Detailed Flora and Vegetation Survey
Collie Green Steel Recycling Mill

Prepared for Green Steel of WA Pty Ltd
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EXECUTIVE SUMMARY

Green Steel of WA (GSWA) is proposing to develop the Collie Green Steel Recycling Mill on land situated south of the Collie townsite in south-west Western Australia. The project area covers approximately 148.9 hectares (ha), including 77 ha of largely disturbed ground and cleared annual pasture, and the remaining 71 ha supporting native vegetation. GSWA is proposing to clear remnant native vegetation within the project area to allow for infrastructure development.

Onshore Environmental Consultants Pty Ltd (Onshore Environmental) was commissioned by GSWA to undertake a single season detailed flora and vegetation survey of native vegetation remnant within the project area, herein referred to as the study area.

The field survey was completed by two Principal Botanists working over six field days between the 11th and 14th of September, 8th of November 2023 and 22nd of February 2024. The field survey included assessment of 24 quadrats along with targeted searches for conservation significant flora.

A total number of 189 plant taxa from 44 families and 123 genera were recorded from the study area. Species representation was greatest among the Fabaceae, Orchidaceae, Asteraceae, Proteaceae, Cyperaceae, Dilleniaceae, Asparagaceae, Myrtaceae and Stylidiaceae families. The most speciose genera were *Hibbertia, Stylidium, Gompholobium, Drosera, Styphelia, Lomandra, Acacia* and *Banksia.*

None of the plant taxa recorded from the study area were listed as Threatened Flora under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the Western Australian *Biodiversity Conservation Act 2016* (BC Act), or as Priority flora taxa by the Department of Biodiversity, Conservation and Attractions (DBCA).

A total of 16 introduced species were recorded from the study area. None of the weed taxa were listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act).

A total of nine vegetation types occurring on four broad landforms were described and mapped from the study area. The broad landforms included lateritic hill crests, upper mid and lower hill slopes, and seasonally wet (swampy) flats. None of the vegetation types were aligned with Commonwealth or Western Australian listed Threatened Ecological Communities (TECs) or DBCA listed Priority Ecological Communities (PECs), and all were well represented regionally.

Freehold land forming the northern half of the study area and including the water pipeline corridor, site access (road) corridor, and the recycling mill has been historically cleared predominantly for annual pasture, with retained remnant stands of native vegetation parkland cleared. Vegetation condition for this block was rated as degraded or completely degraded. Native vegetation condition within the southern sector of the study area where the rail line extension will be constructed was generally rated as very good or good. Disturbances recorded during the field survey included historical logging of hardwood timber, clearing for access tracks, infrastructure corridors such as the transmission line, rail line and haul road, and mine exploration activities, siltation and dusting from adjacent coal mining operations, ground disturbance from feral pigs, and minor weed ingress.

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1.0 INTRODUCTION

1.1 Preamble

GSWA is proposing to develop Western Australia's first steel mill and Australia's first green steel mill. The Collie green steel recycling mill will convert Western Australian scrap steel into rebar for both local, domestic, and international consumption. The mill will be located adjacent to Griffin Coal's operating Ewington Coal Mine and the Bluewaters Power Station, approximately 7 km east from the town of Collie in south-west Western Australia (Figure 1). The mill will be constructed within a ~50 ha privately owned farmland lot, with a 1 km extension to the existing rail line constructed within adjacent state forest to the south. The site will be accessed via the Collie-Williams Road to the north-west along an existing cleared corridor, with a water pipeline constructed along a powerline corridor also to the north-west of the mill site.

Onshore Environmental was commissioned to undertake a single season detailed flora and vegetation survey in Spring 2023. The field survey was completed by Principal Botanists working over five field days in mid September and early November 2023 and included assessment of 24 quadrats along with targeted searches for conservation significant flora. A targeted flora survey of the site access and water pipeline corridors was conducted on the 22nd of February 2024.

1.2 Biogeographic Regions

The latest version of the Interim Biogeographic Regionalisation for Australia (IBRA7) divides Australia into 89 bioregions based on climate, geology, landform, native vegetation and species information, and includes 419 sub-regions (Department of the Environment and Energy [DoEE] 2018). The bioregions and sub-regions are the reporting unit for assessing the status of native ecosystems and their level of protection in the National Reserve System.

The study area is located on the border of the Northern and Southern Jarrah Forest (JF1 and JF2) sub-regions of the IBRA7. Both subregions occur on the duricrusted plateau of the Yilgarn Craton with vegetation comprised of Jarrah-Marri forest on laterite gravels grading to Wandoo woodlands on clayey soils in the east. The climate of the sub-regions is Warm Mediterranean (Hearn *et al*. 2002).

The vegetation of the Southern Jarrah forest is described as "Jarrah-Marri forest in the west grading to Marri and Wandoo woodlands in the east. There are extensive areas of swamp vegetation in the south-east, dominated by Paperbarks and Swamp Yate. The understorey component of the forest and woodland reflects the more mesic nature of this area.

The Northern Jarrah forest also supports Jarrah-Marri forest in the west with vegetation in valleys including Bullish and Blackbutt. Wandoo and Marri woodlands occur to the east with breakaways of Powder-bark Wandoo. The subregion also contains low *Banksia* woodland on extensive sand sheets (Williams and Mitchel 2001).

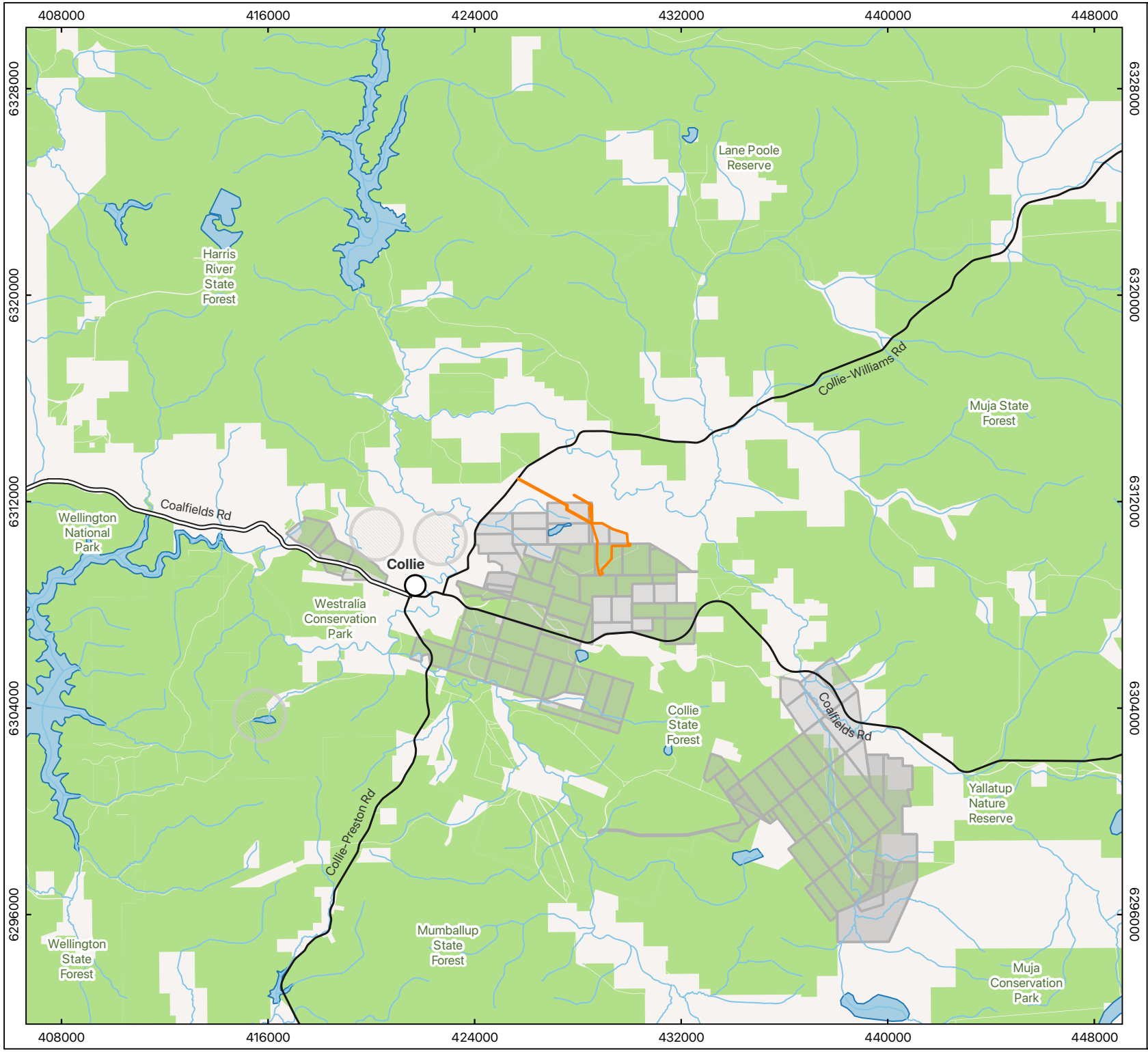

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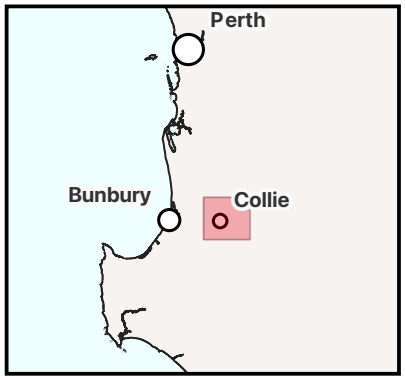
Figure 1
Location of the Study Area

Legend

- Study Area
- Griffin Coal Tenements
- DBCA Lands



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1.3 Climate

The climate of south-west Western Australia is Mediterranean, with hot, dry summers and mild, wet winters. The Collie weather station is located nearby to the study area and has a long-term rainfall average of 920.9 mm (1899 to 2023), with the highest monthly rainfall received during June (172 mm) and July (175 mm). Average maximum summer temperatures range between 28.3°C and 30.5°C with average winter minimum temperatures ranging from 4.2°C to 5.0°C (Figure 2).

The mid Spring 2023 field survey followed a winter period where monthly rainfall totals were below the long term average, with 400 mm received for the three months preceeding the survey compared to the long term average of 487 mm (Figure 2). Seasonal conditions in early spring 2023 were rated as very good.

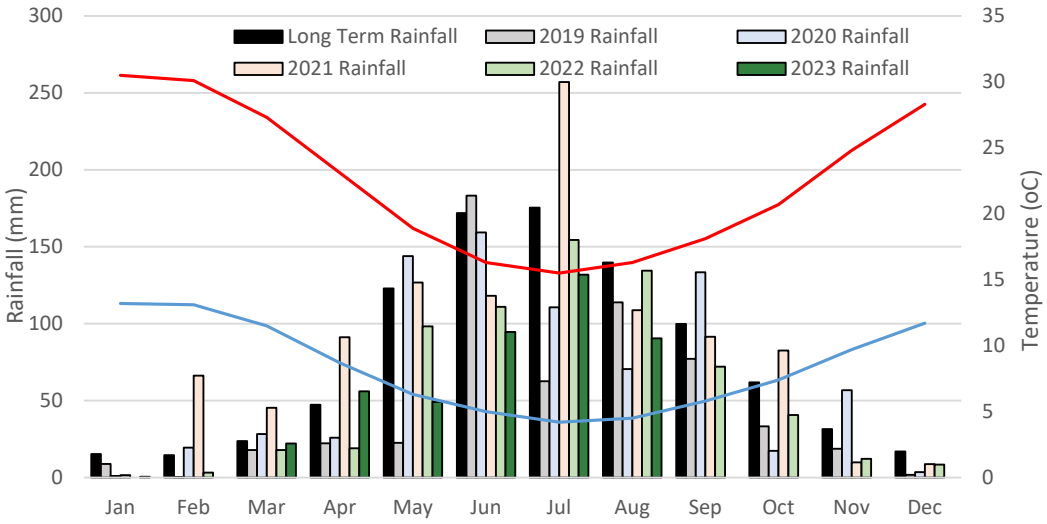

Figure 2 Monthly rainfall data from the Collie weather station from January 2019 to August 2023, with long term averages (Bureau of Meteorology [BOM] 2023).

1.4 Geology

The geology of the study area and the wider Collie region has been described by Wild and Walker (1982). The study area lies within the Collie Basin on the Darling Plateau. Permian sedimentary rocks occur in north north-west trending depressions on the Darling Plateau and are completely covered by Tertiary sediments. The largest, the Collie Basin, contains 1,300 m of strata, whilst the smaller Wilga Basin contains 360 m of sediments. Both depressions contain similar sedimentary sequences and are believed to have resulted from glacial scouring into the Archaean basement rocks.

The Collie Basin is approximately 26 km long by 13 km wide and stretches south-east from Allanson (to the west of Collie). There are three sub-basins: Cardiff, Shotts and Muja. These sub-basins are comprised of the lower Permian unit, the Stockton Formation and the overlying Collie Coal Measures. The Stockton Formation rests on a glacially striated granite pavement, and consists of a basal tillite, which is overlain by sandstone, siltstone and mudstone. The Collie Coal Measures are composed of a conglomerate, sandstone, siltstone, shale and intercalated seams of sub-bituminous coal.

1.5 Flora and Vegetation

1.5.1 Beard (1981) Vegetation Associations

The study area occurs in the Menzies Sub-district of the Darling Botanical District, in the South-West Botanical Province (Beard 1981). The Menzies Sub-district (southern jarrah forest) covers a total area of 26,572 km^2, of which 18,715 km^2 (70 percent) originally supported jarrah and jarrah-marri forest (Beard 1981).

The study area is dissected by the West Darling (northern extent) and Bridgetown (southern extent) Vegetation Systems as recognised by Beard (1981) (Figure 3). Within these systems, there is one vegetation association that intersects the study area:

- Vegetation Association 3 - Medium Forest; Jarrah-Marri.

When determining representation and reservation of remaining vegetation, Vegetation Association 3 was determined to be well represented at all levels (statewide, bioregional [IBRA and IBRA sub-region], and local government authority), with more than 56% of the pre-European extent remaining. Vegetation Association 3 was also determined to be well reserved, with more than 15% of the current extent protected for conservation within the Southern Jarrah Forest sub-region.

1.5.2 Mattiske and Havel (1998) Vegetation Complexes

The pre-1750 distribution of vegetation complexes of the south-west forest region of Western Australia has been mapped at 1:50,000 scale by Mattiske and Havel (1998) as part of the biodiversity assessment for the comprehensive regional assessment for the south-west forest region. This database has been used to assess flora and vegetation values as part of the 1999 Regional Forest Agreement (RFA). Interrogation of this database confirmed there were four vegetation complexes (as described and mapped by Mattiske and Havel 1998) intersecting the study area (Table 1, Figure 4).

Table 1 Vegetation complexes, as mapped by Mattiske and Havel (1998), represented within the study area.

Vegetation Complex	Vegetation Description
Collie Plain	
Cardiff CF	Uplands*:* Open Woodland of *Allocasuarina fraseriana - Banksia* species - *Xylomelum occidentale - Nuytsia floribunda* on sandy soils on valley slopes in the subhumid zone.
Collie Cl	Uplands*:* Open Forest of *Eucalyptus marginata* subsp. *marginata - Corymbia calophylla - Allocasuarina fraseriana* on gravelly sandy upland soils in the subhumid zone.
Darling Plateau	
Dwellingup D1	Open forest of Eucalyptus marginata subsp. marginata-Corymbia calophylla on lateritic uplands in mainly humid and subhumid zones.
Yarragil 2 Yg2	Open forest of *Eucalyptus marginata* subsp. *thalassica-Corymbia calophylla* on slopes, woodland of *Eucalyptus patens-Eucalyptus rudis* with *Hakea prostrata* and *Melaleuca viminea* on valley floors in subhumid and semiarid zones.

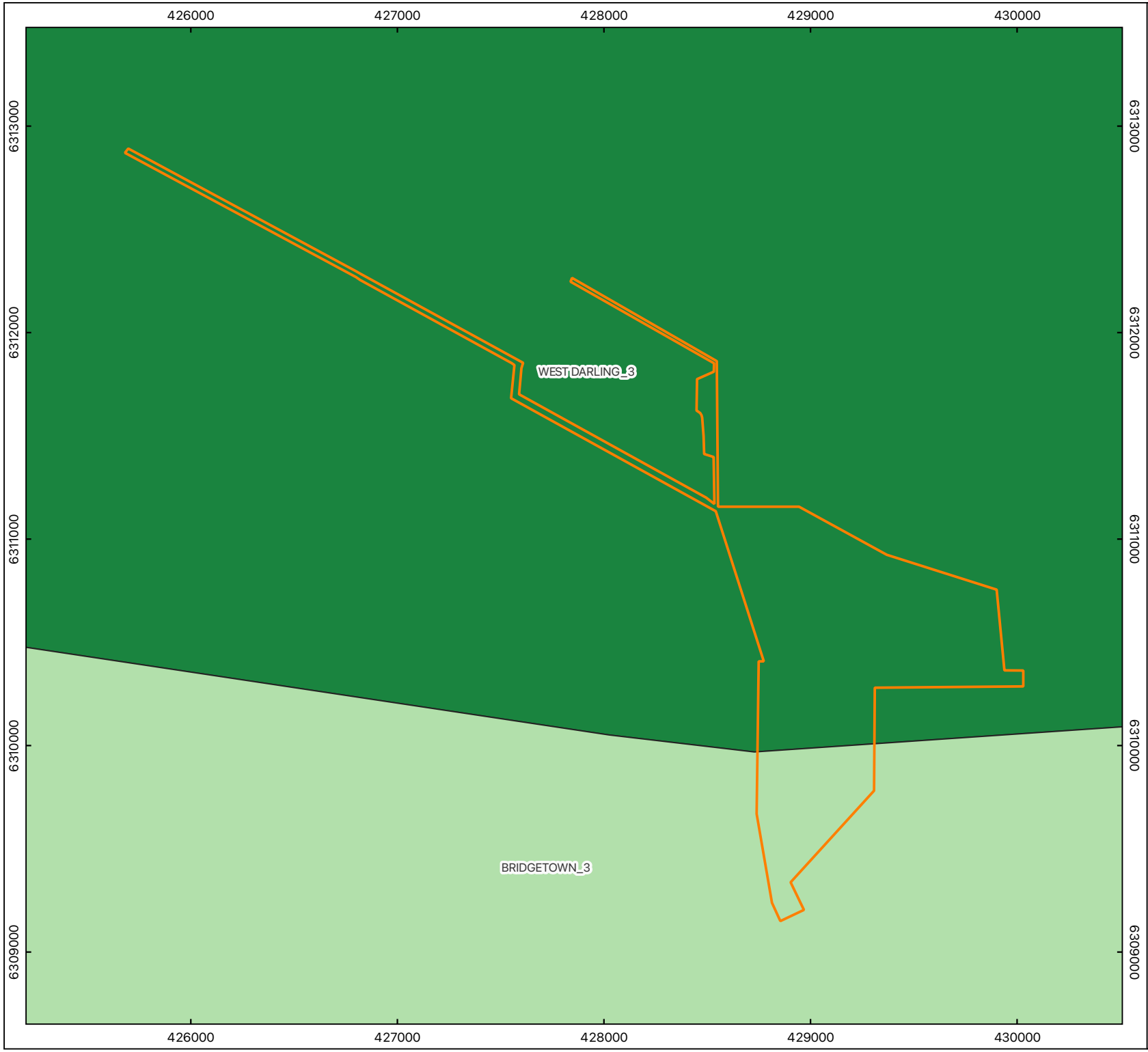

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Figure 3
Beard (1981) vegetation associations represented within the study area.

Legend

- Study Area

Vegetation Associations

- BRIDGETOWN_3
- WEST DARLING_3

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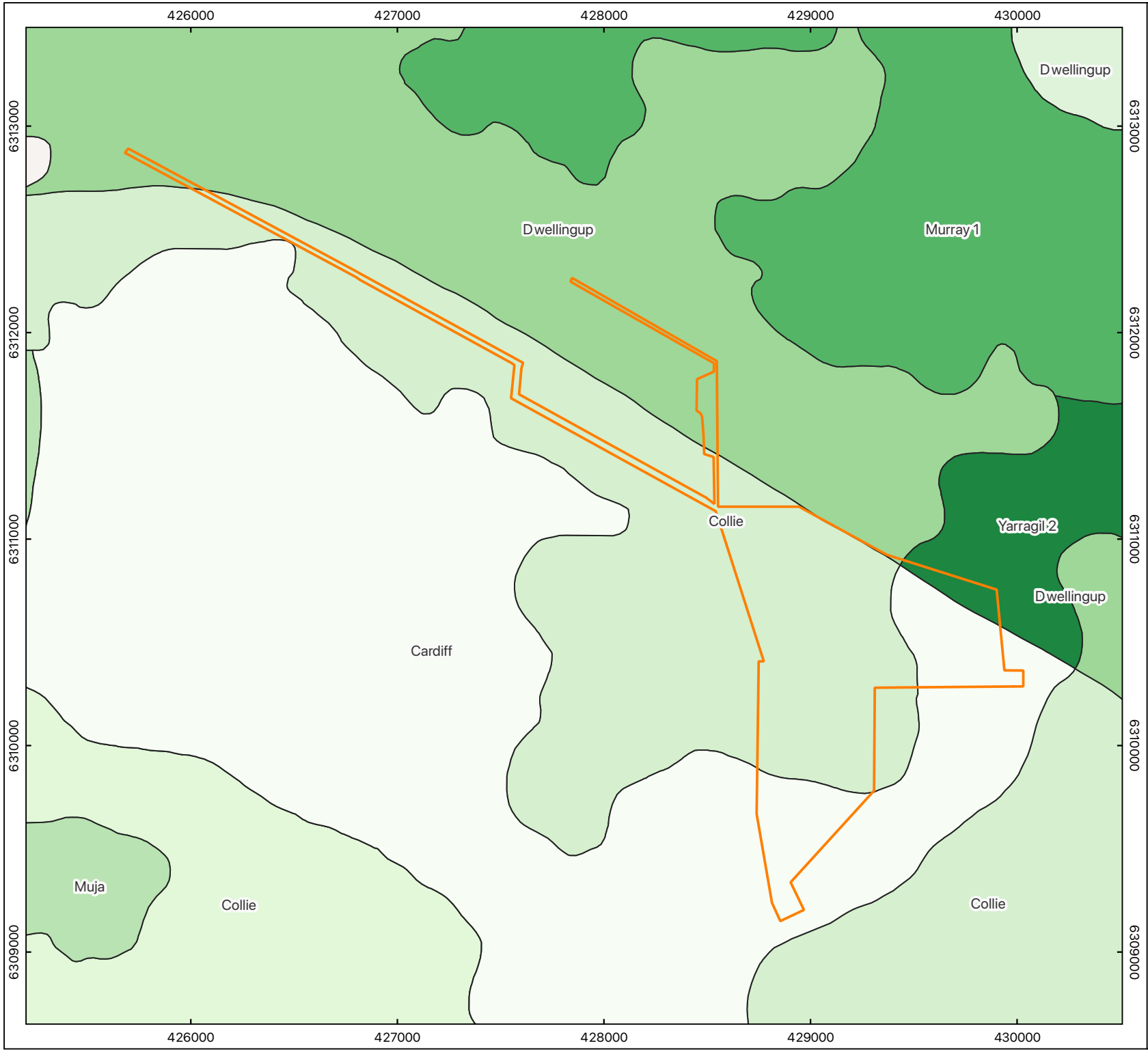

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Figure 4
Mattiske and Havel (1998) vegetation complexes represented within the study area.

Legend

- Study Area

GS_mattiske

- Cardiff
- Collie
- Dwellingup
- Murray 1
- Yarragil 2

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2.0 METHODOLOGY

2.1 Legislation and Guidance Statements

The single season detailed flora and vegetation survey was carried out in a manner that is compliant with Environmental Protection Authority (EPA) requirements for the environmental surveying and reporting of flora and vegetation in Western Australia:

- Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016a);
- Environmental Factor Guideline: Flora and Vegetation (EPA 2016b); and
- Statement of Environmental Principles, Factors and Objectives (EPA 2020).

2.2 Desktop Assessment

2.2.1 Literature Review

Regional scale reports relevant to the study area locality were reviewed, including:

- Beard (1981) Vegetation Survey of Western Australia – Swan, 1:1000 000 Vegetation Series;
- Smith (1974) in the Collie area (1:250,000);
- Heddle, Havel and Loneragan (1980) in the System 6 area; Perth, Pinjarra and Collie areas (1:250,000);
- Mattiske and Havel (1998) in the vegetation mapping for the Regional Forest Agreement; and
- Hearn *et al* (2003) Management of Significant Flora Values in South-west Forests and Associated Ecosystems.

At the local scale numerous previous flora and vegetation surveys have been completed within close proximity to the study area. The following surveys were reviewed as part of the desktop assessment and are summarised in more detail in Section 3.1:

- Onshore Environmental (2022) Detailed Flora and Vegetation Survey Pit 2 Exploration Area;
- Onshore Environmental (2018a) Ewington Targeted Flora Survey;
- Onshore Environmental (2018b) West Ewington and Muja South Tenements Expenditure Detailed Flora and Vegetation Survey;
- Bennett Environmental Consulting (2008a) Flora and Vegetation Proposed Expansion at Ewington Mine Site;
- Onshore Environmental (2016a) Ewington Northern Extension Level 2 Flora and Vegetation Survey;
- Onshore Environmental (2016b) Groundwater Dependent Vegetation, Ewington Creek;
- Onshore Environmental (2015) Level 2 Flora and Vegetation Survey of the Muja South tenement;

- Wildy (2015) Report on a Flora and Vegetation Survey of the Premier Coal Mine 2015 Clearing Area, Collie;
- Onshore Environmental (2014) Regional Targeted Flora Survey *Caladenia* sp. Collie (E. Bennett s.n. PERTH 08396051);
- Onshore Environmental (2013a) Level 2 Flora and Vegetation Survey Proposed Muja South Conveyor Corridor;
- Onshore Environmental (2013b) Level 2 Flora and Vegetation Survey Muja South Rail Loop and Product Handling Facilities;
- Onshore Environmental (2012) Targeted Flora Survey *Caladenia* sp. Collie (E. Bennett s.n. PERTH 08396051);
- Ekologica (2010) Level 2 Flora and Vegetation Assessment of Crown Land in Buckingham Way, Collie;
- Bennett Environmental Consulting (2009) Flora and Vegetation of West Ewington and Stockton Leases;
- Bennett Environmental Consulting (2008b) Flora and Vegetation of Proposed Development at Griffin Coal Mine Muja South Collie;
- Bennett Environmental Consulting (2006a) Vegetation and Flora of Proposed Rail Loop and Product Handling Facilities Muja South Project;
- Bennett Environmental Consulting (2006b) Flora and Vegetation of Boyup Basin, Wilga; and
- Mattiske Consulting (2006) Flora and Vegetation Survey of the Proposed Waste Dump Expansion Area, Ewington II.

The surveys identified above were reviewed to provide regional context for the survey, and to identify vegetation types and species of conservation significance with the potential to occur within the study area.

2.2.2 Database Searches

Desktop searches included databases relating to significant flora, TECs and PECs previously collected or described within, or nearby the study area. The search was extended beyond the study area to place flora values into a local and regional context. The following databases were searched around the study area:

- Naturemap (Dandjoo): This database represents the most comprehensive source of information on the distribution of Western Australia's flora, comprising records from the DBCA database and the Western Australian Herbarium Specimen Database (20 km radial search) (DBCA 2023a);
- DBCA's Threatened and Priority flora database was searched to confirm the Naturemap results (25 km radial search) (DBCA 2023a);
- DBCA's TEC, PEC and Environmentally Sensitive Areas (ESAs) database was searched to identify significant communities (10 km radial search) (DBCA 2023b);
- Environmental Protection and Biodiversity Conservation (EPBC) Act Protected Matters Database (25 km radial search) (DCCEEW 2023);
- Atlas of Living Australia (ALA) spatial database search of the study area boundary (ALA 2023); and
- International Union for Conservation of Nature (IUCN) database (IUCN 2023).

2.2.3 Assessment of Conservation Significance

The conservation significance of flora and ecological communities are classified at a Commonwealth, State and Local level based on various Acts and Agreements, including:

International Level:

- IUCN: The IUCN 'Red List' lists species at risk under nine categories (status codes) (Appendix 1).

Commonwealth Level:

- EPBC Act: The DCCEEW lists Threatened flora and ecological communities, which are determined by the Threatened Species Scientific Committee according to criteria set out in the Act. The Act lists flora that are of conservation significance under one of six categories (Appendix 1).

State Level:

- BC Act: At a state level, native flora species are protected under the BC Act – Wildlife Conservation Notice. Several species are assigned an additional level of conservation significance based on a limited number of known populations and the perceived threats to these locations (Appendix 1); and
- DBCA Priority list: DBCA produces a list of Priority species and ecological communities that have not been assigned statutory protection under the WC Act. Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added under Priorities 1, 2 or 3. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been removed from the threatened species list for other taxonomic reasons, are placed in Priority 4. These species require regular monitoring (see Appendix 1). The list of PECs identifies those that need further investigation before nomination for TEC status at a state level.

Local Level:

- Species may be considered of local conservation significance because of their patterns of distribution and abundance. Although not formally protected by legislation, such species are acknowledged to be in decline because of threatening processes, primarily habitat loss through land clearing.

2.2.4 Assessment of Likelihood of Occurrence in the Study Area

A list of conservation significant flora species occurring in the vicinity of the study area was compiled during the literature review and database searches. The likelihood of each taxon occurring within the study area was assessed using a set of rankings and criteria (as described in Table 2). The criteria are based on presence of suitable landform (inferred from aerial imagery with contours overlayed, and from knowledge of the adjacent areas) and distance to known records.

Table 2 Ranking system used to assign the likelihood that a species would occur in the study area.

Rank	Criteria
Recorded	The species has been recorded in the study area.
Likely to occur	The species has previously been recorded from a landform which is present within the study area, and there are previous records within a 5 km radius of the study area.
Possible to occur	The species has previously been recorded from a landform which is present within the study area, and there are previous records within a 10 km radius of the study area.
Unlikely to occur	The landform from which the species has previously been recorded is absent within the study area, and/or there are no previous records within a 10 km radius of the study area.

2.3 Baseline Survey Methodology

2.3.1 Timing and Personnel

The field survey was completed by Principal Botanists Dr Jerome Bull and Dr Darren Brearley working over six field days between the 11th and 14th of September, 8th of November 2023, and 22nd of February 2024. Each of the Principal Botanists have over 25 years experience undertaking surveys in the South-West and have completed numerous surveys within the Collie Basin over this period.

2.3.2 Sampling of Study Sites

The field survey involved systematic sampling using quadrats (referred to as study sites). The study sites were 10 metres by 10 metres in size, which is standard for the Jarrah Forest bioregion. A total of 24 quadrats were formally assessed (Figure 5). Study site locations were chosen based on consideration of the following requirements as per the technical guidelines for flora and vegetation surveys (EPA 2016a):

- A minimum of three quadrats in each vegetation type observed within the study area;
- Vegetation within the quadrat was representative of the typical vegetation occurring within a vegetation type (i.e., quadrats were not placed within an area of transition between vegetation types or in close proximity to tracks or other significant disturbance);
- Quadrats were positioned to provide adequate spatial coverage across the study area; and
- Quadrats were positioned to capture the typical range of variability in landforms, geology, soils, vegetation, and other physical characteristics that were present across a vegetation type.

In addition to quadrats, relevé vegetation descriptions were made to increase the accuracy of vegetation mapping and capture additional information on the flora and vegetation of the study area. Relevé vegetation descriptions were utilised to target unusual areas or specific features of geology, soil, landforms, or vegetation. They were also conducted in areas where conservation significant flora or previously unrecorded species were observed outside formal quadrats.

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Figure 5
Sample locations within the study area

Legend

- Study Area
- Quadrat Locations

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The quadrats were assessed to provide a list of the total flora occurring within the study area and a description of the vegetation structure. Data recorded covered a range of environmental parameters including:

- Landform and habitat;
- Aspect;
- Soil colour and soil type;
- Rock type;
- Slope (angle);
- Vegetation condition;
- Disturbance (caused by fire, clearing, grazing etc.);
- Age since fire;
- Broad floristic formation;
- Vegetation type description; and
- Height and percentage ground cover provided by individual plant taxa.

Other parameters recorded for each study site were:

- Study site number and date of assessment;
- Names of the botanists undertaking the assessment;
- Location description - a waypoint - GPS coordinate (GDA94) using a handheld GPS; and
- Photograph number (taken from north-west corner).

Vegetation condition for each of the study sites was determined using a recognised rating scale (based on Keighery 1994, see Appendix 2).

2.3.3 Targeted Surveys for Conservation Significant Species

Targeted searches for species of conservation significance were completed within the study area. Targeted searches were completed in habitats where it was anticipated that significant flora might occur based on habitat preferences (according to the database searches) and from previous knowledge of the species. Ground truthing conducted across the study area provided an opportunity to record opportunistic locations for conservation significant flora and to undertake closer examination of specific landforms where conservation significant flora would be expected to occur. Targeted searches were also undertaken opportunistically when traversing the study area between quadrat sites.

2.3.4 Weed Survey and Mapping

Introduced species were recorded from the quadrats formally assessed within the study area. Opportunistic collections were also made while moving throughout the study area, with targeted weed searches completed in high moisture habitats such as seasonally wet flats.

2.3.5 Floristic Analysis

A multivariate statistical analysis of the floristic quadrat data (24 quadrats) was completed to assist in understanding the vegetation-habitat relationships within the study

area. Statistical analysis of quadrat data can support delineation of vegetation types within the study area and provide comparison against locally significant communities (TECs and PECs) where quadrat data is available.

A two-way classification (Agglomerative Hierarchical Fusion) of the presence/absence quadrat data was carried out on the 165[1] taxa x 24 quadrat dataset using the program PATN (Belbin 2003). The flexible unweighted pair group method with arithmetic mean (UPGMA) classification strategy was used (β = -0.1), together with the Bray-Curtis site similarity measure. The number of groups to be determined was set at seven. The primary output of the classification was in the form of a dendrogram (Appendix 3).

The results from the statistical analysis need to be appropriately analysed by an experienced botanist, and effects such as fire disturbance, ephemeral taxa, and spatial distribution of quadrats taken into consideration when interpreting the results. Plant taxa that occupy a range of vegetation types can obscure vegetation patterning and influence statistical outputs. It must be acknowledged that the results of multivariate statistical analysis may not always align with the delineated vegetation types.

2.3.6 Vegetation Type Mapping

The classification of vegetation types within the study area follows the height, life form and density classes of Muir (1997) (see Appendix 4). This is largely a structural classification suitable for broader scale mapping but taking all ecologically significant strata into account.

The description of vegetation type leads with the most dominant strata (based on percent foliar cover) and flora species listed start with the most dominant (Table 3). Table 4 further describes and categorises these strata and gives examples of potential growth forms for each, e.g., over-storey (U), mid-storey (M) and under-storey (G) vegetation strata.

Vegetation types recorded within the study area are grouped according to ‘broad floristic formation’ (refer to Table 3). A broad floristic formation describes the dominant growth form, cover, and height as well as the dominant land cover genus for the dominant stratum (Department of Environment and Heritage (DEH) 2003).

The vegetation mapping utilised high-resolution aerial photography of the entire study area at a scale of 1:5,000, with definition of vegetation polygons based on contrasting shading patterns. Ground-truthing of the study area was completed during the survey with vegetation descriptions made within selected vegetation polygons to confirm dominant structural layers and associated plant taxa. The 24 study sites were overlaid on the aerial photography, and associated flora and vegetation data was used to provide vegetation type descriptions for individual polygons defined.

2.3.7 Vegetation Type Coding

A vegetation code was applied to each vegetation type. This code is comprised of the dominant landform on which the vegetation type occurs and the dominant plant taxa in each vegetation stratum.

[1] The number of taxa recorded within quadrats.

2.3.8 Vouchering

At least one voucher specimen was taken for each species collected to verify identification. Taxonomy was completed by Dr Jerome Bull at the Western Australian Herbarium (WAH) with use made of the WAH for confirmation of species identification.

Table 3 Vegetation type descriptions (based on the methods used under the National Vegetation Information System, Department of the Environment 2003).

Description	Species	Cover	Soils	Landscape Position
Broad Floristic Formation	The one dominant genus name for the dominant stratum, e.g., *Acacia*	One cover class for the dominant stratum, e.g., Low Woodland. If two strata have the same cover range, the taller stratum is listed	Not relevant	Not relevant
Vegetation Type (describe three strata - refer Table 4)	Up to three dominant species listed for each stratum	One cover class code for each stratum, e.g., Low Open Woodland, Open Shrubland, Low Open Shrubland	State soil colour and type, e.g., red sandy loam	Include the landscape position, e.g., stony plain

Table 4 Vegetation stratum levels (modified from Department of the Environment 2003).

Stratum Description	Example Growth Forms
Over-storey (U)	
Tallest tree sub-stratum: for forests and woodlands this will generally be the dominant stratum	Trees, tree mallee, and vines (mallee shrubs)
Sub-canopy layer; second tree layer	
Sub-canopy layer; third tree layer	
Mid-storey (M)	
Tallest shrub layer	Shrubs, low trees, mallee shrubs, grass-trees, tree-ferns, cycads, palms, and vines (low shrubs, tall grasses, tall forbs, tall sedges)
Second shrub layer	
Third shrub layer	
Under-storey (U)	
Tallest ground species	Grasses, forbs, sedges, rushes, lichens, epiphytes, low shrubs, ferns, bryophytes, cycads, grass-trees, and vines
Other ground species	

2.3.9 Field Survey Constraints

The EPA Technical Guidance for Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2016a) list seven potential limitations that field surveys may encounter. These limitations are addressed in Table 5.

Table 5 Relevance of limitations, as identified by EPA (2016a), to the flora and vegetation survey.

Constraint	Relevance
Availability of contextual information at a regional and local scale	NOT A LIMITATION A detailed flora and vegetation survey had previously been completed within the study area (Onshore Environmental 2018) and at least 16 flora and vegetation surveys have also been undertaken within the Collie Coal Basin, providing excellent contextual information on the study area.
Proportion of flora recorded and/or collected, any identification issues	NOT A LIMITATION It is likely that a large proportion of the total flora occurring within the study area was recorded given the high intensity sampling completed during peak flowering period in 2023. The seasonal condition at the time of the early Spring survey was rated as very good.
Survey timing, rainfall, season of survey	NOT A LIMITATION The field survey followed a winter period where monthly rainfall totals were below the long term average, with 400 mm received for the three months preceeding the survey compared to the long term average of 487 mm. However, rainfall was not a limiting factor and seasonal conditions were rated as very good.
Disturbance that may have affected the results of the survey such as fire, flood or clearing	NOT A LIMITATION There were no disturbances recorded within the study area that influenced survey outcomes. Disturbances within the study area included clearing for annual pasture on private farmland in the northern half of the study area, and logging, access tracks, historical exploration and perimeter edge effects related to adjacent mining operations in the southern half. Disturbances did not impact on the ability to complete the field survey.
Was the appropriate area fully surveyed (effort and extent)	NOT A LIMITATION A Principal Botanist assessed the study area during a four day survey completed in mid Spring 2023 and one additional day in Autumn 2024, with a previous detailed flora and vegetation survey undertaken in September 2018. A total of 24 quadrats were assessed throughout the study area, and targeted significant flora searches were also completed. This represented an extensive survey effort.
Access restrictions within the survey area	NOT A LIMITATION The study area was accessed by vehicle and on foot, noting that vegetation mapping was facilitated by high-resolution aerial photography.
Competency/experience of the team carrying out the survey, including experience in the bioregion surveyed	NOT A LIMITATION The Principal Botanist working on the survey, Dr Jerome Bull, has over 25 years' experience working in the region and has completed numerous surveys within the Collie Basin.

3.0 RESULTS

3.1 Desktop Review

3.1.1 Previous Baseline Flora Surveys

The study area lies within the Darling Botanical District of the South-Western Botanical Province as recognised by Diels (1906) and later developed by Gardner (1942) and Beard (1979, 1980). The first broad scale mapping of vegetation types within the Jarrah Forest Bioregion was completed by Havel (1975). A total of 26 site vegetation types were recorded based on the presence and absence of characteristic species.

Historical broad scale vegetation mapping in the Collie area has been completed by:

- Smith (1974) in the Collie area (1:250,000);
- Heddle *et al*. (1980) in the System 6 area; Perth, Pinjarra and Collie areas (1:250,000); and
- Mattiske and Havel (1998) in the vegetation mapping for the Regional Forest Agreement.

Mattiske and Havel (1998) mapped vegetation complexes of the south-west region at a scale of 1:50,000. Four vegetation complexes were identified within the study area as described in Section 1.5.2.

As a result of mining in the Collie area several more intensive baseline flora and vegetation surveys have been completed in the region (Table 6).

Table 6 Summary of background information and results for previous flora and vegetation surveys completed near the study area.

Survey Name	Survey Timing	Vegetation types	Taxon Summary	Conservation Significant Flora Recorded
Detailed Flora and Vegetation Survey Pit 2 (Onshore Environmental 2022)	15-18 September 2020, 18-22 May 2022	11 vegetation types None aligned with TECs or PECs	378 plant taxa from 60 families and 188 genera	*Leucopogon extremus* (P2), *Daviesia mesophylla* (P2), *Schoenus pennisetis* (P3), *Synaphea decumbens* (P3), *Grevillea prominens* (P3), *Cyathochaeta teretifolia* (3)
Ewington Targeted Flora Survey (Onshore Environmental 2018a)	13-14 September 2018	N/A	N/A	*Cyathochaeta teretifolia* (P3)
West Ewington and Muja South Tenements Expenditure Detailed Flora and Vegetation Survey (Onshore Environmental 2018b)	31 November-2 December 2017	12 vegetation types None aligned with TECs or PECs	303 plant taxa from 54 families and 158 genera	*Logania sylvicola* (P2)*, Acacia semitrullata* (P4)
Ewington Northern Extension Level 2 Flora and Vegetation Survey (Onshore Environmental 2016a)	29 and 30 September 2015 15 and 16 June 2016	10 vegetation types None aligned with TECs or PECs	178 taxa from 43 families and 110 genera	None recorded
Groundwater Dependent Vegetation, Ewington Creek (Onshore Environmental 2016b)	29-31 March 2016	38 vegetation types None aligned with TECs or PECs	Not collated	*Grevillea ripicola* (P4)
Report on a Flora and Vegetation Survey of the Premier Coal Mine 2015 Clearing Area, Collie, Western Australia (Wildy 2015)	3-6, 28-29 October, 17, 26 November 2011	9 vegetation types None aligned with TECs or PECs	240 taxa from 50 families and 141 genera 43 weeds	None recorded
Level 2 Flora and Vegetation Survey, Muja South (Onshore Environmental 2015)	20-27 October 2014	19 vegetation types None aligned with TECs or PECs	553 taxa from 72 families and253 genera 70 weeds	*Caladenia leucochila* (T), *Hemigenia rigida* (P1), *Leucopogon extremus* (P2), *Synaphea decumbens* (P3), *Synaphea petiolaris* subsp. *simplex* (P2), *Schoenus pennisetis* (P3), *Eucalyptus rudis* subsp. *cratyantha* (P4), *Pultenaea skinneri* (P4), *Rumex drummondii* (P4), *Acacia semitrullata* (P4)
Regional Targeted Flora Survey *Caladenia* sp. Collie (E. Bennett s.n. PERTH 08396051) (Onshore Environmental 2014)	11th -18th September, 23-24th September 2014	-	-	*Caladenia leucochila* (T)

Survey Name	Survey Timing	Vegetation types	Taxon Summary	Conservation Significant Flora Recorded
Level 2 Flora and Vegetation Survey Proposed Muja South Conveyor Corridor (Onshore Environmental 2013a)	20th October 2012, 21st March 2013	13 vegetation types None aligned with TECs or PECs	144 taxa from 33 families and 90 genera 9 weeds	*Synaphea hians* (P3)
Level 2 Flora and Vegetation Survey Muja South Rail Loop and Product Handling Facilities (Onshore Environmental 2013b)	27th November 2008, 19th October 2012	9 vegetation types None aligned with TECs or PECs	221 taxa from 43 families and 121 genera 22 weeds	*Dillwynia* sp. Capel (P.A. Jurjevich 1771) (P1), *Acacia semitrullata* (P4)
Targeted Flora Survey *Caladenia* sp. Collie (E. Bennett s.n. PERTH 08396051) (Onshore Environmental 2012)	12th September -9th October 2012	-	-	*Caladenia leucochila* (T)
Level 2 Flora and Vegetation Assessment of Crown Land in Buckingham Way, Collie (Ekologica 2010)	23rd July, 15th September, 5th October 2010	2 vegetation types None aligned with TECs or PECs	119 taxa	None
Flora and Vegetation of West Ewington and Stockton Leases (Bennett Environmental Consulting 2009)	21 September, 10-18 November 2008	34 vegetation types None aligned with TECs or PECs	478 taxa from 59 families and 207 genera 33 weed species	*Hemigenia rigida* (P1), *Leucopogon extremus*[2] (P2), *Calytrix pulchella* (P3), *Synaphea decumbens* (P3), *Synaphea hians* (P3), *Grevillea ripicola* (P4), *Pultenaea skinneri* (P4)
Flora and Vegetation Proposed Expansion at Ewington Mine Site (Bennett Environmental Consulting 2008a)	10-14 October, 25 October, 10-12 December	25 vegetation types None aligned with TECs or PECs	431 taxa from 64 families and 217 genera 43 weeds	*Synaphea petiolaris* subsp. *simplex* (P2), *Pultenaea skinneri* (P4)
Flora and Vegetation of Proposed Development at Griffin Coal Mine Muja South Collie (Bennett Environmental Consulting 2008b)	1st-10th September 2005, 26th-29th October 2006	28 vegetation types None aligned with TECs or PECs	553 taxa from 72 families and 254 genera 78 weeds	*Caladenia leucochila*[3], *Leucopogon extremus* (P2)[4], *Synaphea petiolaris* subsp. *simplex* (P2), *Acacia semitrullata* (P4), *Synaphea decumbens* (P3), *Eucalyptus rudis* subsp. *cratyantha* (P4), *Pultenaea skinneri* (P4)

[2] Previously known as *Leucopogon* sp. Collie E.M. Bennett BUC063
[3] Originally recorded at *Caladenia* sp. nov, then *Caladenia lodgeana,* then *Caladenia sp*. Collie (E. Bennett s.n. PERTH 08396051)
[4] Previously known as *Leucopogon* sp. Collie (E.M. Bennett BUC 063)

Survey Name	Survey Timing	Vegetation types	Taxon Summary	Conservation Significant Flora Recorded
Flora and Vegetation Survey of the Proposed Waste Dump Expansion Area, Ewington II (Mattiske Consulting 2006)	December 2005	5 vegetation types None aligned with TECs or PECs	151 taxa from 38 families and 96 genera 6 weeds	None recorded
Vegetation and Flora of Proposed Rail Loop and Product Handling Facilities Muja South Project (Bennett Environmental Consulting 2006a)	27th November 2008	3 vegetation types None aligned with TECs or PECs	192 taxa from 46 families and 117 genera 18 weeds	*Acacia semitrullata* (P4)
Flora and Vegetation of Boyup Basin, Wilga (Bennett Environmental Consulting 2006b)	1st-8th September 2005	13 vegetation types None aligned with TECs or PECs	191 taxa from 42 families and 107 genera 13 weeds	*Melaleuca incana* subsp. Gingilup (N. Gibson & M. Lyons 593) (P2)

3.1.2 Threatened Flora listed under the EPBC Act

A search of the EPBC Act Protected Matters database (DCCEEW 2023) recorded four Threatened Flora taxa listed under the EPBC Act potentially occurring within a 10 km radius of the study area: *Caladenia leucochila, Caladenia lodgeana, Diuris micrantha* and *Jacksonia velveta*. An additional four Threatened Flora taxa were recorded when the search radius was increased to 25 km around the study area: *Commersonia erythrogyna, Drakaea confluens, Eleocharis keigheryi* and *Grevillea rara.*

3.1.3 Threatened Flora listed under the IUCN Red List

A search of the International Union for Conservation of Nature (IUCN) database (IUCN 2023) identified one Threatened Flora taxon listed from the region: *Caladenia leucochila* (Endangered).

3.1.4 Threatened Flora listed under the BC Act

Six Threatened Flora taxa were identified from the DBCA rare flora database search for a 25 km radius around the study area (DBCA 2023a): *Caladenia leucochila, Commersonia erythrogyna, Drakaea confluens, Eleocharis keigheryi, Grevillea rara* and *Jacksonia velveta.*

3.1.5 Priority Flora recognised by the DBCA

The DBCA rare flora database search (DBCA 2023a) identified 38 Priority flora taxa from a 25 km radius around the study area, including two Priority 1 flora, five Priority 2 flora, 19 Priority 3 flora and 12 Priority 4 flora (Table 7).

3.1.6 Likelihood of Occurrence

The combined database searches resulted in a list of 47 species of conservation significance occurring within a 25 km radius of the study area (Table 7). Ten taxa were considered ‘likely’ to occur within the study area (as per criteria set out in Table 7) based on occurrence of habitat and proximity of previous records (Table 7). Nine taxa were considered ‘possible’ to occur within the study area, and the remaining 28 taxa were determined as ‘unlikely’ to occur within the study area.

3.1.7 TECs listed under State and Federal Legislation

A search of the EPBC Act Protected Matters database (DCCEEW 2023) confirmed there were no Commonwealth listed TECs previously recorded within a 10 km radius of the study area, with one TEC that may occur within a 25 km radius of the study area: Empodisma peatlands of southwestern Australia (Endangered).

A search of the DBCA ecological community database (DBCA 2023b) confirmed there were no Western Australian listed TEC records occurring within a 10 km radius of the study.

3.1.8 PECs recognised by DBCA

A search of DBCA’s ecological community database (DBCA 2023b) confirmed there were no PECs occurring within a 10 km radius of the study area, with one PEC occurring approximately 16 km south-east of the study area:

- Seasonal rainfall filled wetlands with impeding substrate of the Swan Coastal Plain and Jarrah Forest in transitional rainfall zones (previously 'Claypans of the Swan Coastal Plain'). This listing encompasses Claypan Group 1, 2 and 3 (as defined by Gibson *et.al.* 2005), with Claypan Group 3 occurring south-east of Collie:
    - Group 1: Claypans of the Swan Coastal Plain and plateau with a damp terrestrial phase of the pool cycle. Common overstorey taxa include *Casuarina obesa, Melaleuca viminea* and *Melaleuca cuticularis.* Taxa of this group often reflect a higher salinity of the claypan substrate;
    - Group 2: Seasonally inundated flats largely confined to the Swan Coastal Plain in high rainfall areas. Generally characterised by *Hypocalymma angustifolium, Kunzea micrantha, Kunzea recurva* and *Viminaria juncea;* and
    - Group 3: Predominantly claypans of deeper basins of the Swan Coastal Plain and Jarrah Forest Bioregion (plateau). Generally dominated by *Melaleuca lateritia* and characterised by aquatic and amphibious taxa (e.g. *Hydrocotyle lemnoides*, *Glossostigma diandrum, Liparophyllum capitatum,* and *Eleocharis keigheryi).*

Table 7 Significant flora species recorded in or around the survey area from the federal and state database searches, literature, and local knowledge. SCC - State Conservation Code, FCC - Federal Conservation Code

Taxon	SCC	FCC	Habitat	Likelihood
Acacia semitrullata	P4		White/grey sand, sometimes over laterite, clay. Sandplains, swamps.	Likely
Adenanthos cygnorum subsp. *chamaephyton*	P3		Grey sand, lateritic gravel.	Possible
Angianthus drummondii	P3		Grey or brown clay soils, seasonally wet flats.	Unlikely
Blennospora doliiformis	P3		Grey or red clay soils, seasonally wet flats.	Likely
Caladenia leucochila	T	E	Sand amongst laterite slightly upslope of seasonally damp areas, elevation between 330-345m.	Possible
Caladenia lodgeana	T	CE	Seasonal swamps.	Unlikely
Caladenia validinervia	P1		Sandy gravelly soil in Jarrah/Marri Forest.	Unlikely
Calothamnus graniticus subsp. *leptophyllus*	P4		Clay over granite, lateritic soils on hillsides	Possible
Calytrix pulchella	P3		Grey or white sand over laterite on ridges, flats.	Likely
Commersonia erythrogyna	T	E	Lateritic ridge supporting open low jarrah and marri woodland.	Unlikely
Cyathochaeta teretifolia	P3		Grey sand, sandy clay. Swamps, creek edges	Likely
Daviesia mesophylla	P2		Peaty or white sand. Rocky slopes.	Likely
Dillwynia sp. Capel (P.A. Jurjevich 1771)	P3		Littered grey loamy sand, rocky soils. Valleys, rangelands.	Likely
Diuris micrantha	T	V	Brown loamy clay. Winter-wet swamps, in shallow water.	Unlikely
Drakaea confluens	T	E	White-grey sand.	Possible
Drakaea micrantha	T	V	White-grey sand	Unlikely
Drosera occidentalis	P4		Wetlands	Unlikely
Eleocharis keigheryi	T	V	Sandy loam. Emergent in freshwater: creeks, claypans.	Unlikely
Eryngium sp. Ferox (G.J. Keighery 16034)	P3		Winter-wet flats.	Unlikely
Eucalyptus rudis subsp. *cratyantha*	P4		Loamy soils on flats and hillsides.	Possible
Grevillea prominens	P3		Gravelly loam along creek lines.	Likely
Grevillea rara	T	E	Lateritic loam on creek lines.	Unlikely
Grevillea ripicola	P4		Sandy clay, clay, or gravelly loam. Swampy flats, granite outcrops and along watercourses.	Possible
Hydrocotyle lemnoides	P4		Swamps	Unlikely
Hypolaena robusta	P4		White sand on sandplains.	Unlikely

Taxon	SCC	FCC	Habitat	Likelihood
Isopogon sp. Canning Reservoir (M.D. Tindale 121 & B.R. Maslin)	P1		Brown, yellow or grey sand over laterite. Flats and low plains.	Likely
Jacksonia velveta	T	E	Brown gravelly loam, dry grey sand, ironstone. Slight hillslopes, ridges.	Unlikely
Juncus meianthus	P3		Black sand and sandy clay on creeks and in seepage areas.	Unlikely
Lasiopetalum cardiophyllum	P4		Lateritic gravelly soils and sandy clay soils on flats and hillslopes.	Unlikely
Leucopogon extremus	P2		Low-lying, seasonally wet sites on sandy loam or sandy clay substrates, probably with clay at depth.	Likely
Logania sylvicola	P2		Woodland to open forest vegetation on the mid-slope of laterite rises associated with brown clay to clayey sand	Possible
Lomandra whicherensis	P3		Gravelly lateritic soils, high in the landscape.	Unlikely
Meionectes tenuifolia	P3		Ephemeral wetlands at margins of deep depressions, standing water.	Unlikely
Ornduffia submersa	P4		Heavy clay soils in wetlands.	Unlikely
Pultenaea skinneri	P4		Sandy or clayey soils in winter-wet depressions.	Likely
Schoenus natans	P4		Winter-wet depressions.	Unlikely
Senecio leucoglossus	P4		Gravelly lateritic or granitic soils with granite outcrops and slopes.	Unlikely
Sphaerolobium benetectum	P2		White gravelly sandy clay, sandy loam, with granite and laterite. Occurs on ridges, swamps, and undulating rises.	Unlikely
Stylidium acuminatum subsp*. acuminatum*	P2		Hillslope in red-brown loam over laterite.	Unlikely
Stylidium lepidum	P3		Gravelly sand or loam, clay on winter-wet depressions.	Unlikely
Stylidium rhipidium	P3		Sandy soils on wet creek flats, swamps, and granite outcrops	Unlikely
Stylidium squamellosum	P3		Brown to red-brown clay loam on winter-wet habitats and depressions with open woodlands and shrublands.	Unlikely
Synaphea decumbens	P3		Sand over laterite.	Possible
Synaphea hians	P3		Sandy soils on rises.	Possible
Synaphea petiolaris subsp*. simplex*	P3		Sandy soils on flats and in winter-wet areas.	Unlikely
Tetratheca parvifolia	P3		Near riverbanks on heavy alluvial soil.	Unlikely
Thysanotus unicupensis	P3		Dry lateritic and grey sandy soils in moderately sunny places within Jarrah/Marri forests	Unlikely

3.2 Flora Species

A total number of 189 plant taxa (including varieties and subspecies) from 44 families and 123 genera were recorded from the study area (Table 8, Appendix 5). Species representation was greatest among the Fabaceae, Orchidaceae, Asteraceae, Proteaceae, Cyperaceae, Dilleniaceae, Asparagaceae, Myrtaceae and Stylidiaceae families. The most speciose genera were *Hibbertia, Stylidium, Gompholobium, Drosera, Styphelia, Lomandra, Acacia* and *Banksia.*

Table 8 Statistics for total flora recorded from the study area.

Overview	No. Taxa
Families	44
Genera	123
Taxa (species, subspecies, varieties)	189
Native Taxa	173
Introduced Taxa	16
Threatened Flora	0
Priority Flora	0
Range Extensions	1
Speciose Families	**No. Taxa**
Fabaceae	24
Orchidaceae	14
Asteraceae	13
Proteaceae	13
Cypeaceae	10
Dilleniaceae	10
Asparagaceae	9
Myrtaceae	9
Stylidiaceae	9
Apiaceae	7
Ericaceae	7
Speciose Genera	**No. Taxa**
Hibbertia	10
Stylidium	8
Gompholobium	7
Drosera	6
Styphelia	6
Lomandra	5
Acacia	4
Banksia	4
Xanthosia	4

The species accumulation curve demonstrates a decline in the number of new species recorded approaching the total sample area of 2,000 m^2, with a 10% increase in the final quadrats assessed yielding <3% new taxa (Figure 6). A total of 172 species were recorded from the quadrats with an additional 17 species recorded from relevés and opportunistic observations outside the quadrats. All vegetation types occurring within the study area were considered to have been adequately sampled based on the heterogeneity and geographic distribution of these associations.

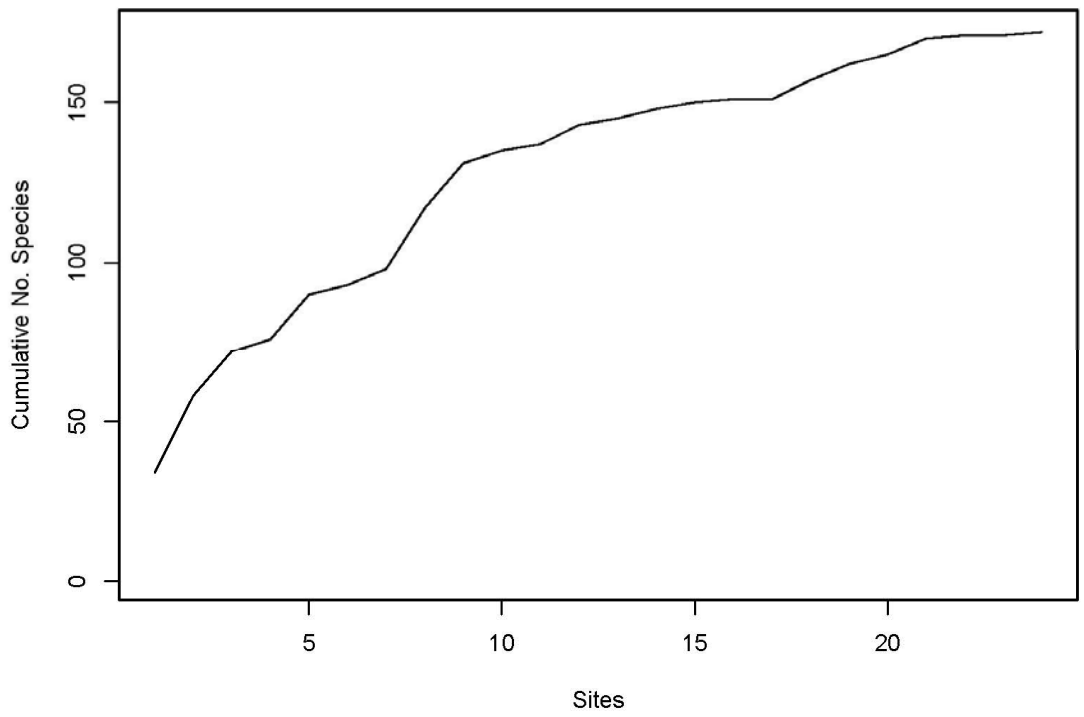

Figure 6 Species accumulation curve for the 24 quadrats formally assessed within the study area.

3.3 Significant Flora

3.3.1 Threatened Flora listed under the BC Act and EPBC Act

None of the plant taxa recorded from the study area were listed as Threatened Flora under the Commonwealth EPBC Act or the Western Australian BC Act.

3.3.2 Priority Flora

None of the plant taxa recorded from the study area were listed as Priority flora by the DBCA.

3.3.3 Range Extensions

None of the plant taxa recorded from the study area represented range extensions outside of their current known distribution.

3.4 Introduced Flora

There were 16 introduced species recorded from the study area (Appendix 6). None of the weed species were listed as Declared Pests under the BAM Act.

3.5 Vegetation

A total of nine vegetation types classified as six broad floristic formations and occurring on four broad landforms were described and mapped from the study area (Figure 7, Table 9). A species by site matrix and raw data for the 24 study sites is presented in Appendices 7 and 8 respectively.

The latest EPA technical guidelines (EPA 2016a) recommend a minimum of three quadrats to sample each vegetation type, noting that this is dependent on the size of the vegetation units mapped and the size of the survey area. Seven of the eight vegetation types were sampled by three quadrats replicated across multiple vegetation polygons. The eighth vegetation type occurred as a localised area of regrowth along the cleared powerline corridor which will also serve as the alignment for the proposed water pipeline. This was assessed by relevé sampling method noting that targeted searches were completed throughout.

Vegetation was characterised by Jarrah *(Eucalyptus marginata)* and Sheoak *(Allocasuarina fraseriana)* Forest on lateritic hill crests and slopes, with four vegetation types differentiated by subtle changes in understorey structure and composition related primarily to depth of sand overlying the base laterite geology and associated surface hydrology. The canopy became more open on lower slopes and footslopes with Candlestick Banksia *(Banksia attenuata)* characteristic in the deep grey sandy profile. At the lowest point in the landscape Moonah *(Melaleuca preissiana)* occurred as Open Scrub in grey clayey sand on swampy flats. Native vegetation had been cleared along the length of infrastructure corridors present within the study area including transmission lines, haul road and rail line (balloon loop). The tall shrub *Kunzea glabrescens* had regenerated to for thicket with otherwise low species diversity in the southern half of the study area, with a localised area of *Melaleuca incana* subsp. cf. *tenella* and *Hakea prostrata* scrub occurring along the northern transmission line (Figure 7).

Vegetation mapping completed within the study area classified vegetation types based on the dominant species occurring within each vegetation type. The mapping included consideration of quadrat and relevé data with an emphasis on mapping boundaries and spatial changes in vegetation occurring across the study area. In contrast the dendrogram was based on presence/absence data from quadrats with no consideration of the relative dominance of species. Hence the groupings produced by the dendrogram may be inconsistent with the grouping of quadrats from the vegetation types.

None of the nine vegetation types described and mapped within the study area were found to be aligned with any TECs or PECs documented from the Jarrah Forest bioregion.

Table 9 Vegetation types mapped within the study area.

Code	Broad Floristic Formation	Vegetation Type	Condition	Quadrats	Area (ha)	% Study Area
		Hill Crests				
HC Em Hh Tj	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata (Allocasuarina fraseriana) over Low Heath D of Hibbertia hypericoides (Bossiaea ornata) over Open Low Sedges of Netrostylis sp. Jarrah Forest (R. Davis 7391) on brown sandy loam on hill crests and upper hill slopes	Very Good to Good	5, 9, 14	6.64	4.46
HC Em	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata (Allocasuarina fraseriana) over parkland cleared ground cover on brown sandy loam on hill crests	Degraded	18, 19, 20	24.45	16.42
		Mid Hill Slopes				
MS EmAf XoPlXp HhDb	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Open Scrub (to Scrub) of Xylomelum occidentale, Persoonia longifolia and Xanthorrhoea preissii over Low Heath C of Hibbertia hypericoides and Dasypogon bromeliifolius on grey sand on mid hill slopes	Very Good	3, 6, 17	6.36	4.27
MS EmAf XoPl Hh	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana (Corymbia calophylla) over Open Scrub of Xylomelum occidentale and Persoonia longifolia over Low Heath D of Hibbertia hypericoides on brown sandy loam on mid hill slopes	Very Good	15, 16	8.53	5.73
		Lower Hill Slopes				
LS EmAf AfBa DbAoCf	Allocasuarina Low Forest A	Open Woodland of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Low Forest A of Allocasuarina fraseriana and Banksia attenuata over Dwarf Scrub D of Dasypogon bromeliifolius, Adenanthos obovatus and Calytrix flavescens on grey sand on lower hill slopes	Very Good to Good	2, 4, 13	3.79	2.55
LS EmAf Xp PcDb	Phlebocarya Low Heath D	Low Woodland A of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Open Low Scrub A of Xanthorrhoea preissii over Low Heath D of Phlebocarya ciliata and Dasypogon bromeliifolius on grey sand on lower hill slopes	Very Good to Good	1, 7, 10	9.49	6.37
		Drainage Flats				
FL MpNfXp PcDbVd HeLiMt	Phlebocarya Low Heath C	Open Scrub of Melaleuca preissiana, Nuytsia floribunda and Xanthorrhoea preissii over Low Heath C of Phlebocarya ciliata, Dasypogon bromellifolius and Verticordia densiflora subsp. densiflora over Open Tall Sedges of Hypolaena exsulca, Lyginia imberbis and Mesomelaena tetragona on grey clayey sand on swampy flats	Good to Degraded	8, 11, 12	5.73	3.85

Code	Broad Floristic Formation	Vegetation Type	Condition	Quadrats	Area (ha)	% Study Area
		Disturbed / Cleared				
HS Kg	Kunzea Thicket	Thicket of Kunzea glabrescens on grey sand along cleared infrastructure corridors	Completely Degraded	22, 23, 24	6.56	4.40
FL EWCc MitHp Xp	Melaleuca Scrub	Open Low Woodland A of Eucalyptus wandoo and Corymbia calophylla over Scrub of Melaleuca incana subsp. cf. tenella and Hakea prostrata over Low Scrub A of Melaleuca incana subsp. cf. tenella (Astartea scoparia) over Open Low Scrub B of Xanthorrhoea preissii over Dwarf Scrub D of Hypocalymma angustifolium and Acacia stenoptera over Open Low Sedges of Cyathochaeta avenacea and Desmocladus asper on grey silty clay loam on drainage area/ floodplains	Good	Releve 6950	0.25	0.17
		Rail, Road and Tracks			18.65	12.53
		Paddock (cleared annual pasture)			58.43	39.24

ONSHORE ENVIRONMENTAL

GREEN STEEL WA

Figure 7
Vegetation types within the study area

Legend

- Study Area

Vegetation Types

- FL MpNfXp PcDbVd HeLil
- HC Em
- HC Em Hh Tj
- HS Kg
- LS EmAf AfBa DbAoCf
- LS EmAf Xp PcDb
- MS EmAf XoPl Hh
- MS EmAf XoPlXp HhDb
- Paddock
- Road/Rail/Tracks

0 250 500 m

1:15,000

Datum: GDA 94
Projection: MGA Zone 50
Date: 29/02/2024
Status: Final
Figure: 7
Sheet Size: A4
File Name Reference: GS_Fig6_veg_map.pdf
Drawn by: JW
Requested by: DB

ONSHORE ENVIRONMENTAL

GREEN STEEL WA

Figure 7
Vegetation types within the study area

Legend

- Study Area

Vegetation Types

- FL EWCc MitHp Xp
- HC Em
- Paddock
- Road/Rail/Tracks

0 250 500 m

1:15,000

Datum: GDA 94
Projection: MGA Zone 50

Date: 29/02/2024
Status: Final
Figure: 7
Sheet Size: A4
File Name Reference: GS_Fig6_veg_map.pdf
Drawn by: JW
Requested by: DB

Code	HC Em Hh Tj
Broad Floristic Formation	*Eucalyptus* Forest
Vegetation Type	Forest of *Eucalyptus marginata* subsp. *marginata (Allocasuarina fraseriana)* over Low Heath D of *Hibbertia hypericoides (Bossiaea ornata)* over Open Low Sedges of *Netrostylis* sp. Jarrah Forest (R. Davis 7391) on brown sandy loam on hill crests and upper hill slopes

Quadrats Sampled	NE05, NE09, NE14
Area	6.64 ha or 4.46% of the study area
Soils and Geology	Grey sandy (to loamy sand) over laterite
Landform	Laterised hill crests and upper hill slopes with moderate outcropping
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Good (to Very Good)
Disturbances	Historical logging of hardwood, access tracks, weeds
Average Fire Age	Old (>6 years)

Code	HC Em
Broad Floristic Formation	*Eucalyptus* Forest
Vegetation Type	Forest of *Eucalyptus marginata* subsp. *marginata (Allocasuarina fraseriana)* over parkland cleared ground cover on brown sandy loam on hill crests

Quadrats Sampled	NE18, NE19, NE20
Area	24.45 ha or 16.42% of the study area
Soils and Geology	Grey (brown) loamy sandy (to sand) over laterite
Landform	Laterised hill crests and upper hill slopes with major outcropping
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Degraded (parkland cleared remnants amongst cleared annual pasture being actively grazed by cattle)
Disturbances	Historical selective logging of larger trees, actively grazed by cattle resulting in complete removal of all understorey strata, weeds
Average Fire Age	Old (>6 years)

Code	MS EmAf XoPlXp HhDb
Broad Floristic Formation	*Eucalyptus* Forest
Vegetation Type	Forest of *Eucalyptus marginata subsp. marginata* and *Allocasuarina fraseriana* over Open Scrub (to Scrub) of *Xylomelum occidentale, Persoonia longifolia* and *Xanthorrhoea preissii* over Low Heath C of *Hibbertia hypericoides* and *Dasypogon bromeliifolius* on grey sand on mid hill slopes

Quadrats Sampled	NE03, NE06, NE17
Area	6.36 ha or 4.27% of the study area
Soils and Geology	Grey sand
Landform	Lateritic hill slope (negligible to limited outcropping)
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Very Good
Disturbances	Historical logging, access tracks, weeds, historical mining exploration
Average Fire Age	Old (>6 years)

Code	MS EmAf XoPl Hh
Broad Floristic Formation	*Eucalyptus* Forest
Vegetation Type	Forest of *Eucalyptus marginata* subsp. *marginata* and *Allocasuarina fraseriana (Corymbia calophylla)* over Open Scrub of *Xylomelum occidentale* and *Persoonia longifolia* over Low Heath D of *Hibbertia hypericoides* on brown sandy loam on mid hill slopes

Quadrats Sampled	NE15, NE16, NE21
Area	8.53 ha or 5.73% of the study area
Soils and Geology	Grey loamy sand
Landform	Laterised hill crests and upper hill slopes with moderate outcropping
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Very Good
Disturbances	Historical logging, access tracks, weeds, historical mining exploration
Average Fire Age	Old(>6 years)

Code	LS EmAf AfBa DbAoCf
Broad Floristic Formation	*Allocasuarina* Low Forest A
Vegetation Type	Open Woodland of *Eucalyptus marginata* subsp. *marginata* and *Allocasuarina fraseriana* over Low Forest A of *Allocasuarina fraseriana* and *Banksia attenuata* over Dwarf Scrub D of *Dasypogon bromeliifolius, Adenanthos obovatus* and *Calytrix flavescens* on grey sand on lower hill slopes

Quadrats Sampled	NE02, NE04, NE13
Area	3.79 ha or 2.55% of the study area
Soils and Geology	Grey sand (to loamy sand)
Landform	Lower hill slope (laterite at depth, no outcropping evident)
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Good (to Very Good)
Disturbances	Historical logging, access tracks, weeds, historical mining exploration, dust (from adjacent mining activities), pigs
Average Fire Age	Old (>6 years)

Code	LS EmAf Xp PcDb
Broad Floristic Formation	*Phlebocarya* Low Heath D
Vegetation Type	Low Woodland A of *Eucalyptus marginata* subsp. *marginata* and *Allocasuarina fraseriana* over Open Low Scrub A of *Xanthorrhoea preissii* over Low Heath D of *Phlebocarya ciliata* and *Dasypogon bromeliifolius* on grey sand on lower hill slopes

Quadrats Sampled	NE01, NE07, NE10
Area	9.49 ha or 6.37% of the study area
Soils and Geology	Grey sand
Landform	Footslope grading into sand plain
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Good (to Very Good)
Disturbances	Historical logging, access tracks, weeds, historical mining exploration, dust (from adjacent mining activities), pigs
Average Fire Age	Old (>6 years)

Code	FL MpNfXp PcDbVd HeLiMt
Broad Floristic Formation	*Phlebocarya* Low Heath C
Vegetation Type	Open Scrub of *Melaleuca preissiana, Nuytsia floribunda* and *Xanthorrhoea preissii* over Low Heath C of *Phlebocarya ciliata, Dasypogon bromellifolius* and *Verticordia densiflora* subsp. *densiflora* over Open Tall Sedges of *Hypolaena exsulca, Lyginia imberbis* and *Mesomelaena tetragona* on grey clayey sand on swampy flats

Quadrats Sampled	NE08, NE11, NE12
Area	5.73 ha or 3.85% of the study area
Soils and Geology	Variable: grey loamy sand, sandy loam, light clay
Landform	Footslopes grading into floodplains and swampy drainage flats
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Good to Degraded
Disturbances	Historical logging, access tracks, weeds, historical mining exploration, dust and siltation (from adjacent mining activities), pigs
Average Fire Age	Old (>6 years)

Code	FL EWCc MitHp Xp
Broad Floristic Formation	*Melaleuca* Scrub
Vegetation Type	Open Low Woodland A of *Eucalyptus wandoo* and *Corymbia calophylla* over Scrub of *Melaleuca incana* subsp. cf. *tenella* and *Hakea prostrata* over Low Scrub A of *Melaleuca incana* subsp. cf. *tenella (Astartea scoparia)* over Open Low Scrub B of *Xanthorrhoea preissii* over Dwarf Scrub D of *Hypocalymma angustifolium* and *Acacia stenoptera* over Open Low Sedges of *Cyathochaeta avenacea* and *Desmocladus asper* on grey silty clay loam on drainage area/ floodplains

Quadrats Sampled	Releve 6950
Area	0.25 ha or 0.17% of the study area
Soils and Geology	Grey silty clay loam
Landform	Localised drainage zone at low point on lateritic slopes on cleared powerline corridor
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Good
Disturbances	Previously cleared during construction of the powerline. The area of localised natural regeneration has been promoted by elevated soil moisture.
Average Fire Age	Old (>6 years)

Code	HS Kg
Broad Floristic Formation	*Kunzea* Thicket
Vegetation Type	Thicket of *Kunzea glabrescens* on grey sand along cleared infrastructure corridors

Quadrats Sampled	NE22, NE23, NE24
Area	6.56 ha or 4.40% of the study area
Soils and Geology	Grey sand (to loamy sand)
Landform	Cleared hill slope (over laterite at variable depth)
Priority Ecological Community	No
Conservation Significant Flora	None
Vegetation Condition	Completely Degraded
Disturbances	Native vegetation blade cleared for construction of infrastructure along corridors, including transmission lines, haul road and rail line (balloon loop)
Average Fire Age	Old (>6 years)

3.6 Vegetation Condition

Freehold land forming the northern half of the study area and including the water pipeline corridor, site access (road) corridor, and the recycling mill has been historically cleared predominantly for annual pasture, with retained remnant stands of native vegetation parkland cleared. Vegetation condition for this block was rated as degraded, completely degraded or cleared (Figure 7, Table 10).

Native vegetation condition within the southern sector of the study area where the rail line extension will be constructed was generally rated as very good (22 ha) or good (18 ha) (Figure 7). Previous clearing had occurred for the rail line (balloon loop) and adjacent haul road, an access track along the transmission, and ingress from existing coal mining operations along the western boundary of the study area. Native vegetation regrowth along the cleared transmission line corridor and areas fringing the rail line (balloon loop) were rated as degraded or completely degraded (Figure 7).

Disturbances recorded during the field survey included historical logging of hardwood timber, clearing for access tracks, the existing rail line, and mine exploration activities, siltation and dusting from adjacent coal mining operations, ground disturbance from feral pigs, and minor weed ingress.

Table 10 Vegetation condition within the study area.

Condition	Area (ha)	% of Total
Pristine	0	0
Excellent	0	0
Very Good	21.98	14.76
Good	17.76	11.93
Degraded	32.05	21.53
Completely Degraded	58.42	39.24
Cleared	18.65	12.53
Total	**148.87**	**100.00**

ONSHORE ENVIRONMENTAL

GREEN STEEL WA

Figure 8
Vegetation condition within the study area

Legend

- Study Area

Vegetation Condition

- Cleared
- Completely Degraded
- Degraded
- Good
- Very Good

0 250 500 m

1:15,000

Datum: GDA 94
Projection: MGA Zone 50
Date: 29/02/2024
Status: Final
Figure: 8
Sheet Size: A4
File Name Reference: GS_Fig7_veg_cond.pdf
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ONSHORE ENVIRONMENTAL

GREEN STEEL WA

Figure 8
Vegetation condition within the study area

Legend

- Study Area

Vegetation Condition

- Cleared
- Completely Degraded
- Degraded
- Good

0 250 500 m

1:15,000

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3.7 Representation and Reservation of Vegetation

To assess the representation of vegetation within the study area, regional mapping completed by Beard (1981) was utilised. A single Beard vegetation association (Bridgetown 3) was represented within the study area (Figure 3, Table 11). When considering representation at the state-wide level, this association currently has 67.86% of the pre-European extent remaining (Government of Western Australia 2018). The study area is located within the Jarrah Forest bioregion, specifically within the Southern Jarrah Forest subregion. When considering the representation of vegetation at the IBRA regional level and IBRA system level, greater than 59% of the pre-European extent remains for the vegetation association represented (Table 11). The study area falls entirely within the Shire of Collie. At this local government authority level 82% of the pre-European extent remain for the vegetation association represented (Table 11).

The representation of vegetation complexes within the reserve system has also been published as part of the Regional Forest Agreement (RFA) process for Southwest Forests and updated as part of the latest Forest Management Plan. At the complex level, the study area intersects four vegetation complexes: Collie (Cl), Cardiff (CF), Dwellingup (D1) and Yarragil 2 (Yg2) (GoWA 2018, Table 11). The four vegetation complexes currently have 66%, 53%, 86% and 92% of the calculated pre-European extent remaining within the Southwest Forest Region respectively (GoWA 2018) (Table 11). In terms of representation, the Western Australian Government is committed to the National Objectives Targets for Biodiversity Conservation which includes a target that prevents clearance of ecological communities with an extent below 30% of that present pre-European settlement (Department of Natural Resources and Environment 2002, EPA 2000). Vegetation within the study area is therefore determined to be well represented at all levels (statewide, bioregional [IBRA region and IBRA sub-region] and local government authority), with more than 59% of the pre-European extent remaining for the Beard vegetation association represented within the study area, and more than 53% of the pre-European extent remaining for the four RFA vegetation associations represented within the study area.

In terms of reservation, there is a benchmark for a minimum of 15% of each Beard association to be protected in Class I-IV reserves (Commonwealth of Australia 1997). At a state-wide level there is 26.9% of the current extent of Vegetation association 3 protected within Class I-IV reserves (Table 11). Hence vegetation within the study area is determined to be well reserved.

Table 11 Pre-European extent of vegetation represented based on identified datasets.

Vegetation System / Association	Pre-European Extent (ha)	Current Extent Remaining (ha)	% Extent of Pre-European	% Current Extent (IUCN I - IV)
Statewide (Vegetation Association)				
3 - Medium forest; jarrah-marri	2,661,404.62	1,806,035.91	67.86	26.87
IBRA Region (Jarrah Forest JAF)				
Beard Vegetation Association 3	2,390,591.54	1,606,736.77	67.21	23.97
IBRA Sub-region (JAF02)				
Beard Vegetation Association 3	1,482,491.85	880,655.65	59.40	31.13
Local Government (Shire of Collie)				
Beard Vegetation Association 3	158,906.01	130,832.13	82.33	20.83
Mattiske & Havel Complexes				
Collie Cl	11,004.73	7,354.88	66.83	6.28
Cardiff CF	6,236.58	3,360.93	53.89	
Dwellingup D1	208,490.90	181,038.81	86.83	8.35
Yarragil 2 Yg2	50,259.16	46,475.31	92.47	10.58

3.8 Conservation Significance of Vegetation

3.8.1 National Significance

None of the nine vegetation types recorded from the study area were aligned with any Commonwealth listed TECs. As well, none of the flora taxa recorded from the study area were listed under the Commonwealth EPBC Act.

Hence, flora and vegetation within the study area was determined to be not of national significance.

3.8.2 State Significance

None of the nine vegetation types recorded from the study area were aligned with any Western Australian listed TECs or PECs.

None of the flora recorded from the study area were listed as Threatened Flora under the Western Australian BC Act, and there were no Priority flora taxa as listed by the DBCA recorded from the study area.

Hence, flora and vegetation within the study area was determined to be not of state significance.

3.8.3 Local Significance

None of the plant taxa recorded from the study area were considered to represent potentially new taxa or range extensions outside of their current known distribution. Hence, none of the flora were determined to be of local conservation significance.

4.0 SUMMARY

Onshore Environmental completed a single season detailed flora and vegetation survey of the Collie Green Steel Recycling Mill over six field days between the 1st and 14th of September 2023, 8th of November 2023 and 22nd of February 2024. The total flora included 178 plant taxa from 42 families and 119 genera. Species representation was greatest among the Fabaceae, Orchidaceae, Asteraceae, Proteaceae, Asparagaceae, Cyperaceae, Dilleniaceae, Myrtaceae and Stylidiaceae families. The most speciose genera were *Hibbertia, Lomandra, Drosera, Gompholobium, Stylidium, Acacia, Styphelia, Banksia, Caladenia, Centrolepis, Conostylis* and *Lepidosperma.*

None of the plant taxa recorded from the study area was listed as Threatened Flora under the Commonwealth EPBC Act or the Western Australian BC Act, and there were no DBCA listed Priority flora taxa recorded.

A total of 15 introduced species were recorded from the study area. None of the weed taxa were listed as a Declared Pest under the BAM Act.

A total of nine vegetation types occurring on five broad landforms were described and mapped from the study area. The broad landforms included lateritic hill crests, upper mid and lower hill slopes, and seasonally wet (swampy) flats. None of the vegetation types were aligned with Commonwealth or Western Australian listed TECs or DBCA listed PECs, and all were well represented regionally.

Freehold land forming the northern half of the study area and including the water pipeline corridor, site access (road) corridor, and the recycling mill has been historically cleared predominantly for annual pasture, with retained remnant stands of native vegetation parkland cleared. Vegetation condition for this block was rated as degraded or completely degraded. Native vegetation condition within the southern sector of the study area where the rail line extension will be constructed was generally rated as very good or good. Disturbances recorded during the field survey included historical logging of hardwood timber, clearing for access tracks and infrastructure corridors including transmission lines, rail line and haul road, mine exploration activities, siltation and dusting from adjacent coal mining operations, ground disturbance from feral pigs, and minor weed ingress.

5.0 STUDY TEAM

The detailed flora and vegetation survey was planned, co-ordinated and executed by the following personnel:

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Dr Jerome Bull	PhD	Principal Botanist
Ms Jessica Waters	BSc	Senior Ecologist
Mrs Kerry Keenan		Data Analyst

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APPENDIX 1

Conservation categories

Category	Description
Extinct	A species is extinct if there is no reasonable doubt that the last member of the species has died.
Extinct in the Wild	A species is categorised as extinct in the wild if it is only known to survive in cultivations, in captivity, or as a naturalised population well outside its past range; or if it has not been recorded in its known/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	The species is facing an extremely high risk of extinction in the wild and in the immediate future.
Endangered	The species is likely to become extinct unless the circumstances and factors threatening its abundance, survival, or evolutionary development cease to operate; or its numbers have been reduced to such a critical level, or its habitats have been so drastically reduced, that it is in immediate danger of extinction.
Vulnerable	Within the next 25 years, the species is likely to become endangered unless the circumstances and factors threatening its abundance, survival, or evolutionary development cease to operate.
Conservation Dependent	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 within a period of five years.

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such. Categories of specially protected fauna and flora are:
T Threatened Species
Published as Specially Protected under the *Wildlife Conservation Act 1950,* and listed under Schedules 1 to 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora). *Threatened fauna* is that subset of 'Specially Protected Fauna' declared to be 'likely to become extinct' pursuant to section 14(4) of the Wildlife Conservation Act. *Threatened flora* is flora that has been declared to be 'likely to become extinct or is rare, or otherwise in need of special protection', pursuant to section 23F(2) of the Wildlife Conservation Act. The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.
CR Critically endangered species
Threatened species considered to be facing an extremely high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
EN Endangered species
Threatened species considered to be facing a very high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
VU Vulnerable species
Threatened species considered to be facing a high risk of extinction in the wild. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna and Wildlife Conservation (Rare Flora) Notice for Threatened Flora.
EX Presumed extinct species
Species which have been adequately searched for and there is no reasonable doubt that the last individual has died. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora.
IA Migratory birds protected under an international agreement
Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice.
CD Conservation dependent fauna
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice.
OS Other specially protected fauna
Fauna otherwise in need of special protection to ensure their conservation. Published as Specially Protected under the *Wildlife Conservation Act 1950,* in Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

Priority Species
Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
1: Priority One - Poorly Known Taxa
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 localities 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.
2: Priority Two - Poorly Known Taxa
Species that are known from one or a few collections (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 localities 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.
3: Priority Three - Poorly Known Taxa
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities 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 localities 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.
4: Priority Four - Rare, Near Threatened and other taxa 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 taxa are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

APPENDIX 2

Vegetation condition scale
(as developed by Keighery 1994)

Condition	Code	Description
Pristine	1	Pristine or nearly so, no obvious signs of disturbance.
Excellent	2	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	3	Vegetation structure altered; obvious signs of disturbance.
Good	4	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it.
Degraded	5	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching Very Good condition without intensive management.
Completely Degraded	6	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.

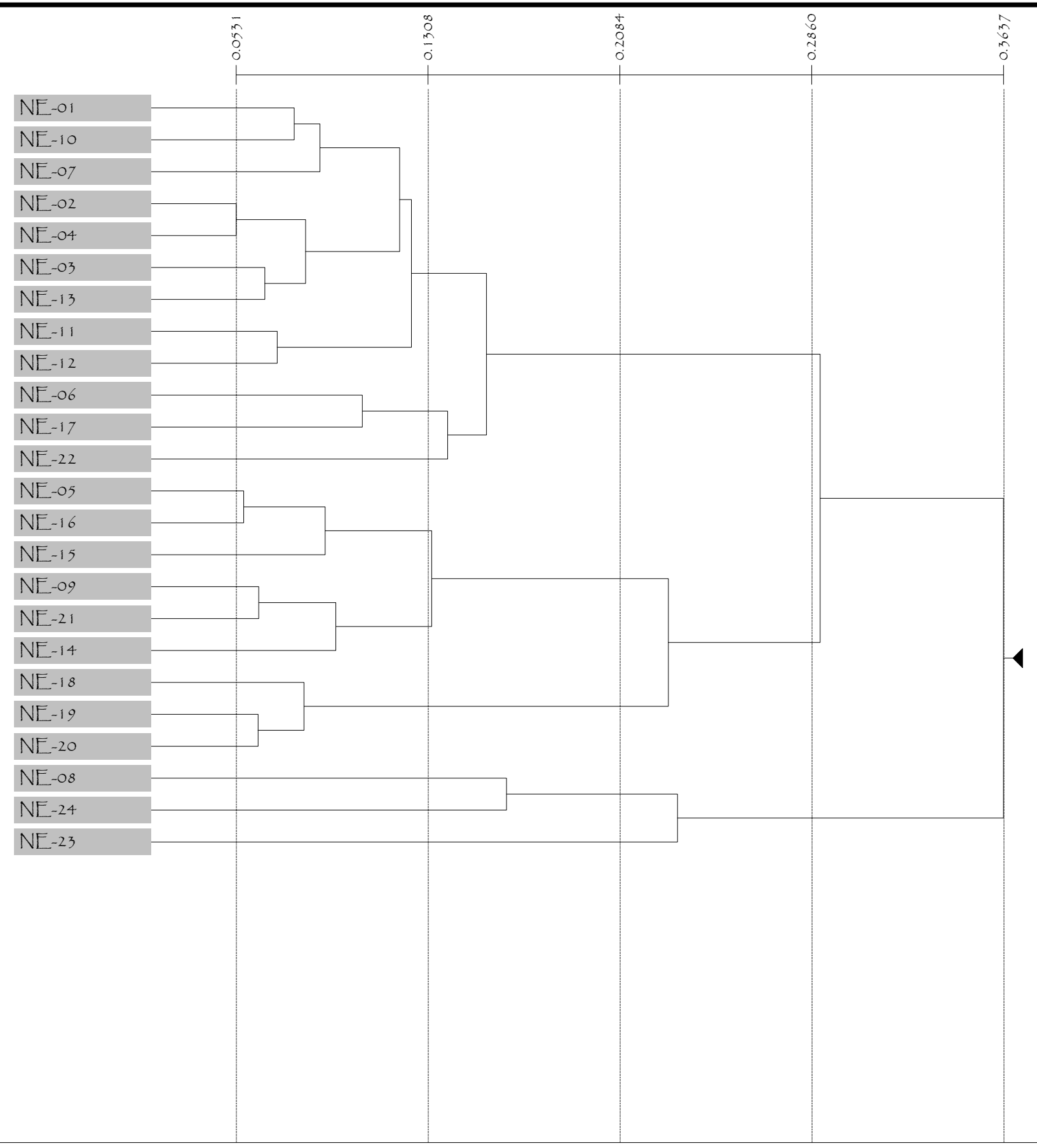
APPENDIX 3

Column Fusion Dendrogram

Fusion Type: Flexible UPGMA Beta = -0.10

On Association: Two-Step (Columns) Created on: 10:46:54, November 17, 2023

Column Fusion Dendrogram



APPENDIX 4

Vegetation classification following Muir (1997)

LIFE FORM / HEIGHT CLASS	Canopy Cover			
	DENSE	MID DENSE	SPARSE	VERY SPARSE
	70 % - 100%	30% - 70%	10% - 30%	2% - 10%
Trees > 30 m	Dense Tall Forest	Tall Forest	Tall Woodland	Open Tall Woodland
Trees 15 – 30 m	Dense Forest	Forest	Woodland	Open Woodland
Trees 5 – 15 m	Dense Low Forest A	Low Forest A	Low Woodland A	Open Low Woodland A
Trees < 5 m	Dense Low Forest B	Low Forest B	Low Woodland B	Open Low Woodland B
Mallee tree form	Dense Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree Mallee
Mallee shrub form	Dense Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub Mallee
Shrubs > 2 m	Dense Thicket	Thicket	Scrub	Open Scrub
Shrubs 1.5 – 2 m	Dense Heath A	Heath A	Low Scrub A	Open Low Scrub A
Shrubs 1 - 1.5 m	Dense Heath B	Heath B	Low Scrub B	Open Low Scrub B
Shrubs 0.5 – 1 m	Dense Low Heath C	Low Heath C	Dwarf Scrub C	Open Dwarf Scrub C
Shrubs 0 - 0.5 m	Dense Low Heath D	Low Heath D	Dwarf Scrub D	Open Dwarf Scrub D
Mat plants	Dense Mat Plants	Mat Plants	Open Mat Plants	Very Open Mat Plants
Hummock grass	Dense Hummock Grass	Mid-Dense Hummock Grass	Hummock Grass	Open Hummock Grass
Bunch grass > 0.5 m	Dense Tall Grass	Tall Grass	Open Tall Grass	Very Open Tall Grass
Bunch grass < 0.5 m	Dense Low Grass	Low Grass	Open Low Grass	Very Open Low Grass
Herbaceous spp.	Dense Herbs	Herbs	Open Herbs	Very Open Herbs
Sedges > 0.5 m	Dense Tall Sedges	Tall Sedges	Open Tall Sedges	Very Open Tall Sedges
Sedges < 0.5 m	Dense Low Sedges	Low Sedges	Open Low Sedges	Very Open Low Sedges
Ferns	Dense Ferns	Ferns	Open Ferns	Very Open Ferns
Mosses, liverworts	Dense Mosses	Mosses	Open Mosses	Very Open Mosses

APPENDIX 5

Total flora list from the study area

* denotes introduced species

Family	Genus	Species	Rank	Infra Name
Anarthriaceae	Lyginia	imberbis		
Apiaceae	Actinotus	glomeratus		
Apiaceae	Daucus	glochidiatus		
Apiaceae	Homalosciadium	homalocarpum		
Apiaceae	Xanthosia	atkinsoniana		
Apiaceae	Xanthosia	candida		
Apiaceae	Xanthosia	huegelii		
Apiaceae	Xanthosia	singuliflora		
Araliaceae	Hydrocotyle	callicarpa		
Araliaceae	Trachymene	pilosa		
Asparagaceae	Laxmannia		sp.	indet
Asparagaceae	Lomandra	caespitosa		
Asparagaceae	Lomandra	hermaphrodita		
Asparagaceae	Lomandra	nigricans		
Asparagaceae	Lomandra	sericea		
Asparagaceae	Lomandra		cf.	preissii
Asparagaceae	Sowerbaea	laxiflora		
Asparagaceae	Thysanotus	arbuscula		
Asparagaceae	Thysanotus	patersonii		
Asteraceae	*Arctotheca	calendula		
Asteraceae	*Hypochaeris	glabra		
Asteraceae	*Ursinia	anthemoides		
Asteraceae	Craspedia	variabilis		
Asteraceae	Hyalosperma	demissum		
Asteraceae	Lagenophora	huegelii		
Asteraceae	Millotia	tenuifolia		
Asteraceae	Podolepis	gracilis		
Asteraceae	Podotheca	angustifolia		
Asteraceae	Pterochaeta	paniculata		
Asteraceae	Quinetia	urvillei		
Asteraceae	Rhodanthe	citrina		
Asteraceae	Senecio	quadridentatus		
Campanulaceae	Wahlenbergia	gracilenta		
Casuarinaceae	Allocasuarina	fraseriana		
Centrolepidaceae	Aphelia	cyperoides		
Centrolepidaceae	Centrolepis	aristata		
Centrolepidaceae	Centrolepis	glabra		
Centrolepidaceae	Centrolepis	pilosa		
Colchicaceae	Burchardia	congesta		
Crassulaceae	Crassula	colorata	var.	colorata
Crassulaceae	Crassula	decumbens		
Cyperaceae	*Ficinia	marginata		
Cyperaceae	Chaetospora	curvifolius		
Cyperaceae	Isolepis	cernua	var.	setiformis
Cyperaceae	Lepidosperma	leptostachyum		
Cyperaceae	Lepidosperma	pubisquameum		
Cyperaceae	Lepidosperma	squamatum		
Cyperaceae	Mesomelaena	tetragona		
Cyperaceae	Morelotia	octandra		
Cyperaceae	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)

Family	Genus	Species	Rank	Infra Name
Cyperaceae	Schoenus	subbarbatus		
Dasypogonaceae	Dasypogon	bromeliifolius		
Dilleniaceae	Hibbertia	amplexicaulis		
Dilleniaceae	Hibbertia	commutata		
Dilleniaceae	Hibbertia	depilipes		
Dilleniaceae	Hibbertia	diamesogenos		
Dilleniaceae	Hibbertia	ferruginea		
Dilleniaceae	Hibbertia	hypericoides		
Dilleniaceae	Hibbertia	racemosa		
Dilleniaceae	Hibbertia	semipilosa		
Dilleniaceae	Hibbertia	vaginata		
Dilleniaceae	Hibbertia		cf.	avonensis
Droseraceae	Drosera	erythrorhiza		
Droseraceae	Drosera	glanduligera		
Droseraceae	Drosera	huegelii		
Droseraceae	Drosera	marchantii		
Droseraceae	Drosera	pallida		
Droseraceae	Drosera	stolonifera		
Elaeocarpaceae	Tetratheca	hirsuta	subsp.	viminea
Ericaceae	Leucopogon	capitellatus		
Ericaceae	Styphelia	discolor		
Ericaceae	Styphelia	erectifolia		
Ericaceae	Styphelia	erubescens		
Ericaceae	Styphelia	pallida		
Ericaceae	Styphelia	propinqua		
Ericaceae	Styphelia	tenuiflora		
Euphorbiaceae	Stachystemon	vermicularis		
Fabaceae	*Lotus	subbiflorus		
Fabaceae	*Trifolium	subterraneum		
Fabaceae	Acacia	applanata		
Fabaceae	Acacia	extensa		
Fabaceae	Acacia	preissiana		
Fabaceae	Acacia	pulchella		
Fabaceae	Bossiaea	eriocarpa		
Fabaceae	Bossiaea	ornata		
Fabaceae	Daviesia	decurrens	subsp.	decurrens
Fabaceae	Daviesia	preissii		
Fabaceae	Gastrolobium	bilobum		
Fabaceae	Gompholobium	confertum		
Fabaceae	Gompholobium	knightianum		
Fabaceae	Gompholobium	marginatum		
Fabaceae	Gompholobium	ovatum		
Fabaceae	Gompholobium	preissii		
Fabaceae	Gompholobium	tomentosum		
Fabaceae	Gompholobium		sp.	indet
Fabaceae	Hovea	chorizemifolia		
Fabaceae	Hovea	trisperma		
Fabaceae	Jacksonia	furcellata		
Fabaceae	Kennedia	coccinea		
Fabaceae	Kennedia	prostrata		

Family	Genus	Species	Rank	Infra Name
Fabaceae	Labichea	punctata		
Goodeniaceae	Dampiera	linearis		
Goodeniaceae	Goodenia	eatoniana		
Goodeniaceae	Lechenaultia	biloba		
Goodeniaceae	Scaevola	calliptera		
Haemodoraceae	Conostylis	aculeata	subsp.	aculeata
Haemodoraceae	Conostylis	serrulata		
Haemodoraceae	Conostylis	setigera		
Haemodoraceae	Haemodorum	laxum		
Haemodoraceae	Phlebocarya	ciliata		
Haloragaceae	Glischrocaryon	angustifolium		
Hemerocallidaceae	Tricoryne	elatior		
Iridaceae	*Romulea	rosea		
Iridaceae	Patersonia	babianoides		
Iridaceae	Patersonia	occidentalis	var.	occidentalis
Juncaceae	Luzula	meriodionalis		
Lamiaceae	Hemiandra	pungens		
Lindsaeaceae	Lindsaea	linearis		
Loganiaceae	Orianthera	serpyllifolia	subsp.	serpyllifolia
Loganiaceae	Phyllangium	divergens		
Loranthaceae	Nuytsia	floribunda		
Myrtaceae	Babingtonia	camphorosmae		
Myrtaceae	Calytrix	flavescens		
Myrtaceae	Corymbia	calophylla		
Myrtaceae	Eucalyptus	marginata	subsp.	marginata
Myrtaceae	Hypocalymma	angustifolium		
Myrtaceae	Kunzea	glabrescens		
Myrtaceae	Kunzea	recurva		
Myrtaceae	Melaleuca	preissiana		
Myrtaceae	Pericalymma	ellipticum	var.	ellipticum
Orchidaceae	*Disa	bracteata		
Orchidaceae	Caladenia	discoidea		
Orchidaceae	Caladenia	flava	subsp.	flava
Orchidaceae	Caladenia	reptans		
Orchidaceae	Cyanicula	sericea		
Orchidaceae	Cyrtostylis	robusta		
Orchidaceae	Diuris	porrifolia		
Orchidaceae	Elythranthera	brunonis		
Orchidaceae	Eriochilus	dilatatus		
Orchidaceae	Leporella	fimbriata		
Orchidaceae	Pterostylis	recurva		
Orchidaceae	Pterostylis		sp.	indet.
Orchidaceae	Pyrorchis	nigricans		
Orchidaceae	Thelymitra	antennifera		
Orobanchaceae	*Parentucellia	latifolia		
Oxalidaceae	*Oxalis		sp.	indet.
Phyllanthaceae	Poranthera	microphylla		
Pittosporaceae	Billardiera	variifolia		
Poaceae	*Aira	cupaniana		
Poaceae	*Briza	minor		

Family	Genus	Species	Rank	Infra Name
Poaceae	*Ehrharta	longiflora		
Poaceae	*Lolium	rigidum		
Poaceae	*Vulpia	bromoides		
Poaceae	Tetrarrhena	laevis		
Proteaceae	Adenanthos	obovatus		
Proteaceae	Banksia	attenuata		
Proteaceae	Banksia	bipinnatifida		
Proteaceae	Banksia	dallanneyi	subsp.	sylvestris
Proteaceae	Banksia	grandis		
Proteaceae	Conospermum	capitatum	subsp.	glabratum
Proteaceae	Grevillea	quercifolia		
Proteaceae	Hakea	lissocarpha		
Proteaceae	Hakea	prostrata		
Proteaceae	Persoonia	longifolia		
Proteaceae	Petrophile	linearis		
Proteaceae	Synaphea	gracillima		
Proteaceae	Xylomelum	occidentale		
Restionaceae	Desmocladus	fasciculatus		
Restionaceae	Hypolaena	exsulca		
Rhamnaceae	Trymalium	ledifolium		
Rubiaceae	Opercularia	apiciflora		
Rubiaceae	Opercularia	hispidula		
Rutaceae	Boronia	crenulata	subsp.	crenulata var. crenulata
Rutaceae	Boronia		cf.	fastigiata
Rutaceae	Cyanothamnus	ramosus	subsp.	anethifolius
Solanaceae	*Solanum	nigrum		
Stylidiaceae	Levenhookia	pusilla		
Stylidiaceae	Stylidium	amoenum		
Stylidiaceae	Stylidium	araeophyllum		
Stylidiaceae	Stylidium	ciliatum		
Stylidiaceae	Stylidium	diversifolium		
Stylidiaceae	Stylidium	piliferum		
Stylidiaceae	Stylidium	plantagineum		
Stylidiaceae	Stylidium	tenue		
Stylidiaceae	Stylidium	violaceum		
Xanthorrhoeaceae	Chamaescilla	corymbosa		
Xanthorrhoeaceae	Xanthorrhoea	gracilis		
Xanthorrhoeaceae	Xanthorrhoea	preissii		
Zamiaceae	Macrozamia	riedlei		

APPENDIX 6

Records for introduced species recorded from the study area

Genus	Species	% Foliar Cover	Height (cm)	Easting	Northing
*Aira	cupaniana	+	0.1	429245	6309962
*Aira	cupaniana	+	0.1	429254	6309802
*Aira	cupaniana	0.5	0.1	428957	6309834
*Aira	cupaniana	+	0.1	428936	6309383
*Aira	cupaniana	+	0.15	429067	6309861
*Arctotheca	calendula	+	0.1	428860	6310177
*Arctotheca	calendula	+	0.1	429038	6310124
*Arctotheca	calendula	+	0.1	428957	6309834
*Arctotheca	calendula	+	0.1	428860	6310063
*Arctotheca	calendula	+	0.1	428898	6309953
*Arctotheca	calendula	+	0.1	429197	6310106
*Arctotheca	calendula	+	0.1	429069	6310488
*Briza	minor	0.5	0.1	428957	6309834
*Briza	minor	+	0.1	429346	6310783
*Disa	bracteata	+	0.15	429346	6310783
*Ehrharta	longiflora	1	0.1	429611	6310438
*Ehrharta	longiflora	3	0.1	429346	6310783
*Ehrharta	longiflora	0.5	0.1	429069	6310488
*Ficinia	marginata	+	0.05	428882	6309474
*Hypochaeris	glabra	+	0.1	428891	6309769
*Hypochaeris	glabra	+	0.1	428860	6310177
*Hypochaeris	glabra	+	0.1	429245	6309962
*Hypochaeris	glabra	+	0.1	429110	6309942
*Hypochaeris	glabra	+	0.1	429130	6310284
*Hypochaeris	glabra	+	0.1	429038	6310124
*Hypochaeris	glabra	4	0.1	428957	6309834
*Hypochaeris	glabra	+	0.1	428936	6309383
*Hypochaeris	glabra	1	0.1	428860	6310063
*Hypochaeris	glabra	0.25	0.1	428898	6309953
*Hypochaeris	glabra	+	0.05	429183	6309879
*Hypochaeris	glabra	+	0.05	429254	6310321
*Hypochaeris	glabra	+	0.05	428966	6310309
*Hypochaeris	glabra	+	0.1	429197	6310106
*Hypochaeris	glabra	4	0.1	429611	6310438
*Hypochaeris	glabra	6	0.1	429346	6310783
*Hypochaeris	glabra	2	0.1	429069	6310488
*Hypochaeris	glabra	2	1.5	429067	6309861
*Lolium	rigidum	+	0.3	429346	6310783
*Lotus	subbiflorus	+	0.1	429346	6310783
*Oxalis	sp. indet	1	0.1	429069	6310488
*Parentucellia	latifolia	+	0.1	428957	6309834
*Romulea	rosea	0.5	0.1	428957	6309834
*Romulea	rosea	0.5	0.2	429611	6310438
*Romulea	rosea	+	0.2	429346	6310783
*Romulea	rosea	+	0.15	429069	6310488

Genus	Species	% Foliar Cover	Height (cm)	Easting	Northing
*Solanum	nigrum	+	0.4	429069	6310488
*Trifolium	subterraneum	1	0.1	429611	6310438
*Trifolium	subterraneum	3	0.1	429346	6310783
*Trifolium	subterraneum	1.5	0.1	429069	6310488
*Ursinia	anthemoides	+	0.1	428860	6310177
*Ursinia	anthemoides	+	0.1	429245	6309962
*Ursinia	anthemoides	0.5	0.2	428957	6309834
*Ursinia	anthemoides	+	0.1	428936	6309383
*Ursinia	anthemoides	0.5	0.2	428860	6310063
*Ursinia	anthemoides	1	0.2	429611	6310438
*Ursinia	anthemoides	3	0.2	429346	6310783
*Ursinia	anthemoides	2.5	0.2	429069	6310488
*Vulpia	bromoides	+	0.1	428860	6310177
*Vulpia	bromoides	+	0.1	429245	6309962
*Vulpia	bromoides	+	0.1	429110	6309942
*Vulpia	bromoides	+	0.1	429038	6310124
*Vulpia	bromoides	0.5	0.1	428957	6309834
*Vulpia	bromoides	0.5	0.1	428860	6310063
*Vulpia	bromoides	0.5	0.1	428898	6309953
*Vulpia	bromoides	+	0.1	429183	6309879
*Vulpia	bromoides	4	0.1	429611	6310438
*Vulpia	bromoides	6	0.1	429346	6310783
*Vulpia	bromoides	2	0.1	429069	6310488

APPENDIX 7

Species by site matrix for the study area

Taxon	NE01	NE02	NE03	NE04	NE05	NE06	NE07	NE08	NE09	NE10	NE11	NE12	NE13	NE14	NE15	NE16	NE17	NE18	NE19	NE20	NE21	NE22	NE23	NE24
*Aira cupaniana			x					x		x														x
*Arctotheca calendula		x				x		x			x	x					x			x				
*Briza minor								x											x					
*Disa bracteata																			x					
*Ehrharta longiflora																		x	x	x				
*Hypochaeris glabra	x	x	x	x	x	x		x		x	x	x	x		x	x	x	x	x	x				x
*Lolium rigidum																			x					
*Lotus subbiflorus																			x					
*Oxalis																				x				
*Parentucellia latifolia								x																
*Romulea rosea								x										x	x	x				
*Solanum nigrum																				x				
*Trifolium subterraneum																		x	x	x				
*Ursinia anthemoides		x	x					x		x	x							x	x	x				
*Vulpia bromoides		x	x	x		x		x			x	x	x					x	x	x				
Acacia applanata												x												
Acacia extensa	x		x								x	x												
Acacia preissiana					x																x			
Acacia preissii						x			x					x	x									
Actinotus glomeratus	x																							
Adenanthos obovatus								x		x	x													x
Allocasuarina fraseriana	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Aphelia brizula											x													
Babingtonia camphorosmae			x														x							
Banksia attenuata		x		x									x									x		
Banksia bipinnatifida																					x			
Banksia dallanneyi subsp. sylvestris					x				x					x	x									
Banksia grandis									x	x						x					x			
Billardiera variifolia					x	x			x							x					x			
Bossiaea eriocarpa	x		x	x		x				x		x	x			x	x						x	
Bossiaea ornata					x				x					x	x		x				x			
Burchardia congesta		x	x	x									x											
Caladenia discoidea													x											
Caladenia flava subsp. flava		x				x	x		x										x	x	x			
Caladenia reptans	x			x		x	x			x		x							x	x				
Calytrix flavescens				x									x				x							
Centrolepis aristata								x			x													
Centrolepis mutica	x																							
Centrolepis pilosa								x																
Chamaescilla corymbosa		x		x		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x			
Conospermum capitatum		x																						
Conostylis aculeata subsp. aculeata								x																
Conostylis serrulata									x															
Conostylis setigera							x	x					x											
Corymbia calophylla					x	x			x					x	x	x	x	x	x	x				
Craspedia variabilis	x											x												
Crassula colorata var. colorata										x														
Cyanicula sericea					x											x			x					
CyanothamnusÂ ramosus subsp. anethifolius			x																					
Cyrtostylis robusta										x						x								
Dampiera linearis	x				x	x	x		x								x				x			

Taxon	NE01	NE02	NE03	NE04	NE05	NE06	NE07	NE08	NE09	NE10	NE11	NE12	NE13	NE14	NE15	NE16	NE17	NE18	NE19	NE20	NE21	NE22	NE23	NE24
Dasypogon bromeliifolius	x	x	x	x		x	x			x	x	x	x				x					x		x
Daucus glochidiatus																		x	x	x				
Daviesia decurrens								x																
Democladus fasciculatus																						x		x
Desmocladus fasciculatus	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x			
Diuris porrifolia								x																
Drosera erythrorhiza		x	x	x	x	x		x			x		x	x	x	x				x	x			
Drosera glanduligera			x							x	x	x												
Drosera huegelii												x									x			
Drosera menziesii	x								x	x				x	x		x							
Drosera pallida		x	x	x	x	x	x		x		x	x	x			x			x	x	x			
Drosera stolonifera			x										x				x							
Elythranthera brunonis												x												
Eriochilus dilatatus				x	x	x								x	x			x			x			
Eucalyptus marginata subsp. marginata	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Glischrocaryon angustifolium							x																	
Gompholobium knightianum					x									x		x								
Gompholobium marginatum												x												
Gompholobium ovatum																x		x						
Gompholobium preissii																		x						
Gompholobium sp. indet										x														
Gompholobium tomentosum				x																			x	
Goodenia eatoniana									x															
Grevillea quercifolia					x																			
Haemodorum laxum									x									x		x	x			
Hakea lissocarpha									x												x			
Hakea prostrata									x															
Hemiandra pungens							x																	
Hibbertia amplexicaulis					x	x	x		x					x		x		x			x			
Hibbertia commutata						x			x	x				x		x					x			
Hibbertia diamesogenos	x						x			x		x												
Hibbertia hypericoides		x	x		x	x			x					x	x	x	x				x	x		
Hibbertia racemosa			x																					
Hibbertia vaginata		x	x	x			x			x	x	x	x											
Homalosciadium homalocarpum	x							x					x											
Hovea chorizemifolia					x				x						x	x		x						
Hovea trisperma			x									x												
Hyalosperma demissum								x																
Hydrocotyle callicarpa		x				x	x	x		x		x	x		x		x							
Hypocalymma angustifolium	x	x							x	x	x	x											x	x
Hypolaena exsulca			x	x			x	x			x	x					x							
Isolepis marginata																			x					
Kennedia coccinea									x									x						
Kunzea glabrescens																					x	x	x	x
Kunzea recurva								x																x
Labichea punctata														x	x	x					x			
Lagenophora huegelii	x		x		x									x	x	x				x	x			
Laxmannia squarrosa								x																
Lechenaultia biloba									x							x								
Lepdiosperma cf. squamatum													x											
Lepidosperma leptostachyum									x												x			

Taxon	NE01	NE02	NE03	NE04	NE05	NE06	NE07	NE08	NE09	NE10	NE11	NE12	NE13	NE14	NE15	NE16	NE17	NE18	NE19	NE20	NE21	NE22	NE23	NE24
Lepidosperma pubisquameum		x				x																		
Lepidosperma squamatum							x	x		x														
Leporella fimbriata		x	x	x			x	x	x		x		x											
Leucopogon capitellatus									x						x	x								
Levenhookia pusilla							x	x		x	x	x			x			x		x				
Lindsaea linearis	x						x			x														
Lomandra caespitosa	x		x								x	x	x											
Lomandra hermaphrodita	x	x	x	x	x			x					x				x							
Lomandra micrantha subsp. micrantha															x									
Lomandra nigricans		x	x				x					x									x			
Lomandra odora														x										
Lomandra preissii												x												
Lomandra sericea	x		x	x	x	x	x		x	x		x	x	x	x	x					x			
Luzula meriodionalis																			x					
Lyginia imberbis	x	x	x	x			x	x		x	x	x					x					x	x	
Macrozamia riedlei									x												x			
Melaleuca preissiana								x			x	x												
Mesomelaena tetragona								x																x
Millotia tenuifolia	x	x	x	x		x		x		x	x	x	x		x		x	x	x	x				
Morelotia octandra	x				x	x	x		x					x										
Netrostylis sp. Jarrah Forest (R. Davis 7391)	x	x	x	x	x	x	x		x	x				x	x	x	x	x			x			
Nuytsia floribunda			x					x		x	x	x												x
Opercularia apiciflora	x		x		x				x						x						x			
Opercularia hispidula																		x						
Patersonia babianoides						x			x					x	x	x								
Patersonia occidentalis var. occidentalis								x																
Pericalymma ellipticum var. ellipticum											x													
Persoonia longifolia		x							x	x			x			x					x			
Petrophile linearis				x					x	x			x											
Phlebocarya ciliata		x	x							x	x						x							
Podolepis gracilis								x			x	x												x
Podotheca angustifolia		x	x	x			x	x		x		x	x											
Poranthera microphylla		x		x																				
Pterochaeta paniculata								x																
Pterostylis recurva									x															
Pterostylis sp. indet	x						x			x						x	x				x			
Pyrorchis nigricans	x																							
Pyrorchis sp. indet		x	x	x									x											
Quinetia urvillei			x					x		x	x	x												
Rhodanthe citrina			x										x											
Scaevola calliptera	x					x			x	x					x						x			
Schoenus								x																
Senecio quadridentatus																				x				
Sowerbaea laxiflora					x																			
Stylidium amoenum														x							x			
Stylidium araeophyllum										x		x	x											
Stylidium brunonianum	x						x	x		x														
Stylidium piliferum			x		x				x	x					x	x		x		x	x			
Stylidium schoenoides					x	x			x					x		x								
Stylidium spathulatum												x												
Styphelia discolor																					x			

Taxon	NE01	NE02	NE03	NE04	NE05	NE06	NE07	NE08	NE09	NE10	NE11	NE12	NE13	NE14	NE15	NE16	NE17	NE18	NE19	NE20	NE21	NE22	NE23	NE24
Styphelia erectifolia									x					x										
Styphelia pallida	x								x												x			
Styphelia propinqua																					x			
Styphelia tenuiflora			x			x				x			x			x					x			
Tetrarrhena laevis																		x			x			
Tetratheca hirsuta subsp. viminea									x															
Thelymitra antennifera								x																
Thysanotus arbuscula		x																						
Thysanotus patersonii		x	x	x	x		x									x		x		x				
Trachymene pilosa	x	x	x	x		x		x		x	x	x	x		x	x	x	x	x		x			
Tricoryne elatior																								x
Trymalium ledifolium					x													x			x			
Wahlenbergia gracilenta			x																					
Xanthorrhoea gracilis															x									
Xanthorrhoea preissii	x		x					x	x	x	x	x		x	x		x				x			x
Xanthosia atkinsoniana					x									x		x								
Xanthosia candidia																					x			
Xanthosia huegelii		x	x	x	x	x	x	x		x	x	x	x				x				x			
Xylomelum occidentale	x	x	x	x		x	x	x		x			x			x	x					x		

APPENDIX 8

Representative photographs, raw data and total flora spreadsheets recorded for the 24 quadrats assessed within the study area

STUDY SITES

Site	Landform	Broad Floristic Formation	Vegetation Type	Condition	Aspect	Slope	Soil Type	Soil Colour	Last Fire	Disturbance	Comments	Easting	Northing
NE-01	Footslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata over Open Low Sedges of Dasypogon bromeliifolius, Desmocaldus fasciculatus and Lyginia imberbis with Open Low Woodland A of Allocasuarina fraseriana and Eucalyptus marginata subsp. marginata over Open Scrub of Xanthorrhoea preissii	Good	East	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Grazing, Pig Diggings, Dust	428891	6309769
NE-02	Hillslope	Allocasuarina Low Forest A	Low Forest A of Allocasuarina fraseriana, Banksia attenuata and Eucalyptus marginata subsp. marginata over Dwarf Scrub D of Hibbertia hypericoides and Hypocalymma angustifolium over Open Low Sedges of Dasypogon bromeliifolius and Desmocladus fasciculatus with Open Woodland of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Open Low Woodland B of Xylomelum occidentale and Banksia attenuata	Good	South	Low	Loamy Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Dust	428860	6310177
NE-03	Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Alllocasuarina fraseriana over Low Woodland A of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata and Nyutsia floribunda over Open Low Sedges of Dasypogon bromeliifolius, Desmocladus fasciculatus and Lyginia imberbis with Open Scrub of Xanthorrhoea preissii and Xylomelum occidentale over Open Low Scrub B of Xanthorrhoea preissii over Open Dwarf Scrub D of Babingtonia camphorosmae, Hibbetia hypericoides and Hibbertia vaginata	Very Good	South/ East	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Grazing	429245	6309962
NE-04	Hillslope	Allocasuarina Low Forest A	Low Forest A of Allocasuarina fraseriana and Banksia attenuata with Woodland of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Open Low Sedges of Dasypogon bromeliifolius, Lyginia imberbis and Desmocladus fasciculatus with Open Low Woodland B of Xylomelum occidentale and Banksia attenuata over Open Dwarf Scrub D of Hibbertia vaginatus and Calytrix flavescens	Good	South	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Pig Diggings	429110	6309942
NE-05	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Low Woodland A of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata and Corymbia calophylla over Dwarf Scrub D of Hibbertia hypericoides over Very Open Low Sedges of Netrostylis sp. Jarrah Forest (R. Davis 7391) and Desmocladus fasciculatus	Good	South/ East	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Weeds, Historical Logging	429130	6310284
NE-06	Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata, Corymbia calophylla and Allocasuarina fraseriana over Low Woodland A of Allocasuarina fraseriana over Dwarf Scrub D of Hibbertia hypericoides with Open Low Woodland B of Xylomelum occidentale over Very Open Low Sedges of Dasypogon bromeliifolius, Netrostylis sp. Jarrah Forest (R. Davis 7391) and Desmocladus fasciculatus	Good	South	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Weeds, Historical Logging	429038	6310124
NE-07	Sand Plain	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Low Woodland A of Allocasuarina fraseriana over Low Sedges of Dasypogon bromeliifolius, Lyginia imberbis and Desmocaldus fasciculatus with Low Open Woodland B of Xylomelum occidentale over Very Open Herbs of Lindsaea linearis	Good	South	Flat	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Historical Logging	429254	6309802
NE-08	Footslope	Desmocladus Low Sedges	Low Sedges of Desmocladus fasciculatus, Mesomelaena tetragona and Lyginia imberbis over Open Herbs of *Hypochaeris glabra, Quinetia urvillei and Hyalosperma demissum with Open Woodland of Eucalyptus marginata subsp. marginata over Open Low Woodland A of Melaleuca preissiana, Eucalyptus marginata subsp. marginata and Nuytsia floribunda over Open Scrub of Xanthorrhoea preissii and Kunzea recurva	Good	Flat	Flat	Loamy Sand	Grey	Old (6+ yr)	Mining Exploration	Swampy Flats: Other Disturbance: Road/ Access Track, Weeds, Historical Logging	428957	6309834
NE-09	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Dwarf Scrub D of Hibbertia commutata, Leucopogon capitellatus and Hibbertia hypericoides with Open Low Woodland A of Allocasuarina fraseriana and Eucalyptus marginata subsp. marginata over Open Low Scrub A of Xanthorrhoea preissii over Very Open Low Sedges of Netrostylis sp. Jarrah Forest (R. Davis 7391) and Lepidosperma leptostachyum	Good	East	Low	Loamy Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Weeds, Dust, Logging	428828	6309551

Site	Landform	Broad Floristic Formation	Vegetation Type	Condition	Aspect	Slope	Soil Type	Soil Colour	Last Fire	Disturbance	Comments	Easting	Northing
NE-10	Sand Plain	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Allocasuarina fraseriana over Low Woodland A of Allocasuarina fraseriana, Xylomelum occidentale and Nuytsia floribunda over Open Low Sedges of Dasypogon bromeliifolius and Desmocladus fasciculatus with Open Low Woodland B of Xylomelum occidentale, Persoonia longifolia and Banksia grandis over Open Scrub of Xanthorrhoea preissii	Good	East	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Histocial Logging, Pig Diggings	428936	6309383
NE-11	Footslope	Dasypogon Low Sedges	Low Sedges of Dasypogon bromeliifolius, Desmocladus fasciculatus and Lyginia imberbis with Woodland of Eucalyptus marginata subsp. marginata (Allocasuarina fraseriana) over Low Woodland A of Melaleuca preissii, Eucalyptus marginata subsp. marginata and Nuytsia floribunda over Open Low Scrub A of Xanthorrhoea preissii over Very Open Herbs of Quinetia urvillei, Millotia tenuifolia and *Hypochaeris glabra	Good	South/ East	Low	Sandy Loam	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Historical Logging, Dust	428860	6310063
NE-12	Drainage Area/ Floodplain	Dasypogon Low Sedges	Low Sedges of Dasypogon bromeliifolius, Lyginia imberbis and Desmocladus fasciculatus with Open Woodland of Eucalyptus marginata subsp. marginata aover Open Low Woodland A of Melaleuca preissiana, Nuytsia floribunda and Allocasuarina fraseriana over Open Low Scrub A of Xanthorrhoea preissii	Good	East	Low	Light Clay	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Siltation, Logging	428898	6309953
NE-13	Hillslope	Banksia Low Forest A	Low Forest A of Banksia attenuata, Allocasuarina fraseriana and Xylomelum occidentale over Low Sedges of Dasypogon bromeliifolius and Desmocladus fasciculatus with Woodland of Allocasuarina fraseriana and Eucalyptus marginata subsp. marginata over Open Low Woodland B of Xylomelum occidentale and Persoonia longfolia over Open Dwarf Scrub D of Calytrix flavescens and Hibbertia vaginatus	Very Good	South/ East	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Logging	429183	6309879
NE-14	Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Low Heath D of Hibbertia hypericoides, Hibbertia commutata and Banksia dallanneyi with Open Low Woodland A of Eucalyptus marginata subsp. marginata, Corymbia calophylla and Allocasuarina fraseriana over Open Low Scrub B of Xanthorrhoea preissii	Very Good	South	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Logging	429250	6310174
NE-15	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Low Heath D of Hibbertia hypericoides, Leucopogon capitellatus and Bossiaea ornata with Open Low Woodland A of Allocasuarina fraseriana and Eucalyptus marginata subsp. marginata	Very Good	South/ East	Moderate	Loamy Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Weeds, Logging	429254	6310321
NE-16	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata, Corymbia calophylla and Allocasuarina fraseriana over Low Heath D of Hibbertia hypericoides, Leucopogon capitellatus and Bossiaea ornata with Low Woodland A of Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata and Corymbia calophylla over Open Low Woodland B of Xylomelum occidentale, Banksia grandis and Eucalyptus marginata subsp. marginata	Very Good	South	Moderate	Loamy Sand	Grey	Old (6+ yr)	Mining Exploration	Laterite: Other Disturbance: Road/ Access Track, Weeds, Logging	428966	6310309
NE-17	Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata, Allocasuarina fraseriana and Corymbia calophylla over Low Scrub A of Xanthorrhoea preissii over Open Low Sedges of Dasypogon bromeliifolius with Open Dwarf Scrub D of Hibbertia hypericoides	Good	South	Low	Sand	Grey	Old (6+ yr)	Mining Exploration	Other Disturbance: Road/ Access Track, Weeds, Logging	429197	6310106
NE-18	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Open Low Woodland A of Allocasuarina fraseriana over Very Open Low Grass of *Vulpia bromoides and *Ehrharta longiflora over Very Open Herbs of *Trifolium subterraneum, *Ursinia anthemoides and *Hypochaeris glabra	Completely Degraded	North/ East	Low	Loamy Sand	Brown	Old (6+ yr)	Cattle Grazing	Laterite: Other Disturbance: Mining Exploration, Road/ Access Track, Weeds, Logging	429611	6310438
NE-19	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Open Low Woodland A of Allocasuarina fraseriana over Very Open Low Grass of *Vulpia bromoides and *Ehrharta longiflora over Very Open Herbs of *Hypochaeris glabra, *Trifolium subterraneum and *Ursinia anthemoides	Completely Degraded	North/ East	Moderate	Loamy Sand	Grey	Old (6+ yr)	Cattle Grazing	Laterite: Other Disturbance: Mining Exploration, Road/ Access Track, Weeds	429346	6310783
NE-20	Hillcrest/ Upper Hillslope	Eucalyptus Forest	Forest of Eucalyptus marginata subsp. marginata and Corymbia calophylla over Very Open Herbs of *Hypochaeris glabra, *Trifolium subterraneum and *Ursinia anthemoides over Very Open Low Grass of *Vulpia bromoides and *Ehrharta longiflora	Completely Degraded	North	Low	Sand	Grey	Old (6+ yr)	Cattle Grazing	Laterite: Other Disturbance: Mining Exploration, Road/ Access Track, Weeds, Logging	429069	6310488

Site	Landform	Broad Floristic Formation	Vegetation Type	Condition	Aspect	Slope	Soil Type	Soil Colour	Last Fire	Disturbance	Comments	Easting	Northing
NE-21	Hillcrest/ Upper Hillslope	Eucalyptus Low Forest A	Woodland of Eucalyptus marginata subsp. marginata over Low Forest A of Eucalyptus marginata subsp. marginata, Allocasuarina fraseriana over Dwarf Scrub D of Hibbertia hypericoides	Very Good	South/ East	Low	Loamy Sand	Brown	Old (6+ yr)	Other	Ridge/ Upper Hillslope: Bare Ground 35%: Logging, Adjacent farmland to North	429519	6310290
NE-22	Hillslope	Kunzea Thicket	Thicket of Kunzea glabrescens (Banksia attenuata, Xylomelum occidentale, Allocasuarina fraseriana, Eucalyptus marginata subsp. marginata) over Very Open Low Sedges of Dasypogon bromeliifolius and Lyginea imberbis	Completely Degraded	South	Moderate	Sand	Grey	Old (6+ yr)	Road/ Access Track	Cleared infrastructure corridor for powerline; Kunzea regrowth	428931	6310265
NE-23	Hillslope	Kunzea Thicket	Thicket of Kunzea glabrescens	Completely Degraded	South	Moderate	Sand	Grey	Old (6+ yr)	Road/ Access Track	Cleared infrastructure corridor for powerline; Kunzea regrowth	428961	6310071
NE-24	Hillslope	Kunzea Scrub	Scrub of Kunzea glabrescens over Open Low Scrub B of Kunzea glabrescens and Xanthorrhoea preissii over Open Dwarf Scrub D of Hypocalymma angustifolium over Very Open Low Sedges of Dasypogon bromeliifolius, Mesomelaena tetragona and Desmocladus fasciculatus	Completely Degraded	South	Low	Loamy Sand	Grey	Old (6+ yr)	Road/ Access Track	Cleared infrastructure corridor for powerline; Kunzea regrowth	429067	6309861

FLORA

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-01	*Hypochaeris	glabra			Introduced	+	0.1
NE-01	Acacia	extensa			Native	+	1.5
NE-01	Actinotus	glomeratus			Native	+	0.1
NE-01	Allocasuarina	fraseriana			Native	5	3-8
NE-01	Babingtonia	camphorosmae			Native	-	-
NE-01	Banksia	dallanneyi	subsp.	sylvestris	Native	-	-
NE-01	Bossiaea	eriocarpa			Native	0.5	0.2
NE-01	Caladenia	reptans			Native	+	0.15
NE-01	Centrolepis	glabra			Native	+	0.1
NE-01	Craspedia	variabilis			Native	+	0.2
NE-01	Dampiera	linearis			Native	+	0.1
NE-01	Dasypogon	bromeliifolius			Native	25	<0.5
NE-01	Desmocladus	fasciculatus			Native	10	<0.5
NE-01	Drosera	marchantii			Native	+	0.2
NE-01	Eucalyptus	marginata	subsp.	marginata	Native	65	8-30
NE-01	Hibbertia	diamesogenos			Native	+	0.1
NE-01	Hibbertia	vaginata			Native	-	-
NE-01	Homalosciadium	homalocarpum			Native	+	0.1
NE-01	Hydrocotyle	callicarpa			Native	+	0.1
NE-01	Hypocalymma	angustifolium			Native	0.5	0.5
NE-01	Lagenophora	huegelii			Native	+	0.1
NE-01	Lindsaea	linearis			Native	0.5	0.2
NE-01	Lomandra	caespitosa			Native	+	0.2
NE-01	Lomandra	hermaphrodita			Native	+	0.2
NE-01	Lomandra	sericea			Native	+	0.3
NE-01	Lyginia	imberbis			Native	2	0.5
NE-01	Millotia	tenuifolia			Native	+	0.1
NE-01	Morelotia	octandra			Native	0.5	0.3
NE-01	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	0.5	0.3
NE-01	Nuytsia	floribunda			Native	-	-
NE-01	Opercularia	apiciflora			Native	+	0.2

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-01	Pterostylis		sp.	indet	Native	+	0.1
NE-01	Pyrorchis	nigricans			Native	+	0.1
NE-01	Scaevola	calliptera			Native	+	0.1
NE-01	Stylidium	tenue			Native	+	0.1
NE-01	Styphelia	pallida			Native	+	0.1
NE-01	Styphelia	tenuiflora			Native	-	-
NE-01	Trachymene	pilosa			Native	+	0.1
NE-01	Xanthorrhoea	preissii			Native	5	1-4
NE-01	Xanthosia	atkinsoniana			Native	-	-
NE-01	Xylomelum	occidentale			Native	0.5	0.5-1.5
NE-02	*Arctotheca	calendula			Introduced	+	0.1
NE-02	*Hypochaeris	glabra			Introduced	+	0.1
NE-02	*Ursinia	anthemoides			Introduced	+	0.1
NE-02	*Vulpia	bromoides			Introduced	+	0.1
NE-02	Allocasuarina	fraseriana			Native	50	10-15
NE-02	Banksia	attenuata			Native	20	5-15
NE-02	Banksia	grandis			Native	-	-
NE-02	Burchardia	congesta			Native	+	0.2
NE-02	Caladenia	flava	subsp.	flava	Native	+	0.1
NE-02	Chamaescilla	corymbosa			Native	0.25	0.1
NE-02	Conospermum	capitatum	subsp.	glabratum	Native	+	0.3
NE-02	Dasypogon	bromeliifolius			Native	15	0.3
NE-02	Desmocladus	fasciculatus			Native	2	0.1
NE-02	Diuris	porrifolia			Native	-	-
NE-02	Drosera	erythrorhiza			Native	+	0.1
NE-02	Drosera	pallida			Native	+	Cl
NE-02	Eucalyptus	marginata	subsp.	marginata	Native	8	10-25
NE-02	Hibbertia	hypericoides			Native	10	0.5
NE-02	Hibbertia	vaginata			Native	+	0.4
NE-02	Hydrocotyle	callicarpa			Native	+	0.05
NE-02	Hypocalymma	angustifolium			Native	1	0.4
NE-02	Lepidosperma	pubisquameum			Native	+	0.3

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-02	Leporella	fimbriata			Native	+	0.2
NE-02	Lomandra	hermaphrodita			Native	+	0.2
NE-02	Lomandra	nigricans			Native	+	0.3
NE-02	Lyginia	imberbis			Native	0.5	0.5
NE-02	Millotia	tenuifolia			Native	0.5	0.1
NE-02	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	1	0.4
NE-02	Persoonia	longifolia			Native	+	1-2
NE-02	Phlebocarya	ciliata			Native	+	0.3
NE-02	Podotheca	angustifolia			Native	+	0.1
NE-02	Poranthera	microphylla			Native	+	0.05
NE-02	Pyrorchis	nigricans			Native	+	0.1
NE-02	Thysanotus	arbuscula			Native	+	0.3
NE-02	Thysanotus	patersonii			Native	+	Cl
NE-02	Trachymene	pilosa			Native	+	0.1
NE-02	Xanthosia	huegelii			Native	+	0.1
NE-02	Xylomelum	occidentale			Native	10	1-10
NE-03	*Aira	cupaniana			Introduced	+	0.1
NE-03	*Hypochaeris	glabra			Introduced	+	0.1
NE-03	*Ursinia	anthemoides			Introduced	+	0.1
NE-03	*Vulpia	bromoides			Introduced	+	0.1
NE-03	Acacia	extensa			Native	+	1.5
NE-03	Allocasuarina	fraseriana			Native	30	8-20
NE-03	Babingtonia	camphorosmae			Native	1.5	0.4
NE-03	Bossiaea	eriocarpa			Native	+	0.2
NE-03	Burchardia	congesta			Native	+	0.3
NE-03	Cyanothamnus	ramosus	subsp.	anethifolius	Native	+	0.1
NE-03	Dasypogon	bromeliifolius			Native	10	0.3
NE-03	Desmocladus	fasciculatus			Native	2	0.1
NE-03	Drosera	erythrorhiza			Native	+	0.1
NE-03	Drosera	glanduligera			Native	+	0.05
NE-03	Drosera	pallida			Native	+	Cl
NE-03	Drosera	stolonifera			Native	+	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-03	Eucalyptus	marginata	subsp.	marginata	Native	30	5-25
NE-03	Hibbertia	hypericoides			Native	4	0.5
NE-03	Hibbertia	racemosa			Native	0.5	0.3
NE-03	Hibbertia	vaginata			Native	1	0.5
NE-03	Hovea	trisperma			Native	+	0.2
NE-03	Hypolaena	exsulca			Native	+	0.3
NE-03	Lagenophora	huegelii			Native	+	0.1
NE-03	Leporella	fimbriata			Native	+	0.05
NE-03	Lomandra	caespitosa			Native	+	0.3
NE-03	Lomandra	hermaphrodita			Native	+	0.3
NE-03	Lomandra	nigricans			Native	+	0.3
NE-03	Lomandra	sericea			Native	+	0.3
NE-03	Lyginia	imberbis			Native	1	0.5
NE-03	Millotia	tenuifolia			Native	2	0.1
NE-03	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	0.5	0.3
NE-03	Nuytsia	floribunda			Native	2	5-8
NE-03	Opercularia	apiciflora			Native	+	0.1
NE-03	Phlebocarya	ciliata			Native	+	0.3
NE-03	Podotheca	angustifolia			Native	+	0.05
NE-03	Pyrorchis	nigricans			Native	+	0.1
NE-03	Quinetia	urvillei			Native	+	0.1
NE-03	Rhodanthe	citrina			Native	+	0.05
NE-03	Stylidium	piliferum			Native	+	0.05
NE-03	Styphelia	tenuiflora			Native	+	0.3
NE-03	Thysanotus	patersonii			Native	+	Cl
NE-03	Trachymene	pilosa			Native	0.5	0.1
NE-03	Wahlenbergia	gracilenta			Native	+	0.05
NE-03	Xanthorrhoea	preissii			Native	15	1-3
NE-03	Xanthosia	huegelii			Native	+	0.1
NE-03	Xylomelum	occidentale			Native	1	0.5-3
NE-04	*Hypochaeris	glabra			Introduced	+	0.1
NE-04	*Vulpia	bromoides			Introduced	+	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-04	Allocasuarina	fraseriana			Native	50	10-20
NE-04	Banksia	attenuata			Native	12	3-15
NE-04	Bossiaea	eriocarpa			Native	+	0.1
NE-04	Burchardia	congesta			Native	+	0.3
NE-04	Caladenia	reptans			Native	+	0.15
NE-04	Calytrix	flavescens			Native	2	0.3
NE-04	Chamaescilla	corymbosa			Native	0.25	0.1
NE-04	Cyanothamnus	ramosus	subsp.	anethifolius	Native	-	-
NE-04	Dasypogon	bromeliifolius			Native	24	0.3
NE-04	Desmocladus	fasciculatus			Native	1.5	0.2
NE-04	Drosera	erythrorhiza			Native	+	0.1
NE-04	Drosera	pallida			Native	+	Cl
NE-04	Eriochilus	dilatatus			Native	+	0.1
NE-04	Eucalyptus	marginata	subsp.	marginata	Native	4	15-30
NE-04	Gompholobium	tomentosum			Native	+	0.2
NE-04	Hemiandra	pungens			Native	-	-
NE-04	Hibbertia	vaginata			Native	1.5	0.5
NE-04	Hypolaena	exsulca			Native	+	0.3
NE-04	Leporella	fimbriata			Native	+	0.05
NE-04	Lomandra	hermaphrodita			Native	+	0.2
NE-04	Lomandra	sericea			Native	+	0.3
NE-04	Lyginia	imberbis			Native	1.5	0.5
NE-04	Millotia	tenuifolia			Native	+	0.1
NE-04	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	+	0.3
NE-04	Petrophile	linearis			Native	+	0.3
NE-04	Podotheca	angustifolia			Native	+	0.1
NE-04	Poranthera	microphylla			Native	+	0.05
NE-04	Pyrorchis	nigricans			Native	+	0.1
NE-04	Styphelia	erubescens			Native	-	-
NE-04	Thysanotus	patersonii			Native	+	Cl
NE-04	Trachymene	pilosa			Native	+	0.05
NE-04	Xanthosia	huegelii			Native	+	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-04	Xylomelum	occidentale			Native	7	1-10
NE-05	*Hypochaeris	glabra			Introduced	+	0.1
NE-05	Acacia	preissiana			Native	+	0.1
NE-05	Allocasuarina	fraseriana			Native	10	6-20
NE-05	Banksia	dallanneyi	subsp.	sylvestris	Native	0.5	0.2
NE-05	Billardiera	variifolia			Native	+	Cl
NE-05	Bossiaea	ornata			Native	+	0.3
NE-05	Corymbia	calophylla			Native	30	10-25
NE-05	Cyanicula	sericea			Native	+	0.3
NE-05	Dampiera	linearis			Native	-	-
NE-05	Desmocladus	fasciculatus			Native	1.5	0.1
NE-05	Drosera	erythrorhiza			Native	+	0.1
NE-05	Drosera	pallida			Native	+	Cl
NE-05	Eriochilus	dilatatus			Native	+	0.1
NE-05	Eucalyptus	marginata	subsp.	marginata	Native	30	10-25
NE-05	Gompholobium	knightianum			Native	+	0.1
NE-05	Grevillea	quercifolia			Native	+	0.2
NE-05	Hibbertia	amplexicaulis			Native	+	0.1
NE-05	Hibbertia	hypericoides			Native	25	0.5
NE-05	Hovea	chorizemifolia			Native	+	0.2
NE-05	Lagenophora	huegelii			Native	+	0.1
NE-05	Lomandra	hermaphrodita			Native	+	0.2
NE-05	Lomandra	sericea			Native	+	0.3
NE-05	Morelotia	octandra			Native	+	0.2
NE-05	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	2	0.4
NE-05	Opercularia	apiciflora			Native	+	0.2
NE-05	Sowerbaea	laxiflora			Native	+	0.2
NE-05	Stylidium	ciliatum			Native	+	0.1
NE-05	Stylidium	plantagineum			Native	-	-
NE-05	Thysanotus	patersonii			Native	+	Cl
NE-05	Trymalium	ledifolium			Native	+	0.3
NE-05	Xanthosia	atkinsoniana			Native	+	0.4

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-05	Xanthosia	huegelii			Native	+	0.1
NE-06	*Arctotheca	calendula			Introduced	+	0.1
NE-06	*Hypochaeris	glabra			Introduced	+	0.1
NE-06	*Vulpia	bromoides			Introduced	+	0.1
NE-06	Acacia	preissiana			Native	+	0.1
NE-06	Allocasuarina	fraseriana			Native	35	6-12
NE-06	Billardiera	variifolia			Native	+	Cl
NE-06	Bossiaea	eriocarpa			Native	+	0.15
NE-06	Caladenia	flava	subsp.	flava	Native	+	0.1
NE-06	Caladenia	reptans			Native	+	0.1
NE-06	Chamaescilla	corymbosa			Native	+	0.1
NE-06	Corymbia	calophylla			Native	6	10-25
NE-06	Dampiera	linearis			Native	+	0.1
NE-06	Dasypogon	bromeliifolius			Native	6	0.3
NE-06	Desmocladus	fasciculatus			Native	2	0.1
NE-06	Drosera	erythrorhiza			Native	+	0.1
NE-06	Drosera	pallida			Native	+	Cl
NE-06	Eriochilus	dilatatus			Native	+	0.1
NE-06	Eucalyptus	marginata	subsp.	marginata	Native	50	10-30
NE-06	Hibbertia	amplexicaulis			Native	+	0.2
NE-06	Hibbertia	hypericoides			Native	25	<0.5
NE-06	Hibbertia	semipilosa			Native	1	0.25
NE-06	Hydrocotyle	callicarpa			Native	+	0.05
NE-06	Lepidosperma	pubisquameum			Native	+	0.3
NE-06	Lomandra	sericea			Native	+	0.3
NE-06	Millotia	tenuifolia			Native	+	0.1
NE-06	Morelotia	octandra			Native	+	0.3
NE-06	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	1	0.5
NE-06	Patersonia	babianoides			Native	+	0.1
NE-06	Scaevola	calliptera			Native	+	0.1
NE-06	Stylidium	plantagineum			Native	+	0.3
NE-06	Styphelia	tenuiflora			Native	+	0.3

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-06	Trachymene	pilosa			Native	+	0.05
NE-06	Xanthosia	huegelii			Native	+	0.1
NE-06	Xylomelum	occidentale			Native	7	1-4
NE-07	*Aira	cupaniana			Native	+	0.1
NE-07	Allocasuarina	fraseriana			Native	40	5-20
NE-07	Boronia		cf.	fastigiata	Native	-	-
NE-07	Caladenia	flava	subsp.	flava	Native	+	0.1
NE-07	Caladenia	reptans			Native	+	0.2
NE-07	Chamaescilla	corymbosa			Native	+	0.1
NE-07	Conostylis	setigera			Native	+	0.1
NE-07	Crassula	decumbens			Native	-	-
NE-07	Dampiera	linearis			Native	+	0.1
NE-07	Dasypogon	bromeliifolius			Native	20	0.3
NE-07	Desmocladus	fasciculatus			Native	2	0.1
NE-07	Drosera	pallida			Native	+	Cl
NE-07	Eucalyptus	marginata	subsp.	marginata	Native	45	10-25
NE-07	Gastrolobium	bilobum			Native	-	-
NE-07	Glischrocaryon	angustifolium			Native	+	0.3
NE-07	Hemiandra	pungens			Native	+	0.1
NE-07	Hibbertia	amplexicaulis			Native	+	0.2
NE-07	Hibbertia	diamesogenos			Native	+	0.1
NE-07	Hibbertia	vaginata			Native	+	0.4
NE-07	Hyalosperma	demissum			Native	-	-
NE-07	Hydrocotyle	callicarpa			Native	+	0.05
NE-07	Hypolaena	exsulca			Native	+	0.2
NE-07	Lepidosperma	squamatum			Native	+	0.4
NE-07	Leporella	fimbriata			Native	+	0.1
NE-07	Levenhookia	pusilla			Native	+	0.05
NE-07	Lindsaea	linearis			Native	2	0.15
NE-07	Lomandra	nigricans			Native	+	0.3
NE-07	Lomandra	sericea			Native	+	0.3
NE-07	Lyginia	imberbis			Native	3	0.5

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-07	Morelotia	octandra			Native	+	0.2
NE-07	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	+	0.3
NE-07	Orianthera	serpyllifolia	subsp.	serpyllifolia	Native	-	-
NE-07	Podotheca	angustifolia			Native	+	0.1
NE-07	Pterochaeta	paniculata			Native	-	-
NE-07	Pterostylis		sp.	indet	Native	+	0.1
NE-07	Stylidium	tenue			Native	+	0.1
NE-07	Thysanotus	patersonii			Native	+	Cl
NE-07	Xanthorrhoea	preissii			Native	-	-
NE-07	Xanthosia	huegelii			Native	+	0.1
NE-07	Xylomelum	occidentale			Native	2.5	0.5-3
NE-08	*Aira	cupaniana			Introduced	0.5	0.1
NE-08	*Arctotheca	calendula			Introduced	+	0.1
NE-08	*Briza	minor			Introduced	0.5	0.1
NE-08	*Hypochaeris	glabra			Introduced	4	0.1
NE-08	*Parentucellia	latifolia			Introduced	+	0.1
NE-08	*Romulea	rosea			Introduced	0.5	0.1
NE-08	*Ursinia	anthemoides			Introduced	0.5	0.2
NE-08	*Vulpia	bromoides			Introduced	0.5	0.1
NE-08	Acacia	extensa			Native	-	-
NE-08	Adenanthos	obovatus			Native	0.5	0.4
NE-08	Centrolepis	aristata			Native	0.5	0.05
NE-08	Centrolepis	glabra			Native	+	0.05
NE-08	Centrolepis	pilosa			Native	+	0.05
NE-08	Chaetospora	curvifolius			Native	+	0.2
NE-08	Chamaescilla	corymbosa			Native	+	0.1
NE-08	Conostylis	setigera			Native	+	0.1
NE-08	Crassula	decumbens			Native	-	-
NE-08	Daviesia	decurrens	subsp.	decurrens	Native	1	0.5
NE-08	Desmocladus	fasciculatus			Native	40	0.1
NE-08	Diuris	porrifolia			Native	+	0.2
NE-08	Drosera	erythrorhiza			Native	1	0.05

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-08	Elythranthera	brunonis			Native	-	-
NE-08	Eucalyptus	marginata	subsp.	marginata	Native	5	5-20
NE-08	Gompholobium	marginatum			Native	-	-
NE-08	Hemiandra	pungens			Native	-	-
NE-08	Homalosciadium	homalocarpum			Native	0.5	0.05
NE-08	Hyalosperma	demissum			Native	3	0.05
NE-08	Hydrocotyle	callicarpa			Native	+	0.05
NE-08	Hypolaena	exsulca			Native	0.5	0.3
NE-08	Jacksonia	furcellata			Native	-	-
NE-08	Kunzea	recurva			Native	2	1.5-3
NE-08	Laxmannia		sp.	indet	Native	+	0.1
NE-08	Lepidosperma	pubisquameum			Native	-	-
NE-08	Lepidosperma	squamatum			Native	0.5	0.4
NE-08	Leporella	fimbriata			Native	+	0.1
NE-08	Levenhookia	pusilla			Native	+	0.02
NE-08	Lomandra	hermaphrodita			Native	+	0.1
NE-08	Lyginia	imberbis			Native	4	0.5
NE-08	Melaleuca	preissiana			Native	3	4-12
NE-08	Mesomelaena	tetragona			Native	10	0.5
NE-08	Millotia	tenuifolia			Native	0.5	0.1
NE-08	Nuytsia	floribunda			Native	1	5-12
NE-08	Patersonia	occidentalis	var.	occidentalis	Native	0.5	0.3
NE-08	Phlebocarya	ciliata			Native	0.5	0.3
NE-08	Podolepis	gracilis			Native	0.5	0.1
NE-08	Podotheca	angustifolia			Native	1	0.1
NE-08	Pterochaeta	paniculata			Native	4	0.05
NE-08	Quinetia	urvillei			Native	7	0.1
NE-08	Schoenus	subbarbatus			Native	+	0.1
NE-08	Stylidium	tenue			Native	+	0.1
NE-08	Thelymitra	antennifera			Native	+	0.1
NE-08	Trachymene	pilosa			Native	+	0.1
NE-08	Xanthorrhoea	preissii			Native	6	1-4

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-08	Xanthosia	huegelii			Native	+	0.1
NE-08	Xylomelum	occidentale			Native	+	0.5
NE-09	Acacia	extensa			Native	-	-
NE-09	Acacia	preissiana			Native	+	0.1
NE-09	Acacia	pulchella			Native	-	-
NE-09	Allocasuarina	fraseriana			Native	4	5-10
NE-09	Banksia	dallanneyi	subsp.	sylvestris	Native	2	0.2
NE-09	Banksia	grandis			Native	+	1
NE-09	Billardiera	variifolia			Native	0.5	Cl
NE-09	Boronia	crenulata	subsp.	crenulata var. crenulata	Native	-	-
NE-09	Bossiaea	ornata			Native	1	0.3
NE-09	Caladenia	flava	subsp.	flava	Native	+	0.2
NE-09	Chamaescilla	corymbosa			Native	+	0.1
NE-09	Conostylis	serrulata			Native	+	0.3
NE-09	Corymbia	calophylla			Native	20	10-25
NE-09	Dampiera	linearis			Native	+	0.1
NE-09	Daviesia	preissii			Native	-	-
NE-09	Desmocladus	fasciculatus			Native	0.5	0.1
NE-09	Drosera	marchantii			Native	+	0.2
NE-09	Drosera	pallida			Native	+	Cl
NE-09	Eucalyptus	marginata	subsp.	marginata	Native	45	10-30
NE-09	Goodenia	eatoniana			Native	+	0.1
NE-09	Haemodorum	laxum			Native	+	0.3
NE-09	Hakea	lissocarpha			Native	1	0.5
NE-09	Hakea	prostrata			Native	0.5	2
NE-09	Hibbertia	amplexicaulis			Native	+	0.2
NE-09	Hibbertia	hypericoides			Native	5	0.4
NE-09	Hibbertia	semipilosa			Native	2	0.4
NE-09	Hovea	chorizemifolia			Native	+	0.2
NE-09	Hypocalymma	angustifolium			Native	0.5	0.4
NE-09	Kennedia	coccinea			Native	+	0.1
NE-09	Lechenaultia	biloba			Native	+	0.3

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-09	Lepidosperma	leptostachyum			Native	2	0.5
NE-09	Leporella	fimbriata			Native	+	0.1
NE-09	Leucopogon	capitellatus			Native	5	0.3
NE-09	Lomandra	sericea			Native	+	0.4
NE-09	Macrozamia	riedlei			Native	0.5	0.5
NE-09	Morelotia	octandra			Native	+	0.2
NE-09	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	2	0.4
NE-09	Opercularia	apiciflora			Native	+	0.2
NE-09	Patersonia	babianoides			Native	+	0.2
NE-09	Persoonia	longifolia			Native	+	0.5
NE-09	Petrophile	linearis			Native	+	0.5
NE-09	Phlebocarya	ciliata			Native	+	0.3
NE-09	Pterostylis	recurva			Native	+	0.3
NE-09	Scaevola	calliptera			Native	0.5	0.1
NE-09	Stylidium	piliferum			Native	+	0.1
NE-09	Stylidium	plantagineum			Native	0.5	0.3
NE-09	Styphelia	erectifolia			Native	+	0.1
NE-09	Styphelia	pallida			Native	+	0.1
NE-09	Tetratheca	hirsuta	subsp.	viminea	Native	+	0.3
NE-09	Xanthorrhoea	preissii			Native	6	1-2.5
NE-09	Xanthosia	candida			Native	+	0.1
NE-10	*Aira	cupaniana			Introduced	+	0.1
NE-10	*Hypochaeris	glabra			Introduced	+	0.1
NE-10	*Ursinia	anthemoides			Introduced	+	0.1
NE-10	Adenanthos	obovatus			Native	+	0.4
NE-10	Allocasuarina	fraseriana			Native	40	5-20
NE-10	Banksia	grandis			Native	1	2-6
NE-10	Bossiaea	eriocarpa			Native	+	0.2
NE-10	Caladenia	reptans			Native	+	0.2
NE-10	Chamaescilla	corymbosa			Native	+	0.1
NE-10	Crassula	colorata	var.	colorata	Native	+	0.05
NE-10	Cyrtostylis	robusta			Native	+	0.05

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-10	Dasypogon	bromeliifolius			Native	20	0.3
NE-10	Desmocladus	fasciculatus			Native	2	0.1
NE-10	Drosera	glanduligera			Native	+	0.05
NE-10	Drosera	marchantii			Native	+	0.2
NE-10	Eucalyptus	marginata	subsp.	marginata	Native	30	10-25
NE-10	Gompholobium		sp.	indet	Native	+	0.2
NE-10	Hibbertia	commutata			Native	+	0.3
NE-10	Hibbertia	diamesogenos			Native	+	0.1
NE-10	Hibbertia	vaginata			Native	+	0.4
NE-10	Hydrocotyle	callicarpa			Native	+	0.05
NE-10	Hypocalymma	angustifolium			Native	0.5	0.3
NE-10	Lepidosperma	squamatum			Native	+	0.5
NE-10	Levenhookia	pusilla			Native	+	0.05
NE-10	Lindsaea	linearis			Native	+	0.2
NE-10	Lomandra	sericea			Native	+	0.3
NE-10	Lyginia	imberbis			Native	0.5	0.5
NE-10	Millotia	tenuifolia			Native	0.5	0.1
NE-10	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	+	0.3
NE-10	Nuytsia	floribunda			Native	1	2-8
NE-10	Persoonia	longifolia			Native	1	2-4
NE-10	Petrophile	linearis			Native	+	0.3
NE-10	Phlebocarya	ciliata			Native	+	0.3
NE-10	Podotheca	angustifolia			Native	+	0.1
NE-10	Pterostylis		sp.	indet	Native	+	0.1
NE-10	Quinetia	urvillei			Native	+	0.1
NE-10	Scaevola	calliptera			Native	+	0.1
NE-10	Stylidium	araeophyllum			Native	+	0.05
NE-10	Stylidium	piliferum			Native	+	0.05
NE-10	Stylidium	tenue			Native	+	0.1
NE-10	Styphelia	tenuiflora			Native	+	0.3
NE-10	Trachymene	pilosa			Native	0.5	0.05
NE-10	Xanthorrhoea	preissii			Native	4	1-4

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-10	Xanthosia	huegelii			Native	+	0.1
NE-10	Xylomelum	occidentale			Native	4	1-6
NE-11	*Arctotheca	calendula			Introduced	+	0.1
NE-11	*Hypochaeris	glabra			Introduced	1	0.1
NE-11	*Ursinia	anthemoides			Introduced	0.5	0.2
NE-11	*Vulpia	bromoides			Introduced	0.5	0.1
NE-11	Acacia	extensa			Native	1	1-2
NE-11	Adenanthos	obovatus			Native	+	0.3
NE-11	Allocasuarina	fraseriana			Native	1	5-10
NE-11	Aphelia	cyperoides			Native	+	0.05
NE-11	Centrolepis	aristata			Native	+	0.05
NE-11	Chamaescilla	corymbosa			Native		0.1
NE-11	Dasypogon	bromeliifolius			Native	25	0.3
NE-11	Desmocladus	fasciculatus			Native	10	0.1
NE-11	Drosera	erythrorhiza			Native	+	0.1
NE-11	Drosera	glanduligera			Native	+	0.05
NE-11	Drosera	pallida			Native	+	Cl
NE-11	Eucalyptus	marginata	subsp.	marginata	Native	15	8.25
NE-11	Gompholobium	tomentosum			Native	+	0.1
NE-11	Hibbertia	vaginata			Native	+	0.3
NE-11	Hypocalymma	angustifolium			Native	0.5	0.3
NE-11	Hypolaena	exsulca			Native	1	0.3
NE-11	Leporella	fimbriata			Native	+	0.1
NE-11	Levenhookia	pusilla			Native	+	0.05
NE-11	Lomandra	caespitosa			Native	+	0.2
NE-11	Lyginia	imberbis			Native	5	0.5
NE-11	Melaleuca	preissiana			Native	8	4-8
NE-11	Millotia	tenuifolia			Native	2	0.1
NE-11	Nuytsia	floribunda			Native	2	4-8
NE-11	Pericalymma	ellipticum	var.	ellipticum	Native	+	1.5
NE-11	Phlebocarya	ciliata			Native	0.5	0.3
NE-11	Podolepis	gracilis			Native	+	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-11	Quinetia	urvillei			Native	1.5	0.1
NE-11	Stylidium	piliferum			Native	+	0.1
NE-11	Stylidium	violaceum			Native	+	0.1
NE-11	Trachymene	pilosa			Native	+	0.1
NE-11	Xanthorrhoea	preissii			Native	4	1-2
NE-11	Xanthosia	huegelii			Native	+	0.1
NE-11	Xylomelum	occidentale			Native	-	-
NE-12	*Arctotheca	calendula			Introduced	+	0.1
NE-12	*Hypochaeris	glabra			Introduced	0.25	0.1
NE-12	*Vulpia	bromoides			Introduced	0.5	0.1
NE-12	Acacia	applanata			Native	+	0.2
NE-12	Acacia	extensa			Native	0.5	1.5
NE-12	Allocasuarina	fraseriana			Native	1	4-8
NE-12	Bossiaea	eriocarpa			Native	+	0.1
NE-12	Caladenia	reptans			Native	+	0.1
NE-12	Chamaescilla	corymbosa			Native	+	0.1
NE-12	Craspedia	variabilis			Native	+	0.2
NE-12	Dasypogon	bromeliifolius			Native	25	0.3
NE-12	Desmocladus	fasciculatus			Native	8	0.1
NE-12	Drosera	glanduligera			Native	+	0.05
NE-12	Drosera	huegelii			Native	+	0.2
NE-12	Drosera	pallida			Native	+	Cl
NE-12	Elythranthera	brunonis			Native	+	0.3
NE-12	Eucalyptus	marginata	subsp.	marginata	Native	8	6-30
NE-12	Gompholobium	marginatum			Native	+	0.1
NE-12	Hibbertia	diamesogenos			Native	+	0.1
NE-12	Hibbertia	vaginata			Native	1	0.3
NE-12	Hovea	trisperma			Native	+	0.2
NE-12	Hydrocotyle	callicarpa			Native	+	0.05
NE-12	Hypocalymma	angustifolium			Native	+	0.3
NE-12	Hypolaena	exsulca			Native	0.5	0.3
NE-12	Levenhookia	pusilla			Native	+	0.05

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-12	Lomandra	caespitosa			Native	+	0.2
NE-12	Lomandra	nigricans			Native	+	0.2
NE-12	Lomandra	preissii			Native	+	0.4
NE-12	Lomandra	sericea			Native	+	0.2
NE-12	Lyginia	imberbis			Native	4	0.5
NE-12	Melaleuca	preissiana			Native	6	4-8
NE-12	Millotia	tenuifolia			Native	0.5	0.1
NE-12	Nuytsia	floribunda			Native	2	4-8
NE-12	Podolepis	gracilis			Native	+	0.1
NE-12	Podotheca	angustifolia			Native	+	0.1
NE-12	Quinetia	urvillei			Native	0.5	0.1
NE-12	Stylidium	diversifolium			Native	+	0.1
NE-12	Stylidium	violaceum			Native	+	0.1
NE-12	Trachymene	pilosa			Native	0.5	0.1
NE-12	Xanthorrhoea	preissii			Native	4	1-3
NE-12	Xanthosia	huegelii			Native	+	0.1
NE-13	*Hypochaeris	glabra			Introduced	+	0.05
NE-13	*Vulpia	bromoides			Introduced	+	0.1
NE-13	Allocasuarina	fraseriana			Native	55	5-25
NE-13	Banksia	attenuata			Native	15	3-15
NE-13	Bossiaea	eriocarpa			Native	+	0.2
NE-13	Burchardia	congesta			Native	+	0.3
NE-13	Caladenia	discoidea			Native	+	0.2
NE-13	Calytrix	flavescens			Native	3	0.4
NE-13	Chamaescilla	corymbosa			Native	+	0.1
NE-13	Conostylis	setigera			Native	+	0.1
NE-13	Dasypogon	bromeliifolius			Native	40	0.3
NE-13	Desmocladus	fasciculatus			Native	1	0.1
NE-13	Drosera	erythrorhiza			Native	+	0.05
NE-13	Drosera	pallida			Native	+	Cl
NE-13	Drosera	stolonifera			Native	+	0.1
NE-13	Eucalyptus	marginata	subsp.	marginata	Native	5	15-30

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-13	Hibbertia	vaginata			Native	2	0.4
NE-13	Hydrocotyle	callicarpa			Native	+	0.1
NE-13	Lepidosperma	squamatum			Native	+	0.4
NE-13	Leporella	fimbriata			Native	+	0.05
NE-13	Lomandra	caespitosa			Native	+	0.2
NE-13	Lomandra	hermaphrodita			Native	+	0.2
NE-13	Lomandra	sericea			Native	+	0.3
NE-13	Millotia	tenuifolia			Native	+	0.1
NE-13	Persoonia	longifolia			Native	3	3-5
NE-13	Petrophile	linearis			Native	0.5	0.3
NE-13	Phyllangium	divergens			Native	+	0.1
NE-13	Podotheca	angustifolia			Native	+	0.1
NE-13	Pyrorchis	nigricans			Native	+	0.1
NE-13	Rhodanthe	citrina			Native	+	0.1
NE-13	Stylidium	araeophyllum			Native	+	0.1
NE-13	Styphelia	tenuiflora			Native	+	0.3
NE-13	Trachymene	pilosa			Native	0.5	0.1
NE-13	Xanthosia	huegelii			Native	+	0.1
NE-13	Xylomelum	occidentale			Native	10	1.5-8
NE-14	Acacia	preissiana			Native	+	0.1
NE-14	Allocasuarina	fraseriana			Native	2	4-8
NE-14	Banksia	dallanneyi	subsp.	sylvestris	Native	5	0.2
NE-14	Bossiaea	ornata			Native	1.5	0.3
NE-14	Corymbia	calophylla			Native	15	10-25
NE-14	Desmocladus	fasciculatus			Native	+	0.1
NE-14	Drosera	erythrorhiza			Native	+	0.1
NE-14	Drosera	marchantii			Native	+	0.2
NE-14	Eriochilus	dilatatus			Native	+	0.1
NE-14	Eucalyptus	marginata	subsp.	marginata	Native	55	10-30
NE-14	Gompholobium	knightianum			Native	+	0.3
NE-14	Hibbertia	amplexicaulis			Native	+	0.2
NE-14	Hibbertia	hypericoides			Native	40	0.5

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-14	Hibbertia	semipilosa			Native	2	0.35
NE-14	Labichea	punctata			Native	+	0.2
NE-14	Lagenophora	huegelii			Native	+	0.1
NE-14	Lomandra	sericea			Native	+	0.4
NE-14	Lomandra		cf.	preissii	Native	+	0.5
NE-14	Morelotia	octandra			Native	+	0.2
NE-14	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	0.5	0.3
NE-14	Patersonia	babianoides			Native	+	0.1
NE-14	Stylidium	amoenum			Native	+	0.05
NE-14	Stylidium	plantagineum			Native	+	0.3
NE-14	Styphelia	erectifolia			Native	+	0.1
NE-14	Xanthorrhoea	preissii			Native	3	1-2
NE-14	Xanthosia	singuliflora			Native	+	0.1
NE-15	*Hypochaeris	glabra			Introduced	+	0.05
NE-15	Acacia	preissiana			Native	+	0.1
NE-15	Allocasuarina	fraseriana			Native	8	5-15
NE-15	Banksia	dallanneyi	subsp.	sylvestris	Native	2	0.2
NE-15	Bossiaea	ornata			Native	3	0.4
NE-15	Chamaescilla	corymbosa			Native	+	0.1
NE-15	Corymbia	calophylla			Native	20	5-20
NE-15	Desmocladus	fasciculatus			Native	1	0.1
NE-15	Drosera	erythrorhiza			Native	+	0.1
NE-15	Drosera	marchantii			Native	+	0.2
NE-15	Eriochilus	dilatatus			Native	+	0.1
NE-15	Eucalyptus	marginata	subsp.	marginata	Native	40	5-25
NE-15	Hibbertia	hypericoides			Native	35	0.5
NE-15	Hovea	chorizemifolia			Native	+	0.1
NE-15	Hydrocotyle	callicarpa			Native	+	0.05
NE-15	Labichea	punctata			Native	+	0.1
NE-15	Lagenophora	huegelii			Native	+	0.1
NE-15	Leucopogon	capitellatus			Native	1.5	0.4
NE-15	Levenhookia	pusilla			Native	+	0.05

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-15	Lomandra	sericea			Native	+	0.3
NE-15	Lomandra		cf.	preissii	Native	+	0.4
NE-15	Millotia	tenuifolia			Native	+	0.1
NE-15	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	0.5	0.4
NE-15	Opercularia	apiciflora			Native	+	0.2
NE-15	Patersonia	babianoides			Native	+	0.1
NE-15	Scaevola	calliptera			Native	+	0.1
NE-15	Stylidium	piliferum			Native	+	0.05
NE-15	Trachymene	pilosa			Native	+	0.1
NE-15	Xanthorrhoea	gracilis			Native	+	0.5
NE-15	Xanthorrhoea	preissii			Native	1	1-2.5
NE-16	*Hypochaeris	glabra			Introduced	+	0.05
NE-16	Allocasuarina	fraseriana			Native	8	5-10
NE-16	Banksia	grandis			Native	1.5	3-6
NE-16	Billardiera	variifolia			Native	+	Cl
NE-16	Bossiaea	eriocarpa			Native	2	0.4
NE-16	Chamaescilla	corymbosa			Native	+	0.1
NE-16	Corymbia	calophylla			Native	15	10-25
NE-16	Cyanicula	sericea			Native	+	0.3
NE-16	Cyrtostylis	robusta			Native	+	0.05
NE-16	Desmocladus	fasciculatus			Native	0.5	0.1
NE-16	Drosera	erythrorhiza			Native	+	0.05
NE-16	Drosera	pallida			Native	+	Cl
NE-16	Eucalyptus	marginata	subsp.	marginata	Native	40	10-25
NE-16	Gompholobium	knightianum			Native	+	0.2
NE-16	Gompholobium	ovatum			Native	+	0.1
NE-16	Hibbertia	amplexicaulis			Native	+	0.2
NE-16	Hibbertia	hypericoides			Native	20	<0.5
NE-16	Hibbertia	semipilosa			Native	1	0.3
NE-16	Hovea	chorizemifolia			Native	+	0.2
NE-16	Labichea	punctata			Native	+	0.1
NE-16	Lagenophora	huegelii			Native	+	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-16	Lechenaultia	biloba			Native	+	0.2
NE-16	Leucopogon	capitellatus			Native	7	0.3
NE-16	Lomandra	sericea			Native	+	0.3
NE-16	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	1.5	0.4
NE-16	Patersonia	babianoides			Native	+	0.2
NE-16	Persoonia	longifolia			Native	+	1
NE-16	Pterostylis		sp.	indet	Native	+	0.2
NE-16	Stylidium	piliferum			Native	+	0.1
NE-16	Stylidium	plantagineum			Native	0.5	0.4
NE-16	Styphelia	tenuiflora			Native	0.5	0.4
NE-16	Thysanotus	patersonii			Native	+	Cl
NE-16	Trachymene	pilosa			Native	+	0.1
NE-16	Xanthosia	singuliflora			Native	+	0.1
NE-16	Xylomelum	occidentale			Native	1	2-5
NE-17	*Arctotheca	calendula			Introduced	+	0.1
NE-17	*Hypochaeris	glabra			Introduced	+	0.1
NE-17	Allocasuarina	fraseriana			Native	20	10-20
NE-17	Babingtonia	camphorosmae			Native	2	0.3
NE-17	Bossiaea	eriocarpa			Native	+	0.3
NE-17	Bossiaea	ornata			Native	+	0.3
NE-17	Calytrix	flavescens			Native	4	0.3
NE-17	Chamaescilla	corymbosa			Native	+	0.1
NE-17	Corymbia	calophylla			Native	5	10-20
NE-17	Dampiera	linearis			Native	+	0.1
NE-17	Dasypogon	bromeliifolius			Native	25	0.3
NE-17	Desmocladus	fasciculatus			Native	5	0.1
NE-17	Drosera	marchantii			Native	+	0.2
NE-17	Drosera	stolonifera			Native	+	0.1
NE-17	Eucalyptus	marginata	subsp.	marginata	Native	20	10-25
NE-17	Hibbertia	hypericoides			Native	5	0.5
NE-17	Hydrocotyle	callicarpa			Native	+	0.05
NE-17	Hypolaena	exsulca			Native	+	0.3

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-17	Lomandra	hermaphrodita			Native	+	0.2
NE-17	Lyginia	imberbis			Native	2	0.5
NE-17	Millotia	tenuifolia			Native	0.5	0.1
NE-17	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	+	0.3
NE-17	Phlebocarya	ciliata			Native	1	0.3
NE-17	Pterostylis		sp.	indet.	Native	+	0.1
NE-17	Trachymene	pilosa			Native	+	0.1
NE-17	Xanthorrhoea	preissii			Native	15	1-2
NE-17	Xanthosia	huegelii			Native	+	0.1
NE-17	Xylomelum	occidentale			Native	+	0.5-1
NE-18	*Ehrharta	longiflora			Introduced	1	0.1
NE-18	*Hypochaeris	glabra			Introduced	4	0.1
NE-18	*Romulea	rosea			Introduced	0.5	0.2
NE-18	*Trifolium	subterraneum			Introduced	1	0.1
NE-18	*Ursinia	anthemoides			Introduced	1	0.2
NE-18	*Vulpia	bromoides			Introduced	4	0.1
NE-18	Allocasuarina	fraseriana			Native	5	5-15
NE-18	Chamaescilla	corymbosa			Native	+	0.1
NE-18	Corymbia	calophylla			Native	10	10-25
NE-18	Daucus	glochidiatus			Native	+	0.1
NE-18	Eriochilus	dilatatus			Native	+	0.1
NE-18	Eucalyptus	marginata	subsp.	marginata	Native	55	10-25
NE-18	Gompholobium	ovatum			Native	+	0.1
NE-18	Gompholobium	preissii			Native	+	0.1
NE-18	Haemodorum	laxum			Native	+	0.3
NE-18	Hibbertia	amplexicaulis			Native	+	0.2
NE-18	Hovea	chorizemifolia			Native	+	0.15
NE-18	Kennedia	coccinea			Native	0.5	Cr
NE-18	Kennedia	prostrata			Native	-	-
NE-18	Levenhookia	pusilla			Native	+	0.05
NE-18	Millotia	tenuifolia			Native	+	0.1
NE-18	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	+	0.3

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-18	Opercularia	hispidula			Native	0.5	0.3
NE-18	Stylidium	piliferum			Native	+	0.1
NE-18	Tetrarrhena	laevis			Native	+	0.2
NE-18	Thysanotus	patersonii			Native	+	Cl
NE-18	Trachymene	pilosa			Native	1	0.1
NE-18	Trymalium	ledifolium			Native	0.5	0.5
NE-19	*Briza	minor			Introduced	+	0.1
NE-19	*Disa	bracteata			Introduced	+	0.15
NE-19	*Ehrharta	longiflora			Introduced	3	0.1
NE-19	*Hypochaeris	glabra			Introduced	6	0.1
NE-19	*Lolium	rigidum			Introduced	+	0.3
NE-19	*Lotus	subbiflorus			Introduced	+	0.1
NE-19	*Romulea	rosea			Introduced	+	0.2
NE-19	*Trifolium	subterraneum			Introduced	3	0.1
NE-19	*Ursinia	anthemoides			Introduced	3	0.2
NE-19	*Vulpia	bromoides			Introduced	6	0.1
NE-19	Allocasuarina	fraseriana			Native	5	<10
NE-19	Caladenia	flava	subsp.	flava	Native	+	0.1
NE-19	Caladenia	reptans			Native	+	0.15
NE-19	Chamaescilla	corymbosa			Native	+	0.1
NE-19	Corymbia	calophylla			Native	30	15-25
NE-19	Cyanicula	sericea			Native	+	0.3
NE-19	Daucus	glochidiatus			Native	0.5	0.1
NE-19	Drosera	pallida			Native	+	Cl
NE-19	Eucalyptus	marginata	subsp.	marginata	Native	40	15.-30
NE-19	Hakea	lissocarpha			Native	-	-
NE-19	Isolepis	cernua	var.	setiformis	Native	+	0.1
NE-19	Luzula	meriodionalis			Native	0.5	0.2
NE-19	Millotia	tenuifolia			Native	+	0.1
NE-19	Trachymene	pilosa			Native	+	0.1
NE-20	*Arctotheca	calendula			Introduced	+	0.1
NE-20	*Ehrharta	longiflora			Introduced	0.5	0.1

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-20	*Hypochaeris	glabra			Introduced	2	0.1
NE-20	*Oxalis		sp.	indet.	Introduced	1	0.1
NE-20	*Romulea	rosea			Introduced	+	0.15
NE-20	*Solanum	nigrum			Introduced	+	0.4
NE-20	*Trifolium	subterraneum			Introduced	1.5	0.1
NE-20	*Ursinia	anthemoides			Introduced	2.5	0.2
NE-20	*Vulpia	bromoides			Introduced	2	0.1
NE-20	Allocasuarina	fraseriana			Native	1.5	5-10
NE-20	Caladenia	flava	subsp.	flava	Native	+	0.2
NE-20	Caladenia	reptans			Native	+	0.15
NE-20	Chamaescilla	corymbosa			Native	+	0.1
NE-20	Corymbia	calophylla			Native	10	10-20
NE-20	Daucus	glochidiatus			Native	0.5	0.1
NE-20	Drosera	erythrorhiza			Native	+	0.05
NE-20	Drosera	pallida			Native	+	Cl
NE-20	Eucalyptus	marginata	subsp.	marginata	Native	50	15-30
NE-20	Haemodorum	laxum			Native	+	0.4
NE-20	Lagenophora	huegelii			Native	+	0.1
NE-20	Levenhookia	pusilla			Native	+	0.05
NE-20	Millotia	tenuifolia			Native	+	0.1
NE-20	Senecio	quadridentatus			Native	+	0.4
NE-20	Stylidium	piliferum			Native	+	0.1
NE-20	Thysanotus	patersonii			Native	+	Cl
NE-21	Acacia	preissiana			Native	+	0.05
NE-21	Allocasuarina	fraseriana			Native	12	5-15
NE-21	Banksia	bipinnatifida			Native	+	0.2
NE-21	Banksia	grandis			Native	+	1-5
NE-21	Billardiera	variifolia			Native	+	0.3
NE-21	Bossiaea	ornata			Native	+	0.3
NE-21	Caladenia	flava	subsp.	flava	Native	+	0.1
NE-21	Chamaescilla	corymbosa			Native	+	0.1
NE-21	Dampiera	linearis			Native	+	0.1

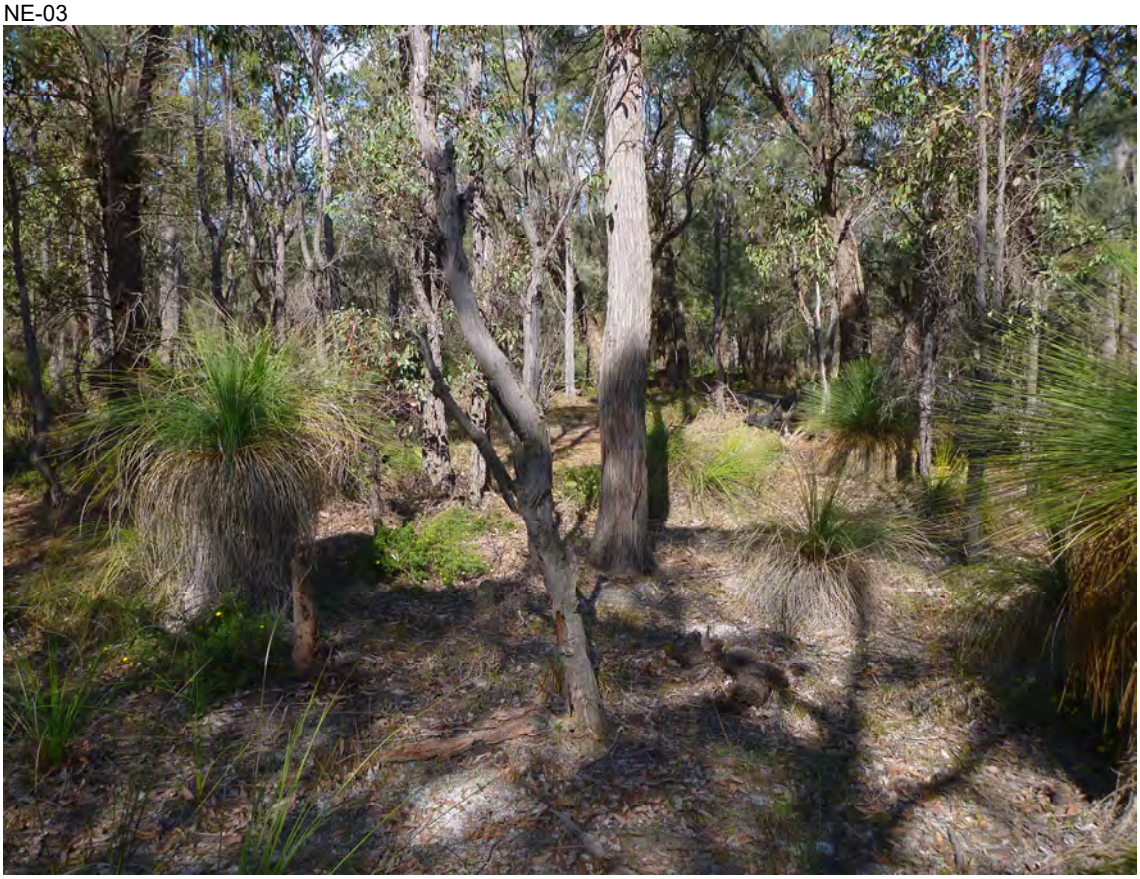
Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-21	Desmocladus	fasciculatus			Native	+	0.1
NE-21	Drosera	erythrorhiza			Native	+	0.01
NE-21	Drosera	huegelii			Native	+	Cl
NE-21	Drosera	pallida			Native	+	Cl
NE-21	Eriochilus	dilatatus			Native	+	0.1
NE-21	Eucalyptus	marginata	subsp.	marginata	Native	20	5-30
NE-21	Haemodorum	laxum			Native	+	0.2
NE-21	Hakea	lissocarpha			Native	+	1.1
NE-21	Hibbertia	amplexicaulis			Native	+	0.2
NE-21	Hibbertia	commutata			Native	+	0.3
NE-21	Hibbertia	hypericoides			Native	20	0.5
NE-21	Kunzea	glabrescens			Native	+	2
NE-21	Labichea	punctata			Native	+	0.2
NE-21	Lagenophora	huegelii			Native	+	0.1
NE-21	Lepidosperma	leptostachyum			Native	+	0.5
NE-21	Lomandra	nigricans			Native	+	0.1
NE-21	Lomandra	sericea			Native	+	0.3
NE-21	Macrozamia	riedlei			Native	+	1.2
NE-21	Netrostylis		sp.	Jarrah Forest (R. Davis 7391)	Native	5	0.5
NE-21	Opercularia	apiciflora			Native	+	0.2
NE-21	Persoonia	longifolia			Native	+	0.5
NE-21	Pterostylis		sp.	indet	Native	+	0.15
NE-21	Scaevola	calliptera			Native	+	0.1
NE-21	Stylidium	amoenum			Native	+	0.1
NE-21	Stylidium	piliferum			Native	+	0.1
NE-21	Styphelia	discolor			Native	+	0.05
NE-21	Styphelia	pallida			Native	+	0.1
NE-21	Styphelia	propinqua			Native	+	0.4
NE-21	Styphelia	tenuiflora			Native	+	0.2
NE-21	Tetrarrhena	laevis			Native	+	0.5
NE-21	Trachymene	pilosa			Native	+	0.05
NE-21	Trymalium	ledifolium			Native	+	0.2

Site	Genus	Species	Infra Rank	Infra Name	Introduced/Native	% Foliar Cover	Height (cm)
NE-21	Xanthorrhoea	preissii			Native	+	1.5
NE-21	Xanthosia	candidia			Native	+	0.05
NE-21	Xanthosia	huegelii			Native	+	0.1
NE-22	Allocasuarina	fraseriana			Native	0.5	4
NE-22	Banksia	attenuata			Native	0.5	5
NE-22	Dasypogon	bromeliifolius			Native	0.5	0.5
NE-22	Democladus	fasciculatus			Native	+	0.1
NE-22	Eucalyptus	marginata	subsp.	marginata	Native	+	4
NE-22	Hibbertia	hypericoides			Native	+	0.2
NE-22	Kunzea	glabrescens			Native	45	2-6
NE-22	Lyginia	imberbis			Native	+	0.3
NE-22	Xylomelum	occidentale			Native	1	4
NE-23	Bossiaea	eriocarpa			Native	+	0.2
NE-23	Gompholobium	tomentosum			Native	+	0.3
NE-23	Hypocalymma	angustifolium			Native	+	0.5
NE-23	Kunzea	glabrescens			Native	50	5
NE-23	Lyginia	imberbis			Native	+	0.4
NE-24	*Aira	cupaniana			Introduced	+	0.15
NE-24	*Hypochaeris	glabra			Introduced	2	1.5
NE-24	Adenanthos	obovatus			Native	+	0.5
NE-24	Dasypogon	bromeliifolius			Native	+	1
NE-24	Democladus	fasciculatus			Native	+	1
NE-24	Hypocalymma	angustifolium			Native	+	2
NE-24	Kunzea	glabrescens			Native		
NE-24	Kunzea	recurva			Native	15	3
NE-24	Mesomelaena	tetragona			Native	+	1
NE-24	Nuytsia	floribunda			Native	+	1.5
NE-24	Podolepis	gracilis			Native	+	0.2
NE-24	Tricoryne	elatior			Native	+	0.2
NE-24	Xanthorrhoea	preissii			Native	+	2

NE-01

NE-02

NE-03



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