April 2022. Unpublished report prepared for Ratch Australia Pty.
- Eyre TJ, Kelly AL and Neldner VJ (2017) Method for the establishment and survey of reference sites for BioCondition. Version 3. Queensland Herbarium, Department of Science, Information Technology and Innovation, Brisbane.
- Gleed, S (2018) Mt Emerald Wind Farm Offset Site BioCondition Surveys 2018. Unpublished report prepared for Ratch Australia Pty.
- Queensland Herbarium (2022) Regional Ecosystem Description Database (REDD). Version 13 (December 13, 2024). DSITI, Brisbane.
- RPS (2016) Offsets area management plan. Mt Emerald Wind Farm, Herberton Range, North Queensland. Unpublished report prepared for Ratch Australia Pty.

Appendix A BioCondition benchmark scoring

BioCondition Site 2 – Scoring

BioCondition Attribute		Measurement		Weighted
RE 7.12.65k – BioCondition Site 2		Site	Benchmark	Score
Recruitment of Ecologically Dominant Layer (EDL) %		100	100	5
Native Species Richness	Tree	2	2	5
	Shrub	11	6	5
	Grass	7	12	2.5
	Forb	7	26	2.5
Canopy Layer	Median Height (m)	-	-	-
	Cover (%)	-	-	-
Large Tree	Large Eucalypt DBH	19	19	-
	Large Eucalypt Per Hectare	5	5	-
	Large Non-Eucalypt DBH	13	13	-
	Large Non-Eucalypt Per Hectare	7	7	-
	Total Large Tress Per Hectare	12	12	15
Shrubs	Native Shrub Cover %	8.2	10	5
Ground Cover	Native Perennial Grass %	2	9	1
	Organic Litter %	2	7	3
Coarse Woody Debris	Total Length Per Hectare	67	67	5
Non-native Plant Cover %		3	0	10
Total Weighted Score				59
BioCondition Ecological Condition Score (= Total Score/ max score of 70)				84.3
Landscape Scale Attributes (wet tropics)		Fragmented		
Size of Patch (fragmented)		10		10
Connectivity (fragmented)		5		5
Landscape Context (Fragmented)		5		5
Landscape Score		20		20
Total BioCondition Score				87.8

BioCondition Site 17 – Scoring

BioCondition Attribute		Measurement		Weighted
RE 7.12.65k – BioCondition Site 17		Site	Benchmark	Score
Recruitment of Ecologically Dominant Layer (EDL) %		100	100	5
Native Species Richness	Tree	2	2	5
	Shrub	12	6	5
	Grass	9	12	2.5

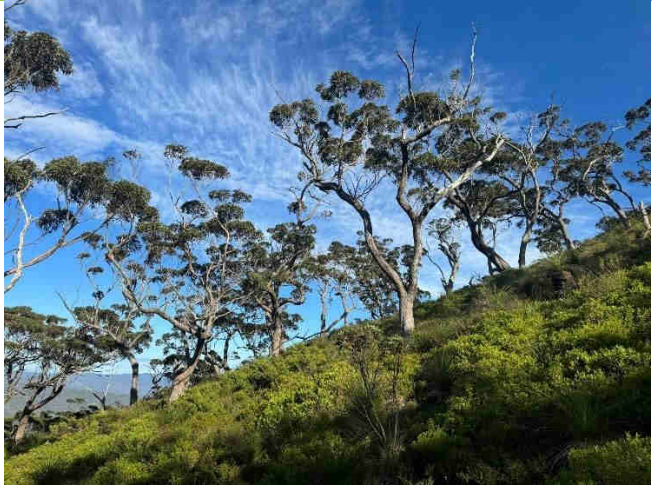


	Forb	13	26	2.5
Canopy Layer	Median Height (m)	-	-	-
	Cover (%)	-	-	-
Large Tree	Large Eucalypt DBH	19	19	-
	Large Eucalypt Per Hectare	5	5	-
	Large Non-Eucalypt DBH	13	13	-
	Large Non-Eucalypt Per Hectare	7	7	-
	Total Large Tress Per Hectare	12	12	15
Shrubs	Native Shrub Cover %	9.7	10	5
Ground Cover	Native Perennial Grass %	23	9	5
	Organic Litter %	3	7	3
Coarse Woody Debris	Total Length Per Hectare	67	67	5
Non-native Plant Cover %		0	0	10
Total Weighted Score				63
BioCondition Ecological Condition Score (= Total Score/ max score of 70)				90.0
Landscape Scale Attributes (wet tropics)		Fragmented		
Size of Patch (fragmented)		10		10
Connectivity (fragmented)		5		5
Landscape Context (Fragmented)		5		5
Landscape Score		20		20
Total BioCondition Score				92.2

BioCondition Site 15 – Scoring

BioCondition Attribute		Measurement		Weighted Score
RE 7.12.65k – BioCondition Site 15		Site	Benchmark	
Recruitment of Ecologically Dominant Layer (EDL) %		100	100	5
Native Species Richness	Tree	6	7	5
	Shrub	11	13	5
	Grass	6	7	5
	Forb	21	18	5
Canopy Layer	Median Height (m)	4	6	5
	Cover (%)	8.8	10	5
Large Tree	Large Eucalypt DBH	-	-	-
	Large Eucalypt Per Hectare	-	-	-
	Large Non-Eucalypt DBH	-	-	-
	Large Non-Eucalypt Per Hectare	-	-	-
	Total Large Tress Per Hectare	-	-	-
Shrubs	Native Shrub Cover %	29.5	10	5
Ground Cover	Native Perennial Grass %	51	24	5

	Organic Litter %	13	15	5
Coarse Woody Debris	Total Length Per Hectare	-	-	-
Non-native Plant Cover %		0	0	10
Total Weighted Score				60
BioCondition Ecological Condition Score (= Total Score/ max score of 60)				100
Landscape Scale Attributes (wet tropics)		Fragmented		
Size of Patch (fragmented)		10		10
Connectivity (fragmented)		5		5
Landscape Context (Fragmented)		5		5
Landscape Score		20		20
Total BioCondition Score				100

Appendix B BioCondition raw data spread

BioCondition Site 1 - 100 m plot length				
Date:	05-06-2024			
Plot Origin:	Zone: 55K	Easting: 0329103	Northing: 8097846	Elevation: 1036
Plot Centre:	Zone 55K	Easting: 0329142	Northing: 8097874	Elevation: 1043
Plot Bearing:	NE	Plot Alignment:	Parallel to contour	
				
North		East		
				
South		West		
Habitat Description:	<i>Eucalyptus reducta</i> open woodland with a canopy height ranging from 8-10m. A shrubby understory consisting of <i>Leptospermum amboinense</i> , <i>Xanthorrhoea johnsonii</i> and <i>Acacia calyculata</i> 0.5-1m in height. The ground cover species consist of <i>Cleistochloa subjuncea</i> and <i>Lepidosperma laterale</i> to 0.25m tall.			
Regional Ecosystem (Mapped):	RE 7.12.58 <i>Eucalyptus reducta</i> +/- <i>E. granitica</i> +/- <i>Corymbia dimorpha</i> +/- <i>C. citriodora</i> woodland to open forest on granite and rhyolite.			
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):			100%
	Native plant species richness:		Trees:	1
			Shrubs:	11

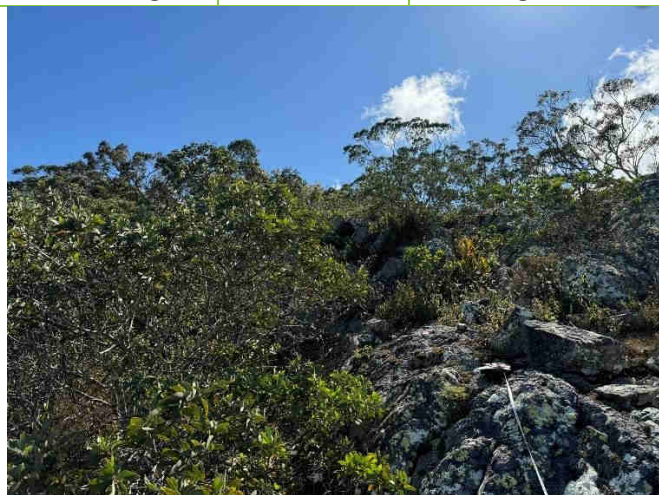
BioCondition Site 1 - 100 m plot length			
		Grasses:	5
		Forbs/Other:	12
	Tree Canopy	Median Height (m)	9
		Tree Canopy Cover (%)	36.8
	Tree Sub-canopy	Tree sub-canopy median Height (m)	N/A
		Tree Sub-canopy Cover	0
	Large Trees	Large Eucalypt tree DBH threshold (cm)	35
		Large Eucalypt trees per hectare	20
		Large non-eucalypt trees threshold (cm)	NA
		Large non-eucalypt trees per hectare	NA
	Shrub Cover	Native Shrub Layer 1 Cover (%)	27.3
		Native Shrub Layer 2 Cover (%)	21.1
	Ground Cover	Native Perennial Grass Cover (%)	33
		Forbs and Non-grass (%)	11
		Shrubs (%)	43
		Organic litter cover (%)	13
		Rock (%)	14
		Bare Ground (%)	0
		Cryptograms (%)	6
		Non-native plant cover (%)	0
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	380	
Native Species Richness:	Trees	<i>Eucalyptus reducta</i>	
	Shrubs	<i>Acacia calyculata, Acrothamnus spathaceus, Comesperma anemosmaragdinum, Exocarpos cupressiformis, Hakea benthamii, Leptospermum amboinense, Persoonia falcata, Platysace valida, Pseudanthus ligulatus, Xanthorrhoea johnsonii, Zieria fordii</i>	
	Grasses	<i>Aristida sp., Cleistochloa subjuncea, Themeda triandra, Eragrostis sp., Digitaria sp.</i>	
	Forbs and Others	<i>Cheilanthes distans, Fimbristylis sp., Hovea nana, Pigea enneasperma, Lepidosperma laterale, Lomandra filiformis, Melichrus urceolatus, Orchid sp., Pimelea linearifolia, Pultenaea millarii, Styliidium graminifolium, Tricoryne anceps</i>	
Non-native Species	Nil		

BioCondition Site 1 - 100 m plot length

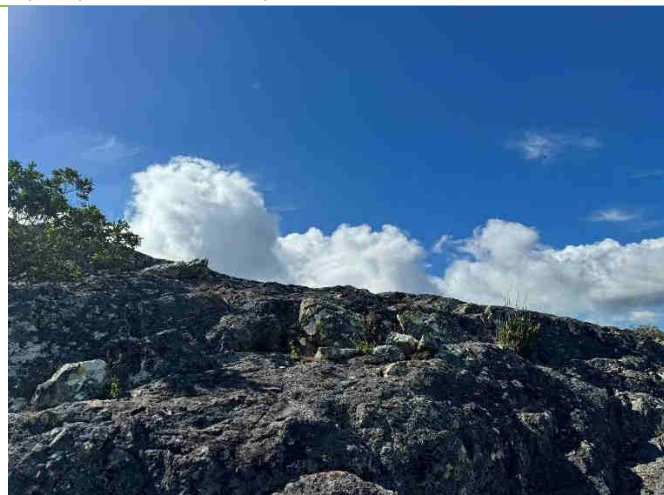
Threatened flora *Comesperma anemosmaragdinum, Zieria fordii*

BioCondition Site 2 - 50 m plot length

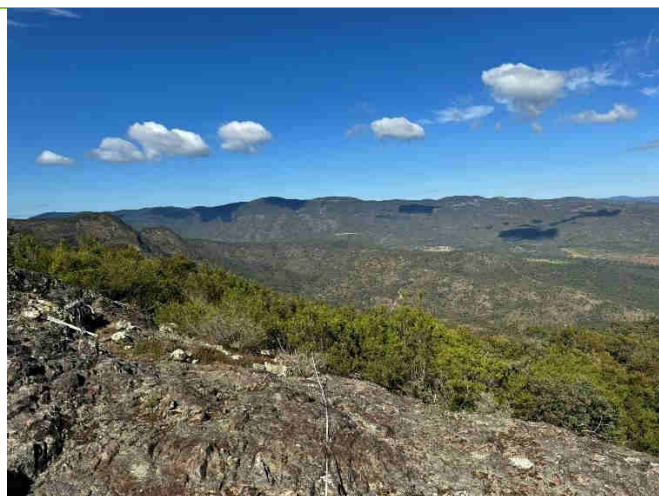
Date:	05-06-2024			
Plot Origin:	Zone: 55K	Lat: 329249	Long: 8097871	Elevation: 1019m
Plot Centre:	Zone: 55K	Lat: 329250	Long: 8097921	Elevation: 1034m
Plot Bearing:	N	Plot Alignment:	Upslope across rock pavement	



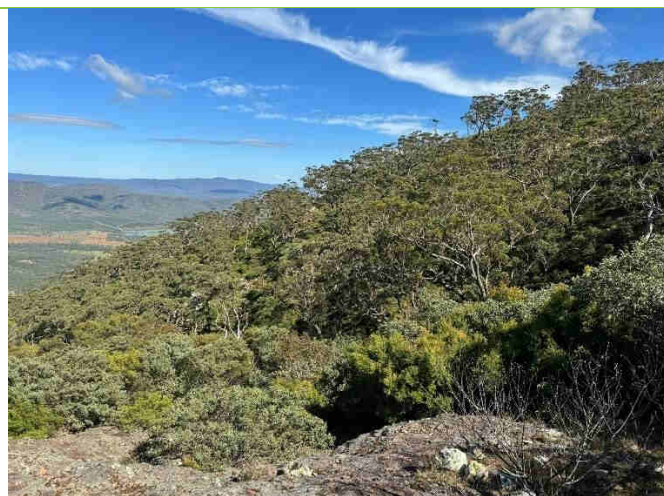
North



East



South



West

Habitat Description:	Rock pavement community that slopes southward. Shrubland community consisting of <i>Acacia aulacocarpa</i> , <i>Eucalyptus lockyeri</i> and <i>Leptospermum amboinense</i> as the dominant shrubs on the site.
Regional Ecosystem (Mapped):	7.12.65k: Granite and rhyolite rock outcrop, of dry western areas, associated with shrublands to closed forests of <i>Acacia spp.</i> and/or <i>Lophostemon spp.</i> and/or <i>Allocasuarina spp.</i> In the Mount Emerald area, shrubs may include <i>Acacia umbellata</i> , <i>Melaleuca borealis</i> , <i>Homoranthus porteri</i> , <i>Leptospermum neglectum</i> , <i>Melaleuca recurva</i> , <i>Melaleuca uxorum</i> , <i>Grevillea glossadenia</i> , <i>Corymbia abergiana</i> ,

BioCondition Site 2 - 50 m plot length

	<i>Eucalyptus lockyeri</i> , <i>Sannantha angusta</i> , <i>Pseudanthus ligulatus</i> subsp. <i>ligulatus</i> , <i>Acacia aulacocarpa</i> , <i>Leptospermum amboinense</i> , <i>Xanthorrhoea johnsonii</i> and <i>Jacksonia thesioides</i> . Ground-cover species may include <i>Borya septentrionalis</i> , <i>Lepidosperma laterale</i> , <i>Eriachne</i> spp., <i>Cleistochloa subjuncea</i> , <i>Boronia occidentalis</i> , <i>Cheilanthes</i> spp., <i>Coronidium newcastlianum</i> , <i>Schizachyrium</i> spp., <i>Tripogon loliiformis</i> , <i>Gonocarpus acanthocarpus</i> and <i>Eragrostis</i> spp. Dry western areas. Granite and rhyolite. (BVG1M: 29b)		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):	100%	
	Native plant species richness:	Trees:	2
		Shrubs:	11
		Grasses:	7
		Forbs/Other:	7
	Tree Canopy	Median Height (m)	NA
		Tree Canopy Cover (%)	NA
	Tree Sub-canopy	Tree sub-canopy median Height (m)	NA
		Tree Sub-canopy Cover	NA
	Large Trees	Large Eucalypt tree DBH threshold (cm)	NA
		Large Eucalypt trees per hectare	NA
		Large non-eucalypt trees threshold (cm)	NA
		Large non-eucalypt trees per hectare	NA
	Shrubs	Native Shrub Cover (%)	8.2
	Ground Cover	Native Perennial Grass Cover (%)	2.0
		Forbs and Non-grass (%)	1.0
		Shrubs (%)	3.0
		Organic litter cover (%)	2.0
		Rock (%)	79.0
		Bare Ground (%)	NA
Cryptograms (%)		11.6	
Non-native plant cover (%)		3	
	Total Non-native species richness	1	
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	NA	
Native Species Richness:	Trees	<i>Eucalyptus granitica</i> , <i>E. reducta</i>	
	Shrubs	<i>Acacia aulacocarpa</i> , <i>Acrothamnus spathaceus</i> , <i>Astrotricha pterocarpa</i> , <i>Eucalyptus lockyeri</i> , <i>Melaleuca recurva</i> , <i>Hibbertia stirlingii</i> , <i>Hibiscus meraukensis</i> ,	

BioCondition Site 2 - 50 m plot length

		<i>Homoranthus porteri</i> , <i>Seringia lanceolata</i> , <i>Leptospermum amboinense</i> , <i>Plectranthus amoenus</i> .
	Grasses	<i>Aristida sp.</i> , <i>Arundinella nepalensis</i> , <i>Cleistochloa subjuncea</i> , <i>Cymbopogon bombycinus</i> , <i>Digitaria sp.</i> , <i>Eragrostis spp.</i> , <i>Tripogon loliiformis</i>
	Forbs and Others	<i>Cheilanthes distans</i> , <i>Drynaria rigidula</i> , <i>Fimbristylis sp.</i> , <i>Gonocarpus acanthocarpus</i> , <i>Hovea nana</i> , <i>Hypericum gramineum</i> , <i>Plectranthus parviflorus</i>
Non-native Species		<i>Praxelis clematidea*</i> , <i>Crassocephalum crepidioides*</i>
Threatened Flora		<i>Homoranthus porteri</i> , <i>Plectranthus amoenus</i>

BioCondition Site 3 - 50 m plot length

Date:	05-06-2024			
Plot Origin:	Zone: 55K	Easting: 329366	Northing: 8097925	Elevation: 1033m
Plot Centre:	Zone: 55K	Easting: 329361	Northing: 8097949	Elevation: 1020m
Plot Bearing:	NNW	Plot Alignment:	Upslope across centre of vegetation type	
				
North		East		
				
South		West		



BioCondition Site 3 - 50 m plot length

Habitat Description:	Low shrubland/heathland 1-2.5m high with a patchy rock pavement surface. The ground layer occurs at a height of 0.25-0.5m, with the dominant grass species occurring as <i>Cleistochloa subjuncea</i> . <i>Xanthorrhoea johnsonii</i> , <i>Acacia calyculata</i> and <i>Eucalyptus lockyeri</i> are dominant species.		
Regional Ecosystem (Mapped):	7.12.57c: Shrubland/low woodland (1.5-9 m tall) mosaic with variable dominance, often including <i>Eucalyptus cloeziana</i> , <i>Corymbia abergiana</i> , <i>E. portuensis</i> , <i>E. reducta</i> , <i>E. lockyeri</i> , <i>C. leichhardtii</i> , <i>Callitris intratropica</i> , <i>E. atrata</i> , <i>E. pachycalyx</i> , <i>E. shirleyi</i> , <i>E. drepanophylla</i> and <i>Homoranthus porteri</i> , on rhyolite and granite.		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%)	100%	
	Native plant species richness:	Trees:	4
		Shrubs:	10
		Grasses:	8
		Forbs/Other:	16
	Tree Canopy	Median Height (m)	NA
		Tree Canopy Cover (%)	0
	Tree Sub-canopy	Tree sub-canopy median Height (m)	NA
		Tree Sub-canopy Cover	0
	Large Trees	Large Eucalypt tree DBH threshold (cm)	40
		Large Eucalypt trees per hectare	4
		Large non-eucalypt trees threshold (cm)	0
		Large non-eucalypt trees per hectare	0
	Shrubs	Native Shrub Layer 1 Cover (%)	22.4
		Native Shrub Layer 2 Cover (%)	22.9
	Ground Cover	Native Perennial Grass Cover (%)	34
		Forbs and Non-grass (%)	4.4
		Shrubs (%)	22
		Organic litter cover (%)	3
		Rock (%)	25.6
		Bare Ground (%)	9
		Cryptograms (%)	0
Non-native plant cover (%)			
Total Non-native species richness		0	
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	0	
Native Species Richness:	Trees	<i>Allocasuarina inophloia</i> , <i>Eucalyptus drepanophylla</i> , <i>Eucalyptus lockyeri</i> , <i>Eucalyptus reducta</i>	
	Shrubs	<i>Acacia calyculata</i> , <i>Acrothamnus spathaceus</i> , <i>Astrotricha pterocarpa</i> , <i>Hakea benthamii</i> , <i>Hibbertia</i>	

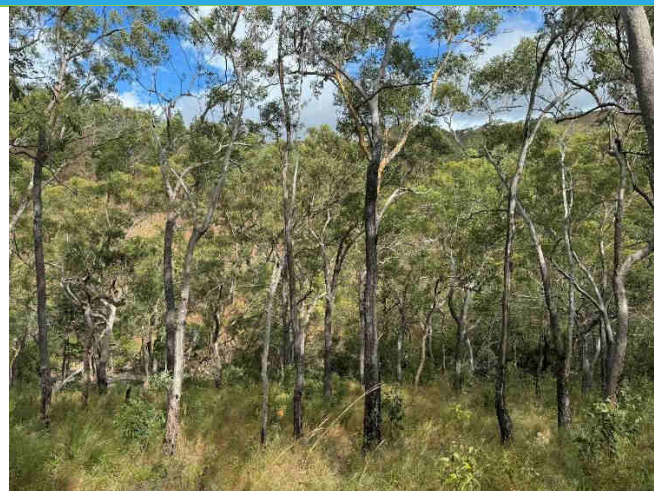
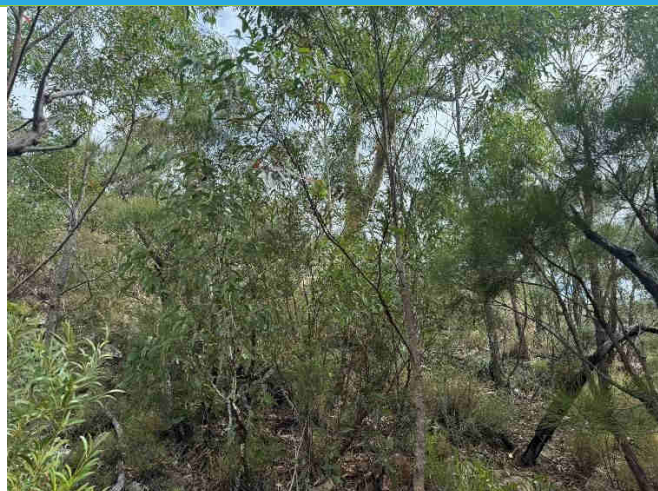
BioCondition Site 3 - 50 m plot length

		<i>stirlingii</i> , <i>Leptospermum amboinense</i> , <i>Persoonia falcata</i> , <i>Platysace valida</i> , <i>Sannantha angusta</i> , <i>Xanthorrhoea johnsonii</i>
	Grasses	<i>Cleistochloa subjuncea</i> , <i>Cymbopogon bombycinus</i> , <i>Eragrostis sp.</i> , <i>Eriachne mucronata</i> , <i>Panicum simile</i> , <i>Schizachyrium fragile</i> , <i>Themeda triandra</i> , <i>Tripogon loliiformis</i>
	Forbs and Others	<i>Cheilanthes distans</i> , <i>Coronidium newcastlianum</i> , <i>Dianella nervosa</i> , <i>Fimbristylis dichotoma</i> , <i>Gonocarpus acanthocarpus</i> , <i>Gahnia aspera</i> , <i>Hibbertia longifolia</i> , <i>Hibiscus normanii</i> , <i>Hypericum gramineum</i> , <i>Lepidosperma laterale</i> , <i>Melichrus adpressus</i> , <i>Phyllanthus dallachyana</i> , <i>Schoenus kennyi</i> , <i>Stylidium gramineum</i> , <i>Thelymitra sp.</i> , <i>Tricoryne anceps</i> .
Non-native Species		Nil
Threatened Flora		Nil

BioCondition site 4 – 100 m plot length

Date:	25-06-2024			
Plot Origin:	Zone: 55K	Lat: -17.21282	Long: 145.39218	Elevation: 660m
Plot Centre:	Zone: 55K	Lat: -17.21256,	Long: 145.39212	Elevation: 662m
Plot Bearing:	NNW	Plot Alignment:	Along contour of hillslope. North-south orientation.	
				
North		East		

BioCondition site 4 – 100 m plot length



South

West

Habitat Description:

Steep hillslope of dry open forest/woodland. The dominant tree species consist of *Eucalyptus cloeziana*, *Eucalyptus pachycalyx*, *Callitris intratropica* and *Allocasuarina inophloia* in the sub canopy. The shrub layer is dense dominated by *Grevillea glossadenia*, *Allocasuarina inophloia* and *Hibbertia stirlingii* (0.5-2m). A grassy ground layer 0.5 m consisting largely of *Triodia microstachya* and *Cleistochloa subjuncea*.

Regional Ecosystem (Mapped):

7.12.30d: Open woodland to open forest (10-20m tall) mosaic with variable dominance, often including *Eucalyptus cloeziana*, *C. citriodora*, *E. portuensis*, *E. lockyeri*, *C. leichhardtii*, *E. atrata*, *E. pachycalyx*, *E. reducta*, *C. intermedia* and *E. shirleyi*. There is often a very sparse to mid-dense secondary tree layer of *C. abergiana* and/or *C. stockeri*. A very sparse to sparse tall shrub layer may be present and can include *Acacia flavescens*, *Persoonia falcata*, *Bursaria spinosa subsp. spinosa*, *Allocasuarina inophloia*, *Petalostigma pubescens* and *Grevillea glauca*. A sparse to dense lower shrub layer may include *Jacksonia thesioides*, *Acacia calyculata*, *Xanthorrhoea johnsonii* and *Grevillea glossadenia*. The ground layer may be dominated by species such as *Themeda triandra*, *Heteropogon triticeus*, *Mnesithea rottboellioides*, *Arundinella setosa*, *Cleistochloa subjuncea*, *Eriachne pallescens var. pallescens*, *Lepidosperma laterale* and *Xanthorrhoea johnsonii*. Rocky slopes on granite and rhyolite. (BVG1M: 9d).




Vegetation

Attributes:

Recruitment of Dominant Canopy Species (%):		100
Native plant species richness:	Trees:	5
	Shrubs:	18
	Grasses:	7
	Forbs/Other:	8
Tree Canopy	Median Height (m)	10
	Tree Canopy Cover (%)	37.1
Tree Sub-canopy	Tree sub-canopy median Height (m)	NA

BioCondition site 4 – 100 m plot length			
		Tree Sub-canopy Cover	NA
	Large Trees	Large Eucalypt tree DBH threshold (cm)	35
		Large Eucalypt trees per hectare	10
		Large non-eucalypt trees threshold (cm)	23
		Large non-eucalypt trees per hectare	4
	Shrubs	Native Shrub Cover (%)	32.2
	Ground Cover	Native Perennial Grass Cover (%)	18.0
		Forbs and Non-grass (%)	4.0
		Shrubs (%)	14.0
		Organic litter cover (%)	31.0
		Rock (%)	290
		Bare Ground (%)	4.0
		Cryptograms (%)	0.0
		Non-native plant cover (%)	0.0
		Total Non-native species richness	0
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	90
Native Species Richness:	Trees	<i>Eucalyptus cloeziana, Eucalyptus pachycalyx, Callitris intratropica, Corymbia erythrophloia, Corymbia leichhardtii</i>	
	Shrubs	<i>Acacia calyculata, Acacia humifusa, Acacia simsii, Acacia umbellata, Allocasuarina inophloia, Bursaria incana, Capparis canescens, Dodonaea lanceolata, Exocarpos cupressiformis, Grevillea dryandri, Grevillea glossadenia, Hibbertia stirlingii, Jacksonia thesioides, Larsenaikia ochreatea, Persoonia falcata, Petalostigma pubescens, Psydrax attenuata, Xanthorrhoea johnsonii.</i>	
	Grasses	<i>Arundinella setosa, Cleistochloa subjuncea, Cymbopogon sp., Panicum simile, Themeda triandra, Triodia microstachya, Thaumastochloa major</i>	
	Forbs and Others	<i>Cheilanthes nitida, Cyanthillium cinereum, Dianella nervosa, Hibbertia longifolia, Gonocarpus acanthocarpus, Gompholobium nitidum, Lomandra filiformis, Scleria brownii</i>	
Non-native Plant Species		<i>Nil</i>	
Threatened Flora		<i>Acacia purpureopetala, Grevillea glossadenia</i>	

BioCondition Site 5 - 25 m plot length

Date:	25-06-2024			
Plot Origin:	Zone: 55K	easting: 329465	northing: 8096347	Elevation: 725m
Plot Centre:	Zone: 55K	easting: 3294483	northing: 8096336	Elevation: 726m
Plot Bearing:	W	Plot Alignment:	Across a boulder strewn gully	
				
North		East		
				
South		West		
Habitat Description:	Closed canopy dry rainforest within a rocky granite gully. Dominated by a canopy layer 15 m of <i>Euroschinus falcata</i> , <i>Pleiogynium timorense</i> and <i>Chionanthus ramiflorus</i> . Dominant herbaceous ground layer of <i>Proiphys amboinense</i> was dormant at time of survey.			
Regional Ecosystem (Mapped):	7.12.9 <i>Acacia celsa</i> open forest to closed forest. Foothills, uplands and highlands on granites and rhyolites, of the very wet and wet rainfall zone. (BVG1M: 5d)			
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):			100%
	Native plant species richness:	Trees:	12	
		Shrubs:	15	
		Grasses:	2	
		Forbs/Other:	12	

BioCondition Site 5 - 25 m plot length

	Tree Canopy	Median Height (m)	16
		Tree Canopy Cover (%)	90.8
	Tree Sub-canopy	Tree sub-canopy median Height (m)	8
		Tree Sub-canopy Cover	22.8
	Large Trees	Large Eucalypt tree DBH threshold (cm)	Nil
		Large Eucalypt trees per hectare	Nil
		Large non-eucalypt trees threshold (cm)	28
		Large non-eucalypt trees per hectare	32
	Shrubs	Native Shrub Cover (%)	7.2
		Non-native Shrub Cover (%)	4.4
	Ground Cover	Native Perennial Grass Cover (%)	3.2
		Forbs and non-grass (%)	3.2
		Shrubs (%)	5.0
		Organic litter cover (%)	40.6
		Rock (%)	48.0
		Bare Ground (%)	0.0
		Cryptograms (%)	0.0
		Non-native plant cover (%)	<1
		Total Non-native species richness	3
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	320	
Native Species Richness:	Trees	<i>Bursaria tenuifolia, Callitris intratropica, Chionanthus ramiflorus, Euroschinus falcata, Ficus rubiginosa, Ficus virens, Homalium circumpinnatum, Gossia bidwillii, Ligustrum australianum, Olea paniculata, Pleiogynium timorense, Sersalisia sericea.</i>	
	Shrubs	<i>Acronychia laevis, Atractocarpus fitzalanii, Alchornea rugosa, Alyxia ruscifolia, Alyxia spicata, Cupaniopsis flagelliformis, Drypetes deplanchei, Elaeodendron melanocarpum, Hibiscus meraukensis, Myrsine variabilis, Pittosporum venulosum, Polyscias elegans, Psydrax dallachiana, Turraea pubescens, Wikstroemia indica</i>	
	Grasses	<i>Ottochloa sp., Themeda triandra,</i>	
	Forbs and Others	<i>Adiantum aethiopicum, Asystasia sp., Cissus oblonga, Dioscorea bulbifera, Doodia caudata, Dioscorea transversa, Paraceterach muelleri, Plectranthus amoenus, Plectranthus sp., Proiphys amboinense, Scleria mackaviensis, Tectaria confluens,</i>	

BioCondition Site 5 - 25 m plot length

Non-native species

Praxelis clematidea, Lantana camara, Solanum seaforthianum

Threatened Flora

Plectranthus amoenus

BioCondition Site 6 - 25 m plot length

Date: 25-06-2024

Plot Origin: Zone: 55K easting: 330389 northing: 8096572 Elevation: 793m

Plot Centre: Zone: 55K easting: 330409 northing: 8096598 Elevation: 792m

Plot Bearing: E **Plot Alignment:** Crosses braided watercourse.



North

East



South

West

Habitat Description: Vine forest across braided rocky stream

Regional Ecosystem (Mapped): 7.12.16a: Simple notophyll vine forest on wet and moist uplands, granite and rhyolite. Uplands of the cloudy wet to moist rainfall zones. Granite and rhyolite. (BVG1M: 6b)

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):	100%
	Native plant species richness: Trees:	11





BioCondition Site 6 - 25 m plot length

		Shrubs:	10
		Grasses:	2
		Forbs/Other:	13
	Tree Canopy	Median Height (m)	15
		Tree Canopy Cover (%)	90.8
	Tree Sub-canopy	Tree sub-canopy median Height (m)	7
		Tree Sub-canopy Cover	33.2
	Large Trees	Large Eucalypt tree DBH threshold (cm)	NA
		Large Eucalypt trees per hectare	0
		Large non-eucalypt trees threshold (cm)	28
		Large non-eucalypt trees per hectare	12
	Shrubs	Native Shrub Cover (%)	12.4
	Ground Cover	Native Perennial Grass Cover (%)	0.4
		Forbs and Non-grass (%)	33.0
		Shrubs (%)	5.0
		Organic litter cover (%)	27.0
		Rock (%)	25.6
		Bare Ground (%)	0.0
		Cryptograms (%)	9.0
		Non-native plant cover (%)	<1
		Total Non-native species richness	2
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	36
Native Species Richness:	Trees	<i>Agathis robusta, Bursaria tenuifolia, Canarium australianum, Chionanthus ramiflorus, Drypetes deplanchei, Elaeodendron melanocarpum, Gossia bidwillii, Mallotus philippensis, Olea paniculata, Pleiogygium timorense, Sersalisia sericea</i>	
	Shrubs	<i>Alchornea rugosa, Alyxia rusCIFolia, Alyxia spicata, Cupaniopsis anacardioides, Cupaniopsis flagelliformis, Guioa acutifolia, Homalium circumpinnatum, Huberantha nitidissima, Melodinus australis, Myrsine variabilis,</i>	
	Grasses	<i>Ottochloa gracillima, Oplismenus sp.</i>	
	Forbs and Others	<i>Adiantum atroviride, Adiantum hispidulum, Cissus oblonga, Doodia caudata, Drynaria sparsisora, Microsorium punctatum, Parsonsia velutina, Plectranthus mirus, Proiphys amboinensis,</i>	

BioCondition Site 6 - 25 m plot length

		<i>Pseuderanthemum variabile</i> , <i>Scleria mackaviensis</i> , <i>Ventilago ecorollata</i> , <i>Wikstroemia indica</i>
Non-native Species		<i>Praxelis clematidea</i> , <i>Solanum seaforthianum</i>
Threatened Flora		Nil

BioCondition Site 7

Date:	06-6-2024			
Plot Origin:	Zone: 55K	easting: 328005	northing: 8096481	Elevation: 596m
Plot Centre:	Zone: 55K	easting: 328056	northing: 8096475	Elevation: 596m
Plot Bearing:	SE	Plot Alignment:	Upstream between ephemeral stream beds	
				
North		East		
				
South		West		
Habitat Description:	Braided seasonal watercourse with sandy and rocky bars. <i>Eucalyptus tereticornis</i> dominant, 15m high. Subcanopy of <i>Callitris intratropica</i> , <i>Acacia disparrima</i> at 1-4m high. Grassy ground layer, 0.5m high.			

BioCondition Site 7

Regional Ecosystem (Mapped): 7.3.26a *Casuarina cunninghamiana*, *Eucalyptus tereticornis*, *Lophostemon suaveolens*, *Melaleuca leucadendra*, *M. fluviatilis*, *Buckinghamia celsissima*, *Mallotus philippensis* woodland and forest with an understorey of *Melaleuca viminalis* and *Bursaria tenuifolia*. Fringing forests of larger streams. Riverine wetland or fringing riverine wetland. (BVG1M: 16a).

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):	100 %	
	Native plant species richness:	Trees:	9
		Shrubs:	25
		Grasses:	8
		Forbs/Other:	10
	Tree Canopy	Median Height (m)	15
		Tree Canopy Cover (%)	28.2
	Tree Sub-canopy	Tree sub-canopy median Height (m)	7
		Tree Sub-canopy Cover	17.5
	Large Trees	Large Eucalypt tree DBH threshold (cm)	45
		Large Eucalypt trees per hectare	16
		Large non-eucalypt trees threshold (cm)	24
		Large non-eucalypt trees per hectare	8
	Shrubs	Native Shrub Cover (%)	13.9
	Ground Cover	Native Perennial Grass Cover (%)	36
		Forbs and Non-grass (%)	0.0
		Shrubs (%)	15.0
		Organic litter cover (%)	19.0
		Rock (%)	10.0
		Bare Ground (%)	1.0
Cryptograms (%)		0.0	
Non-native plant cover (%)		19.0	
Total Non-native species richness	7		
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	77.0	

Native Species Richness:	Trees	<i>Bursaria tenuifolia</i> , <i>Corymbia leichhardtii</i> , <i>Corymbia erythrophloia</i> , <i>Corymbia clarksoniana</i> , <i>Callitris intratropica</i> , <i>Eucalyptus cloeziana</i> , <i>Eucalyptus crebra</i> , <i>Eucalyptus tereticornis</i> , <i>Lophostemon grandiflorus</i>
	Shrubs	<i>Acacia aulacocarpa</i> , <i>Acacia disparrima</i> , <i>Acacia flavescens</i> , <i>Acacia humifusa</i> , <i>Acacia nesophila</i> ,

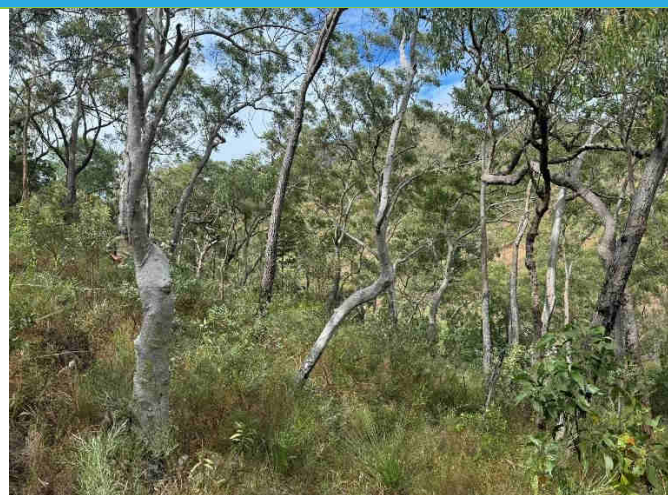
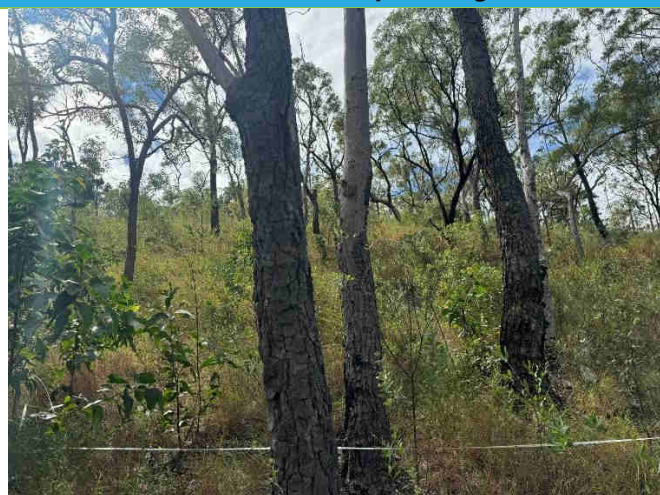
BioCondition Site 7

		<i>Acacia simsii, Alphitonia excelsa, Breynia oblongifolia, Canarium australianum, Cajanus acutifolius, Clerodendrum longiflorum, Dodonaea lanceolata, Dodonaea dodecandra, Exocarpos latifolius, Ficus opposita, Grevillea glossadenia, Grevillea parallela, Grewia mesomischa, Homalium brachybotrys, Petalostigma banksii, Petalostigma pubescens, Pittosporum ferrugineum, Psydrax attenuata, Santalum lanceolatum, Trema aspera</i>
	Grasses	<i>Aristida sp., Arundinella nepalensis, Arundinella setosa, Cleistochloa subjuncea, Cymbopogon ambiguus, Heteropogon contortus, Heteropogon triticeus, Themeda triandra</i>
	Forbs and Others	<i>Cassytha filiformis, Commelina ensifolia, Cyathillium cinereum, Dianella nervosa, Hibbertia longifolia, Lomandra longifolia, Phyllanthus dallachyanus, Pterocaulon redolens, Trichodesma zeylanica, Tricoryne anceps</i>
Non-native Species		<i>Chamaecrista nomame, Praxelis clematidea, Mesosphaerum suaveolens, Melinis minutiflora, Lantana camara, Melinis repens, Themeda quadrivalvis, Stylosanthes scabra</i>
Threatened Flora		<i>Grevillea glossadenia</i>

BioCondition Site 8 - 100 m plot length

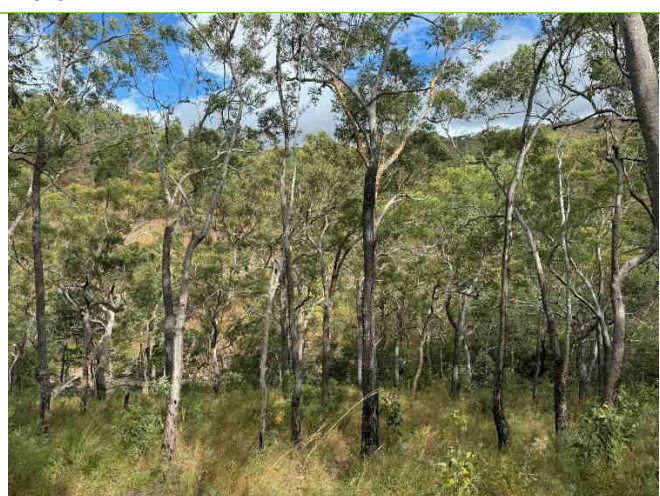
Date:	25-06-2024			
Plot Origin:	Zone: 55K	easting: 328826	northing: 8096354	Elevation: 630m
Plot Centre:	Zone: 55K	easting: 328788	northing: 8096345	Elevation: 624m
Plot Bearing:	SW	Plot Alignment:	Parallel with contour of rounded hill.	

BioCondition Site 8 - 100 m plot length



North

East



South

West

Habitat Description: Grassy woodland open woodland with *Eucalyptus cloeziana* and *Corymbia leichhardtii* dominant trees, 10-15m tall. Subcanopy consists of *Callitris intratropica* and canopy associates 5-8m tall. Shrub layer 0.5-1.5m tall. Ground cover to half a metre.

Regional Ecosystem (Mapped): **7.12.30d** Open woodland to open forest (10-20m tall) mosaic with variable dominance, often including *Eucalyptus cloeziana*, *C. citriodora*, *E. portuensis*, *E. lockyeri*, *C. leichhardtii*, *E. atrata*, *E. pachycalyx*, *E. reducta*, *C. intermedia* and *E. shirleyi*.





Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100
	Native plant species richness:	Trees:	5
		Shrubs:	23
		Grasses:	8
		Forbs/Other:	17
	Tree Canopy	Median Height (m)	12
Tree Canopy Cover (%)		47.1	

BioCondition Site 8 - 100 m plot length			
	Tree Sub-canopy	Tree sub-canopy median Height (m)	8
		Tree Sub-canopy Cover	11.9
	Large Trees	Large Eucalypt tree DBH threshold (cm)	35
		Large Eucalypt trees per hectare	12
		Large non-eucalypt trees threshold (cm)	23
		Large non-eucalypt trees per hectare	4
	Shrubs	Native Shrub Cover (%)	21.8
	Ground Cover	Native Perennial Grass Cover (%)	57.0
		Forbs and Non-grass (%)	1.0
		Shrubs (%)	2.0
		Organic litter cover (%)	34.0
		Rock (%)	6.0
		Bare Ground (%)	0.0
		Cryptograms (%)	0.0
		Non-native plant cover (%)	2
Coarse Woody Debris (CWD)	Total Non-native species richness	2	
	Total length >10cm width and >1m length (m)	365	
Native Species Richness:	Trees	<i>Callitric intratropica, Corymbia erythrophloia, Corymbia leichhardtii, Eucalyptus cloeziana, Eucalyptus shirleyi</i>	
	Shrubs	<i>Acacia calyculata, Acacia flavescens, Acacia humifusa, Acacia multisiliqua, Acacia simsii, Alphitonia excelsa, Bursaria incana, Breynia oblongifolia, Capparis canescens, Coelospermum reticulatum, Dodonaea lanceolata, Exocarpos cupressiformis, Gastrolobium grandiflorus, Grevillea glauca, Grevillea glossadenia, Hibbertia stirlingii, Jacksonia thesioides, Larsenaikia ochreatea, Persoonia falcata, Planchonia careya, Psydrax attenuata, Santalum lanceolatum, Wikstroemia indica, Xanthorrhoea johnsonii</i>	
	Grasses	<i>Aristida sp., Arundinella setosa, Cleistochloa subjuncea, Cymbopogon bombycinus, Heteropogon triticeus, Panicum simile, Themeda triandra</i>	
	Forbs and Others	<i>Cheilanthes brownii, Cheilanthes nitidum, Clematicissus opaca, Coronidium newcastlianum, Crotalaria brevis, Cyanthillium cinereum, Dianella nervosa, Glycine clandestina, Gompholobium nitidum, Hibbertia longifolia, Lomandra confertifolia, Lomandra decomposita, Poranthera microphylla, Pterocaulon</i>	

BioCondition Site 8 - 100 m plot length

	<i>redolens</i> , <i>Scleria brownii</i> , <i>Wahlenbergia queenslandica</i> , <i>Zornia sp.</i>
Non-native Plant Species	<i>Praxelis clematidea</i> , <i>Stylosanthes scabra</i>
Threatened Flora	<i>Grevillea glossadenia</i>

BioCondition Site 9 - 100 m plot length


Date:	25-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19718	Long: 145.40770	Elevation: 984m
Plot Centre:	Zone 55K	Lat: 17.19741	Long: 145.40807	Elevation: 980m
Plot Bearing:	SW	Plot Alignment:	Mid-slope running parallel to the hill contour.	
				
North		East		
				
South		West		
Habitat Description:	Open forest with a canopy (12m) dominated by <i>Eucalyptus reducta</i> , <i>Corymbia intermedia</i> , <i>Eucalyptus drepanophylla</i> and <i>Eucalyptus cloeziana</i> . Sparse shrub layer (5m) contains <i>Allocasuarina littoralis</i> , <i>Acacia flavescens</i> and <i>Lophostemon</i>			

BioCondition Site 9 - 100 m plot length			
	<i>suaveolens</i> . Grassy understorey (<0.5m) of <i>Themeda triandra</i> and <i>Mnesithea rottboellioides</i> .		
Regional Ecosystem (Mapped):	RE 7.12.27 <i>Eucalyptus reducta</i> open forest to woodland on uplands and highlands on shallow granitic and rhyolitic soils		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):	100%	
	Native plant species richness:	Trees:	5
		Shrubs:	8
		Grasses:	7
		Forbs/Other:	21
	Tree Canopy	Median Height (m)	12
		Tree Canopy Cover (%)	52.7
	Tree Sub-canopy	Tree sub-canopy median Height (m)	N/A
		Tree Sub-canopy Cover	N/A
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	14
		Large non-eucalypt trees threshold (cm)	20
		Large non-eucalypt trees per hectare	6
	Shrubs	Native Shrub Cover (%)	10.6
	Ground Cover	Native Perennial Grass Cover (%)	35
		Forbs and Non-grass (%)	15
		Shrubs (%)	0.0
		Organic litter cover (%)	43.0
		Rock (%)	5.0
		Bare Ground (%)	1.0
Cryptograms (%)		0.0	
Non-native plant cover (%)		1.0	
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	245	
Native Species Richness:	Trees	<i>Allocasuarina littoralis</i> , <i>Corymbia intermedia</i> , <i>Eucalyptus drepanophylla</i> , <i>Eucalyptus cloeziana</i> , <i>Eucalyptus reducta</i>	
	Shrubs	<i>Acacia flavescens</i> , <i>Alphitonia excelsa</i> , <i>Breynia oblongifolia</i> , <i>Capparis canescens</i> , <i>Coelospermum</i>	

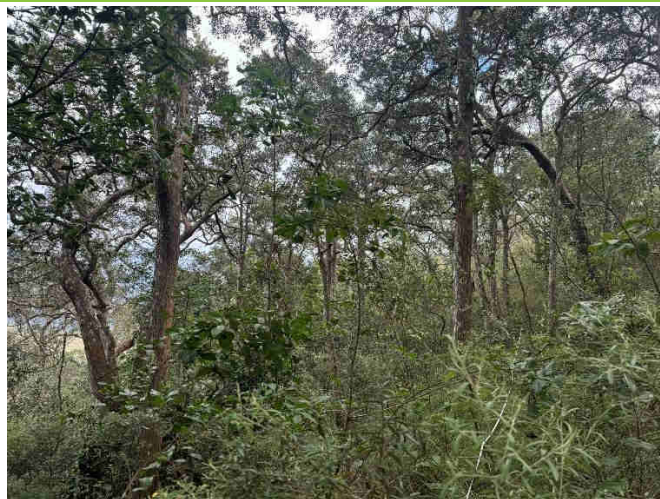
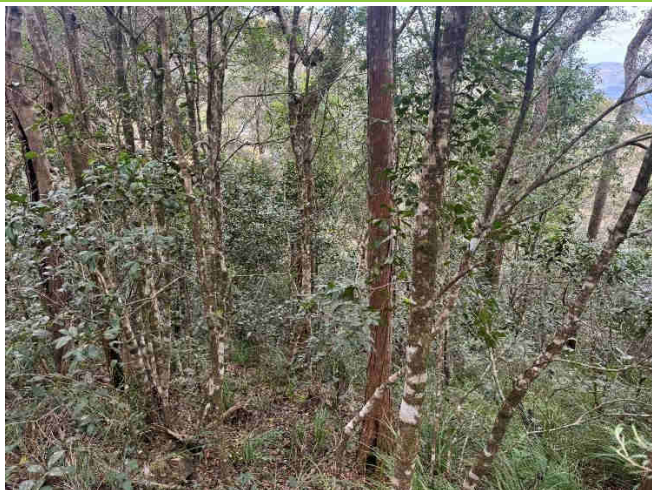
BioCondition Site 9 - 100 m plot length

		<i>reticulatum, Lophostemon suaveolens, Persoonia falcata, Xanthorrhoea johnsonii</i>
	Grasses	<i>Arundinella setosa, Capillipedium spicigerum, Heteropogon triticeus, Imperata cylindrica, Mnesithea rottboellioides, Panicum simile, Themeda triandra.</i>
	Forbs and Others	<i>Cheilanthes sieberi, Coronidium newcastlianum, Cyanthillium cinereum, Crotalaria brevis, Desmodium rhytidophyllum, Dianella nervosa, Drynaria rigidula, Flemingia parviflora, Glycine clandestina, Hibbertia longifolia, Lomandra filiformis, Pimelea sericostachya, Lepidosperma laterale, Pteridium esculentum, Poranthera microphylla, Rostellularia adscendens, Scleria brownii, Apowollastonia spilanthis, Xerochrysum bracteatum</i>
Non-native Species	<i>Praxelis clematidea</i>	
Threatened Flora	Nil	

BioCondition Site 10 - 50 m plot length

Date:	25-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19918	Long: 145.40564	Elevation: 1061m
Plot Centre:	Zone: 55K	Lat: 17.19905	Long: 145.4540	Elevation: 1062m
Plot Bearing:	SW	Plot Alignment:	Mid-slope running parallel to the hill contour	
				
North		East		

BioCondition Site 10 - 50 m plot length



South

West

Habitat Description: Open forest with a canopy (11m) dominated by *Syncarpia glomulifera* with occasional *Eucalyptus drepanophylla*. Open shrub layer (5m) contains *Acacia aulacocarpa* and *Leptospermum amboinense*. Grassy understorey (0.5m) of *Entolasia stricta* and *Ottochloa gracillima*

Regional Ecosystem (Mapped): 7.12.26e *Syncarpia glomulifera* low open forest and low woodland. Uplands on steep rocky slopes, of the moist and dry rainfall zone. Granite and rhyolite.

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100%
	Native plant species richness:	Trees:	2
		Shrubs:	16
		Grasses:	5
		Forbs/Other:	24
	Tree Canopy	Median Height (m)	11
		Tree Canopy Cover (%)	65.2
	Tree Sub-canopy	Tree sub-canopy median Height (m)	8
		Tree Sub-canopy Cover	10.8
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	12
		Large non-eucalypt trees threshold (cm)	30
		Large non-eucalypt trees per hectare	24
	Shrubs	Native Shrub Cover (%)	21.4
Ground Cover	Native Perennial Grass Cover (%)	37	

BioCondition Site 10 - 50 m plot length			
		Forbs and Non-grass (%)	32
		Shrubs (%)	0
		Organic litter cover (%)	32
		Rock (%)	5
		Bare Ground (%)	0
		Cryptograms (%)	0
		Non-native plant cover (%)	<1
		Total Non-native species richness	1
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	405
Native Species Richness:	Trees	<i>Syncarpia glomulifera, Eucalyptus drepanophylla</i>	
	Shrubs	<i>Acacia aulacocarpa, Acrothamnus spathaceus, Alyxia spicata, Bertya polystigma, Astrotricha pterocarpa, Bursaria spinosa, Psychotria loniceroides, Pittosporum venulosum, Pomaderris argyrophylla, Wikstroemia indica, Clerodendrum longiflora, Glochidion sumatranum, Notelaea venosa, Leptospermum amboinense, Rhodomyrtus trineura, Denhamia bilocularis</i>	
	Grasses	<i>Entolasia stricta, Oplismenus aemulus, Ottochloa gracillima, Panicum effusum, Panicum simile</i>	
	Forbs and Others	<i>Acianthus borealis, Adiantum aethiopicum, Adiantum hispidulum, Bulbophyllum sp., Cheilanthes brownii, Cheilanthes distans, Clematis pickeringii, Coronidium rupicola, Corybas sp., Dendrobium fellowsii, Doodia caudata, Drynaria rigidula, Geitonoplesium cymosum, Lindsaea microphylla, Lepidosperma laterale, Lomandra multiflora, Parsonsia straminea, Plectranthus mirus, Plexaure crassula, Pterostylis stricta, Scleria mackaviensis, Smilax australis, Viola hederacea, Apowollastonia spilanthoides, Xerochrysum bracteatum</i>	
Non-native Species		<i>Praxelis clematidea</i>	
Threatened Flora		<i>Dendrobium fellowsii</i>	

BioCondition Site 11- 50 m plot length

Date:	25-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19979	Long: 145.40494	Elevation: 1008m
Plot Centre:	Zone: 55K	Lat: 17.19971	Long: 145.40448	Elevation: 984m
Plot Bearing:	NW	Plot Alignment:	Running NW downslope across the contour line within a steep rocky gully	



North



East



South



West

Habitat Description:	Open forest with a canopy (18m) dominated by <i>Olea paniculata</i> , <i>Mallotus philippensis</i> , <i>Pleiogynium timorense</i> , <i>Pittosporum venulosum</i> , <i>Euroschinus falcata</i> and <i>Cupaniopsis anacardioides</i> . Emergent (25m) <i>Agathis robusta</i> .		
Regional Ecosystem (Mapped):	7.12.7c Simple to complex microphyll to notophyll vine forest, often with <i>Agathis robusta</i> or <i>A. microstachya</i> , on granites and rhyolites of moist foothills and uplands.		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100%
	Native plant species richness:	Trees:	9
		Shrubs:	16
		Grasses:	1

BioCondition Site 11- 50 m plot length

		Forbs/Other:	18
	Emergent Layer	Emergent Cover (%)	12.6
	Tree Canopy	Median Height (m)	18
		Tree Canopy Cover (%)	88.6
	Tree Sub-canopy	Tree sub-canopy median Height (m)	8
		Tree Sub-canopy Cover	51.0
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	1
		Large non-eucalypt trees threshold (cm)	25
		Large non-eucalypt trees per hectare	24
	Shrubs	Native Shrub Cover (%)	25.4
	Ground Cover	Native Perennial Grass Cover (%)	1
		Forbs and Non-grass (%)	0
		Shrubs (%)	4
		Organic litter cover (%)	29
		Rock (%)	37
		Bare Ground (%)	3
		Cryptograms (%)	0
		Non-native plant cover (%)	<1
		Total Non-native species richness	1
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	295
Native Species Richness:	Trees	<i>Agathis robusta, Brachychiton alceifolius, Chionanthus ramiflorus, Corymbia intermedia, Elaeodendron melanocarpum, Pitaviaster haplophyllus, Polyscias elegans, Schefflera actinophylla, Syncarpia glomulifera,</i>	
	Shrubs	<i>Acronychia laevis, Alchornea ilicifolia, Alyxia ruscifolia, Atractocarpus Fitzalania, Breynia stipitata, Dendrocnide moroides, Drypetes deplanchei, Guioa acutifolia, Ligustrum australianum, Mallotus philippensis, Myrsine variable, Pittosporum venulosum, Huberantha nitidissima, Psychotria loniceroides, Syzygium oleosum, Wikstroemia indica</i>	
	Grasses	<i>Ottochloa gracillima</i>	

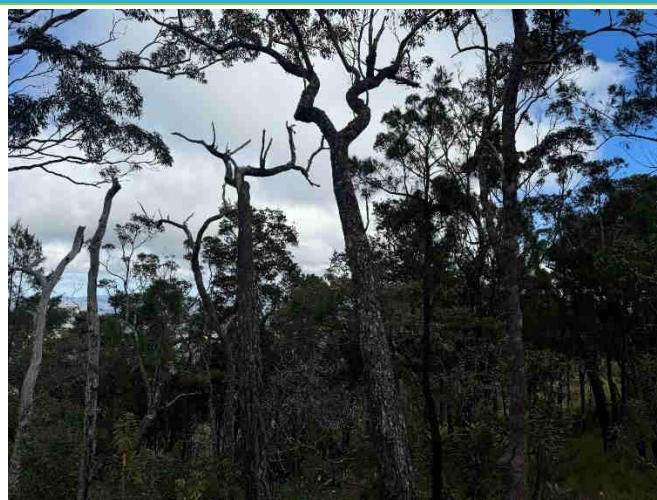
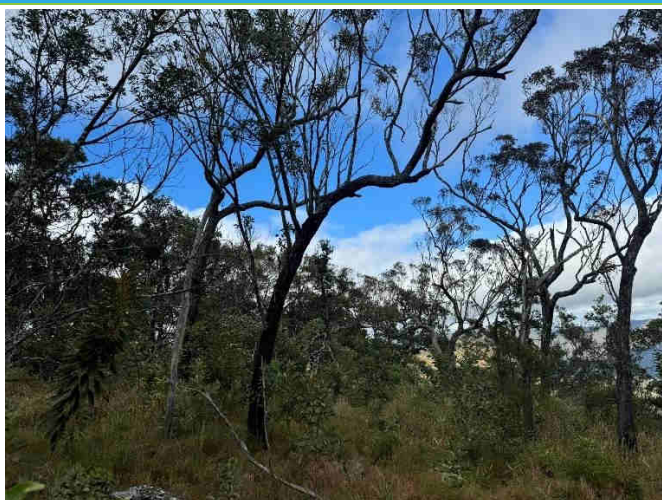
BioCondition Site 11- 50 m plot length

	Forbs and Others	<i>Adiantum atroviride, Asplenium nidus, Alpinia caerulea, Calochlaena dubia, Clematis pickeringii, Dioscorea transversa, Doodia caudata, Gahnia aspera, Geitonoplesium cymosum, Microsorium punctatum, Parsonsia velutina, Plectranthus mirus, Pseuderanthemum variable, Pyrrosia rupestris, Smilax blumei, Smilax australis, Tetrastigma nitens, Trophis scandens</i>
Non-native Species		<i>Lantana camara</i>
Threatened Flora		Nil

BioCondition Site 12 - 50 m plot length

Date:	16-03-2022			
Plot Origin:	Zone: 55K	Lat: 17.20494	Long: 145.40387	Elevation: 1075m
Plot Centre:	Zone: 55K	Lat: 17.20531	Long: 145.40411	Elevation: 1071m
Plot Bearing:	W	Plot Alignment:	Near to ridge top following the contour	
				
North		East		

BioCondition Site 12 - 50 m plot length



South

West

Habitat Description: Open forest with a canopy (12m) dominated by *Eucalyptus drepanophylla*, *Corymbia intermedia* and *Syncarpia glomulifera*. Sparse shrub layer (3m) contains *Acrothamnus spathaceus*, *Allocasuarina torulosa*, *Acacia aulacocarpa* and *Lophostemon grandiflorus*. Grassy understorey (0.5m) of *Themeda triandra* and *Mnesithea rottboellioides*

Regional Ecosystem (Mapped): 7.12.34 *Eucalyptus portuensis* and/or *E. drepanophylla*, +/- *C. intermedia* +/- *C. citriodora*, +/- *E. granitica* open woodland to open forest on uplands on granite

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100%
	Native plant species richness:	Trees:	4
		Shrubs:	14
		Grasses:	8
		Forbs/Other:	20
	Tree Canopy	Median Height (m)	13
		Tree Canopy Cover (%)	42.6
	Tree Sub-canopy	Tree sub-canopy median Height (m)	7
		Tree Sub-canopy Cover	28.6
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	24
		Large non-eucalypt trees threshold (cm)	30
		Large non-eucalypt trees per hectare	2
	Shrubs	Native Shrub Cover (%)	14.1
	Ground Cover	Native Perennial Grass Cover (%)	69
Forbs and Non-grass (%)		9.0	
Shrubs (%)		0	

BioCondition Site 12 - 50 m plot length			
		Organic litter cover (%)	16
		Rock (%)	3.0
		Bare Ground (%)	0
		Cryptograms (%)	3.0
		Non-native plant cover (%)	<1
		Total Non-native species richness	2
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	195
Native Species Richness:	Trees	<i>Allocasuarina torulosa, Corymbia intermedia, Eucalyptus drepanophylla, Syncarpia glomulifera</i>	
	Shrubs	<i>Acacia aulacocarpa, Acacia flavescens, Acrothamnus spathaceus, Alphitonia excelsa, Alyxia ruscifolia, Astrotricha pterocarpa, Bertya polystigma, Bursaria spinosa, Glochidion sumatranum, Platysace valida, Notelaea venosum, Polyscias elegans, Pomaderris argyrophylla, Psychotria loniceroides, Xanthorrhoea johnsonii</i>	
	Grasses	<i>Eriachne sp., Mnesithea rottboellioides, Imperata cylindrica, Ottochloa gracillima, Panicum effusum, Panicum simile, Themeda triandra</i>	
	Forbs and Others	<i>Ajuga australis, Coronidium newcastlianum, Cyathilium cinereum, Cymbidium madidum, Dendrobium jonesii, Dianella nervosa, Dipodium sp., Drynaria rigidula, Dendrobium fellowsii, Eustrephus latifolius, Gahnia aspera, Glycine sp., Lepidosperma laterale, Lomandra filiformis, Parsonsia sp., Rostellularia adscendens, Widelia spilanthoides,</i>	
Non-native species		<i>Melinis minutiflora, Praxelis clematidea</i>	
Threatened Flora		<i>Dendrobium fellowsii</i>	

BioCondition Site 13 - 100 m plot length				
Date:	16-03-2022			
Plot Origin:	Zone: 55K	Lat: 17.20323	Long: 145.40465	Elevation: 1083m
Plot Centre:	Zone: 55K	Lat: 17.20279	Long: 145.40471	Elevation: 1087m

BioCondition Site 13 - 100 m plot length

Plot Bearing:	W	Plot Alignment:	Steep mid-slope, following contour	
				
North		East		
				
South		West		
Habitat Description:	Open woodland with a canopy (12m) dominated by <i>Eucalyptus drepanophylla</i> , <i>Corymbia intermedia</i> and <i>Lophostemon grandiflorus</i> . Understorey of <i>Allocasuarina torulosa</i> and canopy associates (5-8). Sparse shrub layer (3m) contains <i>Acacia aulacocarpa</i> . Grassy understorey (<1.0m) of <i>Themeda triandra</i> and <i>Mnesithea rottboellioides</i> and <i>Capillipedium spicigerum</i> .			
Regional Ecosystem (Mapped):	7.12.34 <i>Eucalyptus portuensis</i> and/or <i>E. drepanophylla</i> , +/- <i>C. intermedia</i> +/- <i>C. citriodora</i> , +/- <i>E. granitica</i> open woodland to open forest on uplands on granite.			
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100%	
	Native plant species richness:	Trees:	5	
		Shrubs:	8	
		Grasses:	10	
		Forbs/Other:	13	
Tree Canopy	Median Height (m)	12		

BioCondition Site 13 - 100 m plot length

		Tree Canopy Cover (%)	31.2
	Tree Sub-canopy	Tree sub-canopy median Height (m)	6.5
		Tree Sub-canopy Cover	5.8
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	20
		Large non-eucalypt trees threshold (cm)	30
		Large non-eucalypt trees per hectare	2
	Shrubs	Native Shrub Cover (%)	10.6
	Ground Cover	Native Perennial Grass Cover (%)	84
		Forbs and Non-grass (%)	4
		Shrubs (%)	1
		Organic litter cover (%)	7
		Rock (%)	0
		Bare Ground (%)	0
		Cryptograms (%)	0
		Non-native plant cover (%)	4
		Total Non-native species richness	2
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	185
Native Species Richness:	Trees	<i>Allocasuarina torulosa, Eucalyptus drepanophylla, Corymbia intermedia, Lophostemon grandiflorus, Syncarpia glomulifera</i>	
	Shrubs	<i>Acacia aulacocarpa, Alphitonia excelsa, Dodonaea lanceolata, Hibiscus meraukensis, Notelaea venosum, Platysace valida, Trema tomentosa, Xanthorrhoea johnsonii</i>	
	Grasses	<i>Arundinella setosa, Capillipedium spicigerum, Digitaria sp., Dimeria ornithopoda, Mnesithea rottboellioides, Panicum effusum, Panicum simile, Schizachyrium pseudeulalia, Themeda triandra, Trigonella loliiformis</i>	
	Forbs and Others	<i>Adiantum aethiopicum, Cyanthillium cinereum, Cheilanthes sieberi, Dianella nervosa, Drynaria rigidula, Eustrephus latifolius, Gahina aspera, Glycine clandestina, Hypericum gramineum, Lomandra</i>	

BioCondition Site 13 - 100 m plot length

		<i>multiflora</i> , <i>Plectranthus amoenus</i> , <i>Rostellularia adscendens</i> , <i>Xerochrysum bracteatum</i>
Non-native Species		<i>Ageratum conyzoides</i> , <i>Erigeron conyzoides</i> , <i>Stylosanthes scabra</i> , <i>Praxelis clematidea</i> , <i>Melinis repens</i> , <i>Melinis minutiflora</i> , <i>Lantana camara</i>
Threatened Flora		<i>Plectranthus amoenus</i>

BioCondition Site 14 - 50 m plot length

Date:	25-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.20341	Long: 145.40645	Elevation: 1114m
Plot Centre:	Zone: 55K	Lat: 17.20336	Long: 145.40688	Elevation: 1120m
Plot Bearing:	E	Plot Alignment:	Near to top of ridgeline, following contour	



North



East



South



West

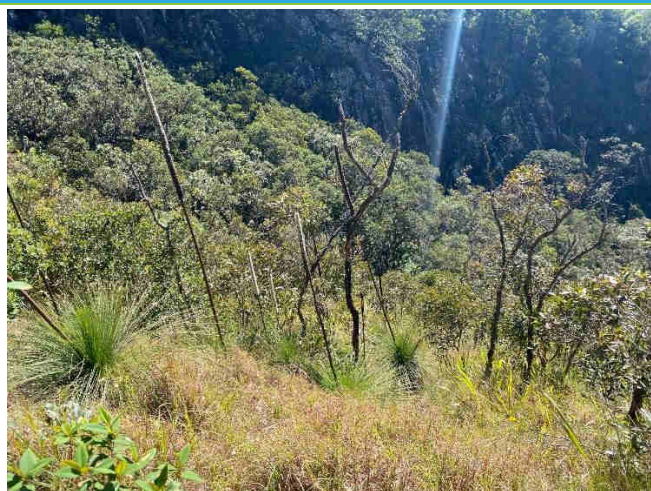
BioCondition Site 14 - 50 m plot length

Habitat Description:	Open woodland with a canopy (10m) dominated by <i>Corymbia intermedia</i> and/or <i>Eucalyptus drepanophylla</i> and <i>Syncarpia glomulifera</i> . Understorey of <i>Allocasuarina torulosa</i> and canopy associates (5-8). Sparse shrub layer (3m) contains <i>Acacia aulacocarpa</i> . Grassy understorey (<1.0m) of <i>Themeda triandra</i> and <i>Mnesithea rottboellioides</i> and <i>Capillipedium spicigerum</i>		
Regional Ecosystem (Mapped):	7.12.26: <i>Syncarpia glomulifera</i> (turpentine) +/- <i>Corymbia intermedia</i> (pink bloodwood) +/- <i>Allocasuarina spp.</i> (sheoaks) closed forest to woodland, or <i>Lophostemon suaveolens</i> (swamp mahogany), <i>Allocasuarina littoralis</i> (black sheoak), <i>C. intermedia</i> shrubland, (or vine forest with these species as emergents). Exposed ridgelines or steep rocky slopes, on granite and rhyolite. Not a Wetland. (BVG1M: 9d).		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):	100%	
Native plant species richness:	Trees:	3	
	Shrubs:	19	
	Grasses:	8	
	Forbs/Other:	22	
Tree Canopy	Median Height (m)	11	
	Tree Canopy Cover (%)	41.8	
Tree Sub-canopy	Tree sub-canopy median Height (m)	4	
	Tree Sub-canopy Cover	24.4	
Large Trees	Large Eucalypt tree DBH threshold (cm)	20	
	Large Eucalypt trees per hectare	20	
	Large non-eucalypt trees threshold (cm)	20	
	Large non-eucalypt trees per hectare	2	
Shrubs	Native Shrub Cover (%)	32.2	
Ground Cover	Native Perennial Grass Cover (%)	33	
	Forbs and Non-grass (%)	16	
	Shrubs (%)	5	
	Organic litter cover (%)	41	
	Rock (%)	1	
	Bare Ground (%)	1	
	Cryptograms (%)	0	
	Non-native plant cover (%)	<1	
	Total Non-native species richness	2	

BioCondition Site 14 - 50 m plot length			
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	250
Native Species Richness:	Trees	<i>Eucalyptus drepanophylla, Corymbia intermedia, Syncarpia glomulifera</i>	
	Shrubs	<i>Acacia aulacocarpa, Acacia implexa, Acrothamnus spathacea, Acrotriche aggregata, Allocasuarina littoralis, Allocasuarina torulosa, Alphitonia excelsa, Banksia aquilonia, Bursaria spinosa, Breynia oblongifolia, Glochidion sumatranum, Hakea plurinervia, Hibiscus meraukensis, Hovea densivellosa, Lophostemon suaveolens, Notelaea venosa, Pittosporum venulosum, Pomaderris argyrophylla, Trema aspera, Xanthorrhoea johnsonii.</i>	
	Grasses	<i>Arundinella setosa, Capillipedium spicigerum, Cleistochloa subjuncea, Entolasia stricta, Eragrostis sp., Imperata cylindrica, Mnesithea rottboellioides, Melinis minutiflora, Panicum effusum, Themeda triandra</i>	
	Forbs and Others	<i>Calochlaena dubia, Coleus sp., Cyanthillium cinereum, Dendrobium jonesii, Dendrobium fellowsii, Desmodium rhytidophyllum, Dianella caerulea, Drynaria rigidula, Eustrephus latifolius Flemingia parviflora, Glycine clandestina, Lepidosperma laterale, Lomandra multiflora, Pseuderanthemum variable, Rostellularia adscendens, Widelia spilantheidoides</i>	
Non-native Species		<i>Praxelis clematidea, Melinis minutiflora</i>	
Threatened Flora		Nil	

BioCondition Site 15 – 100 m plot length				
Date:	24.06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19982	Long: 145.40669	Elevation: 1056m
Plot Centre:	Zone: 55K	Lat: 17.19999	Long: 145.40713	Elevation: 1055m
Plot Bearing:	NE	Plot Alignment:	Mid-slope very steep slope following contour	

BioCondition Site 15 – 100 m plot length



North



East



South



West

Habitat Description:	Open-closed shrubland (<1.5m) with thickets dominated by <i>Corymbia abergiana</i> , <i>Eucalyptus lockyeri</i> and <i>Syncarpia glomulifera</i> (4m). Grassy understorey (<1.0m) of <i>Themeda triandra</i> and <i>Mnesithea rottboellioides</i> and <i>Capillipedium spicigerum</i>		
Regional Ecosystem (Mapped):	7.12.57a Shrubland and low woodland mosaic with <i>Syncarpia glomulifera</i> , <i>Corymbia abergiana</i> , <i>Eucalyptus portuensis</i> , <i>Allocasuarina littoralis</i> and <i>Xanthorrhoea johnsonii</i> . Uplands and highlands on granite and rhyolite, of the moist and dry rainfall zones.		
Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100
	Native plant species richness:	Trees:	0
		Shrubs:	13
		Grasses:	6
		Forbs/Other:	20
	Tree Canopy	Median Height (m)	2.5
Tree Canopy Cover (%)		6.4	
Tree Sub-canopy	Tree sub-canopy median Height (m)	N/A	

BioCondition Site 15 – 100 m plot length

		Tree Sub-canopy Cover	0
	Large Trees	Large Eucalypt tree DBH threshold (cm)	N/A
		Large Eucalypt trees per hectare	0
		Large non-eucalypt trees threshold (cm)	N/A
		Large non-eucalypt trees per hectare	0
		Shrubs	Native Shrub Cover (%)
	Ground Cover	Native Perennial Grass Cover (%)	51
		Forbs and Non-grass (%)	6
		Shrubs (%)	13
		Organic litter cover (%)	13
		Rock (%)	17
		Bare Ground (%)	0
		Cryptograms (%)	0
		Non-native plant cover (%)	<1
		Total Non-native species richness	1
		Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)
Native Species Richness:	Trees	<i>Allocasuarina littoralis, Eucalyptus crebra, Lophostemon suaveolens, Allocasuarina littoralis, Eucalyptus exserta, Corymbia abergiana</i>	
	Shrubs	<i>Acacia calyculata, Acacia flavescens, Alphitonia excelsa, Hakea benthamii, Leucopogon ruscifolia, Lophostemon suaveolens, Melichrus adpressus, Persoonia falcata, Platysace valida, Syncarpia glomulifera, Xanthorrhoea johnsonii</i>	
	Grasses	<i>Aristida utilis, Arundinella setosa, Capillipedium spicigerum, Cymbopogon bombycinus, Panicum simile, Themeda triandra</i>	
	Forbs and Others	<i>Brunoniella australis, Clematicissus opaca, Cyanthillium cinereum, Cheilanthes brownii, Coronidium newcastlianum, Crotalaria brevis, Desmodium rhytidophyllum, Dianella nervosa, Glycine clandestina, Glycine tabacina, Hypericum gramineum, Lomandra filiformis, Oxalis radicans, Xerochrysum newcastlianum, Poranthera microphylla, Rostellularia</i>	

BioCondition Site 15 – 100 m plot length

		<i>adscendens, Scleria brownii, Wahlenbergia sp., Widelia spilanthoides, Zornia sp.</i>
Non-native Plant Species		<i>Praxelis clematidea</i>
Threatened Flora		Nil

BioCondition Site 16

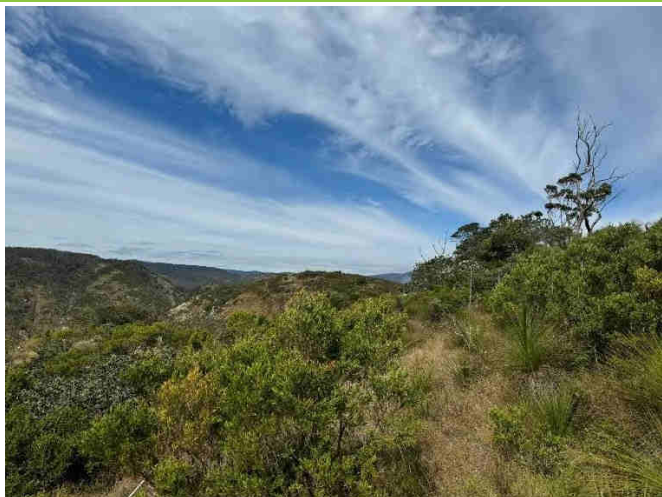
Date:	06-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19669	Long: 145.39780	Elevation: 1036m
Plot Centre:	Zone: 55K	Lat: 17.19627	Long: 145.39784	Elevation: 1036m
Plot Bearing:	SE	Plot Alignment:	Top of ridge following contour	



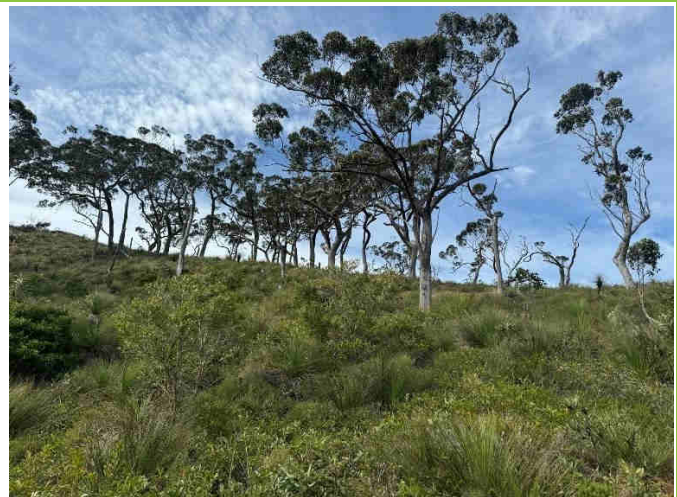
North



East



South



West

Habitat Description: Open shrubland to heathland (<2m) with occasional rock pavement outcrops

BioCondition Site 16

**Regional Ecosystem
(Mapped):**

7.12.57c Shrubland/low woodland (1.5-9m tall) mosaic with variable dominance, often including *Eucalyptus cloeziana*, *Corymbia abergiana*, *E. portuensis*, *E. reducta*, *E. lockyeri*, *C. leichhardtii*, *Callitris intratropica*, *E. atrata*, *E. pachycalyx*, *E. shirleyi*, *E. drepanophylla* and *Homoranthus porteri*, on rhyolite and granite. There is occasionally a very sparse to sparse secondary tree layer of *Corymbia abergiana* and/or *C. stockeri*. A very sparse to sparse tall shrub layer may be present and can include *Persoonia falcata*, *Exocarpos cupressiformis* and *Melaleuca viridiflora* var. *viridiflora*. A sparse to dense lower shrub layer may include *Jacksonia thesioides*, *Acacia calyculata*, *Coelospermum reticulatum*, *Xanthorrhoea johnsonii*, *Acacia humifusa*, *Dodonaea lanceolata* var. *subsessilifolia*, *Grevillea dryandri* subsp. *dryandri*, *Grevillea glossadenia*, *Acacia umbellata* and *Ericaceae* spp. The ground layer may be dominated by species such as *Themeda triandra*, *Xanthorrhoea johnsonii*, *Eriachne pallescens* var. *pallescens*, *Cleistochloa subjuncea*, *Borya septentrionalis*, and *Eriachne* spp. Includes open rocky dominated by herbs and grasses. This RE includes areas of 7.12.65k (rocky areas with shrubby/herbaceous cover) which are too small to map. Rocky slopes on granite and rhyolite.

**Vegetation
Attributes:**

Recruitment of Dominant Canopy Species (%):		N/A
Native plant species richness:	Trees:	2
	Shrubs:	16
	Grasses:	7
	Forbs/Other:	14
Tree Canopy	Median Height (m)	N/A
	Tree Canopy Cover (%)	0
Tree Sub-canopy	Tree sub-canopy median Height (m)	2.8
	Tree Sub-canopy Cover	0
Large Trees	Large Eucalypt tree DBH threshold (cm)	20
	Large Eucalypt trees per hectare	8
	Large non-eucalypt trees threshold (cm)	N/A
	Large non-eucalypt trees per hectare	0
Shrubs	Native Shrub Cover (%)	22.1
Ground Cover	Native Perennial Grass Cover (%)	17
	Forbs and Non-grass (%)	0
	Shrubs (%)	50
	Organic litter cover (%)	6
	Rock (%)	19

BioCondition Site 16			
		Bare Ground (%)	0
		Cryptograms (%)	8
		Non-native plant cover (%)	0
		Total Non-native species richness	0
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	Nil
Native Species Richness:	Trees	<i>Eucalyptus reducta, Eucalyptus crebra,</i>	
	Shrubs	<i>Acacia aulacocarpa, Acacia calyculata, Acrothamnus spathaceus, Allocasuarina inophloia, Eucalyptus lockyeri, Hakea benthamii, Leucopogon ruscifolia, Leptospermum amboinensis, Melaleuca uxorum, Melaleuca recurva, Melichrus adpressus, Persoonia falcata, Platysace valida, Pseudanthus ligulatus, Sannantha angusta, Xanthorrhoea johnsonii</i>	
	Grasses	<i>Aristida sp., Cleistochloa subjuncea, Cymbopogon bombycinus, Eragrostis sp., Eriachne mucronata, Schizachyrium fragile, Tripogon loliiformis</i>	
	Forbs and Others	<i>Boronia occidentalis, Borya septemtrionalis, Cheilanthes distans, Coronidium newcastlianum, Dianella nervosa, Gonocarpus acanthocarpus, Hibbertia longifolia, Hovea nana, Hypericum gramineum, Lepidosperma laterale, Mitrasacme sp., Pimelea linariifolia, Pterocaulon redolens, Tricoryne anceps</i>	
Non-native Plant Species		Nil	
Threatened Flora		<i>Melaleuca uxorum</i>	

BioCondition Site 17				
Date:	05-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19696	Long: 145.39706	Elevation: 1045m
Plot Centre:	Zone: 55K	Lat: 17.19702	Long: 145.39746	Elevation: 1045m
Plot Bearing:	SE	Plot Alignment:	Top of ridge following the contour	

BioCondition Site 17



North



East



South



West

Habitat Description:

Rhyolite rock pavement outcrops sloping on a SW aspect. Mosaic of rock pavement and heathland vegetation.

Regional Ecosystem (Mapped):

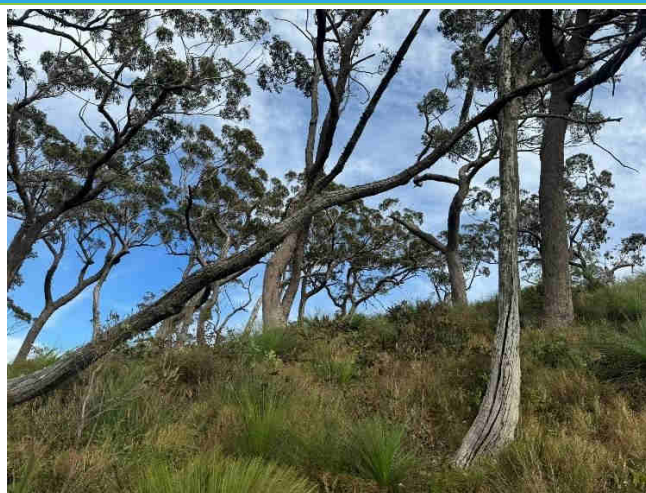
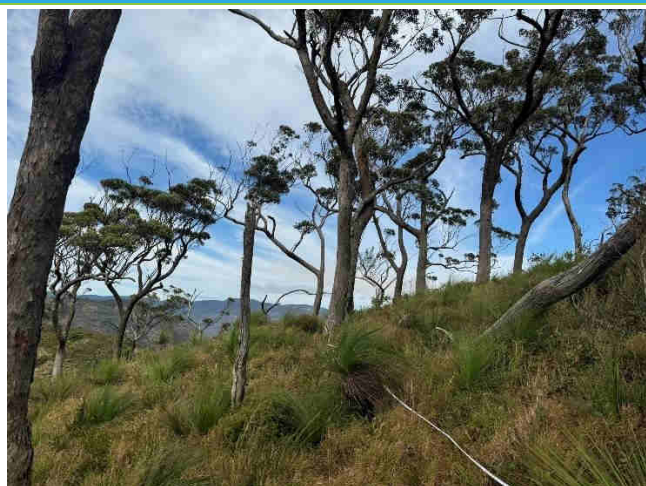
7.12.65k Granite and rhyolite rock outcrop, of dry western areas, associated with shrublands to closed forests of *Acacia spp.* and/or *Lophostemon spp.* and/or *Allocasuarina spp.* In the Mount Emerald area, shrubs may include *Acacia umbellata*, *Melaleuca borealis*, *Homoranthus porteri*, *Leptospermum neglectum*, *Melaleuca recurva*, *Melaleuca uxorum*, *Grevillea glossadenia*, *Corymbia abergiana*, *Eucalyptus lockyeri*, *Sannantha angusta*, *Pseudanthus ligulatus subsp. ligulatus*, *Acacia aulacocarpa*, *Leptospermum amboinense*, *Xanthorrhoea johnsonii* and *Jacksonia thesioides*. Ground-cover species may include *Borya septentrionalis*, *Lepidosperma laterale*, *Eriachne spp.*, *Cleistochloa subjuncea*, *Boronia occidentalis*, *Cheilanthes spp.*, *Coronidium newcastlianum*, *Schizachyrium spp.*, *Tripogon loliiformis*, *Gonocarpus acanthocarpus* and *Eragrostis spp.* Dry western areas. Granite and rhyolite.

BioCondition Site 17

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		N/A
	Native plant species richness:	Trees:	2
		Shrubs:	12
		Grasses:	9
		Forbs/Other:	13
	Tree Canopy	Median Height (m)	N/A
		Tree Canopy Cover (%)	0
	Tree Sub-canopy	Tree sub-canopy median Height (m)	N/A
		Tree Sub-canopy Cover	0
	Large Trees	Large Eucalypt tree DBH threshold (cm)	N/A
		Large Eucalypt trees per hectare	0
		Large non-eucalypt trees threshold (cm)	N/A
		Large non-eucalypt trees per hectare	0
	Shrubs	Native Shrub Cover (%)	9.7
	Ground Cover	Native Perennial Grass Cover (%)	23.2
		Forbs and Non-grass (%)	7
		Shrubs (%)	4
		Organic litter cover (%)	3
		Rock (%)	58.8
		Bare Ground (%)	0
Cryptograms (%)		2	
Non-native plant cover (%)		0	
Total Non-native species richness		1	
Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	67	
Native Species Richness:	Trees	<i>Eucalyptus granitica</i> , <i>Eucalyptus reducta</i>	
	Shrubs	<i>Acacia aulacocarpa</i> , <i>Acrothamnus spathaceus</i> , <i>Eucalyptus lockyeri</i> , <i>Hibbertia stirlingii</i> , <i>Leptospermum amboinensis</i> , <i>Melaleuca uxorum</i> , <i>Melichrus urceolatus</i> , <i>Platysace valida</i> , <i>Pseudanthus ligulatus</i> , <i>Sannantha angusta</i> , <i>Seringia lanceolata</i> , <i>Xanthorrhoea johnsonii</i>	
	Grasses	<i>Aristida sp.</i> , <i>Cleistochloa subjuncea</i> , <i>Cymbopogon bombycinus</i> , <i>Eragrostis sp.</i> , <i>Eriachne pallescens</i>	

BioCondition Site 17	
	<i>Panicum simile, Schizachyrium fragile, Themeda triandra, Tripogon loliiformis</i>
Forbs and Others	<i>Boronia occidentalis, Borya septentrionalis, Cheilanthes distans, Coronidium newcastlianum, Cyanthillium cinereum, Drynaria rigidula, Gonocarpus acanthocarpus, Hypericum gramineum, Lepidosperma laterale, Mitrasacme sp., Pimelea linariifolia, Plectranthus amoenus, Schoenus kennyi</i>
Non-native Plant Species	<i>Praxelis clematidea</i>
Threatened Flora	<i>Melaleuca uxorum, Plectranthus amoenus</i>

BioCondition Site 18 -				
Date:	06-06-2024			
Plot Origin:	Zone: 55K	Lat: 17.19645	Long: 145.39725	Elevation: 1064m
Plot Centre:	Zone: 55K	Lat: 17.19612	Long: 145.39754	Elevation: 1058m
Plot Bearing:	SE	Plot Alignment:	Mid-slope running parallel to the hill contour	
				
North		East		

BioCondition Site 18 -


South

West

Habitat Description: Open forest (14m) dominated by *Eucalyptus reducta*. Grassy understorey (<1.0m) of *Themeda triandra* and *Mnesithea rottboellioides* combined with a low heathy shrub layer

Regional Ecosystem (Mapped): 7.12.58 *Eucalyptus reducta* +/- *E. granitica* +/- *Corymbia dimorpha* +/- *C. citriodora* woodland to open forest on granite and rhyolite

Vegetation Attributes:	Recruitment of Dominant Canopy Species (%):		100%
	Native plant species richness:	Trees:	2
		Shrubs:	9
		Grasses:	4
		Forbs/Other:	11
	Tree Canopy	Median Height (m)	14
		Tree Canopy Cover (%)	27.9
	Tree Sub-canopy	Tree sub-canopy median Height (m)	5
		Tree Sub-canopy Cover	1.3
	Large Trees	Large Eucalypt tree DBH threshold (cm)	30
		Large Eucalypt trees per hectare	32
		Large non-eucalypt trees threshold (cm)	0
		Large non-eucalypt trees per hectare	0
	Shrubs	Native Shrub Cover (%)	41.7
	Ground Cover	Native Perennial Grass Cover (%)	40
		Forbs and Non-grass (%)	6
		Shrubs (%)	30
Organic litter cover (%)		11	

BioCondition Site 18 -			
		Rock (%)	12.6
		Bare Ground (%)	0.4
		Cryptograms (%)	0
		Non-native plant cover (%)	0
		Total Non-native species richness	1
	Coarse Woody Debris (CWD)	Total length >10cm width and >1m length (m)	40
Native Species Richness:	Trees	<i>Eucalyptus crebra, Eucalyptus reducta</i>	
	Shrubs	<i>Acacia calyculata, Acrothamnus spathaceus, Allocasuarina inophloia, Astrotricha pterocarpa, Hakea benthamii, Notelaea venosa, Platysace valida, Pultenaea millarii, Xanthorrhoea johnsonii,</i>	
	Grasses	<i>Cleistochloa subjuncea, Eriachne mucronata, Panicum simile, Themeda triandra.</i>	
	Forbs and Others	<i>Cheilanthes brownii, Coronidium newcastlianum, Dianella nervosa, Hibbertia longifolia, Lepidosperma laterale, Lomandra filiformis, Melichrus urceolatus, Phyllanthus dallachyanus, Pimelea linariifolia, Plectranthus parviflora, Tricoryne anceps.</i>	
Non-native Flora	<i>Praxelis clematidea</i>		
Threatened Flora	Nil		