Jinidi & Weeli Wolli Creek Targeted Groundwater Dependent Vegetation Survey

Report to BHP Western Australia Iron Ore

19 August 2025

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Executive Summary

BHP WAIO's Jinidi iron ore project is located in the Pilbara region of Western Australia, approximately 70 km northwest of Newman. BHP WAIO commissioned Biologic to undertake a targeted and reconnaissance riparian and potential groundwater dependent vegetation (GDV) survey of the Jinidi Project Area and areas of Weeli Wolli Creek (and associated tributaries), and to identify areas that may be relevant to include in ongoing riparian flora and vegetation health monitoring.

The desktop assessment identified 79 riparian flora taxa recognised as indicator species for GDV for the Survey Area. One Priority Ecological Community, the regionally significant and permanent Groundwater Dependent Ecosystem 'Weeli Wolli Spring' (P1), was identified as occurring in the Survey Area in the northwest, with a smaller isolated occurrence in the central west (Ben's Oasis).

A plethora of survey work has been completed in the Survey Area and surrounds, particularly within Weeli Wolli Spring. However, only two surveys completed sampling and mapping suitable to match a survey of this type and intensity (targeted GDE/GDV survey); 1) 'Weeli Wolli Creek Biological Assessment Survey' by Ecologia (1998); and 2) 'Targeted Riparian Survey of the Greater Hope Downs 1 Area' by Rio Tinto (2023). The mapping and sampling data from these assessments, together with Biologic's sampling and mapping of the Jinidi project area and ongoing sampling of riparian flora and vegetation health monitoring in Weeli Wolli Creek, was used to assist with pre-survey planning and post-survey riparian vegetation survey mapping. Additionally, the pre-survey analysis of aerial imagery, GDV likelihood mapping derived from Landsat satellite imagery, and The Bureau of Meteorology's National GDE Atlas provided additional support for pre-survey planning.

The field survey consisted of one five-day field visit from the 17th–21st of July 2024 by two Biologic personnel, with access to the site by vehicle and helicopter. The weather experienced prior to the survey was adequate and consistent with usual seasonal patterns for the region. No major limitations or constraints affected the field survey completion or survey results.

A total of 90 floristic sites (17 relevés, 73 vegetation mapping notes) were established and sampled. A total of 29 riparian vascular flora taxa, representing five hydrophytes, seven phreatophytes, 11 mesophytes and six general riparian species, were recorded in the Survey Area during this survey.

Eleven discrete riparian vegetation types were described and delineated in the Survey Area. Mapping of riparian vegetation for this survey matched closely that of areas previously mapped by Ecologia (1998) and Rio Tinto (2023), but with some refinement in some areas, particularly Weeli Wolli Spring, which has changed significantly since the Ecologia (1998) survey (most

notably the increase in *Melaleuca argentea* forest/woodland and *Eucalyptus camaldulensis* forest following dewatering discharge to the creek).

Vegetation types D01-a and D01-d were identified as regionally significant and restricted permanent GDEs (most closely representing the 'Weeli Wolli Spring' (P1) PEC at Weeli Wolli Spring). Vegetation type D01-c was identified as a regionally significant and restricted permanent GDE (most closely representing the expression of the 'Weeli Wolli Spring' (P1) PEC at Ben's Oasis). Vegetation types D01-c, D02, and D10 were identified as locally significant (High) riparian vegetation with a High GDV likelihood. Remaining vegetation types had Moderate or below local significance and GDV likelihood.

All occurrences of vegetation types with high GDV likelihood rating are included in current and ongoing riparian vegetation health monitoring by BHP WAIO, except for one isolated occurrence of D02 and two closely occurring portions of D01-c, one of which overlaps the Jinidi project area boundary. It is recommended that the portion of D01-c which overlaps the Jinidi project area is included in future riparian vegetation health monitoring by BHP WAIO.

Vegetation condition ranged from Excellent to Poor, with the majority (80 %) in Very Good condition. Disturbances affecting condition were generally minimal across the Survey Area, likely due to the lack of current and/or historical pastoral tenure and clearing in the area, resulting in low instances of stock related disturbance (trampling, grazing, pastoral infrastructure), weeds and clearing related disturbances.

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1 Introduction

1.1 Background

BHP Western Australia Iron Ore's (BHP WAIO) Jinidi iron ore project is located in the Pilbara region of Western Australia, approximately 70 kilometres (km) northwest of Newman (Figure 1.1). BHP WAIO commissioned Biologic Environmental Survey Pty Ltd (Biologic) to complete a two-season detailed flora and vegetation survey of the Jinidi Project Area across 2023 and 2024 (Biologic, 2024a). Biologic, commissioned by BHP WAIO, also currently complete tree health, riparian flora and vegetation, and aquatic monitoring within Weeli Wolli Creek and Spring (partially overlapping and adjacent to the Jinidi project area) and Ben's Oasis approximately 1.6 km west of the south-west corner of the Jinidi project area), with monitoring undertaken biannually since 2021 (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j).

This monitoring program broadly monitors environmental metrics (e.g., tree and vegetation health) relating to water availability within the Priority 1 (P1) listed 'Weeli Wolli Spring' Priority Ecological Community (PEC). Ben's Oasis is the only known mapped expression of this PEC outside of Weeli Wolli Spring, occurring some 13 km south of the spring. The current tree and riparian flora and vegetation monitoring program includes:

- five tree health sites in Weeli Wolli Spring, one in Ben's Oasis, each with 10 individuals of *Melaleuca argentea*; and
- 22 quadrats in Weeli Wolli Spring and four in Ben's Oasis, recording the presence and cover of all flora species (annual and perennial).

BHP WAIO commissioned Biologic to undertake a targeted and reconnaissance riparian and groundwater dependent vegetation (GDV) survey of the Jinidi Project Area and areas of Weeli Wolli Creek (and associated tributaries, if relevant; hereafter referred to as the Survey Area), and to identify areas that may be relevant to include in tree health and riparian vegetation monitoring (Figure 1.1).

1.2 Scope and Objectives

The primary objective of the survey is to identify and map potential Groundwater Dependent Ecosystems (GDE) and GDV within the Survey Area, and to identify any potentially sensitive GDV receptors for ongoing monitoring within the Survey Area in addition to the sites currently being monitored by BHP WAIO. This survey may be used to inform future environmental approvals across the Survey Area; however, the survey report is of a general nature not assessing any specific development proposed by BHP WAIO. Any GDV, particularly potentially sensitive GDV, identified during the survey may be included in the Weeli Wolli Creek monitoring program.

The scope of works includes a targeted and reconnaissance riparian and groundwater dependent vegetation (GDV) survey of the Survey Area. The scope of works was addressed via:

- A desktop assessment to gather contextual information on the Survey Area and surrounds, which includes analysis of Landsat satellite data to indicate likelihood of GDV occurrence across the Survey Area provided by BHP WAIO;
- A targeted and reconnaissance riparian and GDV survey of the Survey Area; and
- Preparation of a technical report and accompanying spatial data (in BHP WAIO data standards).

710000
720000
730000
7470000
7460000
7450000
7440000

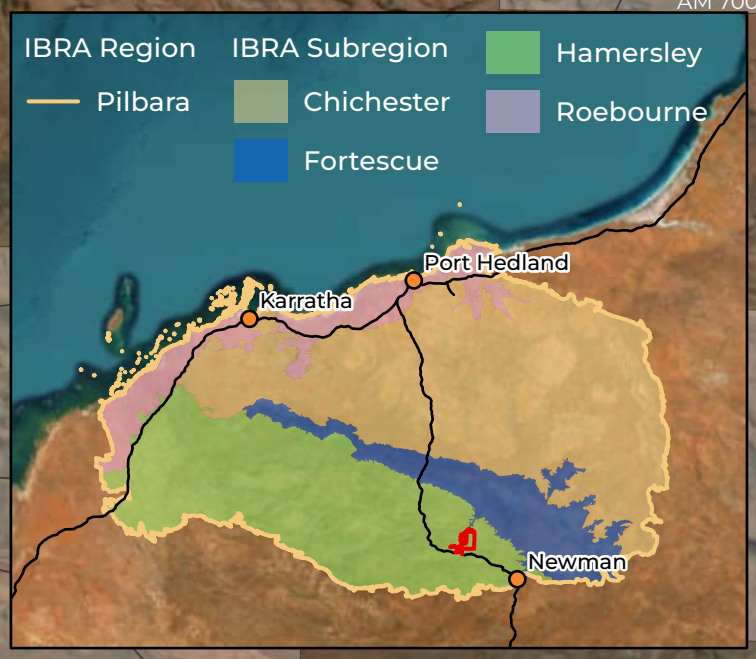
AM 7000266

AML7000244

AML7000281

West Angelas Rd

Great Northern Hwy



LEGEND

- Survey Area
- Live Mining Tenement
- Local Road
- State Road
- Rail

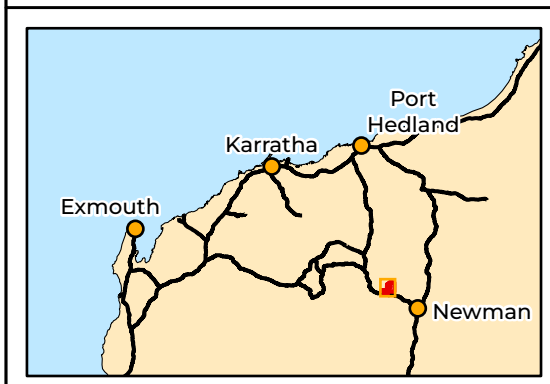
Pastoral Station

- Marillana Station

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 1.1: Survey Area and regonal context

1.3 Compliance

The Environmental Protection Authority (EPA) outline guidance for biological surveys in WA. All aspects of botanical assessments at Biologic are compliant with the EPA Technical Guidance for Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016b) and the Environmental Factor Guidelines for flora and vegetation (EPA, 2016a). This extends to preparation, survey design, personnel, data analysis, reporting and client data submission. Guidelines and fact sheets provided by BHP WAIO were also considered during the execution of the field survey and report preparation.

- EPA (2023) Statement of environmental principles, factors, objectives and aims of EIA;
- Department of Environment (DoE) (2013) Matters of National Environmental Significance: Significant impact guidelines;
- EPA (2016a) Environmental factor guideline: flora and vegetation;
- EPA (2016b) Technical guidance: Flora and vegetation surveys for environmental impact assessment;
- EPA (2018a) Environmental factor guideline: inland waters;
- BHP (2018) Vegetation and Flora Survey Procedure;
- BHP WAIO (2023) Biodiversity survey spatial data requirements: Procedure; and
- Department of Water and Environmental Regulation (DWER) (2024) Index of Biodiversity Surveys for Assessments (IBSA).

1.3.1 Significant Flora & Vegetation

Significant flora and vegetation are protected at a state and commonwealth level and legislated by the following parliamentary acts:

- State *Biodiversity Conservation Act 2016* (BC Act);
- State *Environmental Protection Act 1986* (EP Act); and
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Rare, endemic, new or special flora and vegetation communities are protected at varying levels by classification under codes of significance (Appendix A). Significant flora and vegetation may extend beyond the assigned codes. This is outlined in (Appendix A).

1.3.2 Groundwater Dependent Ecosystems

Environmental factor guideline: inland waters (EPA, 2018a) states that "For the purposes of EIA and in relation to ecosystem health, the EPA is focussed on impacts to significant ecosystems. Significant ecosystems include, but are not limited to:

- Ramsar sites – Wetlands of International Importance as listed under the Ramsar Convention, an international treaty on the conservation of important wetlands;

- Conservation category or Resource enhancement management wetlands as mapped in the Geomorphic Wetlands of the Swan Coastal Plain dataset as managed by the Department of Biodiversity, Conservation and Attractions;
- Wetlands listed in the Directory of Important Wetlands in Australia;
- Wetlands protected by Environmental Protection Policies under Part III of the *Environmental Protection Act 1986*;
- Wild rivers, as identified by the Australian Heritage Commission and Department of Water and Environmental Regulation;
- Wetland types which may be poorly represented in the conservation reserves system;
- Springs and pools, particularly in arid areas;
- Ecosystems which support significant flora, vegetation and fauna species or communities, including migratory waterbirds, bats, and subterranean fauna;
- Ecosystems which support significant amenity, recreation and cultural values
- Saline lakes, estuaries and near shore ecosystems reliant on groundwater or surface water inputs; and
- Downstream marine ecosystems.

1.3.3 Introduced Flora

Introduced flora can pose a threat to native vegetation and biodiversity. The Commonwealth of Australia, in collaboration with the states and territories, identified 32 Weeds of National Significance (WoNS) assessed according to their invasiveness, potential for spread, and environmental, social and economic impacts (DoEE, 2019).

A database of Declared Pests (DP) is kept by the Department of Primary Industries and Regional Development (DPIRD). This database falls under State jurisdiction, legislated by the *Biosecurity and Agriculture Management Act 2007* (BAM Act). Some introduced flora taxa may be classified within categories that have legal control or management requirements (Appendix A). These requirements must be met by the landholder.

2 Existing Environment

2.1 Climate

The Pilbara is a semi-desert to tropical climate that relies on irregular rainfall throughout the year, occurring mostly during summer (DoW, 2010). Summer rain in the Pilbara is generally the result of tropical storms or cyclones typically from December to March, while winter rainfall in the Pilbara is usually the result of cold fronts moving north easterly across the state (Leighton, 2004). The average annual rainfall in the Pilbara bioregion ranges from 200–350 mm, although there are significant fluctuations between years, with some locations receiving up to 1,200 mm in some years (BoM, 2024a; McKenzie *et al.*, 2009).The wet season extends from October to April, when maximum daily temperatures can exceed 35°C. The dry season extends from June to August, with temperatures ranging from approximately 22°C to 30°C (BoM, 2024a).

2.2 Hydrology & Hydrogeology

2.2.1 Regional

The surface and groundwater hydrology of the Pilbara is highly variable as a result of a dynamic climate with severe droughts and major flooding (DoW, 2010). Stream flows are usually a direct response to rainfall and are therefore highly seasonal and variable. Most runoff occurs from January to March as a result of episodic cyclonic activities (DoW, 2010).

Groundwater originates from direct infiltration by rainfall and from surface water flows. Groundwater occurs throughout the Pilbara but is most easily located and accessed near surface water drainage lines (alluvial channels). The most significant aquifers can be grouped into three types: alluvial aquifers that are either unconsolidated sedimentary aquifers or chemically deposited aquifers, consolidated sedimentary (or sedimentary rock) aquifers and fractured rock aquifers. Broadly, the groundwater associated with the Study Area is located within fractured and weathered rock aquifers. Groundwater is stored in fractures and voids in the rocks and therefore tends to be localised. Groundwater recharge is also episodic and affected by direct infiltration of rainfall over areas where the rocks are fractured.

2.2.2 Local

2.2.2.1 The Survey Area

The Survey Area and the Jinidi Project is located within the Fortescue River basin, which extends from the Upper Fortescue River, along the Fortescue Marsh, and through the Lower Fortescue River. At a finer scale, it is located within the Upper Fortescue River Catchment and lies within the Weeli Wolli/ Upper-Marillana sub-catchment. The upper catchment is characterised by a broad alluvial plain with large areas of calcrete, while lower in the catchment, the drainage is well defined (Johnson & Wright, 2001).

2.2.2.2 Weeli Wolli Creek & Spring

Weeli Wolli Creek is located within the Central Hamersley Range and is approximately 70 km in length, with a catchment area of 4,100 km^2. The creek starts near the Wonmunna Mining Area (close to the Weeli Wolli Creek bridge crossing along Great Northern Highway), flowing north toward the South Flank 0 deposit, then flowing east towards Jinidi where it finally turns and flows north for approximately 40 km before draining into the Fortescue Marsh (Figure 2.1). The main tributary is Marillana Creek, which flows into Weeli Wolli Creek approximately 18 km downstream of the spring (north of the Survey Area) (Figure 2.1). The Marillana Creek catchment covers an area of approximately 2,050 km^2. Its headwaters arise from the Hamersley Range, and the creek flows in an east and north-easterly direction through the Munjina Claypan.

There are numerous additional tributaries in the upper section of Weeli Wolli Creek (south of Marillana Creek), many of which were targeted by this survey (relating to the Jinidi project), including but not limited to 1) unnamed creeks between Weeli Wolli Spring and Marillana Creek along Weeli Wolli Creek (north of Northeast Corner), 2) an unnamed creek which runs north-northwest through the northwest corner of Jinidi 3) an unnamed creek which runs west-northwest through central South Parmelia (southern-Jinidi), and 4) one creek flowing north from Wonmunna (additional to the upper reaches of Weeli Wolli Creek). Pebble Mouse Creek, which enters Weeli Wolli Creek just south of the southern end (start) of the Spring was not investigated as part of this survey as this formed a major part a recently completed targeted GDV survey completed by Rio Tinto (2023), and is considered low likelihood to contain GDV.

Prior to mining occurring in the area, much of Weeli Wolli Creek flowed only in response to large rainfall events, with some years of no flow, apart from a 2-3 km section of the spring. The Weeli Wolli Spring, listed as a P1 PEC and regionally significant wetland of the Pilbara (see section 2.3.2), arises where groundwater flow is constrained by a geological barrier where high permeability rock units (calcrete, as seen easily on aerial imagery) meet low permeability rock units, forcing groundwater to the surface. The spring feeds numerous pools, with subsurface flow varying from a trickle to significant flows (van Leeuwen, 2009). Weeli Wolli Spring is superficially defined as a 2-3 km section between the Pebble Mouse Creek confluence and the main vehicle crossing of Weeli Wolli Creek. Surface water persists (and historically persisted) above the surface downstream of the spring.

Pre-mining groundwater throughflow from the upstream catchment was approximately 10 ML/day, with additional recharge of around 2.5 ML/day within the Weeli Wolli Spring area. Discharge (surface water flow) occurred as spring baseflow (7.2 ML/day), evapotranspiration (1.5 ML/day) and groundwater throughflow in the shallow aquifer (3.6 ML/day) (BHP, 2017). The spring and creek are now affected by drawdown and discharge from other mining operations in the area, however, and this historic groundwater flow into the spring system is significantly

diminished. Groundwater discharge occurs from a main outlet pipe (gabion) just upstream from the main pool and public vehicle crossing. Additional spur-pipelines occur further upstream from the gabion (stretching approximately 4 km) which were installed to mimic the natural slow feed of the originating spring. These spurs commence approximately adjacent to the boundary of originating mature, dense stands of *Melaleuca argentea*.

2.3 Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDE) are ecosystems that rely upon groundwater for their continued existence (BoM, 2024b). GDE can be represented by many different assemblages of biota which rely on groundwater, and as a result come in many forms. For terrestrial ecosystems there are three key types of GDE (BoM, 2024b): 1) aquatic ecosystems: that rely on the surface expression of groundwater, 2) terrestrial ecosystems: that rely on the subsurface presence of groundwater (this includes all vegetation ecosystems or Groundwater Dependent Vegetation (GDV)), and 3) subterranean ecosystems (this includes cave and aquifer ecosystems).

2.3.1 Groundwater Dependent Flora & Vegetation

Aboveground terrestrial GDE are typically characterised by the presence of flora species that rely on groundwater, i.e., phreatophytes. Phreatophytes may be classified as either obligate or facultative phreatophytes depending on their reliance on groundwater (Eamus *et al.*, 2016):

- Obligate phreatophytes are flora species confined to habitats with access to groundwater;
- Facultative phreatophytes are flora species that can utilise groundwater to satisfy a proportion of their ecological water requirement (EWR) when it is available. However, some individuals may also satisfy their EWR by relying solely on uptake from upper unsaturated soils layers where groundwater is inaccessible.

Obligate phreatophytes are flora species completely or highly dependent on groundwater and are therefore confined to habitats with continual, seasonal, or episodic access to groundwater. As they rely on groundwater to satisfy at least some proportion of their ecological water requirement (EWR) (Eamus *et al.*, 2016), obligate phreatophytes are highly sensitive to changes in groundwater regime and respond negatively to rapid groundwater drawdown. As such, obligate phreatophytes are often the best indicator of consistently shallow groundwater tables, or permanent surface water presence in the Pilbara. Not all phreatophytic species display the same degree of dependency on groundwater and the dependency within species has been shown to vary both spatially and temporally (Eamus *et al.*, 2016), with the hydrological regime of a particular catchment, creek, or river system, a key factor in presence and dependency of a phreatophyte on groundwater.

Facultative phreatophytes are plants that can access groundwater but may not be totally reliant on it, sometimes using groundwater opportunistically, particularly during times of drought. Some individuals may satisfy their EWR by relying solely on uptake from upper unsaturated soil layers where groundwater is inaccessible (Eamus *et al.*, 2016). Facultative phreatophytes are not necessarily restricted to habitats with access to groundwater, but individuals may be groundwater dependent, depending on the habitat and hydrological regime they are adapted to. Facultative phreatophytes may be associated with the subsurface presence of groundwater, rather than surface expression of groundwater. Most facultative phreatophytes are large woody trees and shrubs with deep root systems.

In the Pilbara, tree species are often used as a tool to indicate potential groundwater dependence. The key Pilbara tree species which are considered to be indicators of groundwater depth and permanence are presented in Table 2.1.

Table 2.1: Groundwater dependence of common trees of the Hamersley subregion

Water use strategy	Relevant Species in the Pilbara
Obligate Phreatophyte	*Melaleuca argentea*
Facultative Phreatophyte	*Eucalyptus camaldulensis*
Facultative Phreatophyte or Vadophyte	*Eucalyptus victrix*, *Eucalyptus xerothermica*, *Corymbia candida*
Vadophyte	*Eucalyptus leucophloia*, *Corymbia hamersleyana*, *Corymbia deserticola*

In addition to the tree species outlined above, other Pilbara flora taxa can also indicate presence and availability of groundwater. Comparatively less information is known on the groundwater use strategies of understorey species, however, some taxa are generally accepted as hydrophytic/ mesophytic i.e., plants that live in aquatic environments, and plants requiring a moderate amount of water respectively (see Appendix I). In the Pilbara, aquatic or mesic environments, (and associated indicator flora species), that persist during the dry season tend to occur in association with landforms and sub-landforms with groundwater in close proximity to the surface (e.g. drainage lines).

2.3.2 Weeli Wolli Spring Priority Ecological Community

The regionally significant wetland and State listed '*Weeli Wolli Spring*' (P1) PEC is mapped as a roughly 0.3x9 km polygon encompassing the Spring (permanent surface and shallow subsurface water source) as well as vegetation and pools upstream and downstream of the main spring and gabion (Plate 2.1). The official PEC boundary was marked and mapped by handheld GPS following the continuous occurrence of *Melaleuca argentea* trees (woodland,

forest) fringing streams, pools and unique herbfields, both up and downstream of Weeli Wolli Spring (Onshore, 2012a). An additional 100x500 m disjunct occurrence polygon has been mapped outside this assemblage at Ben's Oasis; some 13 km south of the spring.

Upperstorey vegetation of the spring and surrounding creek channel is typical of most Pilbara drainage features that support permanent water, dominated by a fringing forest or tall woodland of silver paperbark (*Melaleuca argentea*) and river red gum (*Eucalyptus camaldulensis*) over trees of coolibah (*E. victrix*) and a dense shrub layer dominated by an assortment of wattles, in particular Pilbara jam (*Acacia citrinoviridis*) (van Leeuwen, 2009). The spring provides habitat for a unique assemblage of understorey flora taxa, including the Priority listed flora taxon *Stylidium weeliwolli* (P3), the same location of which represents the type location, first observation and collection, and etymology of the taxon. The presence of permanent water and very moist sediment also provides suitable habitat for many sedges and herbs, an assemblage of which is unique to this system (the assemblage has not been recorded from anywhere else in the Pilbara). See Appendix B for the list of flora taxa forming part of the unique species rich herb and sedge layer which defines the 'Weeli Wolli Spring' PEC (P1), based on the most current PEC list for WA (DBCA, 2024). It should be noted, though, that it is the assemblage that is unique rather than the presence/absence of these herb and sedge taxa that defines the PEC.

For context, the presence of restricted and/or relictual mesophytic flora taxa within the broader and somewhat comparatively less unique PEC 'Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region' (P2) ('Pilbara Pools' PEC) is presented in Appendix C. This PEC specifies the presence of restricted and/or relictual mesophytic flora taxa, which are considered highly disjunct or are major range extensions from northern and eastern Australia, exclusively restricted to the riparian zones of permanent wetlands with high soil moisture maintained by groundwater flows as the defining factor/s (DBCA, 2024).. Arguably, the 'Weeli Wolli Spring' (P1) assemblage, which supports three of the four listed taxa in the riparian zone, fits the 'Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region' (P2) PEC definition, but as it is already a recognised unique riparian assemblage PEC with a higher listing it remains so. The 'Weeli Wolli Spring' (P1) PEC assemblage thus likely exists as a sub-group to the broader PEC.

The Spring is also a haven for birds and other fauna including many bats and also supports a rich community of surface and subsurface aquatic invertebrates (van Leeuwen, 2009). Threats to the Weeli Wolli Spring ecological community include dewatering and re-watering altering patterns of inundation, weed invasion and increased human visitation (DBCA, 2022; van Leeuwen, 2009).

Plate 2.1: Weeli Wolli Spring (P1) PEC

*Both photos take upstream of the gabion

713000
726000
739000
7482000
7469000
7456000
7443000

Lamb Creek
Marillana Creek
Marillana Creek
Yandicoogina Creek
Weeli Wolli Creek
Yandicoogina Creek
Weeli Wolli Creek
Weeli Wolli Creek
Mindy Mindy Creek
Pebble Mouse Creek
Weeli Wolli Creek

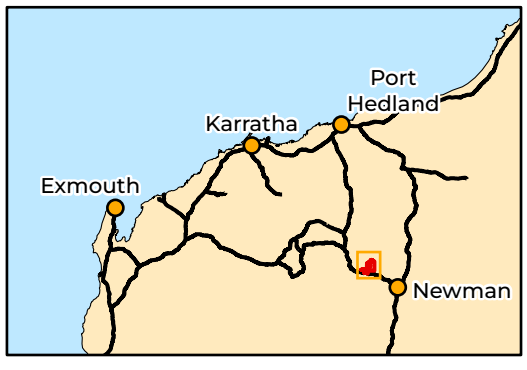
Aquatic GDE
- Moderate potential GDE - from national assessment
- Unclassified potential GDE - from regional studies

Terrestiral GDE
- Moderate potential GDE - from national assessment
- Low potential GDE - from national assessment

LEGEND
- Survey Area
- Surface Hydrology
  - Minor
  - Major

Scale 1:170,000
0 2 4 6 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

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Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 2.1: Hydrology of the Survey Area

3 Desktop Assessment

3.1 Methods

A desktop assessment, comprising of a review of other survey reports, review of the National GDE Atlas, and review of provided GDV likelihood mapping derived from Landsat satellite imagery and relevant aerial imagery, was undertaken prior to the field survey. The purpose of the desktop assessment was to identify groundwater dependent flora and vegetation (and ecosystems) and their probability of occurring in the Survey Area.

3.1.1 Review of Other Survey Reports

A review of available survey reports, including detailed, reconnaissance and targeted flora & vegetation surveys (including riparian/GDV/GDE focused), aquatic surveys, desktop assessments and reviews, flora and vegetation monitoring programs (including aquatic/riparian/GDV/GDE focused), and supporting technical reports, relevant to the Survey Area was completed to compile a list of groundwater dependent ecosystems, vegetation and/or flora species and their potential to occur within the Study Area (Table 3.1).

The most recent survey of the Jinidi project area was completed by Biologic in 2024, while only one publicly available baseline riparian survey focusing on the sampling and mapping of Weeli Wolli Creek prior to commencement of mining, dewatering and discharge in the catchment from 1988 (EPA, 2018b) was available, i.e., Trudgen (1984). Several flora and vegetation monitoring programs exist (or have existed) within Weeli Wolli Creek since mining (and thus water table drawdown and discharge into Weeli Wolli Creek) in the catchment began , specifically focusing on the health of the permanently spring-fed section of Weeli Wolli Creek (Weeli Wolli Spring PEC (P3)).

Table 3.1: Summary of other reports informing the desktop assessment

Project area	Reference	Survey type
Intersecting/overlapping Survey Area		
Flora and Vegetation Survey of the Weeli Wolli Creek Area	(Trudgen, 1984)	Detailed flora & vegetation
Weeli Wolli Creek Biological Assessment Survey	(Ecologia, 1998)	Detailed flora & vegetation
Jinidi Biological Survey Summary Report	(Ecologia, 2006)	Biological
Jinayri Geotechnical and Sterilisation Program Flora and Vegetation Assessment	(ENV, 2009)	Detailed flora & vegetation
Jinayri Access Road Flora and Vegetation Survey	(ENV, 2010a)	Detailed flora & vegetation
Jinayri Mining Lease Flora and Vegetation Survey	(ENV, 2010b)	Targeted (section 1), Detailed (section 2) flora & vegetation
Jinayri to Area C Access Corridor Flora and Vegetation Assessment	(ENV, 2010c)	Detailed flora & vegetation

Project area	Reference	Survey type
Jinidi Mine Access Road Infrastructure Corridor – Flora and Fauna Values	(Biota, 2011)	Desktop review
Flora and Vegetation Area C and Surrounds	(Onshore, 2011)	Detailed flora & vegetation
Jinidi to Mindy Level 1 Flora and Vegetation Survey	(Biota, 2012a)	Detailed flora & vegetation
South Flank to Jinidi Level 2 Flora and Vegetation Survey	(Biota, 2012b)	Detailed flora & vegetation
Flora and Vegetation Survey of the Weeli Wolli Spring Priority Ecological Community	(Onshore, 2012a)	Detailed flora & vegetation
Flora and Vegetation Survey Jinidi to Mainline Study Area	(Onshore, 2012b)	Detailed flora & vegetation
Review of Condition of Flora and Vegetation along Weeli Wolli, Mindy Mindy and Coondiner Creeklines	(Mattiske, 2013)	Riparian vegetation monitoring
2014 Assessment of Flora and Vegetation Condition Along Weeli Wolli Creekline	(Mattiske, 2014a)	Riparian vegetation monitoring
Review of Condition of Flora and Vegetation along Weeli Wolli, Mindy Mindy and Coondiner Creeklines	(Mattiske, 2014b)	Riparian vegetation monitoring
Understanding Riparian Vegetation Responses to Groundwater Drawdown and Discharge from Below Water Table Mining in the Pilbara	(Eastham, 2015)	Supporting technical report
Evaluating the environmental condition of Weeli Wolli Creek	(EPA, 2018b)	Supporting technical report (large scale desktop assessment with site visits)
Hope Downs 1 Development Envelope - Vegetation Mapping	(Astron, 2020)	Reconnaissance and consolidated vegetation mapping
Weeli Wolli Creek & Ben's Oasis Tree Health & Riparian Vegetation Monitoring 2022	(Spectrum, 2022)	Tree & riparian flora & vegetation monitoring
Weeli Wolli Creek Tree Health & Riparian Vegetation Monitoring (2021-2023)*	(Biologic, 2023g, 2023h)	Tree & riparian flora & vegetation monitoring
Weeli Wolli Spring Aquatic Monitoring (2021-2023)*	(Biologic, 2023i, 2023j)	Aquatic monitoring
Targeted Riparian Survey of the Greater Hope Downs 1 Area	(Rio Tinto, 2023)	Targeted GDE/GDV
Jinidi Detailed Flora and Vegetation Survey	(Biologic, 2024a)	Detailed & targeted riparian flora & vegetation
< 50km from Survey Area		
Marillana Creek Riparian Flora and Vegetation Survey	(Onshore, 2015)	Detailed & targeted riparian flora & vegetation
Addendum to; Assessment of Groundwater Dependent Vegetation distribution on the Robe River - Targeted Riparian Vegetation Survey – Stage 1: Groundwater Dependent Vegetation distribution within Jimmawurrada Creek - Targeted Riparian Vegetation Survey. High confidence mapping of the distribution of Obligate and Facultative Phreatophytic Vegetation	(Rio Tinto, 2018a)	Targeted GDE/GDV
Assessment of Groundwater Dependent Vegetation distribution on the Robe River – Targeted Riparian Vegetation Survey – Stage 1	(Rio Tinto, 2018b)	Targeted GDE/GDV

Project area	Reference	Survey type
Caves Creek Detailed Flora and Vegetation Survey Phase 1 and 2	(Biota, 2019)	Detailed & targeted riparian flora & vegetation
Flora and Vegetation Assessment Woodie Woodie Minesite Expansion Groundwater Dependent Ecosystems Survey	(Mattiske, 2019)	Targeted GDE/GDV
Brockman Syncline Riparian Vegetation Survey Boolgeeda Creek	(Biologic, 2020a)	Detailed & targeted riparian flora & vegetation
Ministers North: Yandicoogina Creek Aquatic Ecosystem Surveys	(Biologic, 2020b)	Aquatic
Riparian Vegetation and Associated Groundwater Dependent Ecosystems – Targeted Survey of the Greater Paraburdoo Operations	(Rio Tinto, 2020)	Targeted GDE/GDV
Brockman Syncline Riparian Vegetation Survey Duck Creek	(Biologic, 2021a)	Detailed riparian flora & vegetation
Nankunya Baseline Aquatic Ecosystem Survey	(Biologic, 2021b)	Aquatic
MAC Phase 4 Two Season Detailed Riparian Flora and Vegetation Survey	(Biologic, 2022c)	Detailed riparian flora & vegetation
MAC Phase 4: Marillana Creek Aquatic Ecosystem Monitoring (2020-2023)*	(Biologic, 2022a, 2023a, 2024b)	Aquatic monitoring
MAC Phase 4 Tree & Riparian Vegetation Monitoring (2021–2023)*	(Biologic, 2022b, 2023b)	Tree & riparian flora & vegetation monitoring
Ministers North: Yandicoogina Creek Aquatic Ecosystem Monitoring (2020-2023)*	(Biologic, 2022d, 2023c, 2023d)	Aquatic monitoring
Yandicoogina Gorge Tree & Riparian Vegetation Monitoring (2020-2023)*	(Biologic, 2023m, 2023n)	Tree & riparian flora & vegetation monitoring
Western Ridge Creeks Two-Season Detailed Flora and Vegetation Assessment	(Biologic, 2022f)	Detailed riparian flora & vegetation
Western Ridge Creeks: Baseline Aquatic Ecosystem Survey	(Biologic, 2023l)	Aquatic
Western Ridge Creeks riparian vegetation monitoring 2021–2022	(Biologic, 2023k)	Tree & riparian flora & vegetation monitoring
Nankunya Riparian flora & vegetation Monitoring 2022-2023	Biologic (2023e)	Tree & riparian flora & vegetation monitoring

*Multi-period monitoring program spanning greater than one monitoring period. For the purposes of this report, these multi-period programs are considered as one survey and thus one report (e.g., monitoring program consisting of three separate reports spanning three years (2021-2023) is considered to be one survey consisting of one report in this literature review).

3.1.2 National GDE Atlas

The Bureau of Meteorology (BoM) has developed the Groundwater Dependent Ecosystems Atlas (GDE Atlas) as a national dataset of Australian GDE to inform groundwater planning and management (BoM, 2024b). It is the first and only national inventory of GDE in Australia.

The GDE Atlas contains information about the three key types of groundwater dependent ecosystems listed above (aquatic, terrestrial, subterranean). Importantly, the GDE Atlas also includes the national inflow-dependent landscapes layer which is derived from remotely sensed data. This layer indicates the likelihood that a landscape is accessing water in addition

to rainfall (such as soil moisture, surface water or groundwater), and generally represents a potential GDE dataset for all areas not yet studied or investigated in any detail.

The GDE mapping in the GDE Atlas comes from two broad sources:

- National assessment – national-scale analysis based on a set of rules that describe potential for groundwater/ ecosystem interaction and available geographic information systems (GIS) data.
- Regional studies – more detailed analysis undertaken by various state and regional agencies using a range of different approaches including field work, analysis of satellite imagery and application of rules/conceptual models.

3.1.3 NDVI GDV Likelihood Mapping

BHP WAIO provided Biologic with a groundwater dependent vegetation likelihood map produced from modelling tools using historical satellite imagery (FrontierSI, 2023). The likelihood of GDV within the Jinidi project area, Weeli Wolli Creek, and associated tributaries to Weeli Wolli Creek was assessed using the ENVestigator tools to analyse trends in the moisture-adjusted vegetation index, (MAVI), calculated from Landsat imagery (FrontierSI 2023). Vegetation indices (such as MAVI) rely on specific flora taxa leaf characters and vegetation (including density and cover) to reflect infra-red electromagnetic radiation, and absorbing significant amounts of the red visible wavelength of electromagnetic radiation (used for photosynthesis). As a result, an index calculating the ratio between the intensity of the two wavelength ranges provides a simple measure of vegetation cover/density and/or health. As most rainfall in the Pilbara occurs as tropical storms or cyclones during the summer wet season, a persistently high vegetation index during the dry season indicates the vegetation likely has access to additional sources of water, such as groundwater.

Briefly, the likelihood of GDV was assessed by analysis of the magnitude and persistence of MAVI, between the Pilbara wet season (designated for the analysis as January, February and March) and dry season (designated as September, October and November). The GDV likelihood was assessed with Landsat imagery over the period from i) 1987 to 1994, representing the baseline condition prior to mine developments within the catchment, and ii) 2016 to 2022, representing recent conditions. This remote sensing imagery analysis was used to assist in the placement of target areas to complete the survey and mapping.

Aerial photography was also visually assessed to identify areas of dense vegetation, as well as previously identified areas of persistent moisture by Biologic during the Jinidi flora and vegetation survey (Biologic, 2024a). Additional layers were also added during visual assessment, including but not limited to other historical vegetation mapping, landform data (land systems, geology, soils), topographical layers, and hydrological layers.

3.2 Results

3.2.1 Review of Other Survey Reports

3.2.1.1 Riparian Flora Taxa

The desktop assessment (review of other survey reports and associated database searches performed within these reports) identified seventy-nine (79) riparian flora taxa, which includes family groups (e.g., Arecaceae spp. – **Phoenix canariensis*, **Washingtonia filifera* etc.) and genus groups (*Ammannia spp.* – *A. baccifera*, *A. multiflora* etc.) for simplicity, recognised as indicator species for GDV for the Survey Area, due to their presence across multiple riparian vegetation units and/or as their status of obligate/facultative phreatophytes, mesophytic (terrestrial plants with affinities towards water supply) or hydrophytic (aquatic) taxa (Appendix D). Each taxon (or group) was cross referenced with current herbaria databases to confirm preferred habitat preference (ALA, 2024; CHAH, 2023; NatureMap, 2013; WAH, 1998 -). This list has been adapted from the desktop assessment results conducted by Biologic (2024a), which searched to a radius of 50 km from the Jinidi Project Area boundary.

3.2.1.2 Riparian Vegetation

A number of flora and vegetation surveys/assessments have been previously completed for large portions of Weeli Wolli Creek, including, specifically, the Spring and mapped PEC boundary, by a number of previous surveys (see Table 3.1). However, only two surveys completed sampling and mapping suitable to match a survey of this type and intensity (targeted GDE/GDV survey); 1) 'Weeli Wolli Creek Biological Assessment Survey' by Ecologia (1998), which sampled and mapped the sub-landforms and associated vegetation of the Spring portion only (contrary to the report title), and 2) the more recently completed 'Targeted Riparian Survey of the Greater Hope Downs 1 Area' completed by Rio Tinto (2023), which sampled and mapped the sub-landforms and associated vegetation (including GDV likelihood mapping) of Weeli Wolli Creek and tributaries (including Pebble Mouse Creek) upstream of Weeli Wolli Spring. The mapping from both assessments will be utilised where necessary during the mapping of riparian vegetation (including GDE/GDV likelihood mapping) of Weeli Wolli Creek, Spring and upper tributaries (excluding areas of, and adjacent to, the Jinidi Project Area (discussed below)), such that the sampling (which also occurs as part of Biologic's ongoing monitoring in Weeli Wolli Creek and Spring, and occurred as part of Biologics detailed survey of Jinidi Biologic (2024a)) and mapping aimed to refine boundaries rather than re-map these portions, unless considered necessary.

Weeli Wolli Creek Biological Assessment Survey Ecologia (1998)

Ecologia (1998) identified six vegetation units with known potential to support GDE/GDV (Table 3.2). Ecologia (1998) did not assess or list the GDV/GDE potential of the vegetation units explicitly in their report, thus Biologic have assessed the likelihood based on the presence of

known key phreatophytes (e.g., obligate, facultative etc.), the described landforms/ sub-landforms, presence and/or action of surface water, and contextual knowledge of the area surveyed. The area of assessment (referred to as the study area in their assessment) is confined to the reaches of Weeli Wolli Spring as of 1998 (i.e. prior to mine dewatering discharge into Weeli Wolli Creek which has since altered the hydrology and extent of surface water downstream of the Spring).

Association 1 most closely matches the description of the Weeli Wolli Spring PEC (P1), as interpreted by Biologic. In comparison, though, this vegetation unit has some inconsistencies with the Biologic (2024a) vegetation type identified as matching the PEC (D01), including, but not limited to, the lack of the following dominant taxa in respective layers in Ecologia's description: *Typha domingensis* in the mid to tall sedge (or sedge/rush-like), *Eleocharis geniculata* from the low sedge layer, and *Stylidium weeliwolli* (P3) from the herb layer (the latter of which could be due to the timing of Ecologia's survey; i.e. December 1994 and April 1995, which misses the flowering period of this species (usually June-October)). *Cladium procerum* (P2) was also identified by Biologic as an occasional dominant mid sedge species within this vegetation type but was not noted by Ecologia (1998). It should be noted, however, that comparisons with this assessment and Biologic's more recent assessment occur some 26 years apart, with vast changes and updates in taxonomy and survey methodology between such surveys, not to mention the potential for dynamic changes in creek/spring sub-landforms and vegetation assemblages with hydrological changes to the system (i.e. discharge) across this period.

Additional inconsistencies include the nearly negligible occurrences of *Melaleuca argentea* forest/woodland (Association 1) and *Eucalyptus camaldulensis* forest/woodland (Association 2) as occurring upstream of the confluence of the unnamed eastern tributary joining Weeli Wolli Spring. This Areas mapped as scoured (nearly void of all perennial vegetation) and bare (void of all perennial vegetation) also appear to be much more evident during the 1998 mapping. These inconsistencies appear to be inaccuracies in mapping, as some of the biggest and oldest trees and forests of both *Melaleuca argentea* and *Eucalyptus camaldulensis* occur upstream of this confluence.

Targeted Riparian Survey of the Greater Hope Downs 1 Area Rio Tinto (2023)

Rio Tinto (2023) identified eight vegetation units with potential to support GDE/GDV intersecting the Survey Area (Table 3.2). Rio Tinto classified the GDE/GDV potential for these units from Low (and Low (variable)), Moderate, High and Very High, with cross-over/mixed potential where necessary (e.g., Moderate + to Moderate-Low (variable)). As stated previously, this mapping does not include Weeli Wolli Spring, or any portion downstream of the confluence of Weeli Wolli Creek and Pebble Mouse Creek, as well as any of the major tributaries to Weeli Wolli Creek in the Jinidi project area east of Weeli Wolli Creek, as these were not part

of Rio Tinto's survey area. As such, only one small portion of mapped riparian vegetation by Rio Tinto (2023) intersects Biologic (2024a) vegetation type mapping of the Jinidi project area (an approximately 2.6 km section of upper Weeli Wolli Creek), thus very few comparisons can be made between these two reports.

Regarding this overlapping section, Rio Tinto (2023) mapped the majority of this portion as C3A (*Eucalyptus camaldulensis*, *E. victrix* woodland over open semi-mesic shrublands with *Triodia longiceps*, Moderate GDE/GDV potential) fringed by CF-X1 (*Eucalyptus xerothermica* and *E. victrix* (+/-) scattered trees over mixed *Acacia* spp. tall open shrublands with *A. citrinoviridis*, Moderate to Low (variable) GDE/GDV potential). This unit closely matches Biologic's mapping in this portion of D03 (*Eucalyptus camaldulensis*, *E. victrix* mid woodland over *Acacia citrinoviridis*, *A. coriacea* low open woodland over **Cenchrus ciliaris*, low open tussock grassland (shortened) on channels of medium drainage lines, Medium potential of supporting GDV) fringed by P01 (*Triodia longiceps*, *T. angusta* low open hummock grassland with *Corymbia hamersleyana*, *Eucalyptus xerothermica* low isolated trees (shortened) on stony saline flats and floodplains, no GDV/GDE potential listed). A small portion of the area overlapping with Biologic's (2024a) survey area was mapped by Rio Tinto as *Melaleuca argentea* and/or *Eucalyptus camaldulensis* dominated woodlands units mapped as C1A and C2A (High to Very High and High GDE/GDV potential respectively), matching with Biologic's mapping of the same portion closely, *Melaleuca argentea* dominated woodland vegetation type D01 (High potential of supporting GDV). Additionally, units mapped as C1A and C2A at Ben's Oasis (outside of the Biologic (2024a) survey area) closely match Biologic's vegetation description of riparian vegetation monitoring sites at Ben's Oasis, with permanent to semi-permanent pools dominated by *Melaleuca argentea* and/or *Eucalyptus camaldulensis* (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j).

Jinidi Detailed Flora and Vegetation Survey Biologic (2024a)

Following a review of the GDE potential of the Survey Area (BOM National GDE atlas search for the area), observed surface water features, and the floristic assemblages (vegetation types) containing GDV and subsequent associated sub-landforms occurring in the Jinidi Survey Area, Biologic (2024a) identified and mapped five vegetation types in the Jinidi Survey Area. It should be noted that these vegetation types were mapped to a level expected of detailed flora and vegetation surveys, which are of a general and broad nature across larger survey areas (such as the Jinidi Project Area) compared to surveys of the nature of this current report (targeted riparian (GDV/GDE) surveys).

<u>Significant and restricted permanent GDE (Weeli Wolli Spring)</u>

Vegetation type D01 was mapped entirely with Weeli Wolli Creek, with the northern portion most closely representing the Weel Wolli Spring (P1) PEC. The northern portion supports a

series of rapidly and slow flowing streams, deep sections of pooled water and damp creek line edges/fringes. Riparian tree and understorey cover appears to be augmented superficially by the unnaturally high surface water present due to Hope Downs 1 mine dewatering surplus discharge downstream of the gabion, and from the spur-system upstream of the gabion designed to mitigate drawdown impacts on Weeli Wolli Spring. This increased flow of surface and subsurface water supports a consistently high canopy cover of *Melaleuca argentea* and *Eucalyptus camaldulensis*, as well as a variety of understorey hydrophytic/ mesophytic flora species consistent with high soil moisture and availability.

The small portion of D01 occurring in the southwestern portion of the Survey Area (near but downsteam of Ben's Oasis) is not considered to match the PEC description, but still assessed as significant GDE due to the presence of high canopy cover from mature *Melaleuca argentea* and *Eucalyptus camaldulensis* and a number of hydrophytic/ mesophytic flora species, as well as ephemeral surface water (observed during wet season sampling).

<u>High potential of supporting GDV/ semi-permanent GDE</u>

Vegetation type D02, mapped as occurring adjacent to vegetation type D01 and Weeli Wolli Spring, was mapped along the seasonally-damp raised banks of Weeli Wolli Creek in the northwest of the Survey Area. This mapped occurrence supported dense mature cover of *Eucalyptus camaldulensis*, as well as a variety of understorey hydrophytic/ mesophytic flora species consistent with high soil moisture and availability.

<u>Medium potential of supporting GDV/ semi-permanent GDE, supports locally common IDE</u>

Vegetation type D03 was mapped along Weeli Wolli Creek and tributaries on rockier and dryer creek beds and edges in the north and southwestern portions of the Jinidi Survey Area. The portion of this mapped occurrence near and adjacent the Weeli Wolli Spring (P1) PEC does not contain the unique and species rich understorey of herbs and sedges, rather it supports an open tussock grassland of **Cenchrus ciliaris*, *Themeda triandra*, *Eriachne benthamii* with sparse shrublands of low to tall woody shrubs. However, this vegetation type supports open woodlands of *Eucalyptus camaldulensis* and *Eucalyptus victrix* (facultative phreatophyte/ vadophyte) as well as a number of hydrophytic/ mesophytic flora species. Small disconnected pools of surface water were observed during the wet season sampling only in portions of this mapped occurrence, indicating a higher likelihood of inflow dependence for D03.

<u>Medium potential of supporting GDV/ semi-permanent GDE, supports locally common IDE</u>

Vegetation type D06 was mapped on medium rocky and dry drainage lines, all of which are upland tributaries to Weeli Wolli Creek. D06 supported mid open woodlands of *Eucalyptus victrix* and *E. camaldulensis* (sporadic occurrences) and low open woodlands of *E. xerothermica* (facultative phreatophyte/ vadophyte) and *Acacia citrinoviridis*. Understorey taxa consisted of open tussock grasslands and sparse shrublands of low to tall woody shrubs. This

vegetation type supported few understorey hydrophytic/ mesophytic flora species compared to other potential GDV supporting types, indicating a low reliance of groundwater and high reliance on seasonal in-flow.

Low potential of supporting GDV/ semi-permanent GDE, supports locally restricted IDE

Vegetation type G02 was mapped on deeply incised gorges and gullies of the northern slopes of Roundtop Hill. All mapped occurrences of G02 form feeder tributaries to Weeli Wolli Creek and/or Spring. The deeply incised gorge and gully landforms associated with G02 supported unique floristic assemblages compared to the remaining gorge and gully landforms across the Survey Area including occasional open woodlands of *Eucalyptus camaldulensis*, which is uncommon this high in the landscape, and high frequencies and covers of the hydrophytic/ mesophytic flora taxa *Cyperus vaginatus*, *Gymnanthera cunninghamii* (P3) and *Scleromitrion galioides*. Most mapped portions of G02 contained numerous disconnected surface pools observed during wet season sampling, while in March 2024 site JIN-051 contained connected flowing surface water and pools along a 2 km section of gorge, indicating a higher reliance on inflow dependence. The presence of *E. camaldulensis* does suggest some potential reliance on groundwater, but such sub-surface water is likely perched higher in the landscape and thus disconnected from the surrounding water table (this was identified as needing further investigation to determine legitimacy).

Table 3.2: GDV units of applicable surveys overlapping the Survey Area

Vegetation unit (general description, plus dominant and/or key taxa unique to the unit)	Landform(s)/sublandform(s)	GDE/GDV potential	Extent & location of occurrence
Weeli Wolli Creek Biological Assessment Survey (Ecologia, 1998)			
Association 1 **Dense *Melaleuca argentea* woodland:** • Dominated by dense mid woodland (open forest) of *Melaleuca argentea* with open (woodland) cover of *Eucalyptus camaldulensis*. • Contains a sparse to open tall shrub layer of *Acacia ampliceps*, *A. citrinoviridis*, *Petalostylis labicheoides*, *Stylobasium spathulatum, Melaleuca glomerata, M. bracteata*, *A. bivenosa*, *A. coriacea*, *Atalaya hemiglauca*, *Dodonaea petiolaris*, *Gossypium robinsonii*. • Contains a sparse to open low shrubland of *Tephrosia rosea* (var. Fortescue creeks (M.I.H. Brooker 2186)), *Abutilon lepidum*, *Corchorus crozophorifolius*, *Dicladanthera forrestii*, *Sida fibulifera*. • Lower storey contains: ○ moderately dense clumps of *Cyperus vaginatus* and *Fimbristylis sieberiana* ○ open to sparse grasslands of **Cenchrus ciliaris*, *Cymbopogon ambiguus*, *Eulalia aurea*, *Paspalidium clementii*, *Setaria dielsii*, Themeda *triandra*, and occasional sparse spinifex hummocks ○ sparse to open herblands of *Arivella viscosa*, *Sonchus oleraceus, *Vigna lanceolata*, *Cassytha filiformis*, *Cucumis variabilis*, *Tinospora smilacina* • Areas of free water support aquatic flora such as *Chara spp*., *Potamogeton spp*., with Lobelia arnhemiaca occurring as a fringing plant	Occurs along Weeli Wolli Creek, confined to the Spring. Occurs in patches, generally occupying the wetter areas of creekbed both up and downstream of the vehicle crossing. However, this vegetation type does not occur upstream of the confluence of the unnamed eastern tributary (except for one small patch approximately 1.5 km upstream of the tributary confluence)	Not listed in report. Assessed in this report as supporting permanent GDE/GDV features (highest potential), broadly matching the vegetation of 'Weeli Wolli Spring' (P1)	Not listed in report. Extent confined to Weeli Wolli Spring
Association 2 **Moderately dense *Eucalyptus camaldulensis* woodland** • Dominated by mid woodland of *Eucalyptus camaldulensis*, with sparse *E. victrix* and occasional low trees of *Acacia ampliceps* and *A. coriacea* • Contains a tall shrubland to open shrubland dominated by mostly *Acacia bivenosa*, *Gossypium robinsonii*, *G. sturtianum*, *Petalostylis labicheoides* and *Stylobasium spathulatum* • Contains a low open shrubland dominated by **Malvastrum americanum*, *Pluchea dentex*, *Plerocaulon sphacelatum*, *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186)) • Contains a sparse sedge, grass and herb layer of *Cyperus vaginatus*, *Triodia longiceps*, *Cassytha filiformis*, **Flaveria trinervia*, *Paspalidium clementii*	Alternates with association 1 in patches along the Weeli Wolli Creek system, confined to the Spring, both up and downstream of the vehicle crossing. Generally, occupies the dryer and more upland sections of the creekbed compared to association 1. Like Association 1, this vegetation type does not occur upstream of the confluence of the unnamed eastern tributary (except for one small patch immediately upstream of the tributary confluence)	Not listed in report. Assessed in this report as having a High potential of supporting GDV/ semi-permanent GDE	Not listed in report. Extent confined to Weeli Wolli Spring
Association 3 ***Eucalyptus camaldulensis* / Acacia citrinoviridis over *Triodia longiceps*** • Dominated by mid woodland to open forest of *Eucalyptus camaldulensis*, over a low open woodland of *Acacia citrinoviridis*, with occasional mid to low isolated trees of *Melaleuca argentea* present • Contains a tall open to sparse shrub layer which is not dominated by any particular species, but a variety of species mentioned in the tall shrub layers of association 1 and 2 • Contains a low open shrubland to shrubland of *Corchorus crozophorifolius*, *Ptilotus astrolasius*, *Solanum cleistogamum*, *S. lasiophyllum* and *Streptoglossa decurrens* • The soft grass cover is sparse and includes **Cenchrus ciliaris*, *Cymbopogon ambiguus*, *Enneapogon caerulescens*, *Eriachne mucronata* and *Themeda australis*. The cover of spinifex ranges from sparse to open and includes *Triodia longiceps* and *T. wiseana*, with lesser amounts of *T. pungens*. Sedges are typically absent from this association • The sparse to open cover of herbs may be dominated by *Cassytha filiformis*, **Flaveria trinervia*, *Arivela viscosa*, *Jasminum didymum*, *Duperreya commixta*, *Rhynchosia minima*	Occurs on creek bank areas and on low plains bordering areas of the creek system, mainly outside of the Spring (upstream of the confluence of the unnamed eastern tributary, and within, and downstream of the confluence of, the unnamed western tributary – known as 'West Creek" in Rio Tinto (2023)	Not listed in report. Assessed in this report as having a Medium potential of supporting GDV/ semi-permanent GDE	Not listed in report. Extent confined to Weeli Wolli Spring
Association 5 **Scattered *Eucalyptus camaldulensis* over scoured creek bed** • Mature mid isolated trees of *Eucalyptus camaldulensis* are present in areas otherwise scoured by seasonal flooding • In general, very little other vegetation is present, but common scattered tall/mid/low shrubs, low grasses (hummock/tussock), and herbs from associations 2 and 3	Occurs along Weeli Wolli Creek creekbed at, and upstream of, the confluence of the unnamed western tributary. As the association suggests, this vegetation type occupies the scoured (and quite bare) creekbed outside of the Spring which likely see fast and erosive flows from seasonal flooding	Not listed in report. Assessed in this report as having a Medium potential of supporting GDV/ semi-permanent GDE	Not listed in report. Extent confined to Weeli Wolli Spring
Association 6 **Bare areas of creekbed** • Occupies areas of creekbed virtually devoid of perennial vegetation due to scouring by seasonal flooding • Due to scale limitations, this association may contain occasional tree and shrub species from surrounding associations • Areas which contain standing surface water may support various aquatic plants (submerged and emergent macrophytes), fringing herbs and sedges, and algae • "Dry" bare areas may support ephemeral/ annual herbs and grasses	Occurs along Weeli Wolli Creek creekbed along entire section of Survey Area. Occupies areas of creekbed virtually devoid of perennial vegetation due to scouring by seasonal flooding	Not listed in report. Assessed in this report as having a Medium potential of supporting GDV/ semi-permanent GDE	Not listed in report. Extent confined to Weeli Wolli Spring

Vegetation unit (general description, plus dominant and/or key taxa unique to the unit)	Landform(s)/sublandform(s)	GDE/GDV potential	Extent & location of occurrence
Association 12 **Open *Acacia citrinoviridis* over sparse shrubs** • Dominated by low open woodlands of *Acacia citrinoviridis* with occasional mid isolated *Eucalyptus camaldulensis* and *E. victrix* trees • Contains a sparse to open tall, mid and low woody shrub layer similar in assemblage to association 2 (*Acacia ampliceps*, *A.* coriacea, *A. bivenosa*, *Gossypium robinsonii*, *G. sturtianum*, *Petalostylis labicheoides*, *Stylobasium spathulatum*) • Ground cover is generally sparse, with isolated hummock and tussock grasses (Triodia wiseana, Triodia longifolia, Eriachne mucronata, Cymbopogon ambiguus) and annual/ephemeral herbs (*Cassytha filiformis*, **Flaveria trinervia*, *Arivela viscosa*)	Occurs on creek banks of Weeli Wolli Creek and Spring, at, and downstream of, the vehicle crossing	Assessed in this report as having a Medium potential of supporting GDV/ semi-permanent GDE	Not listed in report. Extent confined to Weeli Wolli Spring
Hope Downs 2 Proposal: Targeted Riparian Survey of the Greater Hope Downs 1 Area (Rio Tinto, 2023)			
C1A ***Melaleuca argentea* & *Eucalyptus camaldulensis* open forest over mixed mesic shrublands** (Ben's Oasis core riparian unit)	Low flow channels and banks (and permanent to semi-permanent pools) with moderate drainage	High to Very High	6.48 ha Located at Ben's Oasis only
C2A ***Eucalyptus camaldulensis* woodland (to open forest) over open mesic shrublands (scattered young *Melaleuca argentea* present in some locations)**	Low flow channels and banks with moderate drainage	High	23.74 ha Located at Ben's Oasis only (fringing C1A)
C2B **Small *Eucalyptus camaldulensis* woodland over mixed open shrubland with *Melaleuca bracteata* present in some locations**	Low flow channels and banks with moderate drainage	Moderate	2.88 ha West Weeli Wolli Creek, at basalt and calcite bend
C3A ***Eucalyptus camaldulensis*, *E. victrix* woodland over open semi-mesic shrublands with *Triodia longiceps***	Low flow channels and banks with major drainage	Moderate + to Moderate-Low (variable)	106.84 ha Lower Weeli Wolli Creek main (pre-Weeli Wolli Spring))
C3B ***Eucalyptus camaldulensis*, *E. victrix* low open woodland (over mixed open shrubland with rocky influence**	Low flow channels and banks with moderate drainage	Low to Low + (variable) Phreatophytes likely to part(ly?) relate to small seasonal fractured rock aquifers	98.94 ha Middle Weeli Wolli Creek west confined)
C4C ***Corymbia ferriticola*, *E. victrix* woodland (variable) over mixed open shrubland with *Petalostylis labicheoides***	Small, incised gorge/gully, low flow channel and fringing rocky banks with moderate drainage	Low + - persistent pool	1.41 ha Weeli Wolli Creek west confined to small, incised gorge/gully
C4Bx-1 ***Eucalyptus victrix*, *E. xerothermica* woodland**	Low flow channels and banks with moderate drainage	Low +	49.58 ha Upper Weeli Wolli Creek in west basalts
CF-X1 ***Eucalyptus xerothermica* & *E. victrix* (+/-) scattered trees over mixed *Acacia* spp. tall open shrublands with *Acacia citrinoviridis***	Floodplains (and high flow channels) with major drainage	Moderate to Low (variable)	284.09 ha Weeli Wolli Creek floodplain (variable) – lower & middle
Jinidi Two-season Detailed Flora & Vegetation Survey (Biologic, 2024a)			
D01 ***Melaleuca* mid woodland** **MA MaEc AtheAam CyvFisElg Tyd** *Melaleuca argentea, Eucalyptus camaldulensis* mid woodland over *Atalaya hemiglauca, Acacia ampliceps* low open woodland over *Cyperus vaginatus, Fimbristylis sieberiana* (P3), *Eleocharis geniculata* mid to low open sedgeland with *Typha domingensis* tall isolated clumps of rushes over low isolated clumps of annual herbs	On brown sandy clay loam on major drainage lines, confined to Weeli Wolli Spring, with one small expression mapped in southwest of the Survey Area. Main expression in Spring occurs on with a series of open calcareous rocky areas supporting permanent surface water and connecting pools	Supports significant and restricted permanent GDE (Weeli Wolli Spring) One portion of this vegetation type in the southwest was identified as having a High potential of supporting GDV/ semi-permanent GDE	78.9 ha Main portion of Weeli Wolli Spring (cut off in part by survey area boundary) 3.5 ha Small portion in the SW (cut off in part by survey area boundary)

Vegetation unit (general description, plus dominant and/or key taxa unique to the unit)	Landform(s)/sublandform(s)	GDE/GDV potential	Extent & location of occurrence
D02 ***Eucalyptus* mid open forest** **MA Ec AtheAam GoroGosnStsp Cyv** *Eucalyptus camaldulensis* mid open forest over *Atalaya hemiglauca*, *Acacia ampliceps* low open woodland over *Gossypium robinsonii*, *G. sturtianum*, *Stylobasium spathulatum* tall open shrubland over *Cyperus vaginatus* low isolated clumps of sedges	On brown sandy clay loam on major drainage lines. Occur as dense, wet, wooded areas adjacent sections of Weeli Wolli Spring, occupying raised creek banks and islands out of main channel).	High potential of supporting GDV/ semi-permanent GDE	9.7 ha Main portion of Weeli Wolli Spring (cut off in part by survey area boundary)
D03 ***Eucalyptus* mid woodland** **ME EcEv AciAcor CcTtErb PlApy Cocr** *Eucalyptus camaldulensis*, *E. victrix* mid woodland over *Acacia citrinoviridis*, *A. coriacea* low open woodland over **Cenchrus ciliaris*, *Themeda triandra*, *Eriachne benthamii* low open tussock grassland with *Petalostylis labicheoides*, *Acacia pyrifolia* tall sparse shrubland over *Corchorus crozophorifolius* low sparse shrubland	On brown sandy clay loam on medium drainage lines (and adjacent major drainage lines, occupying dryer sections of creek bed, banks, islands and floodplains). Mainly mapped in Weeli Wolli Creek upstream of Weeli Wolli Spring, with scattered occurrences downstream of the spring and within medium/minor sized tributaries	Medium potential of supporting GDV/ semi-permanent GDE, supports locally common IDE	70.7 ha Portions of Weeli Wolli Spring, upper Weeli Wolli Creek and the main northern tributary in the Jinidi project area
D06 ***Eucalyptus* mid open woodland** **ME EvEc ExAci ErbTtEua ApyAnlGoro CocrTefc** *Eucalyptus victrix*, *E. camaldulensis* mid open woodland over *E. xerothermica*, *Acacia citrinoviridis* low open woodland over *Eriachne benthamii*, *Themeda triandra*, *Eulalia aurea* low open tussock grassland with *A. pyrifolia*, *Androcalva luteiflora*, *Gossypium robinsonii* mid to tall sparse shrubland over *Corchorus crozophorifolius*, *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) low sparse shrubland.	On red sandy loam on medium drainage lines. Mapped within medium sized tributaries of Weeli Wolli Creek (unnamed eastern creeklines in the north and south, minor tributaries in the far north).	Medium potential of supporting GDV/ semi-permanent GDE, supports locally common IDE	283.2 ha Tributaries to Weeli Wolli Creek in the Jinidi project area
G02 ***Eriachne* low open tussock grassland** **GG ErbErmuThmb CfFib(Ec) ErnDopApy Tp** *Eriachne benthamii*, *E. mucronata*, *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) low open tussock grassland with *Corymbia ferriticola*, *Ficus brachypoda*, and occasionally *Eucalyptus camaldulensis*, low to mid open woodland over *Eremophila naaykensii* (P3), *Dodonaea pachyneura*, *Acacia pyrifolia* mid to tall sparse shrubland over *Triodia pungens* low isolated clumps of hummock grasses	On skeletal red sandy clay loam on deeply incised ironstone gullies and gorges on the north side of Roundtop Hill	Low potential of supporting GDV/ semi-permanent GDE, supports locally restricted IDE	110.9 ha Deeply incised ironstone gullies and gorges on the north side of Roundtop Hill, all of which form, or are direct, tributaries to Weeli Wolli Creek and/or Spring

EPA's Evaluation of the Environmental Condition of Weeli Wolli Creek

As highlighted in Biologic's ongoing tree and riparian vegetation health monitoring program of Weeli Wolli Creek (Biologic, 2023g, 2023h), of particular interest to this program and the Jinidi project are the key findings from the EPA's evaluation of the environmental condition of Weeli Wolli Creek (EPA, 2018b). This evaluation (which includes a complex and large-scale desktop assessment with field visits) assessed individual approved mining proposals, but also considered cumulative impacts from all approved proposals in the catchment as part of its assessment. The EPA considered a range of information (up until the published date – February 2018) when completing this evaluation including:

- EPA reports on the assessment of proposals in the Weeli Wolli catchment prior to their implementation;
- Implementation conditions for approved proposals (Ministerial Statements);
- Mining company documents (EIA documents, survey reports, monitoring data, papers and consultant reports); and
- Department of Water and Environmental Regulation surface and groundwater data and Bureau of Meteorology climate data.

This evaluation found that some important features of the creek have changed, most notably the cessation of the natural Weeli Wolli Spring discharge. Irrigation appeared to be successfully maintaining shallow groundwater levels and surface expression in the creek and pools in the absence of natural spring flow, in part due to the favourable hydrogeological setting which supports a shallow groundwater system. Although there have been some changes, the overall ecosystem of the spring and creek appeared to be functioning, consistent with the EPA's predictions. A key gap identified, however, was in the robustness of floral monitoring and reporting, as there was a lack of understanding of understorey floral diversity.

3.2.2 National GDE Atlas

The BoM GDE Atlas indicates that the Survey Area has potential to support both terrestrial and aquatic GDE (BoM, 2024b).

Aquatic:

- Weeli Wolli Creek
- Pool – Roundtop Hill

Terrestrial:

- Low to Moderate potential, with the majority of the Survey Area intersecting low potential

Approximately half the Survey Area has low potential to support terrestrial GDE while the rest has moderate potential (Figure 2.1). The portion of Weeli Wolli Spring and Creek in the northwestern portion of the Survey Area is classified as having a moderate (medium) potential to support aquatic GDE based on the national assessment, and a high likelihood of supporting an inflow dependent ecosystem (IDE) (IDE likelihood classification of 10). However, no specific aquatic GDE or pools were highlighted within the Survey Area in the GDE Atlas. This is noteworthy, given that Weeli Wolli Spring is a known permanent GDE and the lack of recognition in the Atlas is likely a function of the broad-scale, national analysis which follows a specific set of rules (Doody *et al.*, 2017). The national-scale GDE Atlas is an initial remotely-sensed task, with follow-up surveys and investigations required to ground-truth the Atlas and identify the presence of any actual GDE. One location in a gorge on the northern side of Kulka Bilyanngu (Round Top Hill) was identified as an unclassified potential GDE from regional studies.

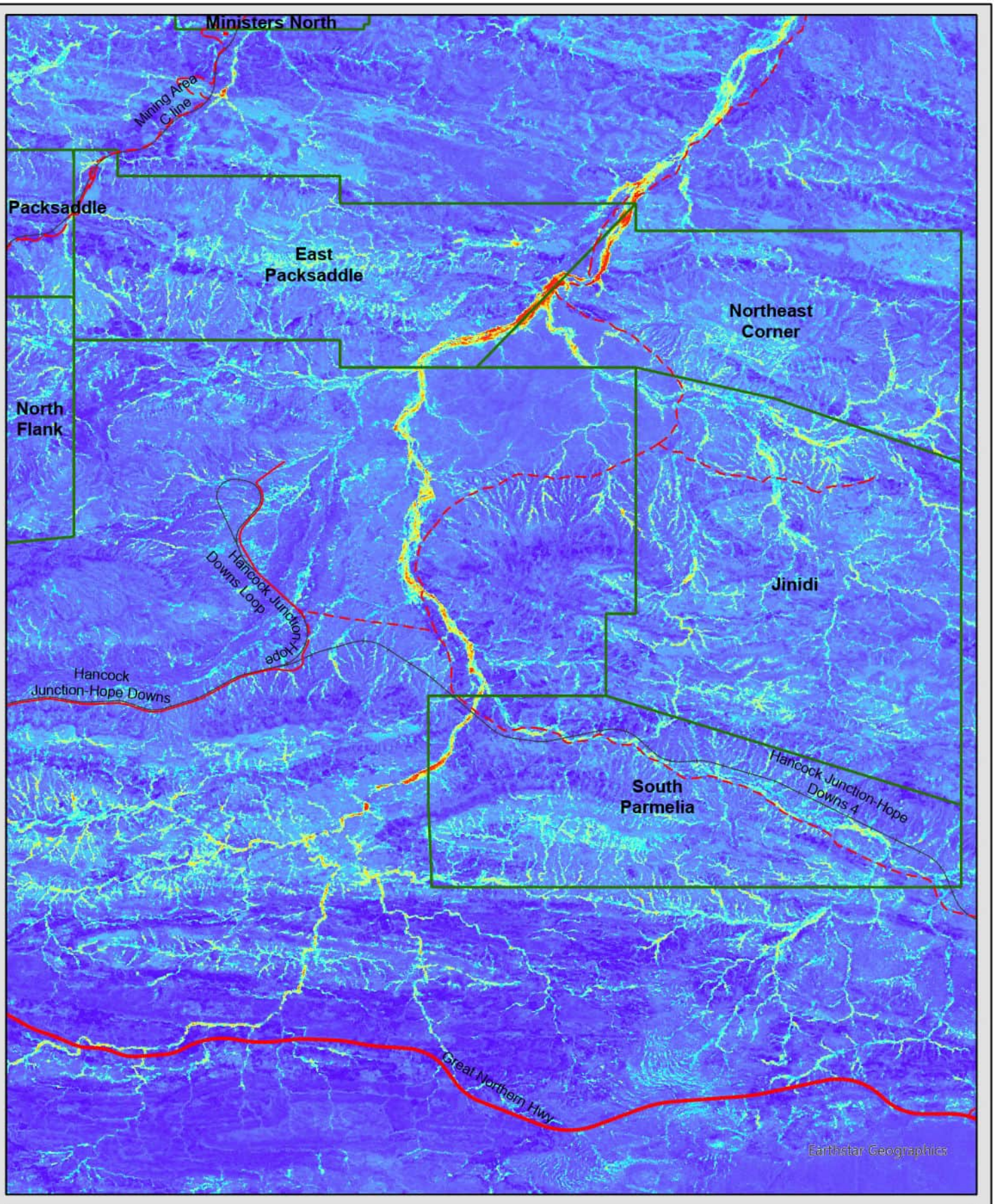
3.2.3 Remotely sensed GDV Likelihood Mapping

Visual analysis of the GDV Likelihood Mapping derived from Landsat satellite data provided by BHP WAIO shows areas with high/strong likelihoods (up to 1, the highest possible likelihood) of supporting GDV at Weeli Wolli Spring (Northeast Corner and East Packsaddle boundary), as well as the upstream portion of Weeli Wolli Creek intersecting the western boundary of South Parmelia (Ben's Oasis and adjacent downstream).For comparison; Figure 3.1 shows likelihood mapping of the period of 1987-1994, while Figure 3.2 shows the period of 2016-2022.

The extent of high likelihood GDV extends further downstream of Weeli Wolli Spring in the more recent analysis period (2016-2022) in comparison to the earlier period (1987-1994), which reflects the additional surface water availability in the creek following commencement of dewatering discharge. Additional smaller and scattered expressions of high/strong likelihoods can be observed between Ben's Oasis and Weeli Wolli Spring, particularly in the earlier analysis period, but these are less pronounced in the more recent analysis period. There is an area of high likelihood GDV just upstream of Ben's Oasis as well as a few expressions of moderate likelihood scattered occurrence further upstream. Most of the remaining parts and tributaries of Weeli Wolli Creek display moderate/medium to low likelihoods (0.5-0) of supporting GDV, the highest concentration of which is observed between Ben's Oasis and Weeli Wolli Spring. Additional high concentrations of moderate/medium to low likelihoods can be seen around the boundary of Northeast Corner and Jinidi in and upstream of Ben's Oasis where Weeli Wolli Creek divides into smaller tributaries.

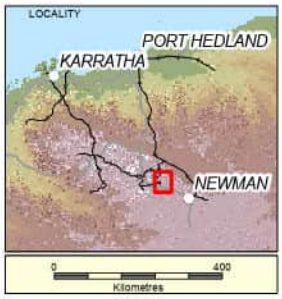
In summary, the visual analysis of the NDVI GDV Likelihood Mapping indicates that most of the high/strong likelihoods of supporting GDV in the Survey Area occur at Weeli Wolli Spring and

Ben's Oasis (and immediately downstream of Ben's Oasis), with medium to low likelihoods observed elsewhere in the Survey Area.



BHP Projects
Rail
Roads

GDV Likelihood
1
0



BHP

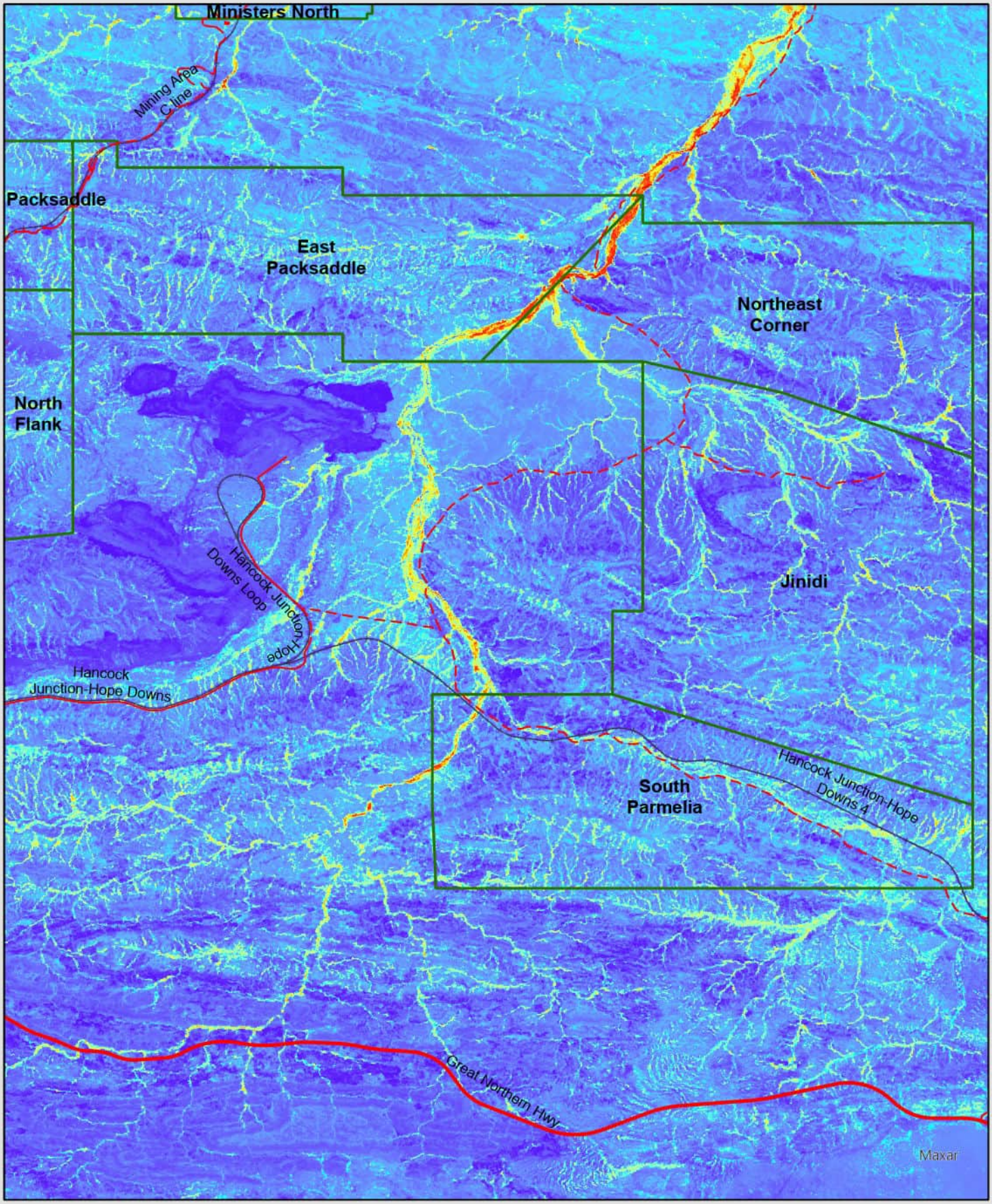
Health Safety & Environment
BHP IRON ORE

FIGURE 3.1: REMOTELY SENSED GDV LIKELIHOOD 1987-1994

N
0 1 2 3 4 5
Kilometres
Coordinate System: GCS GDA 1994, Datum: GDA 1994, Units: Degree

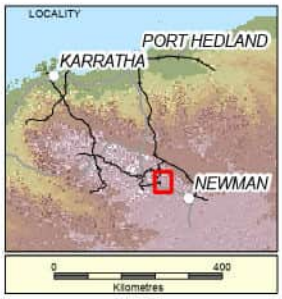
Scale: 1:150,000	Prepared: Jennifer Carter	Project No: E575
Date: 10/06/2025	Checked: X.XXXXXXXX	Figure: 3.1
	Reviewed: X.XXXXXXXX	

Document Path: U:\Environment_SHG\Jobs\E501_E1000\E575\2_MXD_Project\Jinidi\GDVLikelihood.aprx



BHP Projects
Rail
Roads

GDV Likelihood
1
0



BHP

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FIGURE 3.2: REMOTELY SENSED GDV LIKELIHOOD 2016-2022

N
0 1 2 3 4 5
Kilometres
Coordinate System: GCS GDA 1994, Datum: GDA 1994, Units: Degree

Scale: 1:150,000	Prepared: Jennifer Carter	Project No: E575
Date: 10/06/2025	Checked: X.XXXXXXXX	Figure: 3.2
	Reviewed: X.XXXXXXXX	

Document Path: U:\Environment_SIG\Jobs\E501_E1000\E575\2_MXD_Project\Jinidi\GDVLikelihood_2016_22.aprx

4 Field Assessment

4.1 Methods

4.1.1 Survey Personnel Timing

The field survey was conducted from the 17th to the 21st of July 2024, by Senior Botanist Kelby Jennings and Botanist Rylan Cunnane over 10 person days. All personnel held the current and relevant licensing and had adequate experience for the bioregion. Project roles and licenses are provided in Table 4.1. Experience in Table 4.1 equates to years spent surveying in the Pilbara bioregion, as well as other bioregions during different optimal survey timing.

Table 4.1: Project team & licenses

Biologic personnel	Project Involvement	Licencing	Experience
Principal Botanists			
Clinton van den Bergh	• Project management support • survey design • QA/QC	FB62000453 TFL 2223-0030	18 yrs
Senior Botanist			
Samuel Coultas	• Project management • survey design • QA/QC • Reporting	FB62000017-3 TFL 2223-0028	12 yrs
Kelby Jennings	• Field survey • Reporting	FB62000160	10 yrs
Rachel Meissner	• Taxonomic identifications	-	27 yrs
Botanist			
Rylan Cunnane	• Field survey • Desktop assessment • Data management • Reporting	FB62000667	1 yr

4.1.2 Weather & Climate

Long-term climatic data is not available for the Survey Area. However, long term climatic data (from 1971 for rainfall data and from 1996 for temperature data) is available from the BoM weather station at Newman Airport (station #007176), approximately 63 km southeast of the Survey Area (BoM, 2024a). This weather station is expected to provide the most accurate dataset for historic and current climatic conditions experienced within the Survey Area.

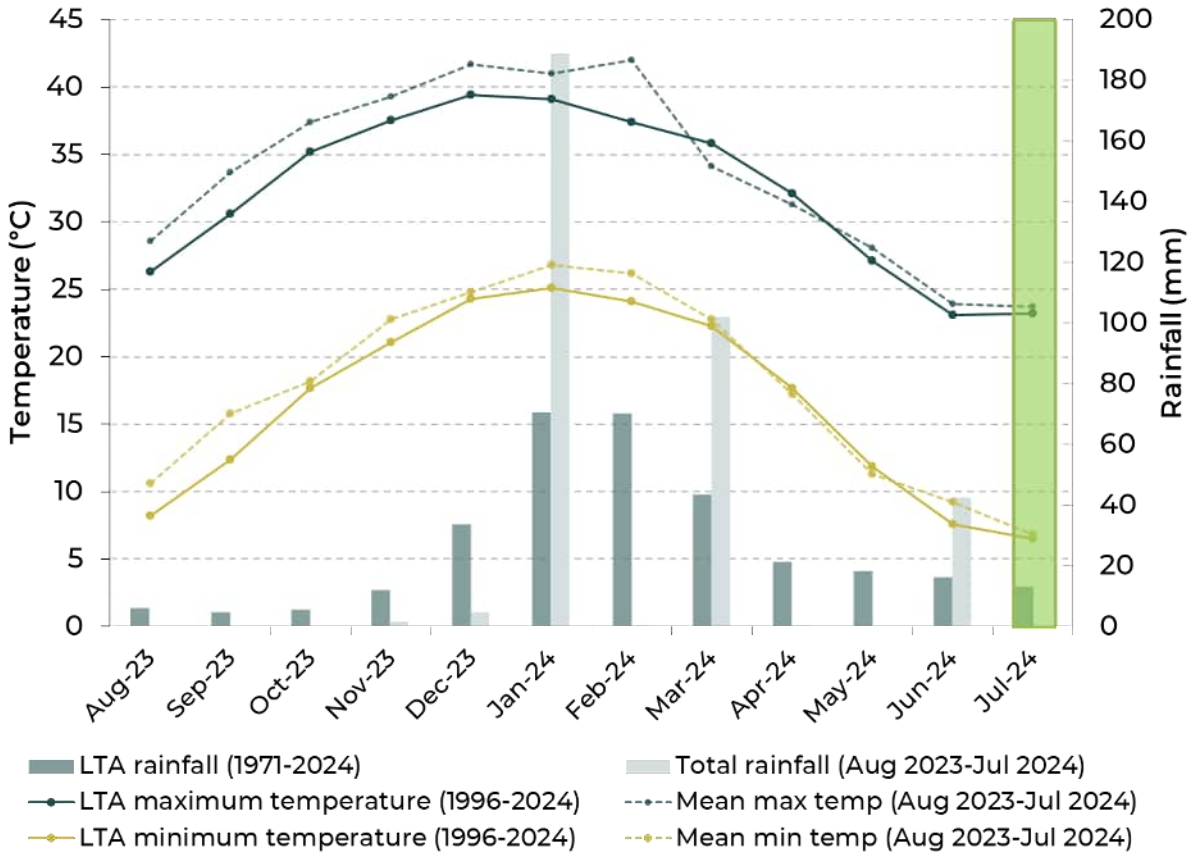


Figure 4.1: Long-term climatic data for Newman Airport (station #007176, (BoM, 2024a))

Timing is less critical for surveys of this nature (targeted riparian vegetation/GDV surveys) completed during dry-season surveys, as per EPA (2016b) guidance. However, wet-season rainfall prior to any survey, especially average or above, in the Pilbara bioregion is preferred, particularly for flora and vegetation relying on surface and groundwater seasonal recharge. In the 12 months prior to the survey, mean minimum and maximum temperatures were comparable to the long-term average (LTA), albeit slightly warmer than average between August 2023 and March 2024. Collective rainfall in the wet-season (December 2023 – March 2024 prior to the survey was above average, with the month of January 2024 receiving 118.4 mm above the LTA (188.6 mm compared to 70.2 mm) and March 2024 receiving 58.5 mm above the LTA (102 mm compared to 43.5 mm). This was more than adequate for the completion of the survey, while conditions observed during the survey confirmed this adequacy, with good representation of annual ephemeral taxa and healthy perennial taxa bearing new growth observed.

4.1.3 Flora & Vegetation Survey Design

4.1.3.1 Pre-survey Site Placement

The desktop assessment (see section 3), particularly the results of the review of other survey reports (and associated GDV mapping), and the remotely sensed GDV likelihood mapping, was utilised to inform the placement of field visit sites (targeted searching and floristic sites). Sites were generally placed at high densities where potential GDV was mapped during previous surveys (Biologic, 2024a; Rio Tinto, 2023), where known locations of surface and/or subsurface water expressions occur (perennial or semi-perennial (ephemeral) pools), and where high/strong likelihoods of supporting GDV were identified in the remotely sensedl likelihood mapping. As this survey is of a general nature, no priority for site placement was given to any particular area geographically relating to potential drawdown, but rather to areas with potential to support GDV closest to, or within, the Jinidi Project Area. This excludes, however, Pebble Mouse Creek, which was surveyed and mapped during Rio Tinto's Targeted Riparian Survey of the Greater Hope Downs 1 Area Rio Tinto (2023) and which was determined to have low to very low likelihood of containing GDV. The remotely sensed GDV likelihood mapping undertaken by BHP supported this assessment.

The target areas for this survey included:

- Upper-Weeli Wolli Creek (Ben's Oasis and above) – immediately upstream and downstream of Ben's Oasis;
- Upper-Weeli Wolli Creek – tributaries combining to form Weeli Wolli Creek;
- Central-Weeli Wolli Creek (between Ben's Oasis and Weeli Wolli Spring) – upstream of the Spring but not within the Jinidi Project Area;
- Central-Weeli Wolli Creek – upstream of the Spring and within the Jinidi Project Area;
- Central-Weeli Wolli Creek – immediate tributary running east-west in the southern portion of the Jinidi Project Area (in South Parmelia);
- Weeli Wolli Spring – immediate tributary cutting through the calcrete in the Jinidi Project Area (northern Jinidi and Northeast Corner);
- Lower Weeli Wolli Creek (downstream of the Spring) – immediate tributaries originating in the north of the Jinidi Project Area (Northeast Corner and north of BHP's tenure);
- All remaining portions of medium and minor drainage line (and gullies/gorges), with potential to support GDV, in the Jinidi Project Area.

As Weeli Wolli Spring is a known and previously mapped regionally significant PEC and aquatic GDE, no sites were required to be placed there (this includes the mapped PEC expression at Ben's Oasis). Additionally, Biologic complete ongoing riparian flora and vegetation monitoring at these locations (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j).,

The results and analysis of the BOM GDE Atlas was not required beyond desktop results level, due to the coarse scale and lack of reliable and conclusive indicative GDE mapping that this provided.

Figure 4.2 displays the site placement and GPS track logs completed by this survey.

Note that the survey area includes a heritage area in the north of the Jinidi (Northeast Corner) project area, (i.e., Roundtop Hill), that was not entered during the current survey; data shown below that is within this heritage area is from previous surveys and/or interpreted from aerial imagery.

4.1.3.2 Survey Intensity

Ninety (90) sites were assessed within the Survey Area to identify the presence of GDV (Figure 4.2). Sampling techniques included relevés (17 sites) and vegetation mapping notes (73 sites). At each site broad information was collected to assist in the mapping of the GDV units, including a description of the vegetation, the presence or absence of any key phreatophytic, or indictive mesophytic and hydrophytic flora species. Particular emphasis was given to species that require groundwater to be at or just below the surface (obligate phreatophytes and high level mesophytes/ hydrophytes, for example *Melaleuca argentea*, *Acacia ampliceps*). Appendix E presents the raw sample site data for this survey.

Table 4.2: Field survey techniques

Approach	Description
Relevé	Relevé sites are a lower intensity unbounded survey technique used in reconnaissance and targeted level flora and vegetation surveys (EPA, 2016b). Information collected at each relevé includes: • Site code, date, location, observing botanist/s; • One photograph (as a minimum); • Vegetation condition and disturbances (including fire); • Landform including: slope, soil, rock type, aspect; • Flora and vegetation information; dominant cover, structure and species count where necessary; • Recording of the majority of flora present; • Comments on GDV/GDE supporting potential (or lack there-of); and • Any observations of water features above, at or close to the surface.
Vegetation mapping note	Vegetation mapping notes are used to ground-truth locations that are unlikely to support GDV/GDE but require basic site information to confirm such findings. They are a lower intensity, unbounded, survey technique similar to relelves but without detailed flora and vegetation information. The following was recorded as a minimum: • Site code, date, location, observing botanist/s; • One photograph (as a minimum); • Vegetation condition and disturbances; • Landform including: soil and rock type; • Flora and vegetation information; dominant cover and structure only;

Approach	Description
	• Comments on GDV/GDE supporting potential (or lack there-of).
Opportunistic (Supplementary) Sampling	Flora and vegetation not recorded through other sampling methods were opportunistically sampled as encountered in the survey. Opportunistic sampling also included recording locations of significant, introduced (weed) and unknown species.

710000 720000 730000

7470000 7460000 7450000 7440000

JWG-006 JWG-004 JWG-005 JWG-008 JWG-010 JWG-007 JWG-009 JWG-011 JWG-017 JWG-019

JWG-025 JWG-024 JWG-022 JWG-023 JWG-021

JWG-001 JWG-027 JWG-002 JWG-003 JWG-026 JWG-006 JWG-004 JWG-007 JWG-010 JWG-011 JWG-009 JWG-019 JWG-020 JWG-018

JWG-025 JWG-023 JWG-022 JWG-021

JWG-016 JWG-075 JWG-015 JWG-013 JWG-082 JWG-014 JWG-012 JWG-074 JWG-069 JWG-029 JWG-053 JWG-051 JWG-056 JWG-067 JWG-076 JWG-084 JWG-045 JWG-046 JWG-054 JWG-078 JWG-077 JWG-052 JWG-071 JWG-050 JWG-063 JWG-080 JWG-079 JWG-070 JWG-073 JWG-086 JWG-065 JWG-088 JWG-043 JWG-044 JWG-072

JWG-055 JWG-064 JWG-061 JWG-068 JWG-062 JWG-036 JWG-060 JWG-032 JWG-034 JWG-066 JWG-048 JWG-047 JWG-033 JWG-037 JWG-035 JWG-057 JWG-030 JWG-059 JWG-031 JWG-041 JWG-042 JWG-039 JWG-040 JWG-081 JWG-090 JWG-092 JWG-094 JWG-083 JWG-096

JWG-055 JWG-064 JWG-062 JWG-060 JWG-038 JWG-036 JWG-032 JWG-034 JWG-037

LEGEND

Survey Area

Sampling Type

Mapping Note

Relevé

Traverse

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 25/06/2025

Biologic

Port Hedland
Karratha
Exmouth
Newman

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 4.2: Flora sample sites and traverses

4.1.4 Nomenclature & Specimen Identification

Flora nomenclature used in this report is consistent with the Western Australian Herbarium's plant census, provided on Florabase (WAH, 1998 -). All species nomenclature is current at the time of report preparation.

Specimens were identified by taxonomists and supported by Biologic botanical personnel (Table 4.1) using the appropriate taxonomic information and keys, the Western Australian reference herbarium and, where required, relevant taxonomic experts at the WAH. Significant and/or novel flora taxa specimens, or new flora for the region (particularly introduced flora taxa new to the region/subregion), were submitted to the WAH for formal identification (ACC/11036/E – Appendix F) (WAH, 2015).

4.1.5 Riparian & Groundwater Dependent Vegetation Mapping

The aim of the field survey was to target, sample and map the riparian vegetation of the Survey Area, with a particular focus on GDV/GDE. Where the Survey Area overlaps previously surveyed and mapped riparian vegetation to a level similar to this survey (i.e., Ecologia (1998) and Rio Tinto (2023)), refinement of previous mapping will be prioritised.

Existing defined vegetation assemblages by Ecologia (1998) and Rio Tinto (2023) were ground-truthed during the survey, while additional sites were placed in areas outside of the existing mapping, particularly within riparian vegetation types outside of Biologic (2024a) mapping. Additional sites were also placed in riparian vegetation types within the Jinidi Project Area under-sampled, (for the purposes of the current GDV assessment), by Biologic (2024a). It should be noted again, though, that it was not the scope of Biologic (2024a) to sample and produce mapping commensurate to the intensity of this survey (targeted riparian/GDV survey). Following the completion of field sampling and taxonomic identification, the portions of vegetation outside of the Ecologia (1998) and Rio Tinto (2023) mapping were mapped primarily utilising the floristic and vegetation data collected from sample sites, along with the interpretation of aerial imagery and botanical expertise and knowledge of the Survey Area and surrounds.

Aerial imagery from various sources assisted in delineating vegetation unit boundaries, including fine scale aerial imagery (50 cm ECW files) provided by BHP WAIO, regional imagery (Landgate, 2021), and Google Earth imagery (Google Earth, 2023). The vegetation type mapping was created at a scale of 1:20,000 and digitised using Geographic Information Systems (GIS) software.

The current nationally adopted classification system for vegetation descriptions is the National Vegetation Information System (NVIS) (NVIS Technical Working Group, 2017) (definition in Appendix G).

NVIS seeks to manage national vegetation data to help improve vegetation planning and management within Australia including standardising scale and technical wording for vegetation associations. The vegetation types in the Survey Area have been described to at least Level 5 (vegetation association) or above, in the (NVIS) hierarchical structure (NVIS Technical Working Group, 2017). The vegetation structure information collected was used to describe the vegetation type based on the dominant taxa, foliage cover and height of the three traditional strata (upper, mid and lower/ground) which followed BHP guidance (BHP, 2018).

Upland vegetation and associated landforms with a GDV likelihood of Negligible or lower (see section 4.1.7 below) weren't mapped as part of this survey as they do not represent riparian vegetation or GDV. Additionally, bare areas void of any vegetation which experience high erosive and/or depositional force in creeklines naturally exist. However, as these do not pertain to vegetation of any sort, they have also been excluded from the vegetation mapping. These areas were only excluded if deemed incapable of supporting riparian vegetation both at present and based on previous vegetation mapping (see section 3.2.1.2). Small and likely dynamic portions of bare areas between/inside riparian vegetation units were mapped as subsequent riparian vegetation units for potential to support riparian vegetation within a dynamic and everchanging system. Additional areas considered disturbed, cleared or not representing a vegetation unit (e.g., cleared tracks, roads, infrastructure) were also excluded from the mapping.

Mapping did not continue northward along Weeli Wolli Spring/ Creek beyond the northern Boundary of the Jinidi project area or west up Pebble Mouse Creek (RTIO's HD1 project). The extension of vegetation mapping in upper Weeli Wolli Creek and tributaries continued as far as the lowest GDV likelihood (Low) mapping extended (see section 4.1.7 below).

4.1.6 Vegetation Condition Mapping

Vegetation condition was defined within the Survey Area using the vegetation condition scale for the Eremaean Botanical Province in EPA (2016b), which has been adapted from Keighery (1994) and Trudgen (1988) (Appendix H). Condition was recorded at each relevé and mapping note site, while additional notes and observations were taken while traversing the Survey Area to broadly map vegetation condition boundaries. The vegetation condition mapping was then digitised using GIS software.

4.1.7 Likelihood Classification of GDV

The classification of GDV in Western Australia is broad and lacks a clear definition or repeatable framework. For example, the EPA (2016a) suggest that flora species and vegetation relying on groundwater (GDV) have a level of significance ('locally endemic or association with a restricted habitat type (e.g. surface water or groundwater dependent

ecosystems)'), but do not provide the definition of GDV or the guidelines to accurately measure such potential dependence. Beyond EPA (2016a) guidance though, through the reviewing of published and unpublished scientific reports completed for mining proposals and development completed in the Pilbara and surrounds, and the Australian groundwater-dependent ecosystems toolbox (Richardson *et al.*, 2011), GDV is interpreted as the presence of obligate phreatophytes (e.g., *Melaleuca argentea*) and/or facultative phreatophytes (e.g., *Eucalyptus camaldulensis*). While this broadly outlines the potential for GDV, it lacks certainty and application that would highlight areas of higher GDV importance. When additional hydrophytic and mesophytic species are considered, along with key abiotic factors (e.g., presence of permanent/semi-permanent surface water), a clearer picture of GDV/GDE potential and likelihood can become apparent.

To create a streamlined approach to GDV classification, Biologic has defined an assessment framework to apply to their projects (Appendix I). This assessment is a combination of known and documented uses of hydrophytic/mesophytic/phreatophytic flora (both field-observed and utilising database sources (e.g., Florabase (WAH, 1998 -)), published (e.g., Graham *et al.* (2003)) and unpublished (e.g., (Rio Tinto, 2023)) scientific reports, conversations with other botanical and ecohydrological experts (e.g., Jeremy Naaykens from Rio Tinto), as well as Biologic's general botanical, hydrological and hydrogeological expertise based on years of field experience in riparian environments. This framework per flora species can be tailored to suit the Survey Area locality (e.g., immediately known within the Survey Area) or out to broader areas (e.g., subregion), but for this survey is tailored to the list of flora resulting from the desktop assessment (3.2.1.1) (radius of 50 km out from the Jinidi Project Area boundary). This provides a list of species that do and may occur in the Survey Area based on known occurrences (ALA, 2024; CHAH, 2023; NatureMap, 2013; WAH, 1998 -). The list utilised for the framework for this report is presented in Appendix J.

Generally, this framework defines the likelihood of presence of GDV, with ratings based on the dependence on groundwater through species composition and density/cover. This dependence rating is based on a five-point scale; High, Moderate, Low, Negligible and None. The classification of 'High' indicates high soil moisture availability, very likely to be from a perennial source, as confirmed by the taxa present. Classification of 'Moderate' indicates soil moisture availability is more likely to be semi-perennial, with surface and shallow subsurface water availability present for most (but not all) of the year. Classification of 'Low' indicates soil moisture availability is more likely to be ephemeral (in-flow dependent from seasonal rainfall). Negligible to None classification likely has no reliance on groundwater, and at most (Negligible) relies on surface flow to support that habitat.

The GDV assessment framework considers the following factors:

- The presence, density and maturity of three key indicative phreatophytes; *Melaleuca argentea* (obligate phreatophyte), *Eucalyptus camaldulensis* (facultative phreatophyte), and *Eucalyptus victrix* (facultative phreatophyte to vadophyte)
- The presence, diversity and density of indicative hydrophytes and mesophytes and their relative reliance on groundwater (Appendix J);
- The structure of the vegetation with respect to obligate phreatophytes, facultative phreatophytes, hydrophytes and mesophytes. For example, a woodland of *Eucalyptus camaldulensis* is more likely to be dependent on groundwater presence (the woodland structure requires more groundwater for persistence) compared to isolated trees;
- The presence of water bodies and an assessment of their permanence; and
- Broad understanding on the geology, hydrology, hydrogeology, and creek morphology (i.e., presence of porous geological surface expressions (e.g., calcrete) forming seeps or springs).

It should be noted that a GDV unit may be assigned an overlapping rating (e.g., Moderate to Low) due to the presence of semi-mature obligate phreatophytes, increased diversity or varying densities of mesophytes and hydrophytes across the GDV unit.

It should also be noted that the "presence, diversity and density of indicative hydrophytes and mesophytes and their relative reliance on groundwater (Appendix J)" recorded by this standalone survey doesn't include all riparian flora taxa known from Weeli Wolli Creek, Weeli Wolli Spring and the Jinidi Project area, such as all of those recorded by previous surveys overlapping the Survey Area (Table 3.1), and should be considered a sub-set of known flora taxa for the Survey Area. Areas previously or currently being surveyed by Biologic often weren't revisited for this survey for efficiency, but flora taxa known from the area and previously/currently sampled sites were considered when completing the riparian vegetation mapping and any GDV likelihood, significance and mapping of the vegetation (see section 4.2.2.2 below). As detailed in the desktop assessment (see section 3.2.1.1), riparian flora taxa determination has been defined based on their presence across multiple riparian vegetation units and/or as their status of obligate/facultative phreatophytes, mesophytic (terrestrial plants with affinities towards water supply) or hydrophytic (aquatic) taxa. Each taxon was cross referenced with current herbaria databases to confirm preferred habitat preference (ALA, 2024; CHAH, 2023; NatureMap, 2013; WAH, 1998 -).

Although presence of indicator flora species is used to assess likelihood of GDV, it is acknowledged that vegetation associations assessed as GDV may also contain some taxa that are not groundwater dependent. It is also noted that the level of groundwater dependence of some taxa can vary, (particularly facultative phreatophytes), depending on a

number of site-specific characteristics, and that further investigations may be required to determine the actual level of dependence.

4.1.8 Constraints & Limitations

The EPA (2016b) outlines several potential limitations to flora surveys. These aspects are assessed and discussed in Table 4.3 with reference to the survey type and intensity completed for the project.

Table 4.3: Survey limitations and constraints

Potential limitation or constraint	Constraint	Applicability to this survey
Availability of data and information	No	Enough flora and vegetation survey work has been undertaken within the Survey Area, the Jinidi Project Area and in the wider local area and surrounding subregion (Table 3.1), with most of the associated reports and data available for detailed reviews. Less survey work pertaining to targeted riparian surveys have been conducted within these same bounds, but are, in combination with detailed flora and vegetation surveys, sufficient for adequate contextual information.
Competency/ experience of the survey team, including experience in the bioregion surveyed	No	The survey was led by Kelby Jennings, a Senior Botanist with over ten years' experience in the Pilbara, some of which is in the Jinidi Project Area, while the overall survey was managed by Samuel Coultas, a Senior Botanist with over 12 years' experience who also managed the Jinidi Project two-season detailed flora and vegetation survey. The field team contained at least one botanist who met the minimum five years' experience to manage a flora and vegetation field survey/team in the Pilbara bioregion (EPA, 2016b).
Proportion of flora recorded/collected and any identification issues	No	The survey intensity (targeted riparian/GDV) was designed to capture and target riparian flora taxa and vegetation present in the Survey Area, which does not aim to catalogue all flora and vegetation within a given area like that of detailed surveys. However, it was generally observed during the field surveys that the conditions within the riparian portions of the Survey Area were favourable and thus adequate, particularly following a wet-season of above average rainfall, with most annual/ephemeral and perennial taxa baring adequate identification material. With this in mind, a total of 43 specimen collections were made during this survey, with only 3 unable to be identified beyond genus level. The remaining could be confidently identified to species and/or beyond (subsp., var. etc. if applicable).

Potential limitation or constraint	Constraint	Applicability to this survey
Timing, weather, and season	No	The optimal timing to complete Detailed survey sampling in the Eremaean botanical province is 6-8 weeks post wet-season (March–June) (EPA, 2016b) There is no seasonal requirement for survey timing for a survey of this nature (targeted riparian/ GDV). However, the survey occurred during the dry-season (in July) following a wet-season which received above average rainfall. With all considered, the survey timing for this survey is considered adequate timing to complete a survey of this nature (targeted riparian/GDV).
Disturbance that may have affected results, e.g., fire, flood	No	No disturbances (historical, recent or during the survey) affected the field teams' ability to complete the survey adequately.
Appropriate area surveyed (effort & extent)	No	The establishment and sampling of 90 sample sites (17 relevés, 73 Vegetation Mapping Notes) was undertaken across the Survey Area, targeted riparian flora and vegetation, by two Biologic personnel across five days. All areas to be surveyed as identified by the desktop assessment were visited and sampled. The survey may be used to inform future environmental approvals across the Survey Area and their impacts to riparian systems. The sampling methods and survey intensity was appropriate to achieve the scope of the survey.
Access restrictions within the Survey Area	No	Access was sufficient for the purposes of the survey. Tracks used to access portions of the Survey Area were numerous, while a helicopter was utilised to access areas considered too remote for vehicle access.
Problems with data and analysis, including sampling bias	No	No limitations with data collection and/or analysis were encountered during the field survey or during subsequent analyses.

4.2 Results & Discussion

4.2.1 Riparian Flora

Twenty-nine riparian vascular flora taxa were recorded during this survey, representing five hydrophytes, seven phreatophytes, 11 mesophytes and six general riparian species (Appendix J).

These riparian flora taxa were identified from a total of 176 confirmed vascular flora taxa (including putative hybrids), representing 101 genera from 42 families, recorded within the Survey Area. The full species list (Appendix K) includes all taxa found during the assessment (182), including 6 unconfirmed taxa, 165 confirmed native flora taxa and 11 confirmed introduced flora taxa (Appendix K).

4.2.2 Riparian Vegetation Mapping

4.2.2.1 Vegetation Units

A total of 12 riparian vegetation units were described and delineated in the Survey Area (Table 4.4, Figure 4.3).

The mapping of riparian vegetation for this survey matched closely that of areas previously mapped by Ecologia (1998) and Rio Tinto (2023)), but with some refinement in some areas, particularly Weeli Wolli Spring, the mapping of which has changed significantly since the Ecologia (1998) survey. The most noticeable change is in the *Melaleuca argentea* forest/woodland and *Eucalyptus camaldulensis* forest, with significant increased extent in the current mapping both upstream and downstream of Weeli Wolli Spring and out to the edges of the Spring. Conversely, but expected, significant reductions in bare/scoured creek bed are also noted in the current survey mapping, with larger areas of standing and flowing surface water also noted in the current survey mapping. Although minor increases in *Melaleuca argentea* forest/woodland and *Eucalyptus camaldulensis* forest are expected upstream of the natural Spring with increases in water availability from spur-pipe discharge, differences in mapping are likely attributed to updates in mapping reliability with time (better aerial imagery, data collection techniques, taxonomy etc.) paired with potential inaccuracies in the mapping completed by Ecologia (1998). Changes in extent and/or density of the *Melaleuca argentea* forest/woodland and *Eucalyptus camaldulensis* forest downstream of the Rio Tinto gabion are likely due to hydrological changes associated with surplus discharge.

The riparian vegetation mapping for this survey where it overlapped the Jinidi project area also closely matched that of previous vegetation mapping (Biologic, 2024a). However, some of the mapping boundaries and vegetation units were refined further to what is expected for this level of survey (targeted GDV survey). Of particular note is the refinement of D01 from Biologic (2024a) into four separate units (-a, -b, -c, -d), the refinement of G02 into two units (-a and -b; of which b has not been mapped in this survey as it does not represent GDV), and the creation of new vegetation types D07, D08, D09, and D10, most of which are refined and/or merged portions of vegetation mapping units from Biologic (2024a).

Table 4.4: Vegetation types mapped in the Survey Area

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D01-a ***Melaleuca* mid woodland** **MA MaEc AtheAam CyvFisElg Tyd** *Melaleuca argentea, Eucalyptus camaldulensis* mid woodland over *Atalaya hemiglauca, Acacia ampliceps* low open woodland over *Cyperus vaginatus, Fimbristylis sieberiana* (P3), *Eleocharis geniculata* mid to low open sedgeland with *Typha domingensis* tall isolated clumps of rushes over low isolated clumps of annual herbs. On brown sandy clay loam on major drainage lines. Sub-landforms include defined channel beds and edges, often damp, fully submerged or fringing permanent standing surface water and/or flowing streams.	Generally low flow channels and edges (banks), with occasional higher flow channels Support permanent pools and/or flowing surface water	Weeli Wolli Monitoring Sites: WWM-09, 10, 11, 27, 28, 19, 25, 20, 21, 18, 05, 03 Exclusively at Weeli Wolli Spring	84.6 ha / 7.0 %	Supports permanent GDE features (permanent spring feeding permanent connecting pools): • Supports dense mature obligate phreatophytes; • Supports a high diversity and density of mesophytic and hydrophytic taxa. Regionally significant GDV/GDE • Supports habitat for *Cladium procerum* (P2), *Fimbristylis sieberiana* (P3), *Rostellularia adscendens* var. *latifolia* (P3) and *Stylidium weeliwolli* (P3) • Vegetation type mapped mostly within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, vegetation description closely represents the Weeli Wolli Spring PEC (P1) • Supports significant and restricted permanent GDE features	 
D01-b ***Melaleuca* mid woodland** **MA MaEc Cyv** *Melaleuca argentea, Eucalyptus camaldulensis* mid woodland over *Cyperus vaginatus* low sparse sedgeland over low annual herbland. On brown sandy clay loam on major drainage lines. Sub-landforms include defined channel beds and edges, often damp, fully submerged or fringing permanent to semi-permanent standing water.	Low flow channels and edges (banks) Support permanent and semi-permanent pools	This survey: JWG-035, 037 Weeli Wolli Monitoring Sites: WWM-15, 16 Exclusively at Ben's Oasis	1.8 ha / 0.1 %	Supports permanent GDE features (permanent spring feeding semi-permanent pool – Ben's Oasis) • Supports mature obligate phreatophytes; • Supports a moderate diversity and density of mesophytic and hydrophytic taxa. Regionally significant GDV/GDE • Supports habitat for *Ipomoea racemigera* (P3), *Rostellularia adscendens* var. *latifolia* (P3) and *Stylidium weeliwolli* (P3) • Vegetation type mapped within, the DBCA mapped Weeli Wolli Spring PEC (P1) boundary at Ben's Oasis. However, vegetation description only partially represents the Weeli Wolli Spring PEC (P1) description. • Supports significant and restricted permanent GDE features	 

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D01-c ***Melaleuca* mid woodland** **MA MaEc MgAci Cyv EuaErb** *Melaleuca argentea, Eucalyptus camaldulensis* mid woodland over *Melaleuca glomerata, Acacia citrinoviridis* low open woodland over *Cyperus vaginatus low open sedgeland over Eulalia aurea, Eriachne benthamii low open tussock grassland over isolated clumps of annual herbs* On brown sandy clay loam on major drainage lines. Sub-landforms include defined rocky channel beds and edges, often damp, or fringing semi-permanent standing water.	Moderate to flow channels and edges (banks) Support semi-permanent pools	This survey: JWG-032, 034, 036 Jinidi two-season flora and vegetation survey: Quadrats: JIN-175 Weeli Wolli Monitoring Sites: WWM-13 Adjacent upstream of Ben's Oasis, downstream between Ben's Oasis and the Jinidi project area (continues into Jinidi project area slightly)	19.2 ha / 1.6 %	High GDV likelihood rating: • Supports semi-permanent GDE features (semi-permanent surface pool/s) • Supports sparse occurrences of mature obligate phreatophytes; • Supports a moderate diversity and density of mesophytic and hydrophytic taxa. Locally significant (High) GDV • Supports habitat for *Ipomoea racemigera* (P3) and *Rostellularia adscendens* var. *latifolia* (P3) Small portion mapped within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	 
D01-d ***Cladium* tall open sedgeland** **MA ClpTydCyg FisElg LoaStw Ma** *Cladium procerum* (P2), *Typha domingensis, Cyperus vaginatus* tall to mid open sedgeland over *Fimbristylis sieberiana* (P3), *Eleocharis geniculata* low sparse sedgeland over *Lobelia arnhemiaca*, *Stylidium weeliwolli* (P3) low sparse forbland with *Melaleuca argentea* low isolated trees On often skeletal and submerged black soils in major drainage lines containing a series of open calcareous rocky areas supporting permanent surface water and connecting pools. Often occurring adjacent vegetation type D01-a within Weeli Wolli Spring.	Generally low flow channels and edges (banks), with occasional higher flow sections Support permanent pools and/or flowing surface water	Weeli Wolli Monitoring Sites: WWM-17, 22, 06, 01 Exclusively at Weeli Wolli Spring	11.8 ha / 1.0 %	Supports permanent GDE features (permanent spring feeding permanent connecting pools and streams) • Supports mature obligate phreatophytes; • Supports a high diversity and density of mesophytic and hydrophytic taxa. Regionally significant GDV/GDE • Supports habitat for *Cladium procerum* (P2), *Fimbristylis sieberiana* (P3), *Rostellularia adscendens* var. *latifolia* (P3) and *Stylidium weeliwolli* (P3) • Vegetation type mapped mostly within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, vegetation description closely represents the Weeli Wolli Spring PEC (P1) • Supports significant and restricted permanent GDE features	 

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D02 ***Eucalyptus* mid open forest** **MA Ec AtheAam GoroGosnStsp Cyv** *Eucalyptus camaldulensis* mid open forest over *Atalaya hemiglauca*, *Acacia ampliceps* low open woodland over *Gossypium robinsonii*, *G. sturtianum*, *Stylobasium spathulatum* tall open shrubland over *Cyperus vaginatus* low isolated clumps of sedges. On brown sandy clay loam on major drainage lines. Sub-landforms include raised creek banks and islands adjacent sections of Weeli Wolli Spring (up out of the main channel), and depositional creekbed areas of medium drainage lines. Sandy clay loam soil is closer to a black/brown colour due to rich humus content and deep surface leaf litter layer.	Low (to negligible) flow raised creek banks, islands and depositional creekbeds Support permanently damp humus-rich soils	This survey: JWG-001, 002 Jinidi two-season flora and vegetation survey: Quadrats: JIN-192 Weeli Wolli Monitoring Sites: WWM-23, 24, 26 Mostly confined to Weeli Wolli Spring, fringing portions of D01-a, with one small isolated expression mapped in the far northeastern tributary to lower Weeli Wolli Creek	29.7 ha / 2.5 %	High GDV likelihood rating: • Supports semi-permanent GDE features (soil stays permanently 'damp'); • Supports mature and dense occurrences of facultative phreatophytes; • Supports a high density but low diversity of mesophytic and hydrophytic taxa. Locally significant (High) GDV • Supports locally restricted vegetation assemblage; • Supports restricted and relictual mesophytic taxon *Imperata cylindrica* Partially overlapping and/or fringing DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but does not represent PEC description.	 

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D03 ***Eucalyptus* mid woodland** **ME EcEv AciAcor CcTtErb PlApy Cocr** *Eucalyptus camaldulensis*, *E. victrix* mid woodland over *Acacia citrinoviridis*, *A. coriacea* low open woodland over **Cenchrus ciliaris*, *Themeda triandra*, *Eriachne benthamii* low open tussock grassland with *Petalostylis labicheoides*, *A. pyrifolia* tall sparse shrubland over *Corchorus crozophorifolius* low sparse shrubland On brown sandy clay loam on medium drainage lines and adjacent major drainage lines, occupying dryer sections of creek bed, banks, islands and floodplains	Moderate to High flow channels and edges (banks), with some areas of highly scoured eroded rocky sub-landforms Supports ephemeral pools	This survey: JWG-038, 060, 062, 064, 055, 050, 052, 054, 053, 051, 049, 058, 056, 025, 024, 022, 027, 003 Jinidi two-season flora and vegetation survey: Quadrats: JIN-041, 007, 032 Weeli Wolli Monitoring Sites: WWM-12 Mostly confined to Weeli Wolli Creek occurring upstream of Weeli Wolli Spring up to, and just beyond, Ben's Oasis (including within the DBCA mapped PEC boundary), occupying dry rocky creek beds, banks, islands and floodplains in this area. Additional isolated occurrences were mapped in the tributaries to lower Weeli Wolli Spring in the northeast, including part of the eastern tributary within the Jinidi project area and tributaries north of the project area, occupying rocky creek beds in medium drainage lines.	338.4 ha / 28.0 %	Moderate GDV likelihood rating: • Supports mainly ephemeral ecosystem features, supports locally common IDE features • Supports mature and dense occurrences of facultative phreatophytes; • Supports a moderate diversity and density of mostly riparian and mesophytic (very few hydrophytic taxa). Locally significant (Moderate) GDV • Supports habitat for *Ipomoea racemigera* (P3) and *Rostellularia adscendens* var. *latifolia* (P3); Overlapping and/or fringing DBCA mapped Weeli Wolli Spring and Ben's Oasis PEC (P1) boundary, but does not represent PEC description.	 

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D06 ***Eucalyptus* mid open woodland** **ME EvEc ExAci ErbTtEua ApyAnlGoro CocrTefc** *Eucalyptus victrix*, *E. camaldulensis* mid open woodland over *E. xerothermica*, *Acacia citrinoviridis* low open woodland over *Eriachne benthamii*, *Themeda triandra*, *Eulalia aurea* low open tussock grassland with *A. pyrifolia*, *Androcalva luteiflora*, *Gossypium robinsonii* mid to tall sparse shrubland over *Corchorus crozophorifolius*, *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) low sparse shrubland. On red sandy loam on dry rocky medium drainage lines, predominantly occupying creek beds, edges and floodplains with varying densities of Eucalyptus camaldulensis (*Eucalyptus victrix* always the dominant tree though).	High flow (ephemeral inflow) channels and edges (banks), with highly scoured eroded rocky sub-landforms. Support ephemeral pools and streams	This survey: JWG-048, 047, 030, 031, 083, 096, 061, 068, 057, 059, 004, 005, 006, 007, 008, 010 Jinidi two-season flora and vegetation survey: Quadrats: JIN-218, 190, 191, 188, 181, 081, 030, 037, 068, 050 Releves: JINR:190 The most geographically widespread riparian vegetation type of this survey. Occurs on dry rocky medium drainage lines upstream of Ben's Oasis (Weeli Wolli Creek and tributaries), in the two main creek tributaries to middle Weeli Wolli Creek in the Jinidi Project Area, and within the northeastern tributaries to lower Weeli Wolli Creek within the north of the Jinidi project area (Northeast Corner) and downstream of the project area.	615.7 ha / 50.8 %	Low GDV likelihood rating: • Supports locally common IDE features • Supports isolated occurrences of facultative phreatophytes; • Supports a low diversity and density of riparian and mesophytic taxa (not hydrophytic taxa). Locally significant (Low) GDV Small portion mapped within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	 
D07 ***Melaleuca* tall open shrubland** **ME Mg Erb Ec** *Melaleuca glomerata* tall open shrubland over *Eriachne benthamii* low sparse tussock grassland with *Eucalyptus camaldulensis* mid isolated trees On brown sand amongst rocky outcropping (mixed geology) in medium drainage lines, occupying narrow areas of creekline with high flow and high erosive force	High flow (ephemeral inflow) channels with highly scoured eroded rocky outcropping Support ephemeral) pools and streams	This survey: JWG-033 Weeli Wolli Monitoring Sites: WWM-14 Confined to Weeli Wolli Creek, immediately fringing, as well as small occurrences adjacent upstream and downstream, to Ben's Oasis, including within the DBCA mapped PEC boundary.	5.4 ha / 0.4 %	Low GDV likelihood rating: • Supports locally common IDE features • Supports isolated occurrences of facultative phreatophytes; • Supports a low diversity and density of riparian and mesophytic taxa (no hydrophytic taxa). Locally significant (Low) GDV Small portion mapped within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
D08 ***Acacia low open forest*** **MA Aci CcTt PlApy Cocr EvEc** *Acacia citrinoviridis* low open forest over **Cenchrus ciliaris, Themeda triandra* low open tussock grassland with *Petalostylis labicheoides, A. pyrifolia* tall sparse shrubland over *Corchorus crozophorifolius* low sparse shrubland with *Eucalyptus victrix, E. camaldulensis* low isolated trees On brown sandy clay loam on major and medium drainage lines, occupying the rocky drier sections (islands, floodplains).	High to moderate flow islands, edges (banks), and floodplains, with all flows likely as a result of flooding of the main systems (seasonally inflow dependent). Often have large areas of bare rocky colluvium indicating high erosive forces on bends of creekline	This survey: Mapping notes only Mostly occurs occupying dryer upland sections of the Weeli Wolli Spring bend/s. One occurrence mapped upstream of Ben's Oasis also at sharp bend in the creekline.	11.5 ha / 0.9 %	Low GDV likelihood rating: • Supports locally common IDE features • Supports isolated occurrences of facultative phreatophytes; • Supports a low diversity and density of riparian and mesophytic taxa (no hydrophytic taxa). Locally significant (Low) GDV Small portions mapped within the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	
D09 ***Eucalyptus mid isolated trees*** **MA Ec** *Eucalyptus camaldulensis* mid isolated trees On brown sandy clay loam on major drainage lines, occupying the bare stony portions of the channel	High flow channels. Void of perennial understorey cover below tree layer: a result of highly erosive force of flow and colluvium deposition	This survey: Mapping notes only Mapped at the northern sharp bend of Weeli Wolli Spring.	3.6 ha / 0.3 %	Moderate GDV likelihood rating: • Fringing permanent GDE features (Weeli Wolli Spring) • Supports locally common IDE features • Supports isolated occurrences of mature facultative phreatophytes; Locally significant (Moderate) GDV Partially overlapping the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	
D10 ***Melaleuca mid isolated trees*** **MA Ma** *Melaleuca argentea* mid isolated trees on brown sandy clay loam on major drainage lines, occupying the bare stony portions of the channel	High flow channels. Void of perennial understorey cover below tree layer: a result of highly erosive force of flow and colluvium deposition	This survey: Mapping notes only Mapped at Weeli Wolli Spring only, occupying more upland areas experiencing higher erosive areas from flooding	4.9 ha / 0.4 %	High GDV likelihood rating: • Fringing permanent GDE features (Weeli Wolli Spring) • Supports isolated mature obligate phreatophytes; Locally significant (High) GDV Partially overlapping the DBCA mapped Weeli Wolli Spring PEC (P1) boundary, but vegetation type does not represent the PEC	

Vegetation Code, Broad Floristic Formation, Description, Landform/ sub-landform, Soils, Geology	Seasonal flow, water (surface/sub-surface) permanence	Sample sites, general location	Extent	GDV likelihood, significance of GDV/GDE	Representative Photo/s
G02-a ***Eriachne low open tussock grassland*** **GG ErbErmuThmb CfFib(Ec) ErnDopApy Tp** *Eriachne benthamii, E. mucronata, Themeda* sp. Mt Barricade (M.E. Trudgen 2471) low open tussock grassland with *Corymbia ferriticola, Ficus brachypoda* low open woodland over *Eremophila naaykensii* (P3), *Dodonaea pachyneura, Acacia pyrifolia* mid to tall sparse shrubland over *Triodia pungens* low isolated clumps of hummock grasses with *Eucalyptus camaldulensis* mid isolated trees On skeletal red sandy clay loam on deeply incised ironstone gullies and gorges on the north side of Roundtop Hill.	High flow rocky channels (ephemeral flooding)., supporting low flow semi-permanent pools and streams from water persisting in fractured rock	This survey: JWG-009, 011, 017, 019 Jinidi two-season flora and vegetation survey: Quadrats: JIN-051, 021 Confined to deeply incised ironstone gullies and gorges on the north side of Roundtop Hill (as mentioned above, this is a heritage exclusion area that was not entered during the current survey).	84.3 ha / 7.0 %	Low GDV likelihood rating: • Supports locally restricted IDE features; • Supports isolated occurrences of facultative phreatophytes; • Supports a low diversity and density of mesophytic and hydrophytic taxa. Locally significant (Moderate) GDV: • Supports habitat for *Eremophila naaykensii* (P3), *Gymnanthera cunninghamii* (P3); • Supports restricted IDE features (slow-feed semi-permanent water fed from fractured rock); • Unique and restricted vegetation assemblage – supports a sparse but mature *Eucalyptus camaldulensis* population high in the landscape in gorges/gullies indicating some level of water permanence. However, this may be disconnected from surrounding water table (would require hydrological investigations to confirm).	 

710000
720000
730000
7470000
7460000
7450000
7440000

LEGEND

Survey Area

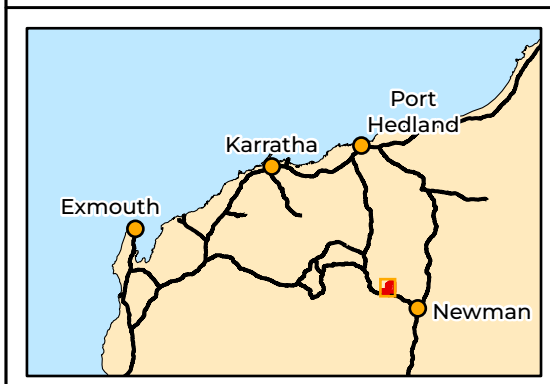
Vegetation Type

D01-a
D01-b
D01-c
D01-d
D02
D03
D06
D07
D08
D09
D10
G02-a

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 4.3: Riparian vegetation mapping

4.2.2.2 Vegetation Condition

The condition of the vegetation within the Survey Area ranged from Excellent to Degraded, with the majority in Very Good condition (967.5 ha / 79.9 %) (Table 4.5, Figure 4.4). Similar to the mapped condition of the Jinidi project area (Biologic (2024a), disturbances affecting condition were generally minimal across the Survey Area, likely due to the limited current and/or historical pastoral tenure and clearing in the area, resulting in low instances of stock related disturbance (trampling, grazing) and weed dispersal. Small portions of vegetation with Good to Poor condition were localised to parts of Weeli Wolli Spring and Ben's Oasis with permanent water adjacent or nearby, with higher instances of cattle disturbances and weed loads. However, weed loads were generally low across the Survey Area for a creek and spring system of this size, again likely due to the limited current and/or historical pastoral tenure and clearing in the area.

Table 4.5: Vegetation condition in the Survey Area

Condition	Extent (ha / %)	Comment
Excellent	213.7 / 17.6	Generally occurring in rockier upland riparian vegetation types with minimal weeds and no cattle evidence (D06, D07, G02-a)
Very Good	967.5 / 79.9	Occurring across the majority of the Survey Area.
Good	21 / 1.7	Localised to parts of Ben's Oasis. Disturbances mainly relating to moderate weeds loads (up to 10 % cover) and cattle disturbances (grazing, trampling).
Poor	8.7 / 0.7	Localised to parts of Ben's Oasis and Weeli Wolli Spring, which experience moderate cattle related disturbances (grazing, trampling) paired with moderate weed covers (10-20 %) and diversity.
TOTAL	**1,211 / 100**	

710000
720000
730000
7470000
7460000
7450000
7440000

LEGEND

Survey Area

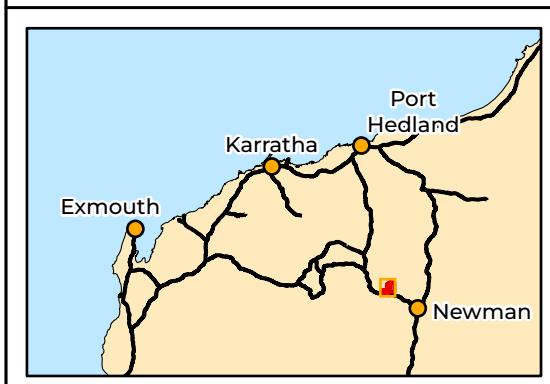
Vegetation Condition

- Excellent
- Very Good
- Good
- Poor

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 4.4: Vegetation condition in the Survey Area

4.2.3 GDV Likelihood & Significance Mapping

For each mapped vegetation type in the survey area, subsequent ratings were given for likelihood of supporting GDV/GDE and the significance of the GDE.

The GDV likelihood rating is based on Appendix I and Appendix J, while significance ratings are based on (EPA, 2016b) (including but not limited to assemblage occurrence restriction, localisation, uniqueness, refugial potential for restricted hydrophytic/mesophytic flora taxa etc.). Other factors may determine the overall ecological, (e.g. fauna assemblages and habitat), and cultural significance of GDE, which are outside the scope of this current assessment.

Mapped vegetation types and their likelihoods of supporting GDV are presented in Figure 4.5, and mapped vegetation types with significance ratings of Regionally Significant or Local (High) are displayed in Figure 4.6.

Regionally significant and restricted permanent GDE (Weeli Wolli Spring) – D01-a, D01-d

Vegetation types D01-a and D01-d are associated entirely with Weeli Wolli Spring, with both considered to closely represent the Weel Wolli Spring PEC (P1) description (see section 2.2.2.2). Vegetation types D01-a and D01-d occur with, or fringe, a series of slow-flowing streams, deep sections of pooled water and damp creek line edges and fringes, occupying 7 % (84.6 ha) and 1 % (11.8 ha) of the total mapped riparian vegetation area (1,211 ha).

Although historically there was permanent groundwater expression from Weeli Wolli Spring, water flows in Weeli Wolli Creek have increased artificially in some areas following mine development in the catchment. This is displayed clearly when comparing the mapping of the *Melaleuca argentea* forest/woodland and the fringed pools within the Ecologia (1998) mapping. Riparian tree and understorey cover appears to be augmented superficially by the unnaturally high surface water present due to Hope Downs 1 mine dewatering surplus discharge downstream of the gabion, and from the spur system upstream of the gabion designed to mitigate drawdown impacts on Weeli Wolli Spring. This increased flow of surface and subsurface water supports a consistently high canopy cover from obligate and facultative phreatophytes, including *Melaleuca argentea* (obligate) and *Eucalyptus camaldulensis* (facultative) of differing maturities, with lots of immature (DBH<30 cm) individuals noted by Biologic during their ongoing monitoring of Weeli Wolli Spring (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j). The flora composition in Weeli Wolli Creek and Spring is likely to have changed since surplus mine dewatering discharge and spur supplementation commenced.

Biologic (2024a) survey area) closely match Biologic's vegetation description of riparian vegetation monitoring sites at Ben's Oasis, with permanent to semi-permanent pools

dominated by *Melaleuca argentea* and/or *Eucalyptus camaldulensis* (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j).

Additionally, vegetation types D01-a and D01-d also support a dense and diverse range of riparian hydrophytic, and mesophytic flora species consistent with high soil moisture and availability (identified from current and previous surveys completed by Biologic (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j, 2024a)), including:

- *Abutilon amplum*
- *Acacia ampliceps* (high density)*;*
- *Acacia citrinoviridis* (high density);
- *Acacia coriacea* subsp. *pendens*;
- *Acacia sclerosperma*;
- *Adriana tomentosa*
- *Ammannia multiflora*;
- *Ammannia baccifera*;
- *Atalaya hemiglauca* (high density);
- *Cathetus exilis*;
- *Cathetus virgatus*;
- *Cladium procerum* (P2) (high density, unique occurrence);
- *Cullen leucanthum;*
- *Cyperus vaginatus* (high density);
- *Dodonaea lanceolata* (high density);
- *Eleocharis geniculata* (high density);
- *Eucalyptus victrix* (high density);
- *Eulalia aurea*;
- *Eragrostis elongata*;
- *Eriachne benthamii*;
- *Fimbristylis microcarya*;
- *Fimbristylis sieberiana* (P3) (high density, unique occurrence);
- *Goodenia lamprosperma*;
- *Gossypium sturtianum* var. *sturtianum* (high density);
- *Imperata cylindrica* (unique occurrence shared with D02);
- *Ipomoea plebeia*;
- *Lobelia arnhemiaca* (high density);
- *Marsilea hirsuta*;
- *Melaleuca bracteata*;
- *Melaleuca glomerata*;
- **Phoenix dactylifera* (unique occurrence)
- *Pluchea rubelliflora* (high densities);
- *Pteris vittata* (unique occurrence)*;*
- *Schenkia australis*
- *Schoenoplectus subulatus*;
- *Sesbania cannabina;*
- *Stemodia grossa;*
- *Stemodia viscosa*
- *Stylidium weeliwolli* (P3) (high density, unique occurrence shared with D01-b);
- *Stylobasium spathulatum;*
- *Tinospora smilacina*
- *Typha domingensis* (high density);
- *Urochloa distachyos*;
- *Urochloa occidentalis* var. *ciliata*;
- *Urochloa piligera*;
- *Vigna lanceolata* var. *lanceolata*; and
- Submerged macrophytes (including *Chara fibrosa*, *Najas marina*, *Vallisneria annua*, *Vallisneria nana*, *Potamogeton tepperi*).

Vegetation types D01-a and D01-d support permanent GDE features of regional significance (Weeli Wolli Spring PEC (P1)). Occurrences of both vegetation types are currently included in ongoing riparian health monitoring by BHP WAIO.

Additionally, vegetation types D01-a and D01-d support three of the four listed restricted and/or disjunct flora taxa in the description of the 'Pilbara Pools' PEC (P2) (see section 2.2.2.2)

including: *Cladium procerum* (P2), *Fimbristylis sieberiana* (P3), and *Imperata cylindrica* (DBCA, 2024). These vegetation types superficially match this PEC, but already represent the Weeli Wolli Spring PEC (P1). Speculatively, the Weeli Wolli Spring PEC forms a sub-group of the broader 'Pilbara Pools' (P2) PEC definition.

Regionally significant and restricted permanent GDE (Ben's Oasis) – D01-b

Vegetation type D01-b is associated entirely with Ben's Oasis and represents the smallest mapped vegetation type expression by area/extent (0.1 % / 1.8 ha). This location also represents the only expression of the Weeli Wolli Spring (P1) PEC outside of Weeli Wolli Spring. The vegetation assemblage differs to the main PEC occurrence based on data collected during this survey and by Biologic since 2021 for the Weeli Wolli Creek riparian vegetation monitoring (Biologic, 2022e, 2023f, 2023g, 2023h, 2023i, 2023j). It supports dense and mature (woodland/forest) *Melaleuca argentea* and *Eucalyptus camaldulensis* individuals, but lacks a distinctive shrub layer and the diverse and unique sedge and herb layer of the main PEC description (Appendix B). It does, however, support a population of *Stylidium weeliwolli* (P3), a species with very few occurrences in the surrounding region and subregion, and a species with known preferences to permanent surface water presence. There does appear to be a level of subsurface water permanence at Ben's Oasis, which is likely spring-fed by the narrowing of surrounding ridgeline catchment paired with porous calcareous expression surrounding the creekline creating a subsurface aquifer Surface water persistence based on recent previous and ongoing field observations by Biologic appears to fluctuate between permanent to semi-permanent/seasonal (nearly completely drying up in recent times). This vegetation assemblage fringes the variably permanent pool at Ben's Oasis, with the annual herb layer extending into the damp creek bed following more extreme seasonal drying.

Additionally, vegetation type D01-b also supports a moderately diverse range of riparian, hydrophytic and mesophytic flora species consistent with high soil moisture and availability, including:

- *Abutilon amplum*;
- *Acacia citrinoviridis*;
- *Acacia coriacea* subsp. *pendens*;
- *Ammannia baccifera*;
- *Atalaya hemiglauca*;
- *Cyperus vaginatus*;
- *Eleocharis geniculata*;
- *Eucalyptus victrix*;
- *Eulalia aurea*;
- *Eragrostis elongata*;
- *Fimbristylis microcarya*;
- *Goodenia lamprosperma*;
- *Ipomoea racemigera* (P3);
- *Lobelia arnhemiaca*;
- *Marsilea hirsuta*;
- *Pluchea rubelliflora*;
- *Schoenoplectus subulatus*;
- *Stemodia grossa*;
- *Stylidium weeliwolli* (P3) (unique occurrence shared with D01-a, D01- d);

- *Tinospora smilacina*;
- *Vigna lanceolata* var. *lanceolata*;
- Submerged macrophytes (*Chara fibrosa*)

Vegetation type D01-b is supports permanent/semi-permanent GDE features of regional significance (Weeli Wolli Spring PEC (P1)). This occurrence is currently included in ongoing riparian health monitoring by BHP WAIO.

High GDV likelihood– D01-c, D02, D10

Vegetation types D01-c, D02, and D10 represent a diverse range of vegetation assemblages, but all occur along Weeli Wolli Creek (except for one isolated occurrence of D02).

Vegetation type D01-c supports a *Melaleuca argentea* woodland, but had far less mature individuals compared to other occurrences (e.g., D01-a, D01-b). Hydrologically, this assemblage was supported by more ephemeral/ semi-permanent features such as seasonally filled pools and flowing streams which become completely dry at the surface in the dry-season, irrespective of above-average wet-season rainfall. The mapped occurrences of D01-c are localised and restricted to upper Weeli Wolli Creek immediately upstream and downstream of Ben's Oasis (D01-b), occupying a very small portion of total mapped riparian vegetation of this survey (1.6 % / 19.2 ha).

Additionally, this assemblage supported a moderate density and diversity of riparian, mesophytic and hydrophytic taxa including:

- *Abutilon amplum*
- *Acacia ampliceps;*
- *Acacia citrinoviridis* (high density);
- *Acacia coriacea* subsp. *pendens*;
- *Acacia sclerosperma*;
- *Adriana tomentosa*
- *Ammannia multiflora*;
- *Ammannia baccifera*;
- *Atalaya hemiglauca*;
- *Cullen leucanthum;*
- *Cyperus vaginatus* (high density);
- *Dodonaea lanceolata*;
- *Eucalyptus victrix*;
- *Eulalia aurea* (high density);
- *Eragrostis elongata*;
- *Eriachne benthamii*;
- *Fimbristylis microcarya*;
- *Goodenia lamprosperma*;
- *Gossypium sturtianum* var. *sturtianum*;
- *Ipomoea plebeian*;
- *Ipomoea racemigera* (P3);
- *Marsilea hirsuta*;
- *Melaleuca bracteata*;
- *Melaleuca glomerata* (high density)*;*
- *Pluchea rubelliflora*;
- *Schoenoplectus subulatus*;
- *Stemodia grossa;*
- *Stylobasium spathulatum;*
- *Tinospora smilacina*
- *Urochloa occidentalis* var. *ciliata*;
- *Urochloa piligera*; and
- *Vigna lanceolata* var. *lanceolata.*

Vegetation type D02 (collectively occupying 2.5 % / 29.7 ha) occupies two separate small areas: 1) fringing Weeli Wolli Spring (2.4 % / 28.5 ha); and2) a small, isolated portion of a lower Weeli

Wolli Creek tributary in the far north of the Survey Area (0.1 % / 1.2 ha). D02 supports a dense *Eucalyptus camaldulensis* forest over multiple dense upper, mid and lower stratum layers (low woodland, tall shrubland, low sedgeland) over a damp and organically rich humus soil layer covered in deep leaf litter often lacking a defined herb and annual grass layer. Of all the units mapped within the Survey Area, D02 appears the most green and dense upon visual analysis of aerial imagery across all occurrences. This vegetation is not supported by any obvious permanent surface water features, but the damp soil layer has been observed to stay moistened nearly all-year round by the proximity to Weeli Wolli Spring, or (for the isolated occurrence) by the general close proximity of subsurface/groundwater permanently close to the surface. It is unknown why this vegetation type does not support any *Melaleuca argentea* individuals, as soil moisture permanence without inundation provides the perfect habitat, particularly for a species with plastic root-level strategies which can absorb water and nutrients across multiple land zones of saturation (McLean, 2014). However, it is possible that the landform supporting this vegetation type may have substantially different soil chemistry (from the rich humus layer and deep surface leaf litter layer) and/or soil depth (shallow rock cap).

One occurrence of vegetation type D02 adjacent Weeli Wolli Spring (the northern edge of the sharp bend in the Spring) also supports one of two populations of *Imperata cylindrica* within the Survey Area (the other occurring within D01-a), a restricted mesophytic taxon in the Pilbara region, which is a key indicator of the 'Pilbara Pools' PEC (P2). However, the occurrence of this taxon at this location is likely more of a function of nearby Weeli Wolli Spring, and not because it represents the 'Pilbara Pools' PEC. Although most, if not all, the mapped occurrences of D02 at Weeli Wolli Spring overlap the mapped occurrence of the regionally significant Weeli Wolli Spring PEC (P1), the assemblage description lacks key species from the PEC description (e.g., lacks *Melaleuca argentea*, lacks a diverse and/or unique sedge and herb layer, lacks obvious surface water presence etc.). Furthermore, this vegetation doesn't appear unique or restricted to this area, with similar vegetation assemblages observed in nearby Jugari and Marillana Creeks, as well as parts of the Fortescue River near Newman, as part of Biologic's ongoing Riparian vegetation health monitoring at these locations.

Additionally, this assemblage supported a high density but moderate to low diversity of riparian, mesophytic and hydrophytic taxa including:

- *Abutilon amplum*
- *Acacia ampliceps* (high density);
- *Acacia citrinoviridis*;
- *Acacia coriacea* subsp. *pendens*;
- *Atalaya hemiglauca* (high density);
- *Cyperus vaginatus*;
- *Dodonaea lanceolata*;
- *Eucalyptus victrix*;
- *Eulalia aurea*;
- *Eriachne benthamii*;
- *Gossypium sturtianum* var. *sturtianum*;
- *Imperata cylindrica* (unique occurrence shared with D01-a)

- *Pluchea rubelliflora*;
- *Stylobasium spathulatum* (high density);
- *Tinospora smilacina*
- *Vigna lanceolata* var. *lanceolata*

Vegetation type D10 supports mature but isolated *Melaleuca argentea* individuals, with essentially no other perennial taxa in the upper, mid or lower stratum layers. The creekbed surface is a combination of recently deposited and unstable rough (rocks) and fine alluvium. This is a fairly restricted assemblage within the Survey Area (0.4 % / 4.9 ha), and generally, occurring only in areas of high and dynamic seasonal flow, high erosive force, and in wider depositional areas in major drainage lines with permanent groundwater access for the overstorey obligate phreatophytes, like Weeli Wolli Spring. The lack of other perennial hydrophytic/mesophytic taxa is due to such seasonal dynamic forces, but this vegetation could change fairly rapidly to support additional strata pending natural changes in channel flow dynamics.

For the reasons given above, vegetation types D01-c, D02 and D10 are considered to have a High likelihood of supporting GDV and are of High local significance. Occurrences of vegetation types D02 and D10 are currently included in ongoing riparian health monitoring by BHP WAIO (except for the isolated occurrence of D02), while the smaller occurrence of D01-c is currently included in the monitoring. It is recommended that another portion of D01-c is included in the monitoring going forward, particularly the portion which crosses into the Jinidi project area.

Moderate GDV Likelihood– D03, D09

Vegetation type D03 occurs on dry rocky creek beds in upper-Weeli Wolli Creek and other tributaries. It supports a *Eucalyptus camaldulensis* dominated woodlands on dry rocky medium drainage lines, as well as the banks, islands and floodplains adjacent major drainage lines, with a moderate diversity and density of mostly riparian and mesophytic taxa (very few hydrophytic taxa). This vegetation type is the second largest mapped riparian vegetation occurrence by extent (27.9 % / 3,384 ha) and is common regionally and sub-regionally. The assemblage supports an upper-stratum of *E. camaldulensis* (dominant) and *E. victrix* woodlands over open shrublands and tussock grasslands supporting IDE features (high flow scoured creekbeds from seasonal flow). Access to moisture for phreatophytic individuals is likely a mix of surface and groundwater, depending on season, within this vegetation type, with less reliance on groundwater and hence a lower (all Moderate) GDV likelihood and overall significance rating.

Vegetation type D09 supports mature but isolated *Eucalyptus camaldulensis* individuals, with essentially no other perennial taxa in the upper, mid or lower stratum layers. Like vegetation D10 discussed above, this assemblage occupies a small portion of Weeli Wolli Spring (0.3 % / 3.6 ha), where the creekbed surface consists of rocky and silty depositional material restricted

to the main bend of Weeli Wolli Spring, which experiences high erosive and depositional force. Groundwater is likely still fairly close to the surface even though there are no additional perennial flora taxa beyond the mature facultative phreatophytes, due to the proximity to permanent GDE features (Weeli Wolli Spring (P1)). Like D10, though, the vegetation could change fairly suddenly to support additional perennial species and layers pending natural changes in channel flow dynamics, which could result in an assemblage similar to D03, which is considered to have a Moderate GDV likelihood and overall significance rating.

Low GDV likelihood, locally restricted IDE – G02-a

Vegetation type G02-a occurs on deeply incised gorges and gullies of the northern slopes of Roundtop Hill, occupying 7 % / 84.3 ha of the total mapped riparian vegetation area. All mapped occurrences of G02-a form feeder tributaries to Weeli Wolli Creek and/or Spring.

This vegetation type was first described by Biologic (2024a) in the Jinidi Project Area, but has since been refined into two separate vegetation types (G02-a and -b) following data collected during this survey. The deeply incised gorge and gully landforms associated with G02-a support unique floristic assemblages compared to the remaining gorge and gully landforms across the Jinidi Project Area (Plate 4.1), including occasional open woodlands of *Eucalyptus camaldulensis*, which is uncommon this high in the landscape, and high frequencies and covers of mesophytic flora taxa *Cyperus vaginatus*, *Gymnanthera cunninghamii* (P3) and *Scleromitrion galioides*. Most portions of G02-a contained numerous disconnected surface pools observed during wet-season sampling of the Jinidi survey, while in March 2024 site JIN-051 contained connected flowing surface water and pools along a 2 km section of gorge, indicating a higher reliance/dependence on seasonal inflow. The presence of *E. camaldulensis* does suggest some potential reliance on groundwater, though, but this is likely separate to the surrounding groundwater, like that at Weeli Wolli Spring for example. Further investigations would be required to determine if such sub-surface water is connected to the water table or perched higher in the landscape (disconnected). Although the GDV likelihood is rated as Low based on the GDV framework Appendix I, the significance based on the unique and restricted vegetation assemblages and semi-permanent water features present within G02-a result in a Moderate significance rating.

Plate 4.1: *G. cunninghamii* (P3) in G02 (left); ephemeral pool in G02 (right)

Low GDV likelihood, locally common IDE – D06, D07, D08

The remaining vegetation types, D06, D07, and D08, support locally common IDE features, support isolated occurrences of facultative phreatophytes, and support a low diversity and density of riparian and mesophytic taxa. These vegetation types are considered to have a Low GDV Likelihood rating.

710000
720000
730000
7470000
7460000
7450000
7440000

LEGEND

Survey Area

GDV/GDE Likelihood

High potential of supporting GDV/ semi-permanent GDE

Moderate potential of supporting GDV/ semi-permanent GDE

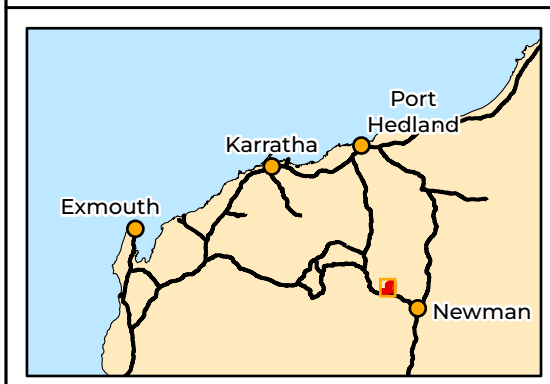
Low potential of supporting GDV/ semi-permanent GDE

Supports permanent GDE features

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 4.5: Likelihood of supporting Groundwater Dependent Vegetation

710000 720000 730000

7470000 7460000 7450000 7440000

LEGEND

Survey Area

GDV Significance

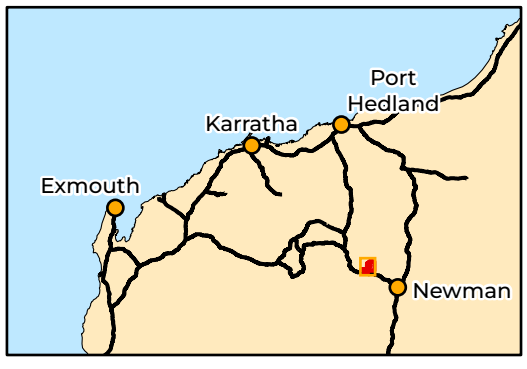
Local: High

Regionally significant

Scale 1:110,000

0 2 4 Km

Coordinate System: GDA 1994 MGA Zone 50
Transverse Mercator Created: 23/05/2025



Biologic

BHP WAIO

Jinidi & Weeli Wolli Creek Groundwater Dependent Vegetation Mapping

Figure 4.6: Significant Groundwater Dependent Vegetation and Ecosystems

5 Conclusions & Recommendations

A targeted GDV Survey was completed across the Survey Area, with all the potential GDV units visited and sampled. A total of 90 floristic sites (17 relevés, 73 vegetation mapping notes) were established and sampled. No notable limitations or constraints affected the survey completion. The survey recorded:

- Twenty-nine riparian vascular flora taxa, representing five hydrophytes, seven phreatophytes, 11 mesophytes and six general riparian species;
- Twelve discrete riparian vegetation types;
- Mapping of riparian vegetation for this survey matched closely that of areas previously mapped by Ecologia (1998) and Rio Tinto (2023)), but with some refinement in some areas, particularly Weeli Wolli Spring, which has changed significantly since the Ecologia (1998) survey (most notably the superficial increase in *Melaleuca argentea* forest/woodland and *Eucalyptus camaldulensis* forest);
- Vegetation condition ranged from Excellent to Poor, with the majority (80%) in Very Good condition;
- Vegetation types D01-a and D01-d were identified as regionally significant and restricted permanent GDEs (most closely representing the 'Weeli Wolli Spring' (P1) PEC at Weeli Wolli Spring;
- Vegetation type D01-c was identified as a regionally significant and restricted permanent GDE (most closely representing the 'Weeli Wolli Spring' (P1) PEC at Ben's Oasis;
- Vegetation types D01-c, D02, and D10 were identified as locally significant (High) riparian vegetation with a High GDV likelihood;
- Remaining vegetation types had Moderate or below local significance and GDV likelihood;
- All occurrences of vegetation types rated as High GDV likelihood are included in current and ongoing riparian vegetation health monitoring by BHP WAIO, except for one isolated occurrence of D02 and two closely occurring portions of D01-c near Ben's Oasis, one of which overlaps the Jinidi project area boundary.

It is recommended that the high likelihood GDV vegetation unit D01-c within and adjacent to the Jinidi project area is included in future riparian vegetation health monitoring by BHP WAIO.

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Appendix A: Conservation codes

Environment Protection and Biodiversity Conservation Act 1999

Category	Definition
Threatened Flora Species	
Extinct (EX)	A native species is eligible to be included in the Extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
Extinct in the Wild (EW)	A native species is eligible to be included in the Extinct in the Wild category at a particular time if, at that time: (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
Critically Endangered (CR)	A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered (EN)	A native species is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable (VU)	A native species is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
Conservation Dependent (CD)	A native species is eligible to be included in the Conservation Dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming Vulnerable, Endangered or Critically Endangered; or (b) the following subparagraphs are satisfied (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long-term survival in nature are maximised; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; and (iv) cessation of the plan of management would adversely affect the conservation status of the species.

Category	Definition
Threatened Ecological Communities (TEC)	
Critically Endangered	An ecological community is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
Endangered	An ecological community is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable	An ecological community is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered nor endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

Biodiversity Conservation Act 2016

Category	Definition
Threatened Flora Species	
Critically Endangered (CR)	Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines". Published under schedule 1 of the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.
Endangered (EN)	Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines". Published under schedule 2 of the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.
Vulnerable (VU)	Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines". Published under schedule 3 of the Wildlife Conservation (Rare Flora) Notice 2018 for vulnerable flora.
Extinct (EX)	Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as

Category	Definition
	presumed extinct under schedule 4 of the Wildlife Conservation (Rare Flora) Notice 2018 for extinct flora.
Extinct in the Wild (EW)	Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no threatened flora species listed as extinct in the wild.
Threatened Ecological Communities (TEC)	
Critically Endangered (CR)	An ecological community is eligible for listing in the category of critically endangered ecological community at a particular time if, at that time — (a) it is facing an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines; and (b) listing in that category is otherwise in accordance with the ministerial guidelines.
Endangered (EN)	An ecological community is eligible for listing in the category of endangered ecological community at a particular time if, at that time — (a) it is not a critically endangered ecological community; and (b) it is facing a very high risk of becoming eligible for listing as a collapsed ecological community in the near future, as determined in accordance with criteria set out in the ministerial guidelines; and (c) listing in that category is otherwise in accordance with the ministerial guidelines.
Vulnerable (VU)	An ecological community is eligible for listing in the category of vulnerable ecological community at a particular time if, at that time — (a) it is not a critically endangered ecological community or an endangered ecological community; and (b) it is facing a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines; and (c) listing in that category is otherwise in accordance with the ministerial guidelines.
Collapsed	An ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time — (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed; or (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover — (i) its species composition or structure; or (ii) its species composition and structure.

Department of Biodiversity, Conservation and Attractions Priority Definitions

Category	Definition
Priority Flora Species	
Priority 1 (P1)	Poorly-known Species Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g., agricultural, or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority 2 (P2)	Poorly-known Species Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g., national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3 (P3)	Poorly-known Species Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4 (P4)	Rare, Near Threatened and other species in need of monitoring (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Category	Definition
Priority Ecological Communities (PEC)	
Priority 1 (P1)	Poorly-known ecological communities Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g., within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority 2 (P2)	Poorly-known Ecological Communities Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
Priority 3 (P3)	Poorly-known Ecological Communities (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or: (ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or; (iii) communities made up of large, and/or widespread occurrences, which may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc. Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Category	Definition
Priority 4 (P4)	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. (i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These communities are usually represented on conservation lands. (ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category. (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.
Priority 5 (P5)	Conservation Dependent Ecological Communities Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Furthermore, any species or ecological communities that may be rare but for which there is insufficient information available to allocate a threatened status under the BC Act, can also be listed as Priority species by the WA Department of Biodiversity, Conservation and Attractions (DBCA)

Significant flora may extend beyond the assigned codes and in line with EPA (2016b) may include:

- Being identified as Threatened, Critically Endangered, Endangered, Vulnerable, Extinct or Extinct in the Wild species (State listed BC Act and/or commonwealth listed EPBC Act);
- Being listed as Priority flora species (DBCA, 2023b);
- Locally endemic or associated with a restricted habitat type (e.g., surface water or groundwater dependent ecosystems);
- New species or anomalous features that indicate a potential new species;
- Range extensions or representative of outer population extent (particularly at the extremes of range, recently discovered range extensions or isolated outliers of the main range);
- Unusual species; restricted subspecies, varieties, naturally occurring hybrids, or complex taxonomic groups; or
- Relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

Significant vegetation may extend beyond the assigned codes and in line with EPA (2016b) may include:

- Being identified as Threatened Ecological Community (TEC), Critically Endangered, Endangered, Vulnerable or Collapsed ecological community (State listed BC Act and/or commonwealth listed EPBC Act);
- Identified as a Priority Ecological Community (PEC) (DBCA, 2023a);
- Restricted or endemic distribution;
- Degree of historical impact from threatening processes (such as mining or agricultural);
- A role as a refuge for significant flora; or
- Providing an important function required to maintain ecological integrity of a significant ecosystem.

Introduced flora

Legal Status Definitions of Listed Plants in Western Australia

Legal status	Definition
Declared Pest, Prohibited – s12	Prohibited organisms are declared pests by virtue of section 22(1) and many only be imported and keep subject to permits
Declared Pest – s22(2)	Declared pests must satisfy any applicable import requirements when imported and may be subject to control keeping requirements
Permitted – s11	Permitted organisms must satisfy applicable import requirements and import permits (where required)
Permitted Requires Permit – r73	Regulation 73 permitted organisms may be subject to restriction under legislation other and the BAM Act (2007)
Unlisted	Unlisted organisms are prohibited in WA
Control Categories	**Definition**
C1 Exclusion	Organisms should be excluded from parts or all of WA
C2 Eradication	Organisms should be eradicated from all or parts of WA
C3 Management	Organisms should have some form of management applied that will alleviate the harmful impact of the organism, reduce the numbers or distribution of the organism or prevent or contain the spread of the organism
Unassigned	Declared pests that are recognised a having a harmful impact under certain circumstances where their subsequent control requirements are determined by a plan or other legislative arrangements under the Act
Keeping Categories	**Definition**
Prohibited Keeping	Can only be kept under a permit or public display, education or scientific purposes
Restricted Keeping	Kept under a permit by private individuals due to low risk of becoming a problem for the environment
Exempt Keeping	No permit or conditions are required for keeping. Organism may be subject to restrictions under the Wildlife Conservation Act (1950)

Appendix B: Flora taxa of the ‘Weeli Wolli Spring’ PEC (P1) forming part of the unique species rich herb and sedge layer

Description	Habitat	Records from survey	Representative floristic material / habit and/or habitat
Priority 2			
Cladium procerum A large, densely tufted, clumping perennial, grass-like sedge growing to 2 m, (WAH, 1998 -). It produces numerous nodding inflorescences, but often reproduces by asexual bulbils on older inflorescences (Rio Tinto & WAH, 2015).	*Cladium procerum* is common across most of the coastal areas of eastern Australia (except for most of Cape York), with a few known records in East Timor, Papua New Guinea and New Caledonia internationally (ALA, 2023a). However, it is extremely restricted and uncommon in Western Australia, contained entirely within the Pilbara region, occurring sporadically from Weeli Wolli Creek in the southeast, through to Karijini in the centre and to Millstream Chichester National Park in the northwest (WAH, 1998 -).	This taxon was recorded fringing permanent waterbodies/ perennial pools in Weeli Wolli Spring (Biologic, 2023h).	 Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)
Priority 3			
Fimbristylis sieberiana A shortly rhizomatous tufted perennial sedge which grows up to 1 m tall ((WAH, 1998 -). It flowers between May and June, producing hairy glumes and a pale nut (Rio Tinto & WAH, 2015).	*Fimbristylis sieberiana* occurs across the northern parts of Western Australia (Pilbara and Kimberley regions), the Northern Territory and Queensland, with a few sporadic records known from inland freshwater lakes and creek systems in central South Australia and the Northern Territory, as well as subtropical Africa, and Asia (ALA, 2023a; WAH, 1998 -).	This taxon was recorded in water-logged creek beds and fringing perennial pools in Weeli Wolli Spring (Biologic, 2023h).	 Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)
Stylidium weeliwolli An annual herb growing to 0.25 m, producing small but characteristic pink trigger-plant flowers from August to September (WAH, 1998 -). This taxon's nomenclature is derived from the first location it was collected from and observed at, Weeli Wolli Creek, which also represents the type-specimen location for this taxon (Wilson et al., 1998).	*Stylidium weeliwolli* occurs exclusively in northern-central Western Australia, restricted to the Pilbara and Gascoyne regions (WAH, 1998 -). It occurs predominantly in sandy-clay soils, black mud and amongst precipitated rocky substrates along permanent watercourse edges and fringing permanently wet areas (WAH, 1998 -).	This taxon was recorded fringing permanent waterbodies/ perennial pools of Weeli Wolli Spring, and at Ben's Oasis at the far north of the semi-permanent pool there (Biologic, 2023h).	 Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)

Description	Habitat	Records from survey	Representative floristic material / habit and/or habitat
Unlisted			
Lobelia arnhemiaca An annual prostrate, mat-forming herb growing to 0.15 m high and 1 m in diameter, producing purple-blue flowers borne on erect peduncles (WAH, 1998 -).	*Lobelia arnhemiaca* occurs in northern Western Australia (Pilbara and Kimberley regions), and the Northern Territory, with a few sporadic records in northern Queensland (ALA, 2023b). It is widely distributed throughout the Pilbara region, occurring from Meentheena Station in the east, through Karijini National Park in the centre and beyond Millstream Chichester National Park in the north (WAH, 1998 -).	This taxon was recorded in water-logged creek beds and fringing perennial pools in Weeli Wolli Spring (Biologic, 2023h)	 Source: (ALA, 2023b)
Eleocharis geniculata A tufted annual sedge growing to 0.4m (WAH, 1998 -). Flowering occurs from January to February or May to October, producing brown-white flowers covered by brown bracts and a shiny purple-brown fruit (WAH, 1998 -).	*Eleocharis geniculata* is common across the northern parts of Western Australia (including the Pilbara region), the Northern Territory and Queensland, extending down the east coast into northern New South Wales where it is restricted to coastal areas (ALA, 2023b). A few sporadic records in central Northern Territory and South Australia are known from inland freshwater creek and lake systems (ALA, 2023b). It occurs predominantly in sandy-clay soils along watercourses and the margins of permanent pools. (WAH, 1998 -)	This taxon was mostly recorded in water-logged creek beds and fringing perennial pools in Weeli Wolli Spring (Biologic, 2023h)	 Source: (ALA, 2023b)

Appendix C: Restricted and/or relictual mesophytic flora taxa listed in the 'Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region' PEC (P2) description

Description	Habitat	Records from survey (if any)	Representative floristic material / habit and/or habitat
Priority 2			
Cladium procerum A large, densely tufted, clumping perennial, grass-like sedge growing to 2 m, (WAH, 1998 -). It produces numerous nodding inflorescences, but often reproduces by asexual bulbils on older inflorescences (Rio Tinto & WAH, 2015).	*Cladium procerum* is common across most of the coastal areas of eastern Australia (except for most of Cape York), with a few known records in East Timor, Papua New Guinea and New Caledonia internationally (ALA, 2023a). However, it is extremely restricted and uncommon in Western Australia, contained entirely within the Pilbara region, occurring sporadically from Weeli Wolli Creek in the southeast, through to Karijini in the centre and to Millstream Chichester National Park in the northwest (WAH, 1998 -).	This taxon was recorded fringing permanent waterbodies/ perennial pools in Weeli Wolli Spring (Biologic, 2023h).	 Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)
Priority 3			
Fimbristylis sieberiana A shortly rhizomatous tufted perennial sedge which grows up to 1 m tall ((WAH, 1998 -). It flowers between May and June, producing hairy glumes and a pale nut (Rio Tinto & WAH, 2015).	*Fimbristylis sieberiana* occurs across the northern parts of Western Australia (Pilbara and Kimberley regions), the Northern Territory and Queensland, with a few sporadic records known from inland freshwater lakes and creek systems in central South Australia and the Northern Territory, as well as subtropical Africa, and Asia (ALA, 2023a; WAH, 1998 -).	This taxon was recorded in water-logged creek beds and fringing perennial pools in Weeli Wolli Spring (Biologic, 2023h).	 Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)
Unlisted			
Imperata cylindrica A rhizomatous, densely tufted bright-green perennial grass that grows to 1.5 m. Flowering occurs between May and September, producing a white-dotted, fluffy, branching panicle with brown stigmas ((WAH, 1998 -)	*Imperata cylindrica* is a cosmopolitan taxon, with most of its records outside of Australia occurring in South East Asia (ALA, 2023b). In Western Australia, it occurs commonly in the wetter areas of the Kimberley region, recorded from inland swamps and billabongs to edges of estuarine inlets and tidal creeks ((WAH, 1998 -). However, it is much rarer in the Pilbara region, exclusively occurring in association with persistently wet environments, known from Mindy Mindy Creek, Caves Creek, Marillana Creek and pools in Karijini National Park ((WAH, 1998 -).	This taxon was recorded on damp creek banks fringing Weeli Wolli Spring (Biologic, 2023h).	

Description	Habitat	Records from survey (if any)	Representative floristic material / habit and/or habitat
			Source: Biologic images from ongoing monitoring survey (Biologic, 2023h)
Schoenus falcatus A rhizomatous, tufted perennial sedge to 1.5 m with dull blue-green leaves and culms, flowering occurs between April and October producing panicles bearing brown-dark brown (appearing sometimes black) spikelets ((WAH, 1998 -)	*Schoenus falcatus* occurs across the northern parts of Western Australia, the Northern Territory and Queensland, with sporadic records through central Queensland and the Northern Territory that are associated with inland freshwater (ALA, 2023). It occurs in limestone crevices and damp habitats on yellow-brown sand, loam and sandy-clay soils (WAH, 1998 -).	This taxon has not been recorded by Biologic in the Jinidi or Weeli Wolli Creek area	 Source: ((WAH, 1998 -) (right); Biologic images from ongoing monitoring survey (Biologic, 2023h) (left)

Appendix D: Riparian flora taxa identified by the desktop assessment

Stratum Level	Taxa
Upper stratum (Trees)	*Arecaceae* spp. (introduced palms)
	Acacia coriacea subsp. *pendens*
	Acacia citrinoviridis
	Atalaya hemiglauca
	Corymbia candida
	Eucalyptus camaldulensis
	Eucalyptus victrix
	Eucalyptus xerothermica
	Melaleuca argentea
	Sesbania formosa
	Ventilago viminalis
Upper-mid stratum (Shrubs)	*Acacia ampliceps*
	Acacia sclerosperma
	Adriana tomentosa
	Cullen leucanthum
	Dodonaea lanceolata
	Ehretia saligna
	Flueggea virosa
	Gossypium sturtianum
	Kirganelia baccata
	Melaleuca bracteata
	Melaleuca glomerata
	Sesbania cannabina
	Stylobasium spathulatum
Mid-lower stratum (Shrubs)	*Abutilon amplum*
	Duma florulenta
	Gymnanthera cunninghamii (P3)
	Myoporum montanum
	Plumbago zeylanica
Lower stratum (Herbs)	*Ammannia spp.*
	Goodenia lamprosperma
	Cathetus spp.
	Lobelia spp.
	Marsilea spp.
	Muellerolimon salicorniaceum
	Myriophyllum spp.
	Najas spp.
	Pteris vittata
	Peplidium spp.
	Pluchea dentex
	Pluchea rubelliflora

Stratum Level	Taxa
	Samolus spp.
	Schenkia spp.
	Sonchus hydrophilus
	Stemodia spp.
	Striga curviflora
	Stylidium fluminense
	Stylidium weeliwolli (P3)
	Wahlenbergia spp.
Lower stratum (Sedges)	*Cladium procerum* (P2)
	Cyperus cunninghamii
	Cyperus difformis
	Cyperus iria
	Cyperus ixiocarpus
	Cyperus pulchellus
	Cyperus vaginatus
	Eleocharis spp.
	Fimbristylis microcarya
	Fimbristylis sieberiana (P3)
	Schoenoplectiella spp.
	Schoenoplectus subulatus
	Schoenus spp.
	Typha domingensis
Lower stratum (Grasses)	*Elytrophorus spicatus*
Lower stratum (Grasses)	*Eulalia aurea*
	Eragrostis elongata
	Eriachne benthamii
	Imperata cylindrica
	Leptochloa digitata
	Sorghum spp.
	Urochloa spp.
Lower stratum (Climbers/vines)	*Ipomoea plebeia*
	Ipomoea racemigera (P3)
	Tinospora smilacina
	Vigna spp.
Submerged macrophytes (Floating, Aquatic)	Characeae spp.
	Hydrocharitaceae spp.
	Potamogetonaceae spp.
	Ruppia spp.

Appendix E: Sample site data

Jinidi & Weeli Wolli GDV **Site JWG-001**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
732520 mE; 7466842 mN
119.2666 E -22.890235 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type CID
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Eucalyptus camaldulensis* mid open forest over *Acacia ampliceps* tall open shrubland over *Cyperus vaginatus* low open sedgeland with *Androcalva luteiflora* low sparse shrubland
Notes

Site taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	1.5		
Acacia ampliceps	40.0	4.5		
Acacia bivenosa	0.1	1.6		
Acacia coriacea subsp. *pendens*	0.1	2.4		
Acacia pyrifolia var. *pyrifolia*	0.1	3.0		
Adriana tomentosa var. *tomentosa*	0.1	0.4	JWG01.02	
Amaranthus undulatus	0.1	0.7		
Androcalva luteiflora	8.0	1.9		
Arivela viscosa	0.1	0.5		
Atalaya hemiglauca	0.1	1.3		
**Cenchrus ciliaris*	0.1	0.4		
Cymbopogon ambiguus	0.1	0.3		
Cyperus vaginatus	20.0	0.5		
Cyperus vaginatus	0.1	0.5	JWG01.01	
Eriachne benthamii	0.1	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	35.0	25		
Eucalyptus victrix	0.1	8.0		
Eulalia aurea	0.1	0.4		
Euphorbia biconvexa	0.1	0.4		
Gomphrena cunninghamii	0.1	0.1		
Gossypium australe	0.1	0.8		
Gossypium robinsonii	0.1	8.0		
Grevillea wickhamii	0.1	1.0		
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.2		
**Phoenix dactylifera*	0.1	1.8	JWG01.03	
Pluchea rubelliflora	0.1	0.5		
Pterocaulon sp. indet	0.1	0.2		
Stemodia sp. indet	0.1	0.1		
Themeda triandra	0.1	0.3		
Tinospora smilacina	0.1	0.2		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-002**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
732583 mE; 7466722 mN
119.2672 E -22.891308 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Eucalyptus victrix*, *Eucalyptus camaldulensis* mid woodland over *Acacia bivenosa*, *Grevillea wickhamii*, *Acacia pyrifolia* tall open shrubland over *Themeda triandra*, *Cenchrus ciliaris mid isolated clumps of tussock grasses with *Triodia pungens* low isolated clumps of hummock grasses
Notes

Site Taxa	Cover (%)	Heigh (m)	Specimen #	Notes
Acacia bivenosa	8.0	2.5		
Acacia pyrifolia var. pyrifolia	1.0	1.8		
Androcalva luteiflora	0.1	0.7		
Arivela viscosa	0.1	0.2		
Atalaya hemiglauca	0.5	2.5		
**Cenchrus ciliaris*	1.0	0.6		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.3		
Corymbia hamersleyana	0.1	6.0		
Cymbopogon ambiguus	0.1	0.3		
Enneapogon lindleyanus	0.5	0.2		
Eucalyptus camaldulensis subsp. *refulgens*	3.0	18		
Eucalyptus victrix	12	16		
Euphorbia australis var. *subtomentosa*	0.1	0.1		
Euphorbia biconvexa	0.1	0.1		
Gossypium australe	0.1	0.5		
Gossypium robinsonii	0.1	1.7		
Grevillea wickhamii	1.0	1.8		
Jasminum didymum subsp. *lineare*	0.1	0.6		
Nellica maderaspatensis	0.1	0.2		
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.1		
Paspalidium basicladum	0.1	0.2		
Santalum lanceolatum	0.1	3.0		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	3.0	0.5		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.3		
Triodia pungens	3.0	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-003**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
733629 mE; 7465973 mN
119.2775 E -22.897917 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia bivenosa*, *Santalum lanceolatum* tall open shrubland with *Eucalyptus victrix*, *Eucalyptus camaldulensis* mid to low open woodland over *Triodia pungens* low sparse hummock grassland with *Androcalva luteiflora* mid sparse shrubland
Notes

Name	Cover	Height	Specimen	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	1.0		
Acacia bivenosa	11.0	3.0		
Acacia pyrifolia var. *pyrifolia*	0.1	1.5		
Androcalva luteiflora	1.0	1.8		
Atalaya hemiglauca	0.1	1.8		
Cymbopogon ambiguus	0.1	0.6		
Eriachne mucronata	0.1	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	1.0	4.0		
Eucalyptus victrix	4.0	14		
Euphorbia biconvexa	0.1	0.4		
Gossypium australe	0.1	1.6		
Gossypium robinsonii	0.1	1.7		
Nellica maderaspatensis	0.1	0.1		
Santalum lanceolatum	2.0	2.8		
Senna artemisioides subsp. *helmsii*	0.1	0.7		
Senna artemisioides subsp. *oligophylla*	0.1	0.3		
Senna glutinosa subsp. *glutinosa*	0.1	0.5		
Stemodia grossa	0.1	0.5		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.1		
Themeda triandra	0.1	0.4		
Triodia pungens	2.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-004**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731899 mE; 7464818 mN
119.2609 E -22.908589 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii*, *Acacia pyrifolia* tall open shrubland over *Androcalva luteiflora*, *Acacia bivenosa* mid sparse shrubland over *Themeda triandra*, *Neurachne muellerii*, *Eriachne benthamii* open tussock grassland with *Senna artemisioides* subsp *oligophylla* low sparse shrubland with *Triodia pungens* sparse hummock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover %	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.2		
Acacia bivenosa	3.0	1.6		
Acacia pyrifolia var. *pyrifolia*	4.0	2.5		
Acacia tumida var. *pilbarensis*	10.0	2.1		
Androcalva luteiflora	4.0	1.8		
Arivela viscosa	0.1	0.5		
Atalaya hemiglauca	0.1	2.3		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.4		
Corymbia hamersleyana	0.5	7.0		
Crotalaria medicaginea var. *neglecta*	0.1	0.2		
Duperreya commixta	0.1	0.1		
Enneapogon polyphyllus	0.1	0.1		
Eragrostis eriopoda	1.0	0.4		
Eriachne benthamii	2.0	0.3		
Eriachne mucronata	1.0	0.3		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Gomphrena cunninghamii	0.1	0.1		
Goodenia microptera	0.1	0.2		
Gossypium australe	1.0	0.3		
Gossypium robinsonii	0.5	2.2		
Grevillea wickhamii	7.0	2.5		
Paraneurachne muelleri	2.0	0.4		
Petalostylis labicheoides	0.1	1.6		
Ptilotus exaltatus	0.1	0.5		
Ptilotus fusiformis	0.1	0.2		
Santalum lanceolatum	0.5	1.8		
Senna artemisioides subsp. *oligophylla*	2.5	0.6		
Senna glutinosa subsp. *glutinosa*	0.5	1.6		
Stylobasium spathulatum	0.5	1.5		

Site Taxa	Cover %	Height (m)	Specimen #	Notes
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		
Themeda triandra	6.0	0.5		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.1		

Jinidi & Weeli Wolli GDV **Site JWG-005**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
732026 mE; 7464728 mN
119.2621 E -22.909377 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* var. *pyrifolia, Gossypium robinsonii*, *Stylobasium spathulatum* tall open shrubland over *Senna artisimoides* subsp. *helmsii*, *Senna glutinosa* subsp *glutinosa, Androcalva luteiflora* mid open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* tall isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	2.0	2.3		
Acacia tumida var. *pilbarensis*	2.0	2.2		
Androcalva luteiflora	1.0	1.0		
Eucalyptus camaldulensis subsp. *refulgens*	1.0	8.0		
Gossypium robinsonii	1.0	2.0		
Senna artemisioides subsp. *helmsii*	0.1	0.5		
Senna artemisioides subsp. *oligophylla*			JWG05.01	
Senna glutinosa subsp. *glutinosa*	1.0	0.5		
Stylobasium spathulatum	2.0	2.0		

Jinidi & Weeli Wolli GDV **Site JWG-006**

Date 17/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731753 mE;7464814 mN
119.2594 E -22.908646 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis* tall shrubland with *Eucalyptus camaldulensis* low isolated clumps of trees over *Eriachne benthamii*, *Themeda triandra* low sparse tussock grassland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	0.1	2.5		
Acacia tumida var. *pilbarensis*	40.0	2.5		
Androcalva luteiflora	0.1	1.7		
Chrysopogon fallax	0.1	0.2		
Corchorus crozophorifolius	0.1	0.6		
Cymbopogon ambiguus	0.5	0.3		
Eragrostis tenellula	0.1	0.2		
Eriachne benthamii	3.0	0.3		
Eucalyptus camaldulensis subsp. *refulgens*	4.0	9.0		
Eulalia aurea	0.5	0.4		
Fimbristylis dichotoma	0.1	0.1		
Grevillea wickhamii	0.1	2.5		
Pluchea dentex	0.1	0.3		
Polycarpaea longiflora	0.1	0.1		
Senna glutinosa subsp. *pruinosa*	0.1	1.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.1		
Themeda triandra	3.0	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-007**

Date	17/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Note
Location	-22.91155306 119.2633219
Veg Condition	Excellent
Soil	
Rock Type	
Fire Age	
Habitat	
Vegetation	*Corymbia hamersleyana* tall isolated trees over *Acacia pyrifolia* var. *pyrifolia*, *Grevillea wickhamii*, *Grevillea pyramidalis*, *Gossypium robinsonii* tall shrubland over *Gossypium australe*, *Senna glutinosa* subsp. *glutinosa, Ptilotus astrolasius* low isolated shrubs
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-008**

Date 17/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50
731582 mE;7464617 mN
119.2578 E -22.910445 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat Medium Drainage Line

Vegetation *Acacia aneura*, *Atalaya hemiglauca* (on adjacent slope) low woodland over *Grevillea wickhamii*, *Acacia pyrifolia* tall sparse shrubland over *Corchorus crozofolifolius*, *Senna artemisioides* subsp *oligophylla* mid open shrubland over *Triodia pungens* open hummock grassland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	1.0			
Acacia monticola	0.1	2.5		
Androcalva luteiflora				
Arivela viscosa	1.0	0.6		
Cucumis variabilis				
Dipteracanthus australasicus subsp. *australasicus*				
Eremophila naaykensii (P3)	0.1	2.5		
Eriachne mucronata				
Evolvulus alsinoides var. *villosicalyx*				
Gossypium robinsonii				
Indigofera monophylla				
Jasminum didymum subsp. *lineare*				
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.1		
Ptilotus obovatus var. *obovatus*				
Senna glutinosa subsp. *glutinosa*				
Sida sp. L (A.M. Ashby 4202)				
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				
Themeda triandra				
Trichodesma zeylanicum var. *zeylanicum*				

Jinidi & Weeli Wolli GDV **Site JWG-009**

Date 17/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50
732116 mE; 7464155 mN
119.2631 E -22.914537 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat

Vegetation *Eriachne benthamii* low sparse tussock grassland with *Eucalyptus camaldulensis* subsp. *reflugens* tall isolated trees over *Acacia tumida* var. *pilbarensis* mid isolated shrubs with *Gossypium robinsonii* tall sparse shrubland over *Grevillea pyramidalis* low isolated shrubs

Notes

Site taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia tumida var. *pilbarensis*	1.0	1.8		
Eriachne benthamii	6.0	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	2.0	8.0		
Gossypium robinsonii	0.5	2.3		
Grevillea pyramidalis	0.5	1.0		

Jinidi & Weeli Wolli GDV **Site JWG-010**

Date 17/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50
731518 mE; 7464534 mN
119.2572 E -22.911202 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat Medium Drainage Line

Vegetation *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii*, *Acacia pyrifolia* tall open shrubland over *Androcalva luteiflora*, *Acacia bivenosa* mid sparse shrubland over *Senna artemisioides* subsp *oligophylla* low sparse shrubland over *Themeda triandra, Neurachne muelleri*, *Eriachne benthamii* mid open tussock grassland with *Triodia pungens* sparse hummock grassland with *Corymbia hamersleyana* low isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.2		
Acacia bivenosa	3.0	1.6		
Acacia pyrifolia var. *pyrifolia*	4.0	2.5		
Acacia tumida var. *pilbarensis*	10.0	2.1		
Androcalva luteiflora	4.0	1.8		
Arivela viscosa	0.1	0.5		
Atalaya hemiglauca	0.1	2.3		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.4		
Corymbia hamersleyana	0.5	7.0		
Crotalaria medicaginea var. *neglecta*	0.1	0.2		
Duperreya commixta	0.1	0.1		
Enneapogon polyphyllus	0.1	0.1		
Eragrostis eriopoda	1.0	0.4		
Eriachne benthamii	2.0	0.3		
Eriachne mucronata	1.0	0.3		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Gomphrena cunninghamii	0.1	0.1		
Goodenia microptera	0.1	0.2		
Gossypium australe	1.0	0.3		
Gossypium robinsonii	0.5	2.2		
Grevillea wickhamii	7.0	2.5		
Paraneurachne muelleri	2.0	0.4		
Ptilotus exaltatus	0.1	0.5		
Ptilotus fusiformis	0.1	0.2		
Santalum lanceolatum	0.5	1.8		
Senna artemisioides subsp. *oligophylla*	2.5	0.6		
Senna glutinosa subsp. *glutinosa*	0.5	1.6		
Stylobasium spathulatum	0.5	1.5		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Themeda triandra	6.0	0.5		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.1		
Triodia pungens	1.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-011**

Date	17/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Note
Location	-22.9142 119.2649
Veg Condition	Excellent
Soil	
Rock Type	
Fire Age	
Habitat	
Vegetation	*Eriachne benthamii* low sparse tussock grassland with *Eucalyptus camaldulensis* subsp. *reflugens* tall isolated trees over *Acacia tumida* var. *pilbarensis* mid isolated shrubs with *Gossypium robinsonii* tall sparse shrubland over *Grevillea pyramidalis* low isolated shrubs
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-012**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location
Veg Condition Excellent
Soil Clay Loam
Rock Type None Discernible
Fire Age Old (6+ yr)
Habitat Drainage Area/ Floodplain
Vegetation *Acacia catenulata* subsp. *occidentalis*, *Acacia pteraneura*, *Acacia pruinocarpa* low woodland over *Aristida contorta*, *Aristida obscura* low sparse tussock grassland with *Triodia pungens* isolated clumps of hummock grasses with *Eremophila forrestii* mid isolated shrubs
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon macrum	0.1	0.3	JWG012.05	
Abutilon sp. *indet*	0.1	0.2	JWG012.06	
Acacia catenulata subsp. *occidentalis*	30.0	7.0		
Acacia pruinocarpa	5.0	6.0		
Acacia pteraneura	8.0	7.0	JWG012.02	
Aristida contorta	10.0	0.1		
Aristida obscura	2.0	0.3	JWG012.04	
Aristida obscura	1.0	0.2	JWG012.04	
Cheilanthes sieberi	0.1	0.1		
Cucumis variabilis	0.1	0.1		
Enneapogon polyphyllus	1.0	0.1		
Eragrostis tenellula	0.1	0.1		
Eremophila forrestii subsp. *forrestii*	0.5	1.2	JWG012.08	
Eucalyptus leucophloia subsp. *leucophloia*	1.0	8.0		
Euphorbia drummondii	0.1	0.1		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Paspalidium basicladum	0.1	0.1		
Ptilotus fusiformis	0.1	0.1		
Ptilotus obovatus var. *obovatus*	0.1	0.3		
Ptilotus polystachyus	0.1	0.2		
Senna artemisioides subsp. *oligophylla*	0.1	0.2		
Sida fibulifera	0.1	0.1		
Tribulus macrocarpus	0.1	0.1		
Triodia pungens	1.5	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-013**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
736085 mE; 7459914 mN
119.3024 E -22.952269 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type None Discernible
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Themeda triandra*, *Chrysopogon fallax*, *Aristida inaequiglumis*, **Chloris barbata* low to mid tussock grassland with *Acacia tumida* var. *pilbarensis*, *Acacia dictyophleba*, *Petalostylis labichioedies* tall shrubland over *Androcalva luteiflora*, *Dodonaea lanceolata*, *Eremophila longifolia*, *Santalum lanceolatum* mid sparse shrubland with *Corymbia hamersleyana* mid isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia dictyophleba	2.0	2.5		
Acacia tumida var. *pilbarensis*	8.0	3.0		
Androcalva luteiflora	1.0	1.8		
Aristida inaequiglumis	4.0	0.5	JWG13.01	
**Chloris barbata*	3.0	0.4		
Chrysopogon fallax	0.6	0.6		
Corymbia hamersleyana	2.0	9.0		
Dodonaea lanceolata var. *lanceolata*	0.1	1.5		
Eremophila longifolia	1.0	1.7		
Petalostylis labicheoides	1.0	3.0		
Santalum lanceolatum	1.0	1.8		
Themeda triandra	10.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-014**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
735670 mE; 7459544 mN
119.2984 E -22.955659 S
Veg Condition Excellent
Soil Clay Loam
Rock Type CID
Fire Age Old (6+ yr)
Habitat Drainage Area/ Floodplain
Vegetation *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii*, *Petalostylis labicheoides* tall open shrubland over *Eremophila longifolia*, *Indigofera georgei* mid open shrubland over *Triodia pungens* sparse hummock grassland with *Themeda triandra* sparse tussock grassland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	0.5	2.1		
Androcalva luteiflora	0.1	1.7		
Aristida contorta	0.5	0.1		
Arivela viscosa	0.1	0.4		
Chrysocephalum apiculatum subsp. *pilbarense*	0.1	0.2	JWG014.01	
Corchorus lasiocarpus subsp. *parvus*	0.1	0.2		
Corymbia hamersleyana	8.0	10		
Dodonaea lanceolata var. *lanceolata*	0.1	2.2		
Eremophila longifolia	3.0	1.7		
Euploca tenuifolia	0.1	0.2		
Gossypium robinsonii	0.5	2.5		
Grevillea wickhamii	3.0	2.8		
Indigofera georgei	2.0	0.9		
Jasminum didymum subsp. *lineare*	0.1	1.0		
Petalostylis labicheoides	3.0	2.5		
Ptilotus auriculifolius	0.1	0.1		
Ptilotus fusiformis	0.1	0.2		
Ptilotus obovatus var. *obovatus*	0.1	0.4		
Themeda triandra	2.5	1.0		
Trichodesma zeylanicum var. *zeylanicum*	0.1	1.3		
Triodia pungens	3.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-015**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
735961 mE; 7459736 mN
119.3012 E -22.953893 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type None Discernible
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Themeda triandra* mid tussock grassland with *Acacia tumida* var. *pilbarensis*, *Gossypium robinsonii* tall shrubland with *Eucalyptus gamophylla*, *Corymbia hamersleyana* tall isolated trees over *Acacia bivenosa*, *Acacia pyrifolia* mid sparse shrubland over *Indigofera georgei*

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.5	1.8		
Acacia pyrifolia var. *pyrifolia*	1.0	1.9		
Acacia tumida var. *pilbarensis*	7.0	4.0		
Corymbia hamersleyana	3.0	9.0		
Eucalyptus gamophylla	1.0	5.0		
Gossypium robinsonii	3.0	3.0		
Indigofera georgei	2.0	0.6		
Themeda triandra	26	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-016**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
736150 mE; 7461163 mN
119.3028 E -22.940978 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis*, *Petalostylis labicheoides* tall open shrubland over *Themeda triandra, Eriachne mucronata* sparse tussock grassland with *Triodia pungens* isolated clumps of hummock grasses with *Corymbia hamersleyana* low isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia monticola	0.1	1.8		
Acacia pyrifolia var. *pyrifolia*	0.1	2.5		
Acacia tumida var. *pilbarensis*	15.0	2.5		
Androcalva luteiflora	1.0	2.5		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.4		
Corymbia hamersleyana	2.0	7.0		
Dodonaea lanceolata var. *lanceolata*	1.0	1.8		
Eriachne lanata	0.5	0.3		
Eriachne mucronata	1.5	0.3		
Euphorbia australis var. *subtomentosa*	0.1	0.1		
Fimbristylis dichotoma	0.1	0.3		
Gossypium robinsonii	0.1	1.3		
Grevillea wickhamii	0.1	1.9		
Hakea chordophylla	0.1	0.5		
Indigofera fractiflexa subsp. *fractiflexa*	0.1	1.2		
Jasminum didymum subsp. *lineare*	0.1	1.5		
Petalostylis labicheoides	5.0	2.5		
Senna artemisioides subsp. *oligophylla*	0.1	1.0		
Themeda triandra	4.0	0.5		
Triodia pungens	2.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-017**

Date 18/07/2024

Described by K. Jennings, R. Cunnane

Type Relevé

Location MGA Zone 50

732572 mE; 7464073 mN

119.2675 E -22.915216 S

Veg Condition Excellent

Soil Sandy Clay Loam

Rock Type BIF

Fire Age Old (6+ yr)

Habitat Gully

Vegetation *Themeda triandra*, *Eriachne benthamii* tussock grassland with *Eucalyptus camaldulensis* mid isolated trees over *Grevillea wickhamii*, *Gossypium robinsonii*, *Acacia aptaneura* tall isolated shrubs over *Acacia pruinocarpa*, *Acacia arida*, *Gymnanthera cunninghamii* (P3), *Dodonaea viscosa*, *Eremophila naaykensii* (P3) mid to low isolated shrubs

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia arida	0.1	1.8		
Acacia pruinocarpa	0.5	2.5		
Acacia steedmanii subsp. *borealis*	1.0	6.0	JWG017.02	
Cyperus vaginatus	0.1	0.5		
Dodonaea viscosa subsp. *spatulata*	0.1	1.5		
Eremophila naaykensii (P3)	0.1	1.8	JWG017.04	
Eriachne benthamii	15.0	0.4	JWG017.05	
Eucalyptus camaldulensis subsp. *refulgens*	2.0	12.0		
Gossypium robinsonii	0.5	5.0		
Grevillea wickhamii subsp. *hispidula*	0.5	6.0	JWG017.01	
Gymnanthera cunninghamii (P3)	0.1	1.8	JWG017.03	
Themeda triandra	0.1	0.4		

Jinidi & Weeli Wolli GDV **SiteJWG-018**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
734907 mE; 7463215 mN
119.2904 E -22.922635 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Triodia pungens* low open hummock grassland with *Acacia tumida* var. *pilbarensis* tall open shrubland over *Themeda triandra*, *Eriachne mucronata* low isolated tussock grasses with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia monticola	0.1	1.8		
Acacia tumida var. *pilbarensis*	20.0	3.5		
Androcalva luteiflora	0.1	1.4		
Corymbia hamersleyana	2.0	9.0		
Dicrastylis cordifolia	0.5	0.7		
Dodonaea lanceolata var. *lanceolata*	0.1	2.8		
Eriachne lanata	0.1	0.3		
Eriachne mucronata	1.0	0.3		
Gompholobium oreophilum	0.1	0.8		
Grevillea wickhamii	0.1	3.0		
Indigofera fractiflexa subsp. *fractiflexa*	0.1	0.6		
Indigofera monophylla	0.1	0.1		
Petalostylis labicheoides	0.1	1.5		
Santalum lanceolatum	0.1	1.7		
Themeda triandra	2.5	0.4		
Triodia pungens	25.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-019**

Date	18/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Notes
Location	MGA Zone 50 732661 mE; 7463979 mN 119.2684 E -22.916054 S
Veg Condition	Excellent
Soil	
Rock Type	
Fire Age	
Habitat	
Vegetation	*Themeda triandra*, *Eriachne benthamii* tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens* mid isolated trees over *Grevillea wickhamii* subsp. *hispidula*, *Gossypium robinsonii*, *Acacia aptaneura* tall isolated shrubs over *Acacia pruinocarpa, Acacia arida*, *Gymnanthera cunninghamii* (P3), *Dodonaea viscosa* subsp. *spathulata, Eremophila naaykensii* (P3) mid to low isolated shrubs
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-020**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
733999 mE; 7463459 mN
119.2815 E -22.920560 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Gully
Vegetation *Triodia pungens* low open hummock grassland with *Corymbia opaca*, *Corymbia hamersleyana*, *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia tumida* var. *pilbarensis* tall sparse shrubland
Notes

Name	Cover	Height	Specimen	Notes
Acacia tumida var. *pilbarensis*	5.0	3.5		
Adriana tomentosa var. *tomentosa*	0.1	0.5		
Androcalva luteiflora	0.1	1.5		
Corymbia hamersleyana	2.0	7.0		
Corymbia opaca	2.5	6.5		
Duperreya commixta	0.1	0.1		
Eriachne mucronata	0.5	0.3		
Eucalyptus leucophloia subsp. *leucophloia*	1.5	6.0		
Gossypium robinsonii	0.1	1.7		
Grevillea wickhamii	0.5	2.2		
Petalostylis labicheoides	0.1	1.8		
Themeda triandra	1.0	0.4		
Triodia pungens	15.0	0.3		

Jinidi & Weeli Wolli GDV **SiteJWG-021**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
726802 mE; 7461545 mN
119.2117 E -22.938832 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Atalaya hemiglauca*, *Gossypium robinsonii* tall shrubland over *Cymbopogon ambiguus*, *Themeda triandra*, *Eragrostis desertorum* low open tussock grassland with *Corymbia hamersleyana* low isolated trees over mid *Acacia pyrifolia* var. *pyrifolia* mid sparse shrubland over *Gossypium australe*, *Stylobasium spathulatum* low isolated shrubs over **Malvastrum americanum*, *Rhynchosia minima*, *Jasminum didymum* subsp. *lineare* very open herbland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	3.0	1.3		
Atalaya hemiglauca	8.0	2.4		
Cymbopogon ambiguus	2.0	0.4		
Eragrostis desertorum	2.0	0.4	JWG021.01	
Gossypium australe	1.0	0.8		
Gossypium robinsonii	11.0	2.5		
Jasminum didymum subsp. *lineare*	0.5	0.5		
**Malvastrum americanum*	0.5	0.4		
Rhynchosia minima	0.5	0.4		
Stylobasium spathulatum	1.0	0.7		
Themeda triandra	11.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-022**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
726510 mE; 7461599 mN
119.2088 E -22.938381 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Acacia pyrifolia*, *Atalaya hemiglauca*, *Acacia citrinoviridus* tall open shrubland with *Themeda triandra*, **Cenchrus ciliaris* low sparse tussock grassland with *Corymbia hamersleyana* mid isolated trees over *Triodia longiceps* isolated hummock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	10.0	3.5		
Acacia pyrifolia var. *pyrifolia*	12.0	4.0		
Arivela viscosa	0.1	0.3		
Atalaya hemiglauca	10.0	2.5		
**Cenchrus ciliaris*	1.0	0.3		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.4		
Corymbia hamersleyana	1.0	12.0		
Euphorbia australis var. *subtomentosa*	0.1	0.1		
Euphorbia boophthona	0.1	0.5		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Gossypium australe	0.1	1.0		
Gossypium robinsonii	2.0	3.5		
Hakea chordophylla	0.1	3.5		
Jasminum didymum subsp. *lineare*	0.1	0.7		
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.1		
Petalostylis labicheoides	0.1	2.3		
Ptilotus obovatus var. *obovatus*	0.1	0.6		
Rhynchosia minima	0.1	0.1		
Senna artemisioides subsp. *helmsii*	0.1	0.3		
Senna artemisioides subsp. *oligophylla*	0.1	0.3		
Sida fibulifera	0.1	0.1		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.8		
Themeda triandra	1.0	0.4		
Tribulus macrocarpus	0.1	0.1		
Triodia longiceps	1.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-023**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
726840 mE; 7461642 mN
119.2120 E -22.937949 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Themeda triandra* low tussock grassland with *Gossypium robinsonii*, *Acacia pyrifolia* var. *pyrifolia* tall sparse shrubland over *Gossypium australe*, *Stylobasium spathulatum*, *Androcalva luteiflora*, *Petalostylis labechiodies*, *Eremophila longifolia* mid to low isolated shrubs with *Corymbia hamersleyana* tall isolated trees over *Arivela viscosa*, *Rhynchosia minima*, *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) sparse herbland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	4.0	2.4		
Androcalva luteiflora	0.5	1.6		
Arivela viscosa	0.5	0.4		
Corymbia hamersleyana	2.0	7.0		
Eremophila longifolia	0.5	1.8		
Gossypium australe	0.5	1.1		
Gossypium robinsonii	2.0	2.2		
Petalostylis labicheoides	0.5	2.3		
Rhynchosia minima	0.1	0.2		
Stylobasium spathulatum	0.5	2.0		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.5	0.5	JWG023.01	
Themeda triandra	11.0	0.4		

Jinidi & Weeli Wolli GDV **SiteJWG-024**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
726485 mE; 7461611 mN
119.2086 E -22.938273 S
Veg Condition Excellent
Soil Silty Clay Loam
Rock Type CID
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Acacia pyrifolia*, *Acacia citrinoviridus* tall sparse shrubland over *Corchorus crozophorifolius* mid sparse shrubland with *Eucalyptus camaldulensis* mid open woodland over *Cymbopogon ambiguus*, *Themeda triandra*, *Eriachne benthamii* low isolated clumps of tussock grasses

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	1.8		
Acacia citrinoviridis	3.0	6.0		
Acacia coriacea subsp. *pendens*	0.1	4.0		
Acacia pyrifolia var. *pyrifolia*	5.0	3.0		
Androcalva luteiflora	0.1	1.8		
Arivela viscosa	0.1	0.4		
Atalaya hemiglauca	0.1	2.8		
**Cenchrus ciliaris*	0.1	0.1		
Corchorus crozophorifolius	6.0	1.3		
Cucumis variabilis	0.1	0.1		
Cymbopogon ambiguus	1.0	0.3		
Enneapogon caerulescens	0.1	0.2		
Eriachne benthamii	1.0	0.3		
Eucalyptus camaldulensis subsp. *refulgens*	3.0	18.0		
Euphorbia biconvexa	0.1	0.1		
Euploca tenuifolia	0.1	0.2		
Gossypium robinsonii	0.1	1.6		
Grevillea wickhamii	0.1	4.5		
**Setaria verticillata*	0.1	0.2		
Stylobasium spathulatum	0.1	1.7		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.2		
Themeda triandra	1.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	1.2		
**Vachellia farnesiana* var. *farnesiana*	0.1	2.5		

Jinidi & Weeli Wolli GDV **Site JWG-025**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
726189 mE; 7462086 mN
119.2056 E -22.934033 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis* subsp. *refulgens* tall isolated trees over *Acacia citrinoviridis* tall isolated clumps of trees over *Acacia pyrifolia* var *pyrifolia*, *Acacia bivenosa* mid isolated shrubs over *Corchorus crozophorifolius*, *Trichodesma zeylanicum* var. *zeylanicum*, *Arivela viscosa* herbland over *Triodia pungens*, *Triodia longiceps* low isolated hummock grasses over *Eriachne benthamii* low isolated tussock grasses
Notes

Name	Cover	Height	Specimen	Notes
Capparis spinosa subsp. *nummularia*				
**Cenchrus ciliaris*				
Cucumis variabilis				
Enneapogon caerulescens				
Euploca tenuifolia				
Gossypium australe				
**Malvastrum americanum*				
**Vachellia farnesiana* var. *farnesiana*				

Jinidi & Weeli Wolli GDV Site JWG-026

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
730080 mE; 7465440 mN
119.2430 E -22.903221 S
Veg Condition Good
Soil Sandy Clay Loam
Rock Type None Discernible
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Eulalia aurea*, **Cenchrus ciliaris* low tussock grassland with *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* tall open shrubland with *Eucalyptus camaldulensis* mid open woodland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.3		
Acacia bivenosa	0.1	2.3		
Acacia pyrifolia var. *pyrifolia*	3.0	2.0		
Acacia tumida var. *pilbarensis*	28.0	2.5		
Ammannia baccifera	0.1	0.3		
Androcalva luteiflora	0.1	0.4		
Arivela viscosa	0.1	0.7		
**Bidens bipinnata*	0.1	0.4		
Cassytha sp. indet	0.1	0.1		
**Cenchrus ciliaris*	25.0	0.5		
Corchorus crozophorifolius	0.1	0.3		
Cucumis variabilis	0.1	0.1		
Cyperus vaginatus	0.5	0.5		
Dodonaea lanceolata var. *lanceolata*	0.1	1.5		
Eragrostis tenellula	0.1	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	17.0		
Eulalia aurea	40.0	0.7		
Euphorbia australis var. *subtomentosa*	0.1	0.1		
**Flaveria trinervia*	0.1	0.6		
Gossypium australe	0.1	0.3		
Gossypium robinsonii	0.1	2.5		
Jasminum didymum subsp. *lineare*	0.1	0.8		
Melaleuca argentea	0.1	7.5		
Melaleuca glomerata	0.1	3.5		
Pluchea dentex	0.1	0.6		
Ptilotus exaltatus	0.1	0.6		
Rhynchosia minima	0.1	0.1		
Santalum lanceolatum	0.1	1.0		
Setaria dielsii	0.5	0.4		
Stemodia grossa	0.1	0.2		
Themeda triandra	0.1	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	1.0		
Triodia pungens	1.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-027**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Notes
Location MGA Zone 50
729241 mE; 7466639 mN
119.2347 E -22.892514 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia citrinoviridis* tall open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* mid sparse woodland over *Grevillea wickhamii*, *Gossypium robinsonii* mid isolated shrubs over *Acacia bivenosa*, *Senna glutinosa* subsp. *glutinosa*, *Senna artimisioides* subsp. *oligophylla*, *Corchorus crozophorifolius* low isolated shrubs over *Triodia pungens* mid sparse hummock grassland with *Eriachne benthamii*, *Themeda triandra*, **Cenchrus ciliaris* low sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Arivela viscosa				
Enneapogon polyphyllus				
Eragrostis cumingii			JWG021.01	
Gossypium australe				
Indigofera monophylla				
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)				
Ptilotus exaltatus				
Solanum lasiophyllum				
Stylobasium spathulatum				
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)			JWG023.01	

Jinidi & Weeli Wolli GDV **Site JWG-028**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
733311 mE; 7458823 mN
119.2755 E -22.962502S
Veg Condition Excellent
Soil Clay Loam
Rock Type CID
Fire Age Old (6+ yr)
Habitat Stony Plain
Vegetation *Acacia catenulata* subsp. *occidentalis*, *Acacia aptaneura*, *Acacia pruinocarpa* low woodland over *Aristida contorta*, *Aristida obscura* low sparse tussock grassland with *Triodia pungens* isolated clumps of hummock grasses with *Eremophila forrestii* mid isolated shrubs

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. indet	0.1	0.1	JWG012.06	
Acacia aptaneura	2.0	2.5	JWG028.01	
Acacia catenulata subsp. *occidentalis*	30	7.0	JWG012.01	
Acacia pruinocarpa	4.0	6.0		
Acacia pteraneura	0.5	7.0	JWG012.02	
Aristida contorta	10.0	0.1		
Aristida inaequiglumis	0.1	0.4		
Aristida obscura	2.0	0.2	JWG012.04	
Arivela viscosa	0.1	0.5		
Bonamia erecta	0.1	0.3		
Cheilanthes sieberi	1.0	0.1		
Corymbia deserticola	0.1	3.0		
Enchylaena tomentosa var. *tomentosa*	0.1	0.4		
Enneapogon polyphyllus	1.0	0.1		
Eragrostis setifolia	0.1	0.1	JWG028.04	
Eremophila forrestii subsp. *forrestii*	0.1	1.2	JWG012.08	
Eriachne helmsii	0.1	0.1	JWG028.03	
Eucalyptus gamophylla	0.1	3.0	JWG-028.02	
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Paspalidium basicladum	0.1	0.1		
Ptilotus obovatus var. *obovatus*	0.1	0.3		
Rhagodia eremaea	0.1	1.6		
Senna notabilis	0.1	0.2		
Sida ectogama	0.1	0.1	JWG028.05	
Sida fibulifera	0.1	0.1		
Triodia pungens	2.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-029**

Date 18/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
733380 mE; 7458857 mN
119.2762 E -22.962182 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Themeda triandra*, *Chrysopogon fallax* mid tussock grassland with *Acacia tumida* var. *pilbarensis*, tall shrubland over *Petalostylis labichiodies*, *Acacia pyrifolia* var. *pyrifolia* mid sparse shrubland with *Eucalyptus gamophylla*, *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pachyacra				
Dicrastylis cordifolia			JWG018.01	
Duperreya commixta				
Indigofera georgei				
Indigofera monophylla				
Ptilotus obovatus var. *obovatus*				
Senna artemisioides subsp. *oligophylla*				
Solanum lasiophyllum				
Triodia pungens				

Jinidi & Weeli Wolli GDV **Site JWG-030**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
717336 mE;7447689 mN
119.1214 E -23.065170 S
Veg Condition Very Good
Soil Sandy Clay Loam
Rock Type CID
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Eucalyptus victrix*, *Eucalyptus camaldulensis*, *Eucalyptus xerothermica* mid open woodland over *Themeda triandra*, *Eulalia aurea*, **Cenchrus ciliaris* low open tussock grassland with *Acacia citrinoviridus*, *Petalostylis labicheoides*, *Gossypium robinsonii* tall open shrubland with *Triodia pungens* isolated hummock grasses

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	1.8		
Acacia citrinoviridis	2.0	4.5		
Acacia coriacea subsp. *pendens*	0.1	2.8		
Amyema sanguinea	0.1	0.1		
Androcalva luteiflora	0.1	1.5		
Aristida sp. indet	0.1	0.5	JWG030.02	
Arivela viscosa	0.1	0.2		
**Cenchrus ciliaris*	2.0	0.4		
Cheilanthes sieberi	0.1	0.3		
Cymbopogon ambiguus	0.1	0.3		
Dodonaea lanceolata var. *lanceolata*	0.1	2.5		
Duperreya commixta	0.1	0.1		
Enteropogon ramosus	1.0	0.4		
Eragrostis tenellula	0.1	0.1		
Eriachne benthamii	0.1	0.3		
Eriochloa pseudoacrotricha	0.1	0.6	JWG030.03	
Eucalyptus camaldulensis subsp. *refulgens*	6.0	12.0		
Eucalyptus victrix	8.0	22.0		
Eucalyptus xerothermica	0.1	11.0	JWG030.01	
Eulalia aurea	2.0	0.5		
Euphorbia biconvexa	0.1	0.1		
Evolvulus alsinoides var. *decumbens*	0.1	0.1		
Glycine canescens	0.1	0.1		
Gossypium robinsonii	1.0	4.5		
Gossypium sturtianum var. *sturtianum*	0.1	1.7		
Jasminum didymum subsp. *lineare*	0.1	0.3		
**Malvastrum americanum*	0.1	0.1		
Nellica maderaspatensis	0.1	0.2		
Petalostylis labicheoides	1.5	4.5		
Rhynchosia minima	0.1	0.1		

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Sorghum plumosum var. *plumosum*	1.0	0.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		
Themeda triandra	4.0	0.5		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.4		
Triodia pungens	0.5	0.3		
**Vachellia farnesiana* var. *farnesiana*	0.1	0.7		

Jinidi & Weeli Wolli GDV **Site JWG-031**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
716521 mE; 7447569 mN
119.1134 E -23.066363 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia citrinoviridis*, *Petalostylis labechiodies*, *Acacia bivenosa* mid to tall open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens*, *Corymbia hamersleyana* mid open woodland over *Dodonaea lanceolata*, *Acacia pyrifolia* var. *pyrifolia*, *Androcalva luteiflora* low isolated shrubs over *Themeda triandra*, *Cymbopogon ambiguus* mid sparse tussock grassland with *Triodia longiceps* mid isolated hummock grasses
Notes

Name	Cover	Height	Specimen	Notes
Acacia coriacea subsp. *pendens*				
Acacia dictyophleba				
Arivela viscosa				
**Cenchrus ciliaris*				
Cheilanthes sieberi subsp. *sieberi*				
Euphorbia australis				
Gossypium sturtianum var. *sturtianum*				
Isotropis iophyta			JWG031.01	
Ptilotus exaltatus				
Trichodesma zeylanicum var. *zeylanicum*				

Jinidi & Weeli Wolli GDV **Site JWG-032**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
721912 mE; 7449661 mN
119.1657 E -23.046766 S
Veg Condition Good
Soil Silty Clay Loam
Rock Type None Discernible
Fire Age Moderate (3 to 5 yr)
Habitat Medium Drainage Line
Vegetation *Eucalyptus camaldulensis*, *Melaleuca argentea* mid open forest over *Stylobasium spathulatum*, *Atalaya hemiglauca*, *Dodonaea lanceolata* tall open shrubland over *Sorghum plumosum*, *Themeda triandra*, **Cenchrus ciliaris* low open tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen#	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.3		
Acacia citrinoviridis	0.1	4.5		
Acacia coriacea subsp. *pendens*	0.1	1.7		
Adriana tomentosa var. *tomentosa*	0.1	0.1		
Atalaya hemiglauca	3.0	1.5		
**Cenchrus ciliaris*	2.0	0.5		
Chrysopogon fallax	0.1	0.5		
Cucumis variabilis	0.1	0.1		
Cyperus vaginatus	0.5	1.0		
Dicladanthera forrestii	0.1	0.1		
Dodonaea lanceolata var. *lanceolata*	6.0	1.0		
Duperreya commixta	0.1	0.1		
Eucalyptus camaldulensis subsp. *refulgens*	30.0	18.0		
Eulalia aurea	0.1	0.5		
Evolvulus alsinoides var. *decumbens*	0.1	0.1		
Glycine canescens	0.1	0.1		
Gossypium robinsonii	0.1	0.5		
**Malvastrum americanum*	0.1	0.2		
Melaleuca argentea	30.0	16		
Melaleuca glomerata	0.1	3.0		
Paspalidium basicladum	0.1	0.3		
Petalostylis labicheoides	0.1	1.7		
Pluchea rubelliflora	0.1	0.4		
**Setaria verticillata*	0.1	0.1		
**Sonchus oleraceus*	0.1	0.2		
Sorghum plumosum var. *plumosum*	1.0	0.6		
Stemodia grossa	0.1	0.3		
Stylobasium spathulatum	10.0	2.0		
Themeda triandra	2.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-033**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
720226 mE; 7448499 mN
119.1494 E -23.057476 S
Veg Condition Excellent
Soil
Rock Type Granite
Fire Age Old (6+ yr)
Habitat Major Drainage Line
Vegetation *Melaleuca argentea*, *Eucalyptus camaldulensis* low to mid open woodland over *Cyperus vaginatus* low sparse sedgeland over *Eriachne benthamii* low isolated tussock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia coriacea subsp. *pendens*	0.1	5.0		
Cyperus vaginatus	5.0	0.4		
**Eragrostis tenuifolia*	0.1	0.3		
Eriachne benthamii	0.5	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	12.0	17		
Melaleuca argentea	3.0	4.0		
Melaleuca glomerata	15.0	4.5		
Stemodia grossa	0.1	0.4		
Themeda triandra	0.5	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-034**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
722211 mE; 7449788 mN
119.1686 E -23.045580 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type Dolerite
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Melaleuca argentea*, *Eucalyptus camaldulensis* low to mid open forest over *Cyperus vaginatus* low sparse sedgleland with *Eulalia aurea* low sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia coriacea subsp. pendens	0.1	1.7		
Arivela viscosa	0.1	0.1		
Cymbopogon ambiguus	0.1	0.2		
Cyperus vaginatus	3.0	0.7		
Eucalyptus camaldulensis subsp. *refulgens*	10.0	14.0		
Eulalia aurea	2.0	0.3		
Melaleuca argentea	35.0	12.0		
Melaleuca glomerata	0.5	3.0		
Nellica maderaspatensis	0.1	0.3		
Pluchea rubelliflora	0.1	0.3		
Stemodia grossa	0.1	0.6		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.5		

Jinidi & Weeli Wolli GDV **Site JWG-035**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
720332 mE; 7448597 mN
119.1505 E -23.056577 S
Veg Condition Excellent
Soil
Rock Type Granite
Fire Age Old (6+ yr)
Habitat Major Drainage Line
Vegetation *Melaleuca argentea*, *Eucalyptus camaldulensis* low to mid woodland over *Cyperus vaginatus* low sparse sedgeland
Notes

Name	Cover	Height	Specimen	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.4		
Acacia bivenosa	0.1	1.0		
Arivela viscosa	0.1	0.4		
**Cenchrus ciliaris*	0.1	0.4		
Crotalaria medicaginea var. *neglecta*	0.1	0.3		
Cymbopogon ambiguus				
Cyperus vaginatus	2.0	0.5		
Dodonaea lanceolata var. *lanceolata*	0.1	0.6		
Eucalyptus camaldulensis subsp. *refulgens*	17.0	35.0		
Euphorbia sp. indet (bi/tri)	0.1	0.1		
Evolvulus alsinoides var. *decumbens*	0.1	0.4		
Glycine canescens	0.1	0.3		
Gossypium robinsonii	0.1	0.7		
Jasminum didymum subsp. *lineare*	0.1	0.5		
**Malvastrum americanum*	0.1	0.3		
Melaleuca argentea	15.0	30.0		
Petalostylis labicheoides	0.1	1.6		
Rhynchosia minima	0.1	0.2		
Solanum lasiophyllum	0.1	0.5		
Stemodia grossa	0.1	0.4		
Themeda triandra	0.5	0.5		
**Vachellia farnesiana* var. *farnesiana*	0.1	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-036**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
722342 mE; 7449873 mN
119.1699 E -23.044794 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type Dolerite
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Melaleuca argentea*, *Eucalyptus camaldulensis* low to mid open forest over *Cyperus vaginatus* low sparse sedgleland with *Eulalia aurea* low sparse tussock grassland
Notes

Name	Cover	Height	Specimen	Notes
Acacia coriacea subsp. *pendens*	0.1	1.7		
Arivela viscosa	0.1	0.1		
Cymbopogon ambiguus	0.1	0.2		
Cyperus vaginatus	3.0	0.7		
Eucalyptus camaldulensis subsp. *refulgens*	10.0	14.0		
Eulalia aurea	2.0	0.3		
Melaleuca argentea	30.0	7.0		
Melaleuca glomerata	0.5	3.0		
Nellica maderaspatensis	0.1	0.3		
Pluchea rubelliflora	0.1	0.3		
Stemodia grossa	0.1	0.6		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.5		

Jinidi & Weeli Wolli GDV **Site JWG-037**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
720371 mE; 7448778 mN
119.1508 E -23.054940 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Melaleuca glomerata*, *Melaleuca argentea* mid to tall woodland with *Eucalyptus camaldulensis* subsp. *refulgens* mid isolated trees over *Cyperus vaginatus* sparse sedgeland over **Eragrostis tenuifolia* low isolated tussock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
**Cenchrus ciliaris*	1.0	0.4		
Crotalaria medicaginea var. *neglecta*	0.1	0.4		
**Eragrostis tenuifolia*	1.0	0.4		
Euphorbia sp. indet (bi/tri)	0.1	0.5		
Rhynchosia minima	0.1	0.4		
Senna notabilis	0.1	0.2		
Stemodia grossa	0.1	0.5		
Stylidium weeliwolli (P3)	0.1	0.1		

Jinidi & Weeli Wolli GDV **Site JWG-038**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Notes
Location MGA Zone 50
722607 mE; 7450121 mN
119.1724 E -23.042521 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis* subsp. *refulgens* mid woodland over *Themeda triandra*, **Cenchrus ciliaris* tussock grassland with *Acacia citrinoviridus* tall open shrubland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia coriacea subsp. *pendens*	0.1	2.5		
Atalaya hemiglauca	0.1	3.0		
Cyperus vaginatus	0.1	0.4		
Dodonaea lanceolata var. *lanceolata*	0.1	0.7		
Duperreya commixta	0.1	0.1		
Gossypium robinsonii	0.1	0.6		
Jasminum didymum subsp. *lineare*	0.1	0.5		
Melaleuca glomerata	0.1	3.0		
Stylobasium spathulatum	0.1	2.5		
**Vachellia farnesiana* var. *farnesiana*	0.1	0.7		

Jinidi & Weeli Wolli GDV **Site JWG-039**

Date 19/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

719215 mE; 7446882 mN

119.1398 E -23.072207 S

Veg Condition Very Good

Soil

Rock Type

Fire Age

Habitat

Vegetation **Cenchrus ciliaris* tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland over *Acacia citrinoviridis*, *Petalostylis labechiodies*, *Gossypium robinsonii, Androcalva luteiflora* mid to tall open shrubland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Arivela viscosa				
Crotalaria medicaginea var. *neglecta*				
Eragrostis cumingii			JWG041.01	
Trichodesma zeylanicum var. *zeylanicum*				

Jinidi & Weeli Wolli GDV **Site JWG-040**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
719469 mE; 7446699 mN
119.1423 E -23.073826 S
Veg Condition Poor
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Eucalyptus camaldulensis*, *Eucalyptus victrix, Eucalyptus xerothermica* mid woodland over **Cenchrus ciliaris*, *Themeda triandra* tussock grassland with *Acacia citrinoviridus* tall open shrubland over *Stylobasium spathulatum* mid isolated shrubs
Notes

Name	Cover	Height	Specimen	Notes
**Cenchrus ciliaris*	30.0	0.5		
Cheilanthes sieberi	0.1	0.2		
Dodonaea lanceolata var. *lanceolata*	0.1	3.0		
Dodonaea viscosa subsp. *mucronata*	0.1	1.5	JWG040.01	
Gossypium robinsonii	0.1	3.5		
Gossypium sturtianum var. *sturtianum*	0.1	1.7		
Themeda triandra	2.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-041**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Notes
Location MGA Zone 50
719115 mE; 7447156 mN
119.1388 E -23.069748 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation **Cenchrus ciliaris*, *Cymbopogon ambiguus*, *Themeda triandra* tussock grassland with *Acacia citrinoviridis* mid open shrubland over *Dodonaea lanceolata*, *Petalostylis labecheoides*, *Androcalva luteiflora* low sparse shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*				
Arivela viscosa				
Cheilanthes sieberi subsp. *sieberi*				
Eragrostis cumingii			JWG041.01	
Rhynchosia minima				

Jinidi & Weeli Wolli GDV **Site JWG-042**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
719522 mE;7446903 mN
119.1428 E -23.071975 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis*, *Eucalyptus victrix* mid woodland over **Cenchrus ciliaris*, *Themeda triandra* tussock grassland with *Acacia citrinoviridus*, *Atalaya hemiglauca* tall open shrubland over *Dodonaea lanceolata* mid sparse shrubland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	15.0	5.0		
Arivela viscosa	0.1	0.4		
Atalaya hemiglauca	2.0	3.5		
**Cenchrus ciliaris*	25	0.6		
Cyperus vaginatus	0.1	0.5		
Dodonaea lanceolata var. *lanceolata*	4.0	1.8		
Eucalyptus camaldulensis subsp. *refulgens*	20.0	12.0		
Eucalyptus victrix	5.0	12.0		
Gossypium sturtianum var. *sturtianum*	0.1	0.5		
**Malvastrum americanum*	0.1	0.4		
Marsilea hirsuta	0.1	0.1		
**Sigesbeckia orientalis*	0.1	0.4	JWG042.01	
**Sonchus oleraceus*	0.1	0.3		
Themeda triandra	5.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-043**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
736118 mE; 7454177 mN
119.3036 E -23.004046 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Gully
Vegetation *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii* tall shrubland over *Petalostylis labecheoides* mid sparse shrubland over *Eriachne benthamii*, *Themeda triandra* sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Duperreya commixta				
Ficus brachypoda				
Indigofera fractiflexa subsp. *fractiflexa*				
Triodia pungens				

Jinidi & Weeli Wolli GDV **Site JWG-044**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
736211 mE;7454121 mN
119.3045 E -23.004534 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var *pilbarensis*, *Santalum lanceolatum* tall shrubland over *Triodia pungens* open hummock grassland with *Themeda triandra* open tussock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon lepidum	0.1	0.5		
Abutilon sp. indet	0.1	1.8	JWG044.01	
Acacia tumida var. *pilbarensis*	35.0	3.0		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.1		
Corymbia hamersleyana	2.0	9.0		
Dodonaea pachyneura	0.1	2.2	JWG040.01	
Duperreya commixta	0.1	0.1		
Dysphania rhadinostachya subsp. *rhadinostachya*	0.1	0.1		
Jasminum didymum subsp. *lineare*	0.1	1.7		
Petalostylis labicheoides	0.1	2.0		
Santalum lanceolatum	1.0	3.0		
Senna notabilis	0.1	0.1		
Stylobasium spathulatum	0.1	1.4		
Themeda triandra	6.0	0.5		
Triodia pungens	20.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-045**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
727425 mE; 7457213 mN
119.2184 E -22.977846 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis*, *Petalostylis labicheoides*, *Gossypium robinsonii* tall shrubland over *Themeda triandra*, *Eulalia aurea* tall grassland *Dodonaea lanceolata*, *Acacia pyrifolia* var. *pyrifolia*, *Androcalva luteiflora* low to mid isolated shrubs over *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	0.5	2.0		
Acacia tumida var. *pilbarensis*	16.0	4.0		
Androcalva luteiflora	0.5	1.8		
Corymbia hamersleyana	2.0	5.0		
Dodonaea lanceolata var. *lanceolata*	1.0	1.9		
Duperreya commixta	0.1	0.0		
Eulalia aurea	0.5	0.5		
Gossypium robinsonii	0.5	3.5		
Petalostylis labicheoides	1.0	3.0		
Ptilotus exaltatus	0.1	0.6		
Ptilotus obovatus var. *obovatus*	0.1	0.7		
Senna artemisioides subsp. *oligophylla*	0.1	0.7		
Senna glutinosa subsp. *glutinosa*	0.1	1.5		
Themeda triandra	27.0	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-046**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
728262 mE; 7456776 mN
119.2266 E -22.981678 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia pyrifolia*, *Androcalva luteiflora*, *Acacia aptaneura* tall shrubland over *Chrysopogon fallax, Themeda triandra* open tussock grassland with *Corymbia hamersleyana* low isolated trees over *Triodia pungens* isolated hummock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia ancistrocarpa	1.0	1.9		
Acacia pteraneura	1.0	2.0	JWG028.01	
Acacia pyrifolia var. *pyrifolia*	25	2.8		
Androcalva luteiflora	5.0	2.0		
Aristida contorta	0.1	0.2		
Arivela viscosa	0.1	0.6		
Boerhavia coccinea	0.1	0.1		
Chrysopogon fallax	25.0	0.5		
Corymbia hamersleyana	1.0	5.0		
Duperreya commixta	0.1	0.1		
Enneapogon polyphyllus	1.0	0.2		
Eragrostis tenellula	0.1	0.1		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Goodenia microptera	0.1	0.3		
Indigofera georgei	0.1	0.3		
Ptilotus exaltatus	0.1	0.5		
Rhynchosia minima	0.1	0.1		
Senna artemisioides subsp. *helmsii*	0.1	0.9		
Senna notabilis	0.1	0.2		
Sida fibulifera	0.1	0.2		
Themeda triandra	5.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.9		
Triodia pungens	3.0	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-047**

Date 19/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
710630 mE; 7448333 mN
119.0559 E -23.060221 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis* subsp. *refulgens, Eucalyptus xerothermica* mid open woodland over *Petalostylis labicheoides, Acacia pyrifolia* var. *pyrifolia* mid to tall sparse shrubland over **Cenchrus ciliaris*, *Enteropogon ramosus* mid sparse grassland with **Vachellia farnesiana* var. *farnesiana* mid isolated shrubs

Notes

Name	Cover	Height	Specimen	Notes
Cheilanthes sieberi subsp. *sieberi*				
Gossypium sturtianum var. *sturtianum*				
Themeda triandra				
**Vachellia farnesiana* var. *farnesiana*				

Jinidi & Weeli Wolli GDV **Site JWG-048**

Date 19/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

710126 mE;7448429 mN

119.0509 E -23.059416 S

Veg Condition Very Good

Soil

Rock Type

Fire Age

Habitat Medium Drainage Line

Vegetation *Themeda triandra*, *Aristida sp. indet*, **Cenchrus ciliaris* tussock grassland with *Eucalyptus camaldulensis* low open woodland over *Acacia dictyophleba*, *Acacia pyrifolia, Gossypium sturtianum* mid isolated shrubs

Notes

Name	Cover	Height	Specimen	Notes
Acacia dictyophleba	0.1	1.9		
Acacia maitlandii	1	1.6		
Acacia pyrifolia var. *pyrifolia*	0.5	1.9		
Acacia synchronicia	0.1	1.8		
Alternanthera nodiflora	0.1	0.1		
Aristida obscura	0.5	0.3	JWG030.02	
Arivela viscosa	0.1	0.2		
**Cenchrus ciliaris*	1.0	0.4		
Chrysopogon fallax	0.1	0.3		
Cymbopogon ambiguus	0.5	0.2		
Enteropogon ramosus	0.1	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	3.0	12.0		
Glycine canescens	0.1	0.1		
Gossypium sturtianum var. *sturtianum*	0.5	1.2		
Isotropis iophyta	0.1	0.6		
Ptilotus obovatus var. *obovatus*	0.1	0.3		
Themeda triandra	20.0	0.4		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.8		

Jinidi & Weeli Wolli GDV **Site JWG-049**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
722049 mE; 7457759 mN
119.1659 E -22.973649 S
Veg Condition Excellent
Soil Sandy Clay Loam
Rock Type Granite
Fire Age Old (6+ yr)
Habitat Medium Drainage Line
Vegetation *Eucalyptus camaldulensis* mid open woodland over *Acacia citrinoviridis* tall sparse shrubland over *Corchorus crozophorifolius* low isolated shrubs over *Eriachne benthamii* low isolated tussock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	11.0	7		
Acacia pyrifolia var. *pyrifolia*	0.1	1		
Arivela viscosa	0.1	0.3		
**Cenchrus ciliaris*	0.1	0.5		
Corchorus crozophorifolius	2.5	0.4		
Cymbopogon ambiguus	0.1	0.4		
Enneapogon polyphyllus	0.1	0.5		
Eriachne benthamii	2.0	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	24	26		
Eulalia aurea	0.1	0.4		
Melaleuca glomerata	1	2.5		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.5	JWG023.01	
Themeda triandra	0.1	0.4		
Triodia pungens	0.1	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-050**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
721598 mE; 7455330 mN
119.1618 E -22.995634 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat Major Drainage Line
Vegetation *Acacia citrinoviridus*, *Acacia coriacea* subsp. *pendens*, *Atalaya hemiglauca* tall shrubland over *Themeda triandra*, **Cenchrus ciliaris* tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens* mid isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	18.0	5.0		
Acacia coriacea subsp. *pendens*	5.0	6.0		
Acacia pyrifolia var. *pyrifolia*	0.1	0.4		
Androcalva luteiflora	0.1	1.7		
Atalaya hemiglauca	1.0	5.0		
**Cenchrus ciliaris*	40	0.5		
Corchorus crozophorifolius	0.1	1.0		
Dodonaea lanceolata var. *lanceolata*	0.1	2.5		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	16		
Eulalia aurea	1.0	0.5		
Gossypium robinsonii	0.1	1.1		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	20.0	0.5		

Jinidi & Weeli Wolli GDV **SiteJWG-051**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
722289 mE; 7457783 mN
119.1682 E -22.973401 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia citrinoviridis* tall shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Arivela viscosa				
Corchorus crozophorifolius				
Cymbopogon ambiguus				
Cyperus vaginatus				
Eragrostis cumingii			JWG041.01	
**Eragrostis tenuifolia*				
Marsilea hirsuta				
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				
Themeda triandra				

Jinidi & Weeli Wolli GDV **Site JWG-052**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
721477 mE; 7456188 mN
119.1605 E -22.987899 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat Major Drainage Line
Vegetation *Acacia citrinoviridus*, *Acacia coriacea* subsp. *pendens*, *Dodonaea lanceolata* tall shrubland over *Themeda triandra*, **Cenchrus ciliaris* tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens*, *Eucalyptus victrix* mid open woodland
Notes

Site Taxa	Cover	Height	Specimen	Notes
Acacia citrinoviridis	15.0	5.0		
Acacia coriacea subsp. *pendens*	2.0	8.0		
Acacia pyrifolia var. *pyrifolia*	0.1	2.5		
Arivela viscosa	0.1	0.2		
Atalaya hemiglauca	0.1	2.0		
**Cenchrus ciliaris*	35.0	0.5		
Chrysopogon fallax	0.1	0.4		
Cyperus vaginatus	0.1	0.5		
Dodonaea lanceolata var. *lanceolata*	0.5	2.5		
Duperreya commixta	0.1	0.1		
Enteropogon ramosus	0.1	0.3		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	16.0		
Eucalyptus victrix	1.0	12.0		
Gossypium robinsonii	0.1	1.5		
Gossypium sturtianum var. *sturtianum*	0.1	1.0		
Jasminum didymum subsp. *lineare*	0.1	0.5		
**Malvastrum americanum*	0.1	0.1		
Nellica maderaspatensis	0.1	0.3		
Petalostylis labicheoides	0.1	1.2		
Pluchea rubelliflora	0.1	0.1		
Themeda triandra	25.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-053**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
722044 mE; 7458490 mN
119.1657 E -22.967050 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis* subsp. *refulgens* tall open woodland over *Acacia citrinoviridis* tall sparse shrubland over *Corchorus crozophorifolius, Arivela viscosa* low isolated herbs
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Androcalva luteiflora				
**Cenchrus ciliaris*				
Eucalyptus camaldulensis subsp. *refulgens*				
Gossypium robinsonii				
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				

Jinidi & Weeli Wolli GDV **Site JWG-054**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
721845 mE; 7456661 mN
119.1641 E -22.983584 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat Major Drainage Line
Vegetation *Acacia citrinoviridus*, *Atalaya hemiglauca* tall open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens, Eucalyptus victrix* mid open woodland over *Triodia longiceps* sparse hummock grassland with **Cenchrus ciliaris* sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	20.0	4.5		
Acacia pyrifolia var. *pyrifolia*	0.1	0.4		
Androcalva luteiflora	0.1	2.0		
Arivela viscosa	0.1	0.2		
Atalaya hemiglauca	0.1	2.5		
**Cenchrus ciliaris*	5.0	0.5		
Corchorus crozophorifolius	0.1	0.5		
Duperreya commixta	0.1	0.1		
Eucalyptus camaldulensis subsp. *refulgens*	3.0	14.0		
Eucalyptus victrix	1.0	16.0		
**Malvastrum americanum*	0.1	0.1		
Rhynchosia minima	0.1	0.1		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Triodia longiceps	5.0	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-055**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Relevé
Location MGA Zone 50
723362 mE; 7451649 mN
119.1796 E -23.028620 S
Veg Condition Very Good
Soil Sandy Clay Loam
Rock Type Granite
Fire Age Old (6+ yr)
Habitat Major Drainage Line
Vegetation *Acacia citrinoviridis* tall open shrubland over **Cenchrus ciliaris*, *Themeda triandra* low tussock grassland with *Eucalyptus camaldulensis* mid open woodland over *Triodia longiceps* mid isolated hummock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	2.0		
Acacia citrinoviridis	14.0	6.0		
Acacia pyrifolia var. pyrifolia	0.1	1.0		
Androcalva luteiflora	0.1	1.7		
Atalaya hemiglauca	0.1	2.5		
**Cenchrus ciliaris*	13.0	0.4		
Corchorus crozophorifolius	0.1	0.6		
Dodonaea lanceolata var. *lanceolata*	0.5	1.2		
Duperreya commixta	0.1	0.0		
Eucalyptus camaldulensis subsp. *refulgens*	24.0	30.0		
Euphorbia australis	0.1	0.1		
Gossypium robinsonii	0.1	1.5		
Gossypium sturtianum var. *sturtianum*	0.1	1.7		
**Malvastrum americanum*	0.1	0.5		
Petalostylis labicheoides	0.1	2.0		
Stylobasium spathulatum	0.1	1.2		
Themeda triandra	2.0	0.5		
Triodia longiceps	1.0	0.5		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.0		

Jinidi & Weeli Wolli GDV **Site JWG-056**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
721893 mE; 7457661 mN
119.1644 E -22.974547 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat Major Drainage Line
Vegetation *Themeda triandra, *Cenchrus ciliaris, Eulalia aurea* tussock grassland with *Acacia citrinoviridus, Atalaya hemiglauca, Acacia bivenosa* tall open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.5	3.0		
Acacia citrinoviridis	15.0	5.5		
Acacia pyrifolia var. *pyrifolia*	0.1	1.5		
Androcalva luteiflora	0.1	1.6		
Atalaya hemiglauca	0.5	3.5		
Cenchrus ciliaris	20.0	0.5		
Centipeda minima subsp. *minima*	0.1	0.1		
Dodonaea lanceolata var. *lanceolata*	0.1	2.3		
Eragrostis cumingii	0.1	0.3		
Eragrostis tenellula	0.1	0.1		
Eucalyptus camaldulensis subsp. *refulgens*	5.0	12.0		
Eulalia aurea	1.0	0.4		
Glycine canescens	0.1	0.1		
Themeda triandra	30.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-057**

Date	20/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Note
Location	MGA Zone 50 731554 mE; 7448489 mN 119.2599 E -23.056023 S
Veg Condition	Excellent
Soil	
Rock Type	
Fire Age	
Habitat	
Vegetation	*Eulalia aurea, Themeda triandra, Chrysopogon fallax* low tussock grassland with *Petalostylis labicheoides, Acacia bivenosa, Acacia pyrifolia* var. *pyrifolia* mid to tall open shrubland with *Corymbia hamersleyana, Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland over *Triodia longiceps* low isolated hummock grasses
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-058**

Date	20/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Note
Location	MGA Zone 50 721937 mE; 7457672 mN 119.1648 E -22.974449 S
Veg Condition	Very Good
Soil	
Rock Type	
Fire Age	
Habitat	Major Drainage Line
Vegetation	*Acacia citrinoviridus* tall sparse shrubland over *Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creek low to mid sparse shrubland
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-059**

Date	20/07/2024
Described by	K. Jennings, R. Cunnane
Type	Vegetation Mapping Notes
Location	MGA Zone 50 734319 mE; 7447538 mN 119.2871 E -23.064219 S
Veg Condition	Excellent
Soil	
Rock Type	
Fire Age	
Habitat	
Vegetation	*Eucalyptus camaldulensis* subsp. *refulgens*, *Eucalyptus xerothermica* mid to low open woodland over *Gossypium robinsonii, Petalostylis labicheoides, Acacia pyrifolia* var. *pyrifolia* mid sparse shrubland over *Androcalva luteiflora* low isolated shrubs over *Eriachne benthamii, Themeda triandra, Cymbopogon ambiguus* low sparse tussock grassland
Notes	

Jinidi & Weeli Wolli GDV **Site JWG-060**

Date 20/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

722682 mE; 7450217 mN

119.1732 E -23.041644 S

Veg Condition Very Good

Soil

Rock Type

Fire Age

Habitat Medium Drainage Line

Vegetation **Cenchrus ciliaris, Eulalia aurea* open tussock grassland with *Eucalyptus victrix, Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland over *Melaleuca glomerata, Acacia citrinoviridus* tall sparse shrubland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	0.6		
Acacia citrinoviridis	2.0	3.5		
Acacia coriacea subsp. *pendens*	0.1	8.0		
Atalaya hemiglauca	0.1	2.5		
**Cenchrus ciliaris*	6.0	0.5		
Cucumis variabilis	0.1	0.1		
Cyperus vaginatus	0.1	0.4		
Dodonaea lanceolata var. *lanceolata*	0.1	1.7		
Duperreya commixta	0.1	0.1		
Eucalyptus camaldulensis subsp. *refulgens*	1.0	11.0		
Eucalyptus victrix	3.0	15.0		
Eulalia aurea	4.0	0.4		
Gossypium robinsonii	0.1	0.8		
Melaleuca argentea	0.1	3.5		
Melaleuca glomerata	6.0	4.0		
Themeda triandra	1.0	0.3		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.2		

Jinidi & Weeli Wolli GDV **Site JWG-061**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
725694 mE; 7450671 mN
119.2025 E -23.037140 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Themeda triandra, *Cenchris ciliaris, Cymbopogon ambiguus* low tussock grassland with *Acacia citrinoviridis* tall open shrubland with *Eucalyptus camaldulensis* subsp. *refulgens* mid open woodland
Notes

Name	Cover	Height	Specimen	Notes
Acacia citrinoviridis	11.0	7.0		
Androcalva luteiflora	0.1	0.5		
Arivela viscosa	0.1	0.4		
Cenchrus ciliaris	11.0	0.4		
Cymbopogon ambiguus	0.1	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	6.0	25.0		
Gossypium robinsonii	0.1	1.4		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	4.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-062**

Date 20/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

722740 mE; 7450579 mN

119.1737 E -23.038369 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat Medium Drainage Line

Vegetation *Acacia coriacea* subsp. *pendens* low open woodland over *Acacia citrinoviridus* tall sparse shrubland over **Cenchrus ciliaris, Cymbopogon ambiguus, Eriachne benthamii* sparse tussock grassland with *Triodia longiceps* isolated clumps of hummock grasses with *Eucalyptus camaldulensis, Eucalyptus victrix* mid isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	0.6		
Acacia citrinoviridis	12.0	11.0		
Acacia coriacea subsp. *pendens*	4.0	8.0		
Acacia pyrifolia var. *pyrifolia*	0.1	1.5		
Arivela viscosa	0.1	0.5		
Capparis spinosa subsp. *nummularia*	0.1	0.4		
**Cenchrus ciliaris*	1.0	0.5		
Cucumis variabilis	0.1	0.1		
Cymbopogon ambiguus	0.5	0.3		
Eriachne benthamii	0.5	0.2		
Eucalyptus camaldulensis subsp. *refulgens*	1.5	13.0		
Eucalyptus victrix	0.5	10.0		
Eulalia aurea	0.1	0.6		
Euphorbia australis var. *subtomentosa*	0.1	0.1		
Euphorbia biconvexa	0.1	0.3		
Euphorbia boophthona	0.1	0.9		
Gossypium robinsonii	0.1	1.7		
Indigofera monophylla	0.1	0.3		
Nellica maderaspatensis	0.1	0.4		
Petalostylis labicheoides	0.1	1.8		
Rhynchosia minima	0.1	0.1		
Themeda triandra	0.1	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-063**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
729181 mE; 7455264 mN
119.2358 E -22.995205 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eremophila longifolia*, *Stylobasium spathulatum, Acacia tumida, Acaica pyrifolia* var *pyrifolia* low to mid sparse shrubland over *Triodia pungens* low sparse hummock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	1.0	2.0		
Acacia tumida var. *pilbarensis*	2.0	3.5		
Afrohybanthus aurantiacus	0.1	0.3		
Arivela viscosa	0.1	0.6		
Corymbia hamersleyana	2.0	4.0		
Cucumis variabilis	0.1	0.0		
Eremophila longifolia	3.0	1.5		
Eriachne benthamii	0.5	0.4		
Gossypium robinsonii	0.1	1.5		
Grevillea wickhamii	0.1	1.8		
Indigofera georgei	0.1	0.4		
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.3		
Ptilotus exaltatus	0.1	0.5		
Ptilotus obovatus var. *obovatus*	0.1	0.5		
Senna artemisioides subsp. *helmsii*	0.1	0.5		
Senna glutinosa subsp. *glutinosa*	0.1	0.7		
Stylobasium spathulatum	1.0	1.8		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.6		
Triodia pungens	3.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-064**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
723162 mE; 7451119 mN
119.1777 E -23.033433 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation **Cenchrus ciliaris, Themeda triandra, Eulalia aurea* tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens* open mid woodland over *Acacia citrinoviridus, Acacia coriacea* subsp. *pendens* low sparse woodland over *Dodonaea lanceolata, Petalostylis labicheoides* tall sparse shrubland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	3.0	8.0		
Acacia coriacea subsp. *pendens*	1.0	7.0		
Atalaya hemiglauca	0.1	3.5		
**Cenchrus ciliaris*	35.0	0.5		
Cyperus vaginatus	0.1	0.5		
Dodonaea lanceolata var. *lanceolata*	1.0	2.2		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	14.0		
Eucalyptus victrix	0.1	8.0		
Eulalia aurea	1.0	0.5		
Petalostylis labicheoides	0.5	2.8		
Stylobasium spathulatum	0.1	1.7		
Themeda triandra	12.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-065**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
729003 mE; 7453939 mN
119.2343 E -23.007187 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* var. *pyrifolia* tall shrubland over *Cymbopogon ambiguus*, *Eriachne mucronata*, **Cenchrus ciliaris*, *Themeda triandra* low open tussock grassland
Notes

Name	Cover	Height	Specimen	Notes
Acacia pyrifolia var. *pyrifolia*	4.0	5.0		
Acacia tumida var. *pilbarensis*	16.0	6.0		
Alternanthera nana	0.1	0.3		
Androcalva luteiflora	0.1	1.0		
Arivela viscosa	0.1	0.4		
**Cenchrus ciliaris*	2.5	0.5		
Clerodendrum floribundum var. *angustifolium*	0.1	1.2	JWG065.01	
Cymbopogon ambiguus	0.1	0.4		
Eriachne mucronata	1.0	0.4		
Gossypium robinsonii	0.1	6.0		
Indigofera fractiflexa subsp. *fractiflexa*	0.1	0.4		
Isotropis iophyta	0.1	0.6	JWG031.01	
Jasminum didymum subsp. *lineare*	0.1	0.0		
Ptilotus obovatus var. *obovatus*	0.1	0.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.6		
Themeda triandra	1.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-066**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
730016 mE; 7449233 mN
119.2448 E -23.049521 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Petalostylis labicheoides, Eremophila longifolia, Acacia pyrifolia* mid to tall shrubland over *Eriachne benthamii* sparse tussock grassland with *Eucalyptus xerothermica* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia maitlandii	0.5	1.7		
Acacia pruinocarpa	0.5	4.0		
Acacia pyrifolia var. *pyrifolia*	10.0	2.3		
Acacia tumida var. *pilbarensis*	0.1	3.5		
Androcalva luteiflora	3.0	2.5		
Duperreya commixta	0.1	0.1		
Eremophila longifolia	10.0	2.8		
Eriachne benthamii	2.0	0.3		
Eucalyptus xerothermica	0.5	7.0	JWG030.01	
Petalostylis labicheoides	15.0	3.5		
Ptilotus exaltatus	0.1	0.4		
Ptilotus obovatus var. *obovatus*	0.1	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-067**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
730308 mE; 7458324 mN
119.2463 E -22.967422 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis* mid to tall shrubland over *Triodia pungens* low sparse hummock grassland with *Corymbia hamersleyana*, *Eucalyptus gamophylla* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia adoxa var. *adoxa*	0.1	0.4		
Acacia ancistrocarpa	0.1	0.5		
Acacia tumida var. *pilbarensis*	18.0	6.0		
Bonamia erecta	0.1	0.4		
Corymbia hamersleyana	1.0	6		
Eucalyptus gamophylla	1.0	2.5		
Grevillea wickhamii	0.1	1.0		
Indigofera monophylla	0.1	0.4		
Petalostylis labicheoides	0.1	2.5		
Scaevola parvifolia subsp. *pilbarae*	0.1	0.4		
Senna glutinosa subsp. *luerssenii*	0.1	0.7		
Themeda triandra	0.1	0.6		
Triodia pungens	2.5	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-068**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Notes
Location MGA Zone 50
727473 mE; 7450406 mN
119.2199 E -23.039285 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat Medium Drainage Line
Vegetation *Acacia citrinoviridus* tall open shrubland over **Cenchrus ciliaris, Themeda triandra, Eulalia aurea* open tussock grassland with *Eucalyptus camaldulensis* subsp. *refulgens, Eucalyptus xerothermica* low open woodland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. indet	0.1	1.7	JWG044.01	
Acacia citrinoviridis	25.0	6.0		
Acacia pyrifolia var. *pyrifolia*	0.1	0.5		
Androcalva luteiflora	0.1	0.5		
Arivela viscosa	0.1	0.5		
Atalaya hemiglauca	0.1	2.5		
**Cenchrus ciliaris*	20.0	0.5		
Corchorus crozophorifolius	0.1	0.3		
Dipteracanthus australasicus subsp. *australasicus*	0.1	0.3		
Dodonaea lanceolata var. *lanceolata*	0.5	4.5		
Enteropogon ramosus	5.0	0.3		
Eucalyptus camaldulensis subsp. *refulgens*	1.0	18		
Eucalyptus xerothermica	2.0	6.0	JWG030.01	
Eulalia aurea	2.0	0.5		
Gossypium robinsonii	0.1	1.5		
Gossypium sturtianum var. *sturtianum*	0.1	0.5		
Isotropis iophyta	0.1	0.4		
Jasminum didymum subsp. *lineare*	0.1	1.2		
**Malvastrum americanum*	0.1	0.3		
Senna artemisioides subsp. *x artemisioides*	0.1	1.8		
**Sigesbeckia orientalis*	1.0	0.8	JWG042.01	
Solanum lasiophyllum	0.1	0.4		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	5.0	0.5		
Triodia longiceps	0.1	0.7		

Jinidi & Weeli Wolli GDV **Site JWG-069**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731545 mE; 7458497 mN
119.2584 E -22.965696 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia pyrifolia* var *pyrifolia, Acacia tumida* var *pilbarensis* tall shrubland over **Cenchrus ciliaris, Themeda triandra, Chrysopogon fallax* mid grassland with *Corymbia hamersleyana* low isolated trees
Notes

Name	Cover	Height	Specimen	Notes
Acacia pyrifolia var. *pyrifolia*	14.0	6.0		
Acacia tumida var. *pilbarensis*	11.0	5.5		
Alternanthera nana	0.1	0.4		
Androcalva luteiflora	0.1	1.0		
Arivela viscosa	0.1	0.4		
**Cenchrus ciliaris*	21.0	0.5		
Chrysopogon fallax	0.5	0.5		
Corymbia hamersleyana	2.0	7.0		
Cucumis variabilis	0.1	0.0		
Eremophila longifolia	0.1	1.8		
Gossypium robinsonii	0.1	1.8		
Indigofera georgei	0.1	0.5		
Isotropis iophyta	0.1	0.7	JWG031.01	
Petalostylis labicheoides	0.1	1.8		
Ptilotus exaltatus	0.0	0.5		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.5		
Themeda triandra	1.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	1.6		

Jinidi & Weeli Wolli GDV **Site JWG-070**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
729759 mE; 7454771 mN
119.2415 E -22.999572 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis* closed shrubland over *Themeda triandra* sparse tussock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Name	Cover	Height	Specimen	Notes
Acacia tumida var. *pilbarensis*	75.0	3.5		
Corymbia hamersleyana	1.0	5.0		
Cucumis variabilis	0.1	0.1		
Dodonaea lanceolata var. *lanceolata*	0.1	1.8		
Duperreya commixta	0.1	0.1		
Gossypium robinsonii	0.1	1.7		
Grevillea wickhamii	0.1	1.7		
Petalostylis labicheoides	0.1	2.0		
Senna glutinosa subsp. *glutinosa*	0.1	1.5		
Themeda triandra	5.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.5		
Triodia pungens	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-071**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type MN
Location MGA Zone 50
732430 mE; 7456223 mN
119.2673 E -22.986091 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var *pilbarensis* tall shrubland over **Cenchrus ciliaris* mid tussock grassland with *Ficus brachypoda* mid isolated shrubs
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	1.7		
Acacia tumida var. *pilbarensis*	18.0	6.5		
**Cenchrus ciliaris*	24.0	0.5		
Corymbia hamersleyana	7.0	10		
Cucumis variabilis	0.1	0.0		
Ficus brachypoda	1.0	2.0		
Gossypium robinsonii	0.1	2.5		
Petalostylis labicheoides	0.1	2.0		
Ptilotus obovatus var. *obovatus*	0.1	0.5		
Santalum lanceolatum	0.1	2.0		
Senna artemisioides subsp. *oligophylla*	0.1	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-072**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
729163 mE; 7453406 mN
119.2359 E -23.011976 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis* closed shrubland over *Themeda triandra* sparse tussock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia tumida var. *pilbarensis*	75.0	3.5		
Androcalva luteiflora	0.1	1.5		
Corymbia hamersleyana	1.0	5.0		
Cymbopogon ambiguus	0.1	0.3		
Dodonaea lanceolata var. *lanceolata*	0.1	1.0		
Eriachne mucronata	0.1	0.2		
Gossypium robinsonii	0.1	1.7		
Grevillea wickhamii	0.1	1.7		
Petalostylis labicheoides	0.1	2.0		
Themeda triandra	5.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-073**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731550 mE; 7455040 mN
119.2589 E -22.996891 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* tall shrubland over *Themeda triandra*, **Cenchrus ciliaris, Eragrostis cumingii* low open tussock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	0.1	1.0		
Acacia tumida var. *pilbarensis*	14.0	6.0		
Arivela viscosa	0.1	0.5		
**Cenchrus ciliaris*	2.0	0.4		
Corymbia hamersleyana	2.0	7.0		
Dodonaea lanceolata var. *lanceolata*	0.1	2.5		
Eragrostis cumingii	0.5	0.4	JWG041.01	
**Eragrostis tenuifolia*	0.1	0.4		
Eucalyptus gamophylla	0.5	3.0		
Gossypium robinsonii	0.1	1.0		
Grevillea wickhamii	0.1	2.5		
Indigofera georgei	0.1	0.5		
Jasminum didymum subsp. *lineare*	0.1	0.0		
Petalostylis labicheoides	0.1	2.0		
Ptilotus exaltatus	0.1	0.6		
Ptilotus obovatus var. *obovatus*	0.1	0.4		
Santalum lanceolatum	0.1	2.2		
Senna artemisioides subsp. *oligophylla*	0.1	0.6		
Senna notabilis	0.1	0.4		
Themeda triandra	12.0	0.4		
Triodia pungens	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-074**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
729491 mE; 7458632 mN
119.2383 E -22.964753 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat Drainage Area/ Floodplain
Vegetation *Acacia catenulata* subsp. *occidentalis, Acacia pruinocarpa* tall shrubland over *Themeda triandra* isolated tussock grasses with *Acacia pyrifolia, Androcalva luteiflora* mid isolated shrubs with *Eucalyptus xerothermica*
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon lepidum	0.1	0.2		
Acacia aptaneura	30.0	6.0	JWG012.01	
Acacia pruinocarpa	10.0	5.5		
Acacia pyrifolia var. *pyrifolia*	0.5	1.8		
**Bidens bipinnata*	0.1	0.4		
Capparis lasiantha	0.1	0.1		
Cheilanthes sieberi	0.1	0.1		
Convolvulus remotus	0.1	0.1	JWG074.01	
Cucumis variabilis	0.1	0.1		
Duperreya commixta	0.1	0.1		
Eucalyptus gamophylla	0.5	5.0	JWG-028.02	
Eucalyptus xerothermica	1.0	6.0	JWG030.01	
Evolvulus alsinoides var. *villosicalyx*	0.1	0.2		
Grevillea wickhamii	0.1	2.0		
Isotropis iophyta	0.1	0.3		
Jasminum didymum subsp. *lineare*	0.1	0.3		
**Malvastrum americanum*	0.1	0.2		
Nellica maderaspatensis	0.1	0.1		
Rhynchosia minima	0.1	0.1		
Santalum lanceolatum	0.1	2.0		
Senna artemisioides subsp. *x artemisioides*	0.1	1.7		
**Setaria verticillata*	0.1	0.1		
Themeda triandra	1.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-075**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731649 mE; 7459945 mN
119.2591 E -22.952606 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis, Acacia pyrifolia* var. *pyrifolia* mid open shrubland over *Cymbopogon ambiguus, Themeda triandra, Eriachne benthamii*, **Cenchrus ciliaris* low open tussock grassland with *Corymbia hamersleyana* low open woodland over *Tephrosia rosea* var. Fortescue Creek low sparse herbland
Notes

Name	Cover	Height	Specimen	Notes
Acacia pyrifolia var. *pyrifolia*	4.0	1.9		
Acacia tumida var. *pilbarensis*	9.0	1.9		
Androcalva luteiflora	0.1	0.7		
Arivela viscosa	0.1	0.5		
Bonamia erecta	0.1	0.5		
**Cenchrus ciliaris*	4.0	0.4		
Corymbia hamersleyana	8.0	7.5		
Cymbopogon ambiguus	1.0	0.4		
Enneapogon lindleyanus	0.1	0.4		
Eriachne benthamii	1.0	0.4		
Ptilotus obovatus var. *obovatus*	0.1	0.4		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	2.0	0.4		
Themeda triandra	2.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-076**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731619 mE; 7457922 mN
119.2592 E -22.970867 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis, Grevillea wickhamii* tall open shrubland over *Corchorus crozophorifolius* mid open shrubland with *Corymbia hamersleyana* low isolated trees over *Tephrosia rosea* var. Fortescue creek low sparse shrubland over *Eriachne benthamii, Cymbopogon ambiguus, *Cenchrus ciliaris* isolated tussock grasses with *Triodia pungens* isolated hummock grasses
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pachyacra	0.1	1.6		
Acacia pyrifolia var. *pyrifolia*	0.1	1.0		
Acacia tumida var. *pilbarensis*	20.0	3.0		
Afrohybanthus aurantiacus	0.1	0.4		
Androcalva luteiflora	0.1	1.5		
Aristida contorta	0.1	0.1		
Arivela viscosa	0.1	0.4		
*Cenchrus ciliaris	1.0	0.4		
Clerodendrum floribundum var. *angustifolium*	0.1	1.8	JWG076.01	
Corchorus crozophorifolius	15.0	1.0		
Corymbia hamersleyana	2.0	9.0		
Cymbopogon ambiguus	0.5	0.3		
Enneapogon caerulescens	0.1	0.2		
Enneapogon polyphyllus	0.1	0.1		
Eriachne benthamii	1.0	0.3		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Gomphrena cunninghamii	0.1	0.1		
Gossypium robinsonii	0.1	1.8		
Grevillea wickhamii	1.0	2.5		
Indigofera georgei	0.1	0.2		
Nellica maderaspatensis	0.1	0.1		
Petalostylis labicheoides	0.1	3.0		
Ptilotus exaltatus	0.1	0.4		
Santalum lanceolatum	0.1	1.6		
Stylobasium spathulatum	0.1	1.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	3.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.7		
Triodia pungens	0.5	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-077**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
736452 mE; 7457136 mN
119.3064 E -22.977284 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis* mid sparse shrubland over *Triodia pungens* low sparse hummock grassland with *Corymbia hamersleyana* low isolated trees
Notes

Name	Cover	Height	Specimen	Notes
Acacia monticola	0.1	2.0		
Acacia tumida var. *pilbarensis*	14.0	2.5		
Androcalva luteiflora	0.1	1.0		
Corymbia hamersleyana	4.0	7.5		
Dodonaea lanceolata var. *lanceolata*	0.1	1.5		
Gossypium robinsonii	0.1	1.8		
Grevillea wickhamii	0.1	1.5		
Indigofera fractiflexa subsp. *fractiflexa*	0.1	0.6		
Petalostylis labicheoides	0.1	1.9		
Themeda triandra	0.1	0.4		
Triodia pungens	3.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-078**

Date 20/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
731828 mE; 7456628 mN
119.2614 E -22.982522 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii*, *Acacia pyrifolia* tall shrubland over *Eriachne benthamii, Themeda triandra* open tussock grassland with *Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creek low to mid sparse shrubland with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia monticola	0.1	2.0		
Acacia pyrifolia var. *pyrifolia*	1.0	2.3		
Acacia tumida var. *pilbarensis*	30.0	4.0		
Afrohybanthus aurantiacus	0.1	0.5		
Arivela viscosa	0.1	0.4		
**Cenchrus ciliaris*	1.0	0.5		
Corchorus crozophorifolius	2.0	1.0		
Corymbia hamersleyana	2.0	11.0		
Cymbopogon ambiguus	0.1	0.4		
Eriachne benthamii	25.0	0.3		
Euphorbia biconvexa	0.1	0.2		
Gomphrena cunninghamii	0.1	0.1		
Gossypium robinsonii	0.1	1.2		
Grevillea wickhamii	4.0	3.0		
Senna notabilis	0.1	0.1		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	3.0	0.5		
Themeda triandra	10.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-079**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
733657 mE; 7455139 mN
119.2794 E -22.995707 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* var. *pyrifolia* mid shrubland over *Eriachne benthamii, Cymbopogon ambiguus, Themeda triandra* low sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	1.0	2.5		
Acacia tumida var. *pilbarensis*	18.0	2.5		
Alternanthera nana	0.1	0.2		
Androcalva luteiflora	0.1	1.0		
Arivela viscosa	0.1	0.4		
Corymbia hamersleyana	0.1	2.5		
Cymbopogon ambiguus	0.5	0.4		
Eriachne benthamii	2.0	0.4		
Gomphrena cunninghamii	0.1	0.2		
Gossypium robinsonii	0.1	1.5		
Indigofera fractiflexa subsp. *fractiflexa*	0.1	0.6		
Indigofera georgei	0.1	1.0		
Petalostylis labicheoides	0.1	1.0		
Senna glutinosa subsp. *glutinosa*	0.1	0.6		
Stylobasium spathulatum	0.1	1.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	1.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-080**

Date 20/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

731483 mE; 7455070 mN

119.2583 E -22.996634 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat Minor Drainage Line

Vegetation *Acacia tumida* var. *pilbarensis, Grevillea wickhamii, Petalostylis labicheoides* tall shrubland over *Eriachne benthamii, Themeda triandra* isolated tussock grasses with *Corymbia hamersleyana* low isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)	0.1	0.1		
Acacia pyrifolia var. *pyrifolia*	5.0	3.0		
Acacia tumida var. *pilbarensis*	15.0	3.5		
Androcalva luteiflora	0.1	1.7		
Arivela viscosa	0.1	0.4		
Corchorus lasiocarpus subsp. *parvus*	0.1	0.1		
Corymbia hamersleyana	1.0	4.5		
Cucumis variabilis	0.1	0.1		
Duperreya commixta	0.1	0.1		
Dysphania rhadinostachya subsp. *rhadinostachya*	0.1	0.4		
Enneapogon caerulescens	0.1	0.2		
Eriachne benthamii	1.0	0.3		
Euphorbia boophthona	0.1	0.5		
Evolvulus alsinoides var. *villosicalyx*	0.1	0.1		
Gossypium robinsonii	0.1	2.3		
Grevillea wickhamii	10.0	3.5		
Jasminum didymum subsp. *lineare*	0.1	0.6		
Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)	0.1	0.2		
Petalostylis labicheoides	8.0	3.5		
Ptilotus exaltatus	0.1	0.6		
Ptilotus fusiformis	0.1	0.3		
Santalum lanceolatum	1.0	1.8		
Senna notabilis	0.1	0.1		
Stylobasium spathulatum	0.1	1.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.2		
Themeda triandra	1.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.6		

Jinidi & Weeli Wolli GDV **Site JWG-081**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
723517 mE; 7446499 mN
119.1818 E -23.075089 S
Veg Condition Very Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Petalostylis labechiodies, Acacia bivenosa* mid open shrubland with *Corymbia hamersleyana* low isolated trees over *Androcalva leutiflora, Acacai pyrifolia* var *pyrifolia* low sparse shrubland over *Themeda triandra, Eriachne benthamii, Cymbopogon ambiguus, *Cenchrus ciliaris* mid to low sparse tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	2.0	2.6		
Acacia dictyophleba	0.1	1.9		
Acacia maitlandii	0.1	1.8		
Acacia monticola	0.1	1.9		
Acacia pyrifolia var. *pyrifolia*	1.0	1.8		
Androcalva luteiflora	3.0	1.5		
Arivela viscosa	0.1	0.7		
**Cenchrus ciliaris*	2.0	0.5		
Corymbia hamersleyana	4.0	8.0		
Cucumis variabilis	0.1	0.0		
Cymbopogon ambiguus	0.5	0.5		
Eriachne benthamii	2.0	0.4		
Euphorbia sp. indet (bi/tri)	0.1	0.3		
Gossypium robinsonii	0.1	1.2		
Hakea chordophylla	0.1	1.8		
Indigofera georgei	0.1	0.4		
Jasminum didymum subsp. *lineare*	0.1	0.0		
Petalostylis labicheoides	6.0	2.4		
Ptilotus exaltatus	0.1	0.5		
Ptilotus fusiformis	0.1	0.5		
Stylobasium spathulatum	0.1	1.5		
Themeda triandra	4.0	0.4		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.6		
Triodia pungens	0.1	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-082**

Date 21/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

731652 mE;7459793 mN

119.2592 E -22.953982 S

Veg Condition Very Good

Soil

Rock Type

Fire Age

Habitat Stony Plain

Vegetation *Acacia pteraneura, Acacia pruinocarpa* tall open shrubland over *Triodia pungens* sparse hummock grassland *Ptilotus obovatus* low isolated shrubs with **Cenchrus ciliaris* isolated clumps of tussock grasses with *Eucalyptus xerothermica* low isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia aptaneura	0.1	3.5	JWG082.01	
Acacia pruinocarpa	8.0	4.0		
Acacia pteraneura	12.0	4.0	JWG012.02	
Capparis lasiantha	0.1	1.5		
**Cenchrus ciliaris*	0.5	0.5		
Duperreya commixta	0.1	0.1		
Eremophila forrestii subsp. *forrestii*	0.1	1.0	JWG012.08	
Eremophila longifolia	0.1	2.0		
Eucalyptus xerothermica	3.0	7.0	JWG030.01	
Ptilotus obovatus var. *obovatus*	0.5	0.3		
Triodia pungens	9.0	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-083**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
716491 mE; 7442274 mN
119.1139 E -23.114163 S
Veg Condition Good
Soil
Rock Type
Fire Age
Habitat
Vegetation *Eucalyptus camaldulensis, Eucalyptus victrix* mid open woodland over *Acacia citrinoviridis, Acacia dictyophleba* tall open shrubland over **Cenchrus ciliaris, Eulalia aurea, Themeda triandra* mid tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	4.0		
Acacia citrinoviridis	7.0	4.0		
Acacia dictyophleba	5.0	3.5		
Acacia pyrifolia var. *pyrifolia*	0.1	0.6		
Adriana tomentosa var. *tomentosa*	0.1	2.0	JWG083.01	
Androcalva luteiflora	0.1	1.8		
Arivela viscosa	0.1	0.4		
**Cenchrus ciliaris*	45.0	0.7		
Duperreya commixta	0.1	0.0		
Enteropogon ramosus	1.0	0.5		
**Eragrostis tenuifolia*	0.1	0.1		
Eremophila longifolia	0.1	1.1		
Eucalyptus camaldulensis subsp. *refulgens*	10.0	20.0		
Eucalyptus victrix	5.0	16.0		
Eulalia aurea	10	0.5		
Gossypium sturtianum var. *sturtianum*	0.1	1.1		
Isotropis iophyta	0.1	0.4	JWG031.01	
Senna artemisioides subsp. x *artemisioides*	0.1	1.0		
Sorghum plumosum var. *plumosum*	8.0	0.5		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		
Themeda triandra	1.0	0.5		
Trichodesma zeylanicum var. *zeylanicum*	0.1	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-084**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
735575 mE; 7457591 mN
119.2978 E -22.973301 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Minor Drainage Line
Vegetation *Acacia tumida* var. *pilbarensis*, *Grevillea wickhamii* tall shrubland over *Triodia pungens* low isolated hummock grasses with *Corymbia hamersleyana* low isolated trees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia tumida var. *pilbarensis*	35.0	4.0		
Androcalva luteiflora	0.5	1.0		
Corymbia hamersleyana	1.0	5.5		
Cucumis variabilis	0.1	0.1		
Duperreya commixta	0.1	0.1		
Gossypium robinsonii	0.1	1.8		
Grevillea wickhamii	1.0	3.5		
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)	0.1	1.0	JWG-084.01	
Indigofera georgei	0.1	0.3		
Paspalidium clementii	0.1	0.1		
Petalostylis labicheoides	0.1	2.8		
Senna artemisioides subsp. *helmsii*	0.1	0.2		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.5	0.8		
Themeda triandra	0.1	0.3		
Triodia pungens	1.0	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-086**

Date 21/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

734374 mE; 7454765 mN

119.2865 E -22.998980 S

Veg Condition Excellent

Soil

Rock Type

Fire Age

Habitat Gully

Vegetation *Acacia tumida* var. *pilbarensis* tall shrubland over *Themeda triandra, Eriachne benthamii* sparse tussock grassland with *Corymbia hamersleyana* low isolated trees

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia maitlandii	0.1	1.0		
Acacia tumida var. *pilbarensis*	40.0	4.0		
Adriana tomentosa var. tomentosa	0.1	1.5		
Afrohybanthus aurantiacus	0.1	0.2		
Androcalva luteiflora	0.1	1.8		
Corymbia deserticola	0.1	1.7		
Corymbia hamersleyana	0.5	8.0		
Dodonaea lanceolata var. *lanceolata*	0.1	1.9		
Duperreya commixta	0.1	0.1		
Eriachne mucronata	0.5	0.3		
Gossypium robinsonii	0.1	2.0		
Petalostylis labicheoides	0.1	3.0		
Ptilotus obovatus var. *obovatus*	0.1	0.4		
Senna glutinosa subsp. *glutinosa*	0.1	1.7		
Solanum lasiophyllum	0.1	0.3		
Themeda triandra	2.0	0.4		
Triodia pungens	0.1	0.4		

Jinidi & Weeli Wolli GDV **Site JWG-088**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
733141 mE; 7453954 mN
119.2746 E -23.006478 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat
Vegetation *Acacia tumida* var. *pilbarensis* tall shrubland with *Corymbia hamersleyana* low isolated trees over *Tephrosia rosea* var. Fortescue creek low isolated shrubs
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia pyrifolia var. *pyrifolia*	0.1	2.5		
Acacia tumida var. *pilbarensis*	35.0	4.5		
Androcalva luteiflora	0.1	1.7		
Arivela viscosa	0.1	0.6		
Corymbia hamersleyana	1.0	5.0		
Cucumis variabilis	0.1	0.1		
Cymbopogon ambiguus	0.1	0.2		
Dodonaea lanceolata var. *lanceolata*	0.1	1.5		
Enneapogon caerulescens	0.1	0.1		
Eriachne benthamii	0.1	0.2		
Gomphrena cunninghamii	0.1	0.1		
Jasminum didymum subsp. *lineare*	0.1	0.4		
Ptilotus exaltatus	0.1	0.4		
Rhynchosia minima	0.1	0.1		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	1.0	0.3		
Themeda triandra	0.1	0.5		
Waltheria indica	0.1	0.3		

Jinidi & Weeli Wolli GDV **Site JWG-090**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
724715 mE; 7446366 mN
119.1935 E -23.076128 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Drainage Area/ Floodplain
Vegetation *Triodia pungens* open hummock grassland with *Themeda triandra, Eriachne benthamii* open tussock grassland with *Acacia bivenosa, Petalostylis labicheoides, Androcalva luteiflora* mid to tall sparse shrubland with *Eucalyptus xerothermica* low isolated trees over *Eucalyptus socialis* low mallees
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia arida	0.1	1.7		
Acacia bivenosa	3.0	2.1		
Acacia maitlandii	0.5	1.7		
Androcalva luteiflora	1.5	2.3		
Dodonaea lanceolata var. *lanceolata*	0.1	1.5		
Eriachne benthamii	1.0	0.2		
Eucalyptus socialis	3.0	3.0	JWG090.01	
Eucalyptus xerothermica	0.5	8.0	JWG030.01	
Jasminum didymum subsp. *lineare*	0.1	0.5		
Petalostylis labicheoides	1.5	2.3		
Ptilotus obovatus var. *obovatus*	0.1	0.1		
Senna artemisioides subsp. x *artemisioides*	0.1	1.3		
Themeda triandra	10.0	0.4		
Triodia pungens	12.0	0.5		

Jinidi & Weeli Wolli GDV **Site JWG-092**

Date 21/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50
718913 mE; 7445102 mN
119.1371 E -23.088314 S

Veg Condition Good

Soil

Rock Type

Fire Age

Habitat

Vegetation *Acacia citrinoviridus* tall open shrubland over **Cenchrus ciliaris, Themeda triandra, Eriachne benthamii* open tussock grassland with *Eucalyptus camaldulensis, Eucalyptus victrix mid* open woodland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia bivenosa	0.1	1.8		
Acacia citrinoviridis	20.0	5.0		
Acacia dictyophleba	0.1	1.9		
Acacia pyrifolia var. *pyrifolia*	0.1	1.0		
Adriana tomentosa var. *tomentosa*	0.1	0.5		
Androcalva luteiflora	0.1	1.0		
Arivela viscosa	0.1	0.4		
Capparis spinosa subsp. *nummularia*	0.1	0.5		
**Cenchrus ciliaris*	10	0.5		
Chrysopogon fallax	0.1	0.4		
Cymbopogon ambiguus	0.1	0.3		
Dodonaea lanceolata var. *lanceolata*	0.1	1.7		
Eriachne benthamii	0.5	0.3		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	14.0		
Eucalyptus victrix	4.0	15.0		
Eucalyptus xerothermica	0.1	7.0	JWG030.01	
Eulalia aurea	3.0	0.5		
Jasminum didymum subsp. *lineare*	0.1	0.5		
**Malvastrum americanum*	0.1	0.1		
Melaleuca glomerata	0.1	1.9		
Petalostylis labicheoides	0.1	1.7		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.4		
Themeda triandra	5.0	0.4		
**Vachellia farnesiana var. farnesiana*	0.1	1.5		

Jinidi & Weeli Wolli GDV **Site JWG-094**

Date 21/07/2024
Described by K. Jennings, R. Cunnane
Type Vegetation Mapping Note
Location MGA Zone 50
721891 mE; 7443680 mN
119.1664 E -23.100758 S
Veg Condition Excellent
Soil
Rock Type
Fire Age
Habitat Gorge
Vegetation *Eucalyptus camaldulensis, Eucalyptus victrix, Acacia citrinoviridus* open woodland over *Sorghum plumosum* var. *plumosum, Enteropogon ramosus, Aristida inaequiglumis, Eulalia aurea* mid open tussock grassland
Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	15.0	12.0		
Aristida inaequiglumis	1.0	0.7	JWG13.01	
Capparis lasiantha	0.1	0.5		
Cymbopogon ambiguus	0.1	0.2		
Dodonaea lanceolata var. *lanceolata*	0.1	2.5		
Dodonaea pachyneura	0.1	2.5	JWG094.02	
Dodonaea pachyneura	0.1	4.0	JWG094.01	
Duperreya commixta	0.1	0.1		
Enteropogon ramosus	5.0	0.4		
Eucalyptus camaldulensis subsp. *refulgens*	4.0	14.0		
Eucalyptus victrix	6.0	14.0		
Eucalyptus xerothermica	0.1	6.0	JWG030.01	
Eulalia aurea	1.0	0.5		
Evolvulus alsinoides var. *decumbens*	0.1	0.1		
Ficus brachypoda	0.1	6.0		
Glycine canescens	0.1	0.1		
Jasminum didymum subsp. *lineare*	0.1	0.4		
Petalostylis labicheoides	0.1	1.9		
Psydrax latifolia	0.1	1.9		
Rhynchosia minima	0.1	0.1		
Senna glutinosa subsp. *glutinosa*	0.1	0.7		
Sida sp. Shovelanna Hill (S. van Leeuwen 3842)	0.1	0.2		
Sorghum plumosum var. *plumosum*	15	0.6		
Triodia pungens	0.1	0.3		
**Vachellia farnesiana* var. *farnesiana*	0.1	1.0		

Jinidi & Weeli Wolli GDV **Site JWG-096**

Date 21/07/2024

Described by K. Jennings, R. Cunnane

Type Vegetation Mapping Note

Location MGA Zone 50

717969 mE; 7442872 mN

119.1282 E -23.108573 S

Veg Condition Poor

Soil

Rock Type

Fire Age

Habitat Gully

Vegetation *Acacia citrinoviridus, Melaleuca glomerata* tall open shrubland over **Cenchrus ciliaris* mid open tussock grassland with *Eucalyptus camaldulensis* mid open woodland

Notes

Site Taxa	Cover (%)	Height (m)	Specimen #	Notes
Acacia citrinoviridis	10.0	8.0		
**Cenchrus ciliaris*	5.0	0.7		
Dodonaea lanceolata var. *lanceolata*	0.1	2.0		
Eriachne mucronata	0.1	0.2		
Eucalyptus camaldulensis subsp. *refulgens*	8.0	12.0		
Gossypium robinsonii	0.1	2.5		
Melaleuca glomerata	6.0	3.5		
Pluchea rubelliflora	0.1	0.1		
Sorghum plumosum var. plumosum	0.1	0.6		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.1	0.3		
Themeda triandra	0.1	0.2		
Typha domingensis	0.1	0.2		

Appendix F: WAH formal identification

Specimen Submission to the Western Australian Herbarium

Identification and/or incorporation requests

Date: 19/08/2024 Number of boxes: 1 Number of specimens: 3

Contact name: Rylan Cunnane

Organisation: Biologic Environmental Survey

Postal Address: 24-26 Wickham Street, East Perth, WA

Postcode: 6004

Scientific collecting licence number(s): FB62000486

Contact Phone No.: 08 6365 5066

Email: rylan.cunnane@biologicenv.com.au **Your reference code:** 23167

Preferred communication method:

☐ post ☐ phone ■ email Please CC to herbarium@biologicenv.com.au

Please describe the purpose for specimen collection (e.g., survey of a particular area, research voucher):

Collected during targeted GDV survey for Jinidi project area and surrounds, approx. 50km WNW of Newman

Please select the following:

Identification

■ paid
☐ unpaid
☐ not requested

Incorporation

☐ paid
☐ unpaid
☐ not requested

Purpose of identification

■ general identification
☐ permit requirement
☐ legal requirement (Chain of Custody required)
☐ other (describe):

Return of specimens

■ Pickup from Reference Herbarium
☐ Australia Post (fee)
☐ Courier (prior arrangement needed)
☐ Return not required

Invoicing Information (for paid identification, incorporation, shipping)

Purchase order for invoicing or ETJ for internal invoicing:

HERBARIUM USE ONLY:

PERTH Accession #: ACC/11036/E_____RECEIPT DATE: 10 / 09/ 2024

Specimen List	WAH Taxonomist		Mike Hislop	PERTH Accession #: ACC/11036/E
Consultant ID	**Notes**	**Reason for submission**	**WA Herbarium ID**	**WA Herbarium Notes**
Gymnanthera cunninghamii	N/A	Con sig	*Gymnanthera cunninghamii* (P3)	
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	Immature flowers	Con sig	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)	
Eremophila naaykensii	N/A	Con sig	*Eremophila naaykensii* (P3)	

Appendix G: Vegetation structural classification

NVIS Vegetation Structural Classifications

Cover Characteristics							
Foliage cover *	70-100	30-70	10-30	<10	≈0	0-5	unknown
Crown cover **	>80	50-80	20-50	0.25-20	<0.25	0-5	unknown
% Crown cover ***	>80	50-80	20-50	0.25-20	<0.25	0-5	unknown
Cover code	d	c	i	r	bi	bc	unknown

Growth Form	Height ranges (m)	Structural Formation Classes						
tree, palm	>30 Tall	closed forest	open forest	woodland	open woodland	isolated trees	isolated clumps of trees	trees
	10-30 Mid							
	<10 Low							
tree mallee	10-30 Tall	closed mallee forest	open mallee forest	mallee woodland	open mallee woodland	isolated mallee trees	isolated clumps of mallee trees	mallee trees
	<10 Mid							
	<3 Low							
shrub, cycad, grasstree, fern	>2 Tall	closed shrubland	shrubland	open shrubland	sparse shrubland	isolated shrubs	isolated clumps of shrubs	shrubs
	1-2 Mid							
	<1 Low							
mallee shrub	10-30 Tall	closed mallee shrubland	mallee shrubland	open mallee shrubland	sparse mallee shrubland	isolated mallee shrubs	isolated clumps of mallee shrubs	mallee shrubs
	<10 Mid							
	<3 Low							

Growth Form	Height ranges (m)	Structural Formation Classes						
heath shrub	>2 Tall	closed heathland	heathland	open heathland	sparse heathland	isolated heath shrubs	isolated clumps of heath shrubs	heath shrubs
	1-2 Mid							
	<1 Low							
chenopod shrub	>2 Tall	closed chenopod shrubland	chenopod shrubland	open chenopod shrubland	sparse chenopod shrubland	isolated chenopod shrubs	isolated clumps of chenopod shrubs	chenopod shrubs
	1-2 Mid							
	<1 Low							
samphire shrub	>0.5 Low	closed samphire shrubland	samphire shrubland	open samphire shrubland	sparse samphire shrubland	isolated samphire shrubs	isolated clumps of samphire shrubs	samphire shrubs
	<0.5 Low							
hummock grass	>2 Tall	closed hummock grassland	hummock grassland	open hummock grassland	sparse hummock grassland	isolated hummock grasses	isolated clumps of hummock grasses	hummock grasses
	<2 Tall							
tussock grass	>0.5 Mid	closed tussock grassland	tussock grassland	open tussock grassland	sparse tussock grassland	isolated tussock grasses	isolated clumps of tussock grasses	tussock grasses
	<0.5 Low							
other grass	>0.5 Mid	closed grassland	grassland	open grassland	sparse grassland	isolated grasses	isolated clumps of grasses	other grasses
	<0.5 Low							
sedge	>0.5 Mid	closed sedgeland	sedgeland	open sedgeland	sparse sedgeland	isolated sedges	isolated clumps of sedges	sedges
	<0.5 Low							
rush	>0.5 Mid	closed rushland	rushland	open rushland	sparse rushland	isolated rushes	isolated clumps of rushes	rushes
	<0.5 Low							
forb	>0.5 Mid	closed forbland	forbland	open forbland	sparse forbland	isolated forbs	isolated clumps of forbs	forbs
	<0.5 Low							

Growth Form	Height ranges (m)	Structural Formation Classes						
fern	>2 Tall	closed fernland	fernland	open fernland	sparse fernland	isolated ferns	isolated clumpsof ferns	ferns
	1-2 Tall							
	<1 Low							
bryophyte	<0.5	closed bryophyte land	bryophyte land	open bryophyte land	sparse bryophyte land	isolated bryophytes	isolated clumps of bryophytes	bryophytes
lichen	<0.5	closed lichenland	lichenland	open lichenland	sparse lichenland	isolated lichens	isolated clumps of lichens	lichens
vine	>30 Tall	closed vineland	vineland	open vineland	sparse vineland	isolated vines	isolated clumps of vines	vines
	10-30 Med							
	<10 Low							
aquatic	<1 Tall	closed aquatic bed	aquatic bed	open aquatic bed	sparse aquatics	isolated aquatics	isolated clumps of aquatics	aquatics
	0-0.5 Low							
seagrass	<1 Tall	closed seagrass bed	seagrass bed	open seagrass bed	sparse seagrass bed	isolated seagrasses	isolated clumps of seagrasses	seagrasses
	0-0.5 Low							

From: NVIS Structural Formation Terminology (Australian Vegetation Attribute Manual Version 7.0 November 2017 https://www.environment.gov.au/land/publications/australian-vegetation-attribute-manual-version-7)

* Foliage Cover is defined for each stratum as 'the proportion of the ground, which would be shaded if sunshine came from directly overhead'. It includes branches and leaves and is obtained by multiplying Crown Cover with Crown type (Hnatiuk *et al.*, 2009). It is applied to a stratum in a plot, rather than an individual crown, with the NVIS measure for a vegetation type ideally being a summary of several plots. Foliage Projective Cover, which considers only the vertical projection of photosynthetic components (generally leaves), can be measured by line interception methods for tree, shrub and ground layer vegetation (Specht & Specht, 1999).

** Crown Cover (canopy cover) as per Hnatiuk *et al.* (2009) Although relationships between this attribute and Foliage Cover are dependent on season, species, species age etc., the crown cover category classes have been adopted as the defining measure.

*** The percentage cover is defined as the percentage of a strictly defined plot area, covered by vegetation. This can be an estimate and is a less precise measure than using, for example, a point intercept transect method on ground layer, or overstorey vegetative cover. That is, for precisely measured values (e.g., crown densitometer or point intercept transects) the value measured would be 'foliage' cover. Where less precise or qualitative measures are used these will most probably be recorded as 'percentage' cover.

Appendix H: Vegetation condition rating scale

Keighery (1994) Vegetation Condition Rating Scale

Vegetation Condition	Eremaean & Northern Botanical Province
Pristine	N/A
Excellent	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement
Very Good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Degraded	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely Degraded	Areas that are completely or almost completely without native species in the structure of their vegetation, i.e., areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix I: Biologic GDV assessment framework

GDV Likelihood Rating	General site features	Key/most common indicator species and density		
		Phreatophytic/Riparian	Mesophytic	Hydrophytic
High	Presence of mature obligate phreatophytes (i.e., *Melaleuca argentea*) with permanent to semi-permanent water bodies present. A high diversity and density of mesophytic and hydrophytic taxa.	**Abundant:** • *Melaleuca argentea* **Common:** • *Eucalyptus camaldulensis* • *Melaleuca argentea* **Present:** • *Sesbania formosa* • Arecaceae spp. (introduced and/or native)	**Abundant to Common:** • *Acacia ampliceps* • *Kirganelia baccata* • *Melaleuca glomerata* • *Melaleuca* bracteata **Present:** • *Cullen leucanthum* • *Gymnanthera cunninghamii* (P3) • *Imperata cylindrica*	**Abundant to Common:** • Characeae spp. • *Potamogeton spp.* • Hydrocharitaceae spp. • *Ruppia spp.* **Present:** • *Ammannia* spp. • *Cladium procerum* • *Eleocharis spp.* • *Fimbristylis sieberiana* (P3) • *Lobelia arnhemiaca* • *Pteris vittata* • *Samolus spp.* • *Schoenoplectiella spp.* • *Schoenoplectus subulatus* • *Schoenus* spp. • *Stylidium* spp.
Moderate	Presence of mature facultative phreatophytes (with potential for semi-mature to young obligate phreatophytes). Semi-permanent water bodies may be present. A moderate diversity and density of mesophytic and hydrophytic taxa.	**Abundant:** • *Eucalyptus camaldulensis* **Common:** • *Eucalyptus victrix* **Present:** • *Acacia citrinoviridis* • *Acacia coriacea* subsp. *pendens* • *Stylobasium spathulatum*	**Abundant:** • *Atalaya hemiglauca* • *Melaleuca glomerata* • *Sesbania cannabina* **Common to Present:** • *Adriana tomentosa* • *Dodonaea lanceolata* • *Duma florulenta* • *Gymnanthera cunninghamii* (P3) • *Kirganelia baccata* • *Melaleuca* bracteata • Myoporum montanum • *Plumbago zeylanica* • *Tinospora smilacina*	**Abundant:** • *Ammannia spp.* • *Cyperus* spp. • *Goodenia lamprosperma* • *Fimbristylis microcarya* • *Marsilea* spp. • *Typha domingensis* • *Vigna spp.* **Present:** • Characeae spp. • *Flueggea virosa* • Hydrocharitaceae spp. • *Ipomoea plebeia* • *Ipomoea racemigera* (P3)

GDV Likelihood Rating	General site features	Key/most common indicator species and density		
		Phreatophytic/Riparian	Mesophytic	Hydrophytic
				• *Muellerolimon salicorniaceum* • *Potamogeton spp.* • *Ruppia spp.* • *Schenkia spp.* • *Schoenoplectiella spp.* • *Schoenoplectus subulatus* • *Stemodia grossa*
Low	Scattered presence of facultative phreatophyte (*Eucalyptus* camaldulensis) and/or abundance e of mature vadophyte (i.e., *Eucalyptus victrix*). Medium to minor flowlines. Ephemeral to semi-permanent water bodies may be present. Low diversity and density of mesophytic and hydrophytic taxa.	**Abundant to Common:** • *Acacia citrinoviridis* • *Acacia coriacea* subsp. *pendens* • *Eucalyptus victrix* • *Eucalyptus xerothermica* • *Stylobasium spathulatum* **Present:** • *Acacia sclerosperma* • *Corymbia candida* • *Eucalyptus camaldulensis* • *Sesbania cannabina* • *Ventilago viminalis*	**Abundant to Common:** • *Cyperus spp.* • *Eulalia aurea* • *Eriachne benthamii* • *Gossypium sturtianum* • *Stemodia grossa* **Present:** • *Abutlion amplum* • *Atalaya hemiglauca* • *Dodonaea lanceolata* • *Ehretia saligna* • *Melaleuca glomerata* • *Plumbago zeylanica*	**Present:** • *Ammannia spp.* • *Cathetus spp.* • *Commicarpus australis* • *Elytrophorus spicatus* • *Eragrostis elongata* • *Fimbristylis microcarya* • *Flueggea virosa* • *Goodenia lamprosperma* • *Leptochloa digitata* • *Marsilea spp.* • *Myriophyllum spp.* • *Najas spp.* • *Pluchea dentex* • *Pluchea rubelliflora* • *Sorghum spp.* • *Striga curviflora* • *Urochloa spp.* • *Typha domingensis* • *Wahlenbergia spp.* • *Vigna spp.*
Negligible	Minor to medium flowlines and drainage areas. Mostly inflow dependent riparian species (i.e.,	No groundwater indicator species present or not present at the density that would indicate presence of soil moisture. Mostly mature vadophytic taxa, with riparian tree species (i.e., *Eucalyptus xerothermica*, *Corymbia hamersleyana*). High diversity of riparian species abundant and common.		

GDV Likelihood Rating	General site features	Key/most common indicator species and density		
		Phreatophytic/Riparian	Mesophytic	Hydrophytic
	Acacia tumida) are prevalent and dominant.			
None	Minor flowlines and drainage areas. Occurs on upland habitats (i.e., hummock grassland on stony hills and slopes) that are highly unlikely to have to access to or be reliant on groundwater presence.	None present.		

Please Note: Abundance or cover of these taxa is an indicator of GDV likelihood where they occur; 'Present' refers to cover density, though is usually 0.1%; 'Common' is cover density from 0.2% to 10%; 'Abundant' is 11% cover density and higher.

Appendix J: List of riparian flora taxa and GDV rating from the desktop assessment

Family	*Taxon*	Classification	High GDV likelihood	Moderate GDV likelihood	Low GDV likelihood	Recorded during current survey
Apocynaceae	*Gymnanthera cunninghamii*	Mesophyte		Common/Present		X
Arecaceae	**Phoenix spp.*	Phreatophyte	Present			X
	**Washingtonia filifera*	Phreatophyte	Present			
Asteraceae	*Centipeda minima*	Riparian			Present	X
	Pluchea dentex	Riparian			Present	X
	Pluchea rubelliflora	Riparian			Present	X
Boraginaceae	*Ehretia saligna*	Riparian			Present	
Campanulaceae	*Lobelia arnhemiaca*	Hydrophyte	Present			X
	Wahlenbergia spp.	Hydrophyte			Present	
Characeae	*Chara spp.*	Hydrophyte	Abundant	Present		
Convolvulaceae	*Ipomoea plebeia*	Riparian			Present	
	Ipomoea racemigera (P3)	Riparian			Present	
Cyperaceae	*Cladium procerum* (P2)	Hydrophyte	Present			
	Cyperus leptocarpus	Hydrophyte			Present	
	Cyperus polystachyos	Hydrophyte		Present		
	Cyperus species	Hydrophyte		Present		
	Cyperus vaginatus	Mesophyte		Abundant/Common	Common/Present	X
	Eleocharis spp.	Hydrophyte	Present			
	Fimbristylis microcarya	Hydrophyte		Abundant	Present	
	Fimbristylis sieberiana (P3)	Hydrophyte	Present			
	Schoenoplectiella spp.	Hydrophyte	Present	Present		
	Schoenoplectus subulatus	Hydrophyte	Present	Present		

Family	*Taxon*	Classification	High GDV likelihood	Moderate GDV likelihood	Low GDV likelihood	**Recorded during current survey**
	Schoenus spp.	Hydrophyte	Present			
Euphorbiaceae	*Adriana tomentosa*	Mesophyte		Present	Present	**X**
Fabaceae	*Acacia ampliceps*	Mesophyte	Present			**X**
	Acacia citrinoviridis	Phreatophyte			Abundant/Common	**X**
	Acacia coriacea subsp. *pendens*	Phreatophyte			Common	**X**
	Acacia sclerosperma	Phreatophyte			Present	
	Cullen leucanthum	Mesophyte	Present			
	Sesbania cannabina	Phreatophyte		Abundant	Present	
	Sesbania formosa	Phreatophyte	Present			
	Vigna spp.	Riparian			Present	
Gentianaceae	*Schenkia* spp.	Hydrophyte		Present		
Haloragaceae	*Myriophyllum spp.*	Hydrophyte			Present	
Hydrocharitaceae	*Najas spp.*	Hydrophyte			Present	
Lythraceae	*Ammannia spp.*	Hydrophyte		Abundant	Present	**X**
Malvaceae	*Abutilon amplum*	Mesophyte			Present	
	Gossypium sturtianum	Mesophyte		Abundant	Present	**X**
	Lawrencia glomerata	Mesophyte			Present	
Marsileaceae	*Marsilea spp.*	Hydrophyte		Abundant	Present	**X**
Menispermaceae	*Tinospora smilacina*	Mesophyte		Common	Present	**X**
Myrtaceae	*Corymbia candida*	Riparian			Present	
	Eucalyptus camaldulensis	Phreatophyte	Common	Abundant	Present	**X**
	Eucalyptus victrix	Phreatophyte		Common	Abundant	**X**

Family	*Taxon*	Classification	High GDV likelihood	Moderate GDV likelihood	Low GDV likelihood	**Recorded during current survey**
	Eucalyptus xerothermica	Riparian			Common/ Present	**X**
	Melaleuca argentea	Phreatophyte	Abundant, Common			**X**
	Melaleuca bracteata	Mesophyte	Common	Present	Present	
	Melaleuca glomerata	Mesophyte	Abundant	Abundant	Present	**X**
Nyctaginaceae	*Commicarpus australis*	Mesophyte			Present	
Orobanchaceae	*Striga curviflora*	Hydrophyte			Present	
Phyllanthaceae	*Cathetus spp.*	Riparian			Present	
	Flueggea virosa	Mesophyte		Present	Present	
	Kirganelia baccata	Mesophyte	Common	Present		
Plantaginaceae	*Stemodia spp.*	Mesophyte			Common	**X**
Plumbaginaceae	*Muellerolimon salicorniaceum*	Mesophyte		Present		
	Plumbago zeylanica	Mesophyte		Common	Present	
Poaceae	*Elytrophorus spicatus*	Hydrophyte			Present	
	Eragrostis elongata	Riparian			Common	
	Eriachne benthamii	Riparian			Abundant	**X**
	Eulalia aurea	Mesophyte			Abundant	**X**
	Imperata cylindrica	Mesophyte	Present			
	Leptochloa digitata	Riparian			Present	
	Sorghum spp.	Riparian			Present	**X**
	Urochloa spp.	Riparian			Present	
Polygonaceae	*Duma florulenta*	Mesophyte		Present		

Family	*Taxon*	Classification	High GDV likelihood	Moderate GDV likelihood	Low GDV likelihood	**Recorded during current survey**
Potamogetonaceae	*Potamogeton spp.*	Hydrophyte	Common	Present		
Primulaceae	*Samolus spp.*	Hydrophyte	Present			
	Pteris vittata	Hydrophyte	Present			
Rhamnaceae	*Ventilago viminalis*	Mesophyte			Present	
Ruppiaceae	*Ruppia spp.*	Hydrophyte	Abundant	Present		
Sapindaceae	*Atalaya hemiglauca*	Mesophyte		Abundant	Present	**X**
	Dodonaea lanceolata	Mesophyte		Common	Present	**X**
Scrophulariaceae	*Myoporum montanum*	Mesophyte		Common/Present		
Stylidiaceae	*Stylidium fluminense*	Hydrophyte	Present			
	Stylidium weeliwolli	Hydrophyte	Present			**X**
Surianaceae	*Stylobasium spathulatum*	Phreatophyte		Present	Common	**X**
Typhaceae	*Typha domingensis*	Hydrophyte		Abundant	Present	**X**

Please Note: Abundance or cover of these taxa is an indicator of GDV likelihood where they occur; 'Present' refers to cover density, though is usually 0.1%; 'Common' is cover density from 0.2% to 10%; 'Abundant' is 11% cover density and higher.

Appendix K: Species list recorded during this survey[1]

[1] This list does not include species recorded by previous surveys completed by Biologic overlapping the Survey Area (Table 3.1)

Acanthaceae

Dicladanthera forrestii

Dipteracanthus australasicus subsp. *australasicus*

Amaranthaceae

Alternanthera nana

Alternanthera nodiflora

Amaranthus undulatus

Gomphrena cunninghamii

Ptilotus auriculifolius

Ptilotus exaltatus

Ptilotus fusiformis

Ptilotus obovatus var. *obovatus*

Ptilotus polystachyus

Apocynaceae

Gymnanthera cunninghamii (P3)

Arecaceae

**Phoenix dactylifera*

Asteraceae

**Bidens bipinnata*

Centipeda minima subsp. *minima*

Chrysocephalum apiculatum subsp. *pilbarense*

**Flaveria trinervia*

Pluchea dentex

Pluchea rubelliflora

Pterocaulon sp. indet

**Sigesbeckia orientalis*

**Sonchus oleraceus*

Boraginaceae

Euploca tenuifolia

Trichodesma zeylanicum var. *zeylanicum*

Capparaceae

Capparis lasiantha

Capparis spinosa subsp. *nummularia*

Caryophyllaceae

Polycarpaea longiflora

Chenopodiaceae

Dysphania rhadinostachya subsp. *rhadinostachya*

Enchylaena tomentosa var. *tomentosa*

Rhagodia eremaea

Cleomaceae

Arivela viscosa

Convolvulaceae

Bonamia erecta

Convolvulus remotus

Duperreya commixta

Evolvulus alsinoides var. *decumbens*

Evolvulus alsinoides var. *villosicalyx*

Cucurbitaceae

Cucumis variabilis

Cyperaceae

Cyperus vaginatus

Fimbristylis dichotoma

Euphorbiaceae

Adriana tomentosa var. tomentosa

Euphorbia australis

Euphorbia australis var. *subtomentosa*

Euphorbia biconvexa

Euphorbia boophthona

Euphorbia drummondii

Euphorbia sp. indet (bi/tri)

Fabaceae

Acacia adoxa var. *adoxa*

Acacia ampliceps

Acacia ancistrocarpa

Acacia aptaneura

Acacia arida

Acacia bivenosa

Acacia catenulata subsp. *occidentalis*

Acacia citrinoviridis

Acacia coriacea subsp. *pendens*

Acacia dictyophleba

Acacia maitlandii

Acacia monticola

Acacia pachyacra

Acacia pruinocarpa

Acacia pteraneura

Acacia pyrifolia var. *pyrifolia*

Acacia steedmanii subsp. *borealis*

Acacia synchronicia

Acacia tumida var. *pilbarensis*

Crotalaria medicaginea var. *neglecta*

Glycine canescens

Gompholobium oreophilum

Indigofera fractiflexa subsp. *fractiflexa*

Indigofera georgei

Indigofera monophylla

Isotropis iophyta

Petalostylis labicheoides

Rhynchosia minima

Senna artemisioides subsp. *x helmsii*

Senna artemisioides subsp. *oligophylla*

Senna artemisioides subsp. *x artemisioides*

Senna glutinosa subsp. *glutinosa*

Senna glutinosa subsp. *x luerssenii*

Senna glutinosa subsp. *pruinosa*

Senna notabilis

Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)

**Vachellia farnesiana* var. *farnesiana*

Goodeniaceae

Goodenia microptera

Scaevola parvifolia subsp. *pilbarae*

Lamiaceae

Clerodendrum floribundum var. *angustifolium*

Dicrastylis cordifolia

Lauraceae

Cassytha sp. indet

Loranthaceae

Amyema sanguinea

Lythraceae

Ammannia baccifera

Malvaceae

Abutilon lepidum

Abutilon macrum

Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)

Abutilon sp. indet

Androcalva luteiflora

Corchorus crozophorifolius

Corchorus lasiocarpus subsp. *parvus*

Gossypium australe

Gossypium robinsonii

Gossypium sturtianum var. *sturtianum*

Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) (P2)

**Malvastrum americanum*

Sida ectogama

Sida fibulifera

Sida sp. L (A.M. Ashby 4202)

Sida sp. Shovelanna Hill (S. van Leeuwen 3842)

Waltheria indica

Marsileaceae

Marsilea hirsuta

Menispermaceae

Tinospora smilacina

Moraceae

Ficus brachypoda

Myrtaceae

Corymbia deserticola

Corymbia hamersleyana

Corymbia opaca

Eucalyptus camaldulensis subsp. *refulgens*

Eucalyptus gamophylla

Eucalyptus leucophloia subsp. *leucophloia*

Eucalyptus socialis

Eucalyptus victrix

Eucalyptus xerothermica

Melaleuca argentea

Melaleuca glomerata

Nyctaginaceae

Boerhavia coccinea

Oleaceae

Jasminum didymum subsp. *lineare*

Phyllanthaceae

Nellica maderaspatensis

Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)

Plantaginaceae

Stemodia grossa

Stemodia sp. indet

Poaceae

Aristida contorta

Aristida inaequiglumis

Aristida obscura

Aristida sp. indet

**Cenchrus ciliaris*

**Chloris barbata*

Chrysopogon fallax

Cymbopogon ambiguus

Enneapogon caerulescens

Enneapogon lindleyanus

Enneapogon polyphyllus

Enteropogon ramosus

Eragrostis cumingii

Eragrostis desertorum

Eragrostis eriopoda

Eragrostis setifolia

Eragrostis tenellula

Eriachne benthamii

Eriachne helmsii

Eriachne lanata

Eriachne mucronata

Eriochloa pseudoacrotricha

Eulalia aurea

Paraneurachne muelleri

Paspalidium basicladum

Paspalidium clementii

Setaria dielsii

**Setaria verticillata*

Sorghum plumosum var. *plumosum*

Themeda triandra

Triodia longiceps

Triodia pungens

Proteaceae

Grevillea pyramidalis

Grevillea wickhamii

Grevillea wickhamii subsp. *hispidula*

Hakea chordophylla

Pteridaceae

Cheilanthes sieberi

Cheilanthes sieberi subsp. *sieberi*

Rubiaceae

Psydrax latifolia

Santalaceae

Santalum lanceolatum

Sapindaceae

Atalaya hemiglauca

Dodonaea lanceolata var. *lanceolata*

Dodonaea pachyneura

Dodonaea viscosa subsp. *mucronata*

Dodonaea viscosa subsp. *spatulata*

Scrophulariaceae

Eremophila forrestii subsp. *forrestii*

Eremophila longifolia

Eremophila naaykensii (P3)

Solanaceae

Solanum lasiophyllum

Stylidiaceae

Stylidium weeliwolli (P3)

Surianaceae

Stylobasium spathulatum

Typhaceae

Typha domingensis

Violaceae

Afrohybanthus aurantiacus

Zygophyllaceae

Tribulus macrocarpus