

Monday, 29 June 2026



Ms Aimee Smithers

Our Ref WB1127 v2.1

Preston Consulting

Via e email to: ASmithers@prestonconsulting.com.au,

cc: gedwards@prestonconsulting.com.au

Re: Memo report addendum to Western Botanical (2025) Report WB1059

Good afternoon Aimee

We are pleased to provide the results of the field assessment for the Alinta proposed development footprint adjacent to Mimegarra Rd, Cataby. In this document I have updated maps for final presentation.

Within the Study Area, we have flagged a Priority 3 *Banksia dallanneyi* subsp. *pollostia* and individuals of two new species of *Xanthorrhoea* on site (*Xanthorrhoea* sp. GCLD 4326 and *Xanthorrhoea* sp. GCLD 4328). These species are also highly likely to occur within the road alignment and have been previously reported by our team in the Mimegarra Rd area (Western Botanical 2025) as *Xanthorrhoea preissii*. This relates to reports prepared for Alinta Energy and APA Infrastructure.

The commonly accepted taxon *Xanthorrhoea preissii* does not likely occur within the broader Study Area. *Xanthorrhoea* taxonomy is hugely deficient at the moment and several new species are likely to be described in the coming years. Both these should be considered to have relatively high conservation value until otherwise proven. These findings may trigger a wider investigation for the species noted here, and any additional taxa that may be present, in the Cataby area.

I have incorporated feedback on the initial Memo within this updated version.

Kind regards

Geoff Cockerton

Introduction

Western Botanical was commissioned by Preston Consulting to implement a supplementary assessment of remnant vegetation on farmland adjacent to Mimegarra Road, Cataby for Alinta Energy. The Study Area represents a long-term partially cleared and grazed (cattle) remnant of Banksia woodland on Bassendean sand west of Brand Highway and north of Mimegarra road, Figure 1.

This Study Area lies adjacent to an existing the Alinta Energy Yandin Terminal Substation facility on its eastern boundary and the Native Dog Swamp Nature Reserve on its south-eastern margin. Western Botanical previously undertook a flora and vegetation assessment of a larger Study Area inclusive of roadside vegetation on Mimegarra Road (Western Botanical 2025), Figure 1. This document represents an addendum to the former report.

Methods

Desktop Assessment

A brief desktop review was implemented prior to field assessment involving a review of the previously expected and recorded Priority Flora reported in Western Botanical (2025) with images of target significant species carried digitally in the field to aid identification. Targeted species are presented in Table 1.

Table 1. DBCA and DEECW Database Desktop Search Results

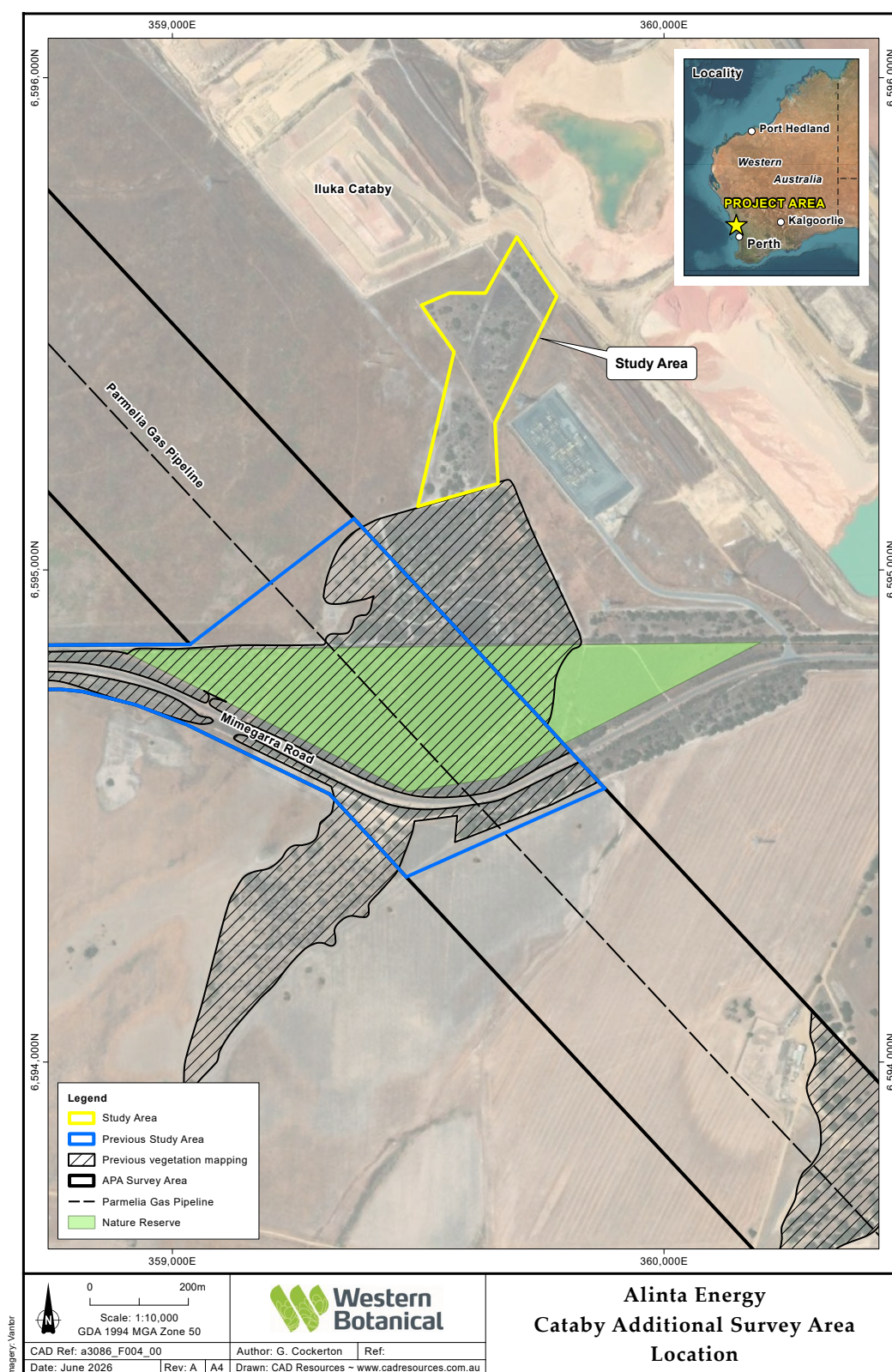
Taxon	Cons Status	
	DBCA	DEECW
<i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i>	P4	
<i>Comesperma rhadinocarpum</i>	P3	
<i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i>	P3	
<i>Ptilotus tetrandrus</i>	P1	
<i>Schoenus badius</i>	P2	
<i>Schoenus griffinianus</i>	P4	
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	P4	
<i>Acacia forrestiana</i>		T (VU)
<i>Andersonia gracilis</i>		T (EN)
<i>Anigozanthos viridis</i> subsp. <i>terraspectans</i>		T (VU)
<i>Banksia mimica</i>		T (EN)
<i>Caleana dixonii</i> (<i>Paracaleana dixonii</i>)		T (EN)
<i>Chamelaucium lullfitzii</i> (<i>Chamelaucium</i> sp. <i>Gingin</i> (N.G. Marchant 6)		T (EN)
<i>Chamelaucium</i> sp. <i>Cataby</i> (G.J. Keighery 11009)		T (VU)
<i>Conospermum densiflorum</i> subsp. <i>elasticum</i>		T (EN)
<i>Drakea elastica</i>		T (EN)

Taxon	Cons Status	
	DBCA	DEECW
<i>Eleocharis keigheryi</i>		T (VU)
<i>Eucalyptus dolorosa</i>		T (EN)
<i>Eucalyptus leprophloia</i>		T (EN)
<i>Grevillea calliantha</i>		T (EN)
<i>Grevillea curviloba</i> subsp. <i>incurva</i>		T (EN)
<i>Hakea megalosperma</i>		T (VU)
<i>Hemiandra gardneri</i>		T (EN)
<i>Macarthuria keigheryi</i>		T (EN)
<i>Ptychosema pusillum</i>		T (VU)
<i>Styphelia obtusa</i> (<i>Leucopogon obtectus</i>)		T (EN)
<i>Thelymitra stellata</i>		T (EN)

Field Assessment

The field assessment involved a half-day on-ground series of traverses by senior botanists Linda Dalgliesh and Geoff Cockerton at approximately 20 to 50m spacings within the current Study Area, Figure 2. Significant species previously expected or recorded and reported in Western Botanical (2025) were searched for on-foot and a species list of native flora present was compiled. Specimens of flora not readily recognised in the field were taken for later verification using the resources of the WA Herbarium and Western Botanical's reference herbarium. Digital images of some flora were taken for reference.

Climatic conditions prior to the field survey meant that pasture species had germinated and were well grown. Data gathered was entered into either the GPS Maps App or into a proprietary FieldBook App on iPhones.

Figure 1. Additional Study Area, assessed May 2026

Results and Discussion

Remnant Vegetation Present

Vegetation of the Study Area was represented by scattered trees of *Eucalyptus tottiana*, *Banksia menziesii* (tree form), *B. attenuata* (tree form), *B. prionotes* and *Nuytsia floribunda* from 5 to 8m tall, projected foliar cover (PFC) of 5 to 7% over scattered shrubs of *Davisia divaricata* (2m), *Eremaea pauciflora* (2m), *Hibbertia hypericoides* subsp. *hypericoides* (1m), PFC 2 to 3% over a robust sedgeland of *Mesomelaena pseudostygia* (0.7m) and *Lyginia barbata* (0.5m), PFC 5 to 15%. The Study Area is on a low Bassendean sand dune with grey sandy soil. See Plates 1 and 2, Figure 3.

This association is considered similar to the **EtW *Eucalyptus tottiana* woodland** (Western Botanical, 2025) which lies immediately to the south of and contiguous with the farm land remnant reported here.

Vegetation Condition

The area is ringed by stock fencing in good condition on its western side and poor condition elsewhere. The Study Area has been subjected to parkland clearing followed by grazing by cattle over a lengthy period of time. This has resulted in only the larger trees and unpalatable shrubs remaining on the property.

The vegetation of the additional Study Area assessed in May 2026 is regarded as Completely Degraded on firebreaks and internal tracks and Good in the majority of the Study Area, utilising the EPA (2016) Vegetation Condition Scale, (adapted from Keighery 1994 and Trudgen 1988), Figure 4.

The **EtW *Eucalyptus tottiana* woodland** vegetation association south of this Study Area (Western Botanical, 2025) is in far better condition than the remnant on the farmland assessed in this report.

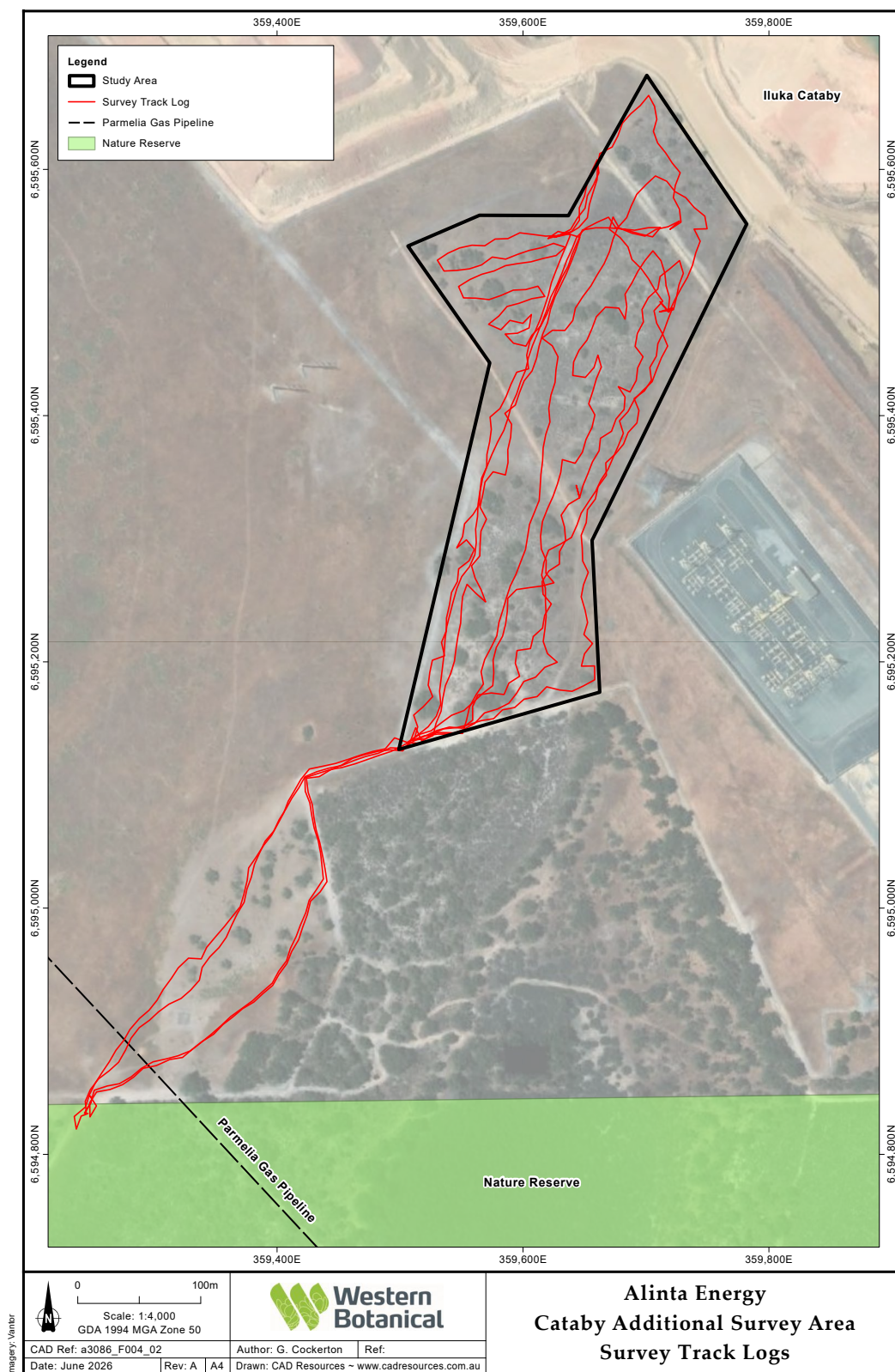
Figure 2. Track Logs within the Study Area

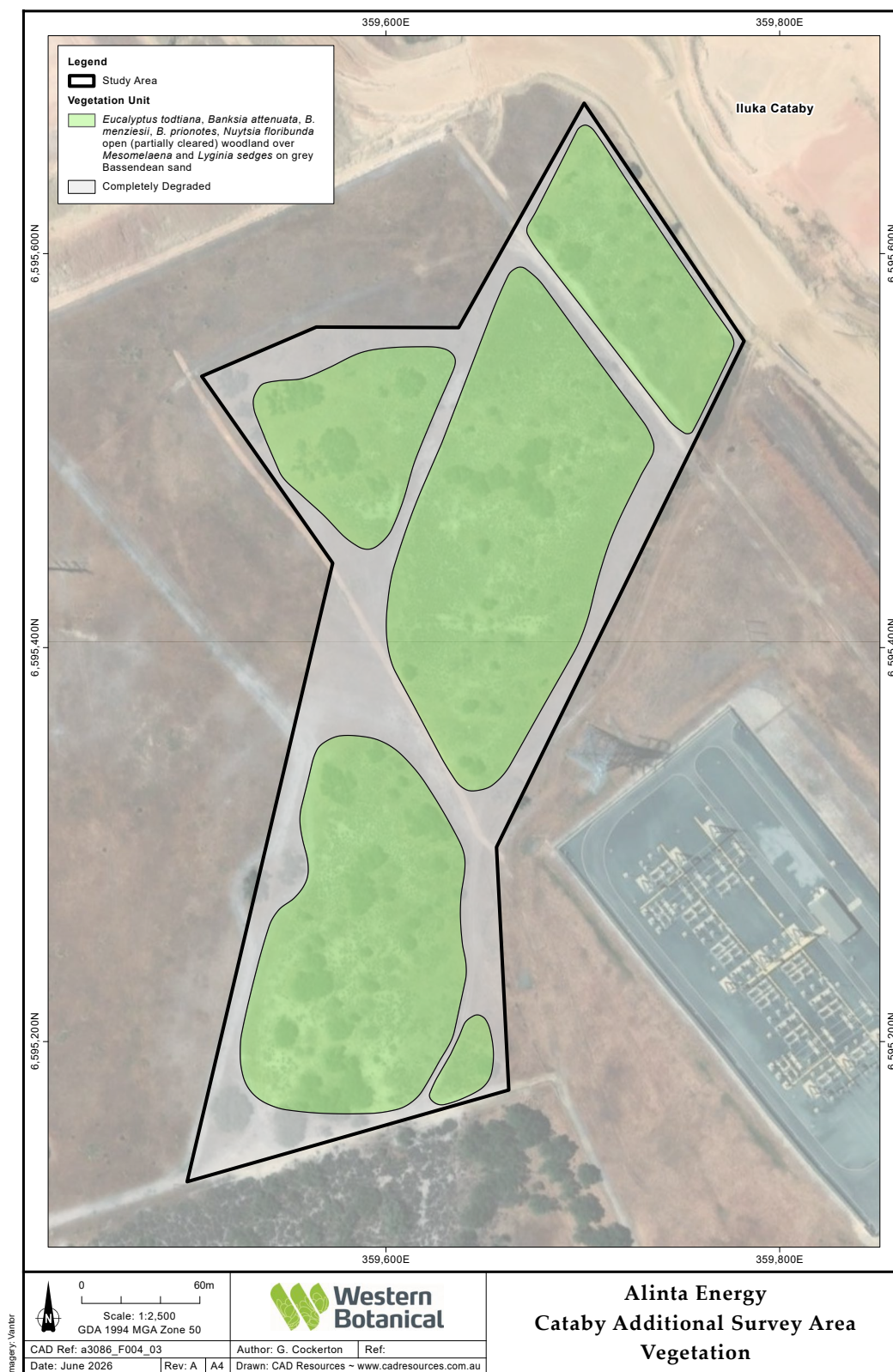
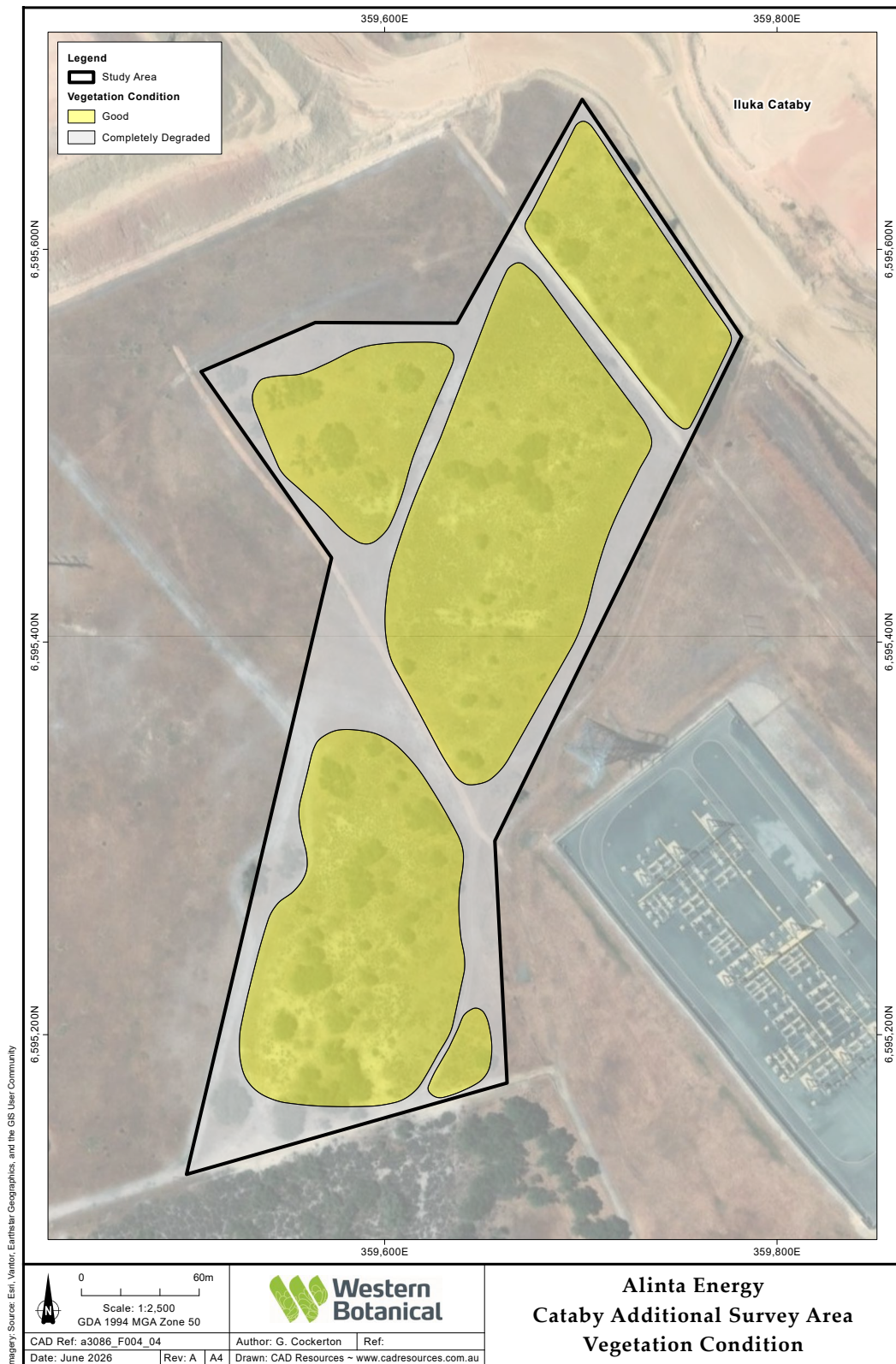
Figure 3. Vegetation of the Study Area

Plate 1. Representative remnant vegetation, Completely Degraded Condition in foreground and Good Condition vegetation above.



Plate 2. Representative remnant vegetation, *Mesomelaena* in foreground

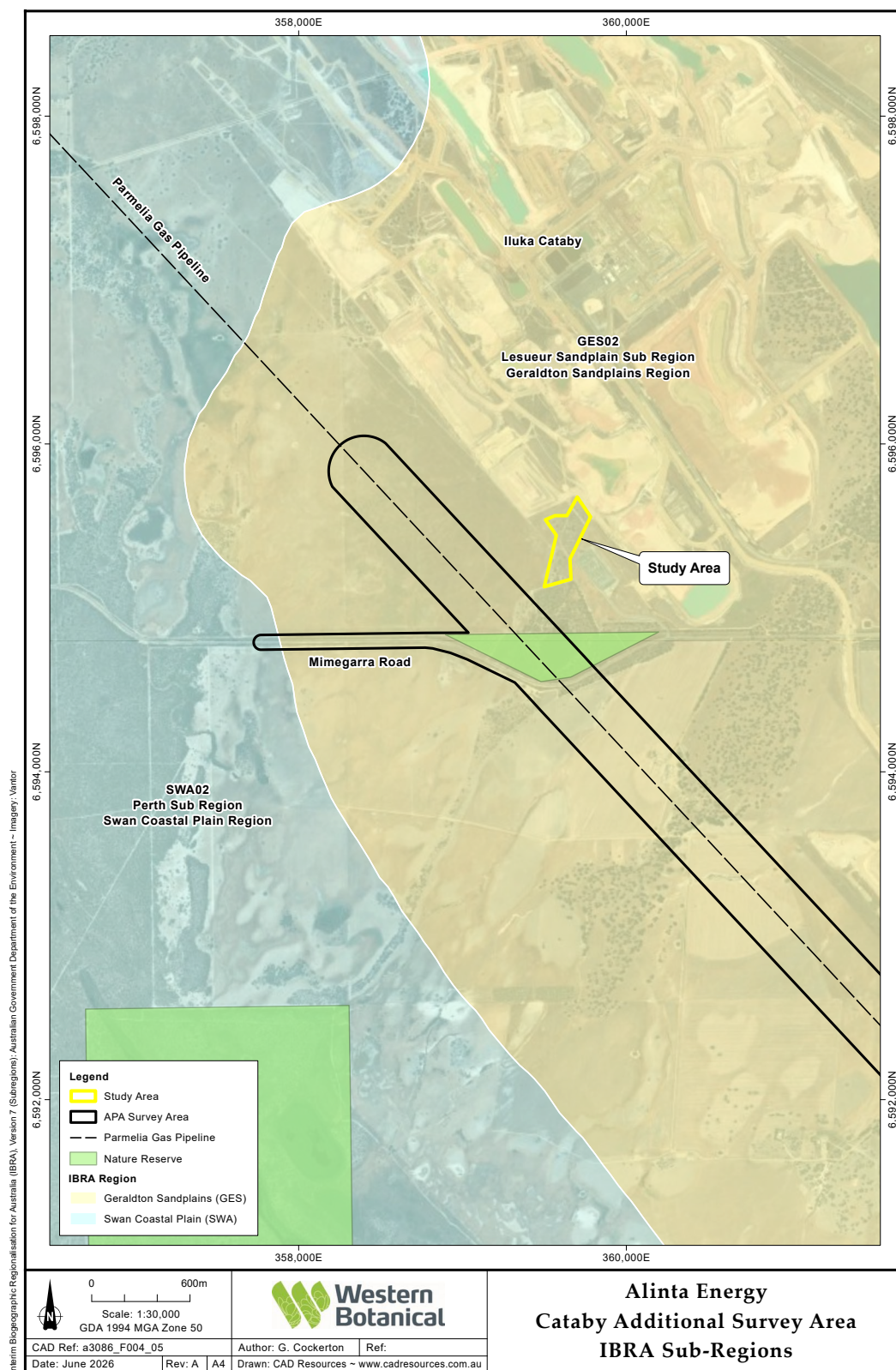


Figure 4. Vegetation Condition

Bioregion and Threatened Ecological Community

The Study Area lies within the western edge of the Geraldton Sandplains biogeographic region (BGR) as mapped but is only 1.64 km east of the boundary between this and the Swan Coastal Plain BGR, Figure 5. The landform and soils of the Study Area place it within the Bassendean Land System of the Swan Coastal Plain. That the site is mapped within the Geraldton Sandplains BGR is considered an artefact of inaccurate mapping of the bioregions in this area.

The Banksia Woodlands of the Swan Coastal Plain is listed Federally as an Endangered Threatened Ecological Community (TEC), under the EPBC Act (C'th) and the Study Area should be considered to represent this TEC.

Figure 5. Biogeographic Region

Flora Species Observed

Thirty-three native endemic flora were recorded within the Study Area. The majority of these are considered widespread and well-known taxa, Table 2.

Table 2. Native flora of the Study Area

Family	Taxon	Cons_Status
Amaranthaceae	<i>Ptilotus polystachyus</i>	
Asparagaceae	<i>Corynotheca micrantha</i>	
Asteraceae	<i>Podotheca gnaphalioides</i>	
Chenopodiaceae	<i>Dysphania</i> sp. Indet.	
Cyperaceae	<i>Lepidosperma</i> sp. 0.5m. Indet.	
Cyperaceae	<i>Mesomelaena stygia</i>	
Dasypogonaceae	<i>Dasypogon obliquifolius</i>	
Dilleniaceae	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>	
Ericaceae	<i>Leucopogon</i> sp. Indet. 1	
Ericaceae	<i>Leucopogon</i> sp. Indet. 2	
Fabaceae	<i>Acacia pulchella</i> var. <i>glaberrima</i>	
Fabaceae	<i>Daviesia divaricata</i>	
Fabaceae	<i>Daviesia decurrens</i>	
Fabaceae	<i>Jacksonia nutans</i>	
Goodeniaceae	<i>Lechenaultia linaroides</i>	
Iridaceae	<i>Patersonia occidentalis</i> subsp. <i>occidentalis</i>	
Loranthaceae	<i>Nuytsia floribunda</i>	
Myrtaceae	<i>Apectospermum spinescens</i>	
Myrtaceae	<i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>	
Myrtaceae	<i>Eucalyptus tottiana</i>	
Myrtaceae	<i>Leptospermopsis erubescens</i>	
Phormiaceae	<i>Dianella revoluta</i>	
Proteaceae	<i>Banksia attenuata</i> (tree form)	
Proteaceae	<i>Banksia dallanneyi</i> subsp. <i>pollostia</i>	Priority 3
Proteaceae	<i>Banksia menziesii</i> (tree form)	
Proteaceae	<i>Grevillea crithmifolia</i>	
Proteaceae	<i>Hakea ruscifolia</i>	
Restionaceae	<i>Alexgeorgea nitens</i>	
Restionaceae	<i>Caustis dioica</i>	
Restionaceae	<i>Desmocladius</i> sp.	
Restionaceae	<i>Lyginia barbata</i>	
Xanthorrhoeaceae	<i>Xanthorrhoea</i> sp. Mimegarra Rd (GCLD 4238) square leaf	Species of Interest
Xanthorrhoeaceae	<i>Xanthorrhoea</i> sp. Mimegarra Rd (GCLD 4326) flat leaf	Species of Interest

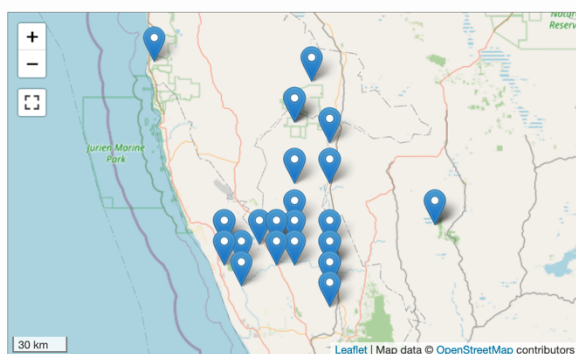
Priority Flora

One Priority flora species was recorded within the Study Area: 3 plants of *Banksia dallanneyi* susp. *pollosta* P3 (<https://florabase.dbca.wa.gov.au/browse/profile/32696>). This is a prostrate rhizomatous *Banksia* with characteristically narrow leaves making it relatively easy to identify. It is widespread in the Cataby – Eneabba – Watheroo region, Figure 6.

Figure 6. Distribution of *Banksia dallanneyi* subsp. *pollosta* P3 in Western Australia (FloraBase).

Banksia dallanneyi subsp. *pollosta* (A.S.George) A.R.Mast & K.R.Thiele

Reference	Austral.Syst.Bot. 20:67 (2007)	Prostrate, lignotuberosus shrub. Fl. yellow-brown, Aug to Sep. Grey/yellow sand.
Conservation Code	Priority Three	Flats, lateritic rises.
Naturalised Status	Native to Western Australia	
Name Status	Current	Amanda Spooner, Descriptive Catalogue, 18 August 2008



Adequacy of Survey for Targeted Priority flora

Climatic conditions at the time of survey were inappropriate for individuals of herbaceous native species to be observed. These include five of the seven Priority flora that were the subject of the survey: *Anigozanthos humilis* subsp. *chrysanthus* P4, *Comesperma rhadinocarpum* P3, *Ptilotus tetrandrus* P1, and *Schoenus griffinianus* P4 and the geophytic orchid species returned in the DECEW Database Search, Table 1. The survey timeframe (May) is not considered appropriate for these species and is therefore a Limitation.

However, given the long-term grazed condition of the vegetation at this site, it is considered highly unlikely that these species would be present within the Study Area.

The amount of time spent searching the site, one full afternoon by two Senior Botanists, is considered an adequate timeframe for the assessment.

Significant, Novel Species

Two species of *Xanthorrhoea* were recorded within the Study Area. Both these taxa were observed within the Native Dog Swamp Nature Reserve to the south-east of the Study Area and both may also occur within the roadside remnant vegetation of Mimegarra Road. These have been labelled as:

- *Xanthorrhoea* sp. Mimegarra Rd flat leaf (G. Cockerton & L. Dalglish 4326)
- *Xanthorrhoea* sp. Mimegarra Rd square leaf (G. Cockerton & L. Dalglish 4328)

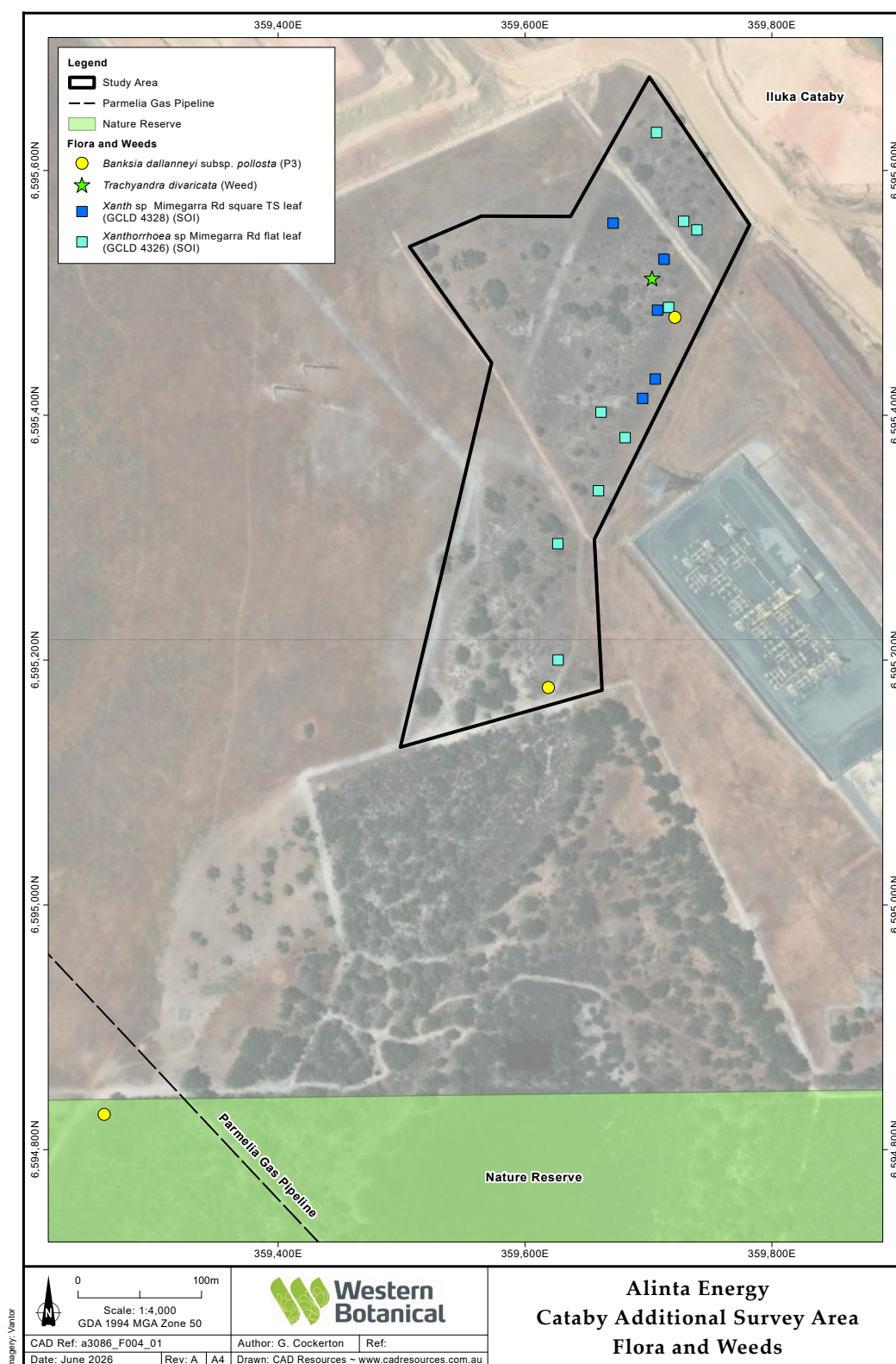
These are depicted in Figure 6 and Appendix 1.

Both have a green leaf and relatively spherical canopy typical of species in the *Xanthorrhoea preissii* complex. Currently *Xanthorrhoea preissii* sens. lat. (in the broad sense) is regarded as occurring from Geraldton to Albany, extending from the Swan Coastal Plain to the Darling Scarp and inland to the western margin of the Avon-Wheatbelt bioregion. Current work being undertaken by the authors has found *Xanthorrhoea* taxonomy is grossly lacking and that many new species are to be described within Western Australia. Specifically, *Xanthorrhoea* of the Swan Coastal Plain does not include typical *Xanthorrhoea preissii*.

Accordingly, we suggest the two species present within the Study Area are lacking taxonomic recognition and that little can be documented about their relative distribution or abundances. Our advice is that these two species should be treated as novel species and that they should be considered to have high conservation value. Both require regional context of their distribution and population numbers and as such would be listed by the Department of Biodiversity Conservation and Attractions as Priority 2 flora species, having representatives within the Native Dog Swamp Nature Reserve.

Information on the two *Xanthorrhoea* species is presented in Appendix 1.

Figure 7. Significant species of the Study Area including *Banksia dallanneyi* subsp. *pollostia* P3 and *Xanthorrhoea* sp. GCLD 4326 and GCLD 4328 and the weed *Trachyandra divaricata* within the Study Area.



Weeds

Much of the pasture consisted of typical agricultural species such as Cape Weed (*Arctotheca calendula*), Veldt Grass (*Ehrharta calycina*) and Annual Veldt Grass (*Ehrharta longiflora*). Thirteen weed or non-endemic species were recorded in the Study Area, most being ubiquitous pasture species, Table 3.

Table 3. Weeds of the Study Area

Family	Taxon	Common Name	Status
Asphodelaceae	<i>Trachyandra divaricata</i> *	An Onion Weed	Weed
Asteraceae	<i>Arctotheca calendula</i> *	Cape Weed	Weed
Asteraceae	<i>Hypochaeris sp.</i> *	Flat weed	Weed
Asteraceae	<i>Ursinia anthemoides</i> *	Ursinia	Weed
Brassicaceae	<i>Raphanus raphanistrum</i> *	Wild Radish	Weed
Cucurbitaceae	<i>Citrullus amarus</i> *	Melon	Weed
Cucurbitaceae	<i>Cucumis myriocarpus</i> *	Prickly Paddy Melon	Weed
Fabaceae	<i>Lupinus angustifolius</i> *	Blue Lupin	Weed
Orobanchaceae	<i>Orobanche sp.</i> *	v	Weed
Poaceae	<i>Cynodon dactylon</i> *	Couch grass	Weed
Poaceae	<i>Ehrharta calycina</i> •	Veldt Grass	Weed
Poaceae	<i>Ehrharta longiflora</i> *	Annual Veldt Grass	Weed
Poaceae	<i>Eragrostis sp.</i> * Tall perennial grass		Weed

One plant of a problematic species, *Trachyandra divaricata*, was observed at -30.765103° S, 115.534056° E, Figure 6, Plate 3. While this is neither a Weed of National Significance or a Declared Organism in Western Australia, it is toxic to stock and a rampant coloniser species. It should be eradicated if possible.

Trachyandra divaricata (Jacq.) Kunth

Reference	Enum.Pl. 4:580 (1843)	Rhizomatous, perennial, herb, to 0.35 m high. Fl. white, Aug to Nov.
Conservation Code	Not threatened	grey sand. Coastal dunes.
Naturalised Status	★ Alien to Western Australia	
Name Status	Current	Grazyna Paczkowska, Descriptive Catalogue, ;

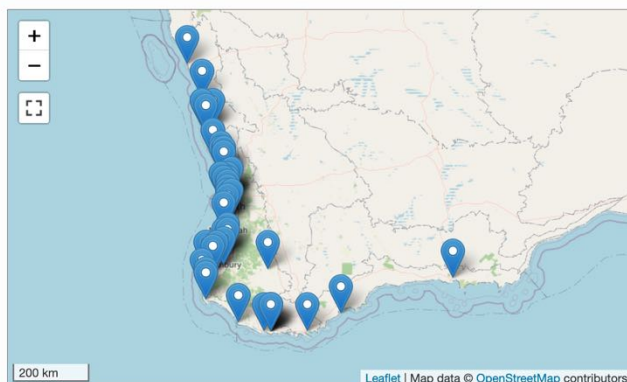


Plate 3. *Trachyandra divaricata* Weed (FloraBase)

IBSA Data File: IBSA_WB1127_20260604.zip

References

Department of Energy, Environment and Water (2026) *Banksia Woodlands of the Swan Coastal Plain: a nationally-protected ecological community*, Commonwealth of Australia 2016. (<https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=131&status=Endangered>), accessed 29 May 2026.

Department of Climate Change, Energy and the Environment and Water, Protected Matters Search Tool. <https://pmst.environment.gov.au/>

Western Australian Herbarium (1998–). *Florabase—the Western Australian flora*. Department of Biodiversity, Conservation and Attractions. <https://florabase.dbca.wa.gov.au/> (Accessed 29 May 2026).

Western Botanical (2025) *Summary findings from Phase 1 Detailed Flora and Vegetation Assessment of The Proposal for Alinta Energy*. Memo report prepared for Preston consulting Pty Ltd. Report reference WB1059.

Appendix 1. Information on *Xanthorrhoea* species



Xanthorrhoea sp. Mimegarra Rd (GCLD 4326) flat leaf TS

Species of Interest (SOI)

Description

Caudex 35 to 40 cm diameter, young plants with unbranched caudex and single meristem, older plants to 4m tall with multiple (3) branches and one meristem per caudex head. **Leaves** dull green 0.86 to 1.5m long, excluding the flattened leaf bases. **Scape** 38 to 45mm diameter, 0.34 to 0.53m long, mid brown, dull light brown, one showing signs of slight pruinosity (rubbed off in handling), shorter to as long as leaves; **Spike** 3.26m long x 60mm diameter (including fruit valves); **Fruit valves** 17 to 24mm long x 5 to 7mm wide, fruits curved, one valve longer than other two, terminal mucro 3.1mm. Old dried flowers 13.5mm long including 3 floral bracts. Unpollinated **floral bracts** 13 to 15mm long x 3mm wide at distal end, boat shaped, broadly acute, glabrous or with short hairs on outer surface below expanded end, creamy white with a light brown distal tip, margin entire, appressed against fruiting valve. **Packing bracts** creamy white, 12.5mm x <1mm with expanded tip, glabrous.

Key features:

Leaves dull green, 0.8m long, flattened at base to obtrullate in TS
Caudex to 1.5m noted
Thick scape: 38 to 45 mm diameter, to 0.8m long (as long as leaves)
Spike 3.2m long x 60mm diameter incl. fruits

Population Size

Ten plants, from young juveniles to mature small plants to old-growth trees to 5.5m tall noted.

Distribution

Within the Swan Coastal Plain bioregion, margin of Geraldton Sandplains BGR, TEC of Banksia woodland within this bioregion. Immediately adjacent to, and south of, the Iluka Resources Cataby minesite, 2.84 km west of the Brand Highway, 0.9 km north of the Mimegarra Rd diversion around the Wild Dog Swamp Nature Reserve and abutting the NR northern boundary. The population of this *Xanthorrhoea* extends into the Wild Dog Swamp Nature Reserve to the south.

Habitat

Growing on grey Bassendean sand dune with *Banksia menziesii* (tree form), *B. attenuata* (tree form), *Eucalyptus tottiana*, *Nuytsia floribunda*, *Xanthorrhoea* sp. Mimegarra Rd (GCLD 4238) square leaf TS, *Hibbertia hypericoides* subsp. *hypericoides*, *Daviesia divaricata*, *Mesomelaena pseudostygia*, *Lyginia barbata*, pasture grasses and weeds.



Young but mature plant (plant 1) with flattened leaves to 0.8m long, regenerated after clearing, leaves dull green, markedly depressed – obtrullate 0.8m long, scape 0.86m, spike 2.5m.



Young but mature plant (plant 2) with flattened, markedly depressed – obtrullate leaves to 0.8m long



Plant 6, standing tree to 3.5m, three live meristems, adjacent to the blown-over plant



Old mature plant (5), flat leaves, caudex 4m long, three live meristems, blown-over but still alive, not sampled



Leaf bases from blown-over plant (5)



Scape – spike interface, plant 1



Fruiting scape, well pollinated, plant 2



Leaves and crown showing markedly flattened – depressed obtrullate leaves with small continuous antrorse serrations on lateral margins, plant 1



Fruits and seed, plant 2



Old woody bases noted in paddock, three seen, may be from similar plants that were cleared in the past, or may represent another taxon altogether (*Xanthorrhoea* sp. Mimegarra Rd square leaf TS (GCLD 4328), as the old blown-over plant 5 of (GCLD 4326) only had a pithy parenchyma core.



Plant 4, flat markedly depressed – obtrullate leaves, twisted fruit, collected but discarded

Xanthorrhoea sp. (GCLD 4326) plant 1, markedly flat leaves

Caudex to 30cm (young plant)

Dull green flat leaves 0.8 to 1m x 6mm wide

Scape as long as leaves, 0.86m x 42 mm smooth dull brown

Spike 2.5m x 85mm inc. fruits, fruit seem deeply buried within old flowers

Leaf and spike taken

Xanthorrhoea sp. (GCLD 4326) plant 2 diamond TS leaf

Caudex ~0.3m (young plant)

Leaves 0.8m dull green square-rhombic TS

Scape shorter than leaves, 0.53m x 38mm diameter, smooth, slightly pruinose over dull brown

Spike 2.4m x 80mm inc. fruits, fruit prominently protruding from dried flowers

Leaf and spike taken

Fruit from Xanthorrhoea sp. (GCLD 4326) plant 4

Scape 0.34m x 45 mm diameter, smooth dull brown

Spike 2.6m x 80mm diameter inc. fruits, twisted into a loop

Convolutd spike taken but discarded, no leaves sampled

Note: Plant 3 is regarded a separate species, *Xanthorrhoea* sp. Mimegarra Rd square leaf TS (GCLD 4328).

Plant 5 (blown over) with caudex 4m. Not sampled.



***Xanthorrhoea* sp. (GCLD 4328) square leaf TS**

Species of Interest (SOI)

Growing with *Xanthorrhoea* sp. Mimegarra Rd (GCLD 4326) flat leaf TS

This species has a canopy approximately 1.5 x the diameter of (GCLD 4326)



Plant 3. Mature and very large canopy, leaves 1.5m long, square in TS, dull green, no fruits or flowers at this time. Canopy much larger than the flat-leaved individuals (GCLD 4326), and leaves longer (1.5m vs 0.8m) and square in TS (sampled).

Key features:

Leaves dull green, 1.5m long, square TS
Caudex ~0.4m (young plant)
No fls, no fruit
Leaf sample taken

Population Size

Five plants from young juveniles to mature small plants to old-growth trees to 5.5m tall noted.

Distribution

Within the Swan Coastal Plain bioregion, margin of Geraldton Sandplains BGR, TEC of Banksia woodland within this bioregion. Immediately adjacent to, and south of, the Iluka Resources Cataby minesite, 2.84 km west of the Brand Highway, 0.9 km north of the Mimegarra Rd diversion around the Wild Dog Swamp Nature Reserve and abutting the NR northern boundary. The population of this *Xanthorrhoea* extends into the Wild Dog Swamp Nature Reserve to the south.

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Old woody bases noted in paddock, three seen, may be from similar plants that were cleared in the past, or may represent another taxon altogether as the old blown-over plant of (GCLD 4326) only had a pithy parenchyma core.