NY-RP-EN-0010

NYIDINGHU TRANSPORT CORRIDOR DETAILED FLORA AND VEGETATION SURVEY

Fortescue Metals Group Limited

ecoscape

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SUMMARY

To support the expansion of its operations, Fortescue Metals Group Limited (Fortescue) is proposing the development of an ore transport corridor in the project area known as Nyidinghu, in the Pilbara region of Western Australia. Fortescue commissioned Ecoscape to conduct a Detailed flora and vegetation survey along the proposed transport corridor options as well as an area to the south known as 'Billiards North'.

The survey area occupied 31,919.08 ha, the majority has been subject to previous flora and vegetation surveys. The findings of previous flora surveys were consolidated and incorporated into the results where possible. The field surveys were undertaken during two phases early May and late July 2021.

The desktop assessment identified the following significant aspects:

- the survey area intersects with mapped occurrences of four Priority Ecological Communities (PECs):
  - *Brockman Iron cracking clay communities of the Hamersley Range*
  - *Fortescue Marsh (Martuyitha) (Marsh Land System)*
  - *Four plant assemblages of the Wona Land System*
  - *Vegetation of sand dunes of the Hamersley Range/Fortescue Valley*.
- the combined database searches identified 73 conservation-listed flora that have been recorded from within 50 km of the survey area, consisting of one Threatened Flora (TF), 11 Priority 1, 11 Priority 2, 32 Priority 3 and nine Priority 4. Of these, 10 were identified as being known from within the survey area and a further 12 as Likely to occur within the survey area.
- the literature review identified numerous previous surveys that have been undertaken for Fortescue and others in close proximity to the survey area, including several that intersect with it.

There have been 268 floristic quadrats established within the survey area (including previous surveys) of which 147 were either established or rescored during 2021. A total of 607 vascular flora taxa have been recorded from the survey area including:

- one TF species, *Seringia exastia*
- 12 Priority Flora species:
  - one Priority 1*: Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)
  - one Priority 2: *Euphorbia inappendiculata* var. *queenslandica* (P2)
  - seven Priority 3: *Atriplex flabelliformis, Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479), *Dysphania congestiflora, Eragrostis* sp. Erect spikelets (P.K. Latz 2122), *Eremophila spongiocarpa, Stackhousia clementii, Swainsona thompsoniana*
  - three Priority 4: *Eremophila youngii* subsp. *lepidota, Goodenia nuda, Lepidium catapycnon*
- 18 introduced flora (weeds).

Twenty-nine vegetation types were recorded from the survey area associated with landform types including plains, valley floors, cracking clay, sand dunes hills and drainage lines. The following vegetation types considered as having some significance or potentially significance were recorded:

- **Eb,** representative of the *Brockman Iron cracking clay communities of the Hamersley Range* PEC
- **Ti,** representative of the *Fortescue Marsh (Marsh Land System)* PEC
- **Nd**, representative of the *Four plant assemblages of the Wona Land System* PEC
- **AdTb**, representative of the *Vegetation of sand dunes of the Hamersley Range/Fortescue Valley* PEC
- **EvAcCc** and **EvApTe**, representative of potential Groundwater Dependent Vegetation
- **AaAsCc**, **AaEfEp** and **AaSaEp** as representative of sheetflow dependent vegetation.

The vegetation condition within the survey area ranged from Degraded to Excellent, with the Very Good category having the highest proportion. The main factors affecting vegetation condition were grazing by cattle, weed infestation (particularly **Cenchrus ciliaris*) and existing infrastructure.

ACRONYMS AND ABBREVIATIONS

Table 1: Acronyms and abbreviations

Acronyms	
BAM Act	Western Australian *Biosecurity and Agriculture Management Act 2007*
BC Act	Western Australian *Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
CR	Critically Endangered (listed under Commonwealth EPBC Act and/or Western Australian BC Act)
DAWE	Commonwealth Department of Agriculture, Water and Environment (2020-)
DBCA	Western Australian Department of Biodiversity, Conservation and Attractions
DEC	Western Australian Department of Environment and Conservation (2006-2013, now DBCA)
DEWHA	Commonwealth Department of the Environment, Water, Heritage and the Arts (2007-2010, now DAWE)
DPaW	Western Australian Department of Parks and Wildlife (2013-2017, now DBCA)
DoE	Commonwealth Department of the Environment (2013-2016, now DAWE)
DotEE	Commonwealth Department of the Environment and Energy (2016-2020)
DPIRD	Western Australian Department of Primary Industries and Rural Development
DWER	Western Australian Department of Water and Environmental Regulation
EN	Endangered (listed under Commonwealth EPBC Act and/or Western Australian BC Act)
EP Act	Western Australian *Environmental Protection Act 1986*
EPA	Western Australian Environmental Protection Authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
GDE/GDV	Groundwater Dependent Ecosystem/Groundwater Dependent Vegetation
ha	hectare/hectares
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for Conservation of Nature
km	kilometre/kilometres
m	metre/metres
MGA	Map Grid of Australia
NVIS	National Vegetation Inventory System
MNES	Matters of National Environmental Significance
P; P1, P2, P3, P4, P5	Priority Flora and Fauna species rankings (P1-P4) or Priority Ecological Communities (P1-P5)
PEC	Priority Ecological Community
PF	Priority Flora
PMST	Protected Matters Search Tool (hosted by DAWE, used to search for MNES)
SFDV	Sheet Flow Dependent Vegetation
sp.	Species (generally referring to an unidentified taxon or when a phrase name has been applied)
subsp.	Subspecies (infrataxon)
TEC	Threatened Ecological Community
TF	Threatened Flora (formerly termed Declared Rare Flora, DRF, in Western Australia)
var.	Variety (infrataxon)
VU	Vulnerable (listed under Commonwealth EPBC Act and/or Western Australian BC Act)
WAH	Western Australian Herbarium
WAOL	Western Australian Organism List
WONS	Weeds of National Significance
*****	Introduced flora species (i.e. weed)

1 INTRODUCTION

1.1 BACKGROUND

Fortescue Metals Group Ltd (Fortescue) is an integrated iron-ore business with mine, rail and port operations across the Pilbara region of Western Australia. To support the expansion of its operations, Fortescue is proposing the development of an ore transport corridor in the project area known as Nyidinghu. Approval of this development requires an investigation of the area's environmental values and Fortescue has commissioned Ecoscape to conduct a Detailed flora and vegetation survey along the proposed transport corridor options as well as an area to the south known as 'Billiards North'. The purpose of the survey is to identify and map vegetation and conservation-listed flora and communities within the survey area.

1.2 SURVEY AREA

The survey area, comprising the Transport Corridor and Billiards North survey areas, is located within the Shire of East Pilbara in the Pilbara region, approximately 1,070 km north of Perth (**Figure 1**). The Transport Corridor survey area occupies 30,262.47 ha and the Billiards North survey area is 1,656.61 ha, totalling 31,919.08 ha. The survey areas extend into the Chichester Range in the north and the Hamersley Range in the south, and partially intersect the western edge of the Fortescue Marsh.

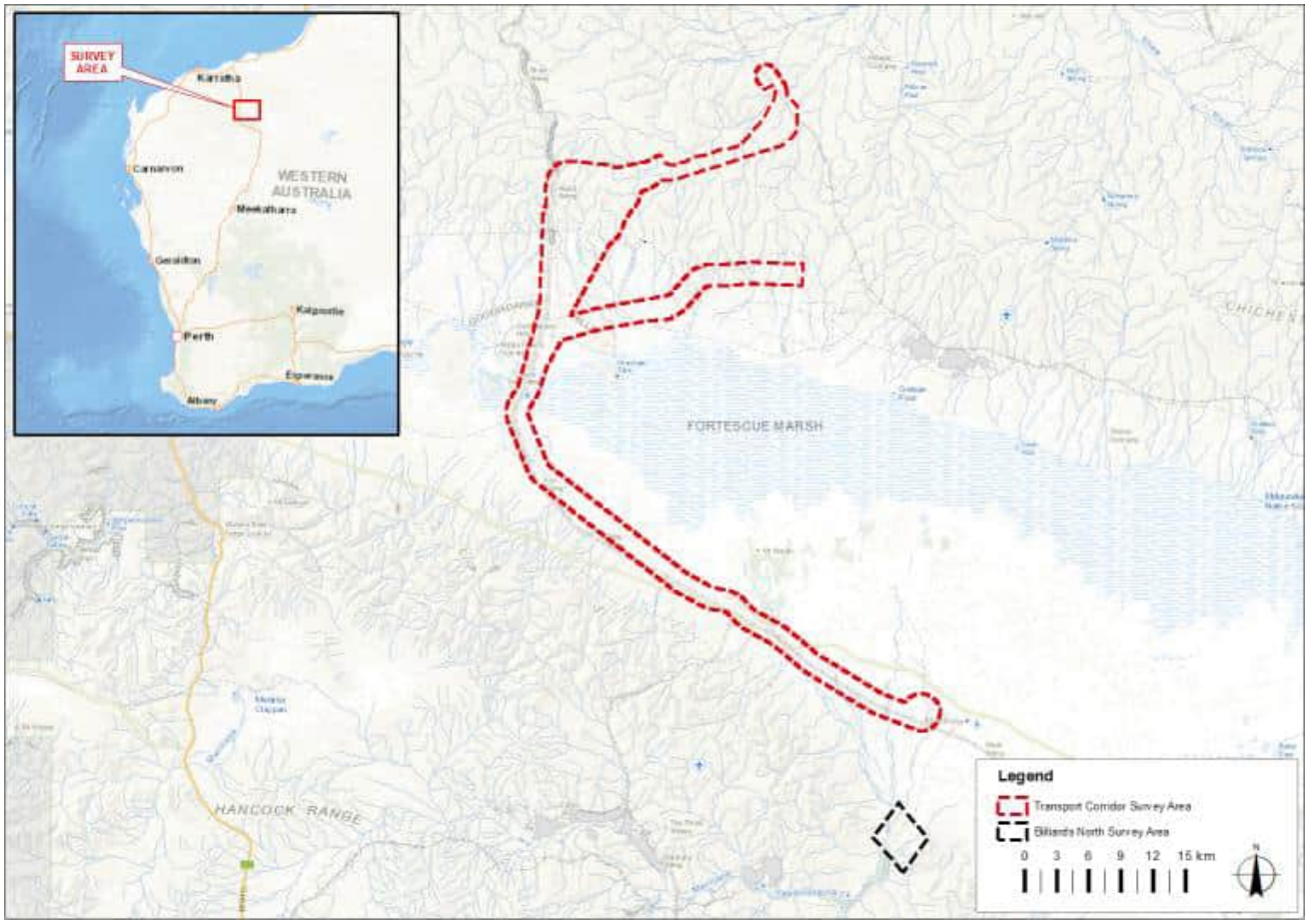


Figure 1: Survey area location

1.3 SURVEY REQUIREMENTS

The survey was conducted as a two-phase Detailed flora and vegetation assessment.

The requirements of the survey were to:

- identify and map vegetation within the survey boundary
- conduct targeted searches for conservation-listed flora and communities
- adhere to the requirements for environmental survey outlined in the EPA (2016) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (Flora and Vegetation Technical Guidance) and Fortescue's Flora and Vegetation Survey Guidelines (100-GU-EN-0005).

1.4 COMPLIANCE

This environmental assessment was conducted in accordance with Commonwealth and State legislation and guidelines:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- Western Australian *Environmental Protection Act 1986* (EP Act)
- Western Australian *Environmental Protection Amendment Act 2020*
- Western Australian *Biodiversity Conservation Act 2016* (BC Act)
- Western Australian *Biodiversity Conservation Regulations 2018*
- Department of Environment, Water, Heritage and the Arts (DEWHA 2009) *Matters of National Environmental Significance. Significant impact guidelines 1.1 - Environment Protection and Biodiversity Conservation Act 1999.*

Summaries of the main Acts under which this assessment was conducted, and related criteria and definitions, are available in **Appendix One**.

As well as those listed above, the assessment complied with EPA requirements for environmental survey and reporting in Western Australia, as outlined in:

- EPA (2016) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, known herein as the Flora and Vegetation Technical Guidance
- EPA (2020) *Statement of Environmental Principles, Factors and Objectives*.

Fortescue's internal management Guidelines and Procedures were also compiled with as required, primarily *Flora and Vegetation Assessment Guidelines* (100-GU-EN-005) (Fortescue 2014).

2 DESKTOP ASSESSMENT

2.1 PHYSICAL ENVIRONMENT

2.1.1 CLIMATE

The survey area is located within the Pilbara region, which includes two broad climatic zones. Coastal areas, as well as some higher rainfall inland areas, have a semi-desert tropical climate which experience 9-11 months of dry weather, with hot humid summers and warm winters. Inland areas have a dry desert climate, typically with higher temperatures and lower rainfall and often experience up to 12 months of dry weather, with hot dry summers and mild winters (Leighton 2004). The survey area is within the dry inland area.

According to the Köppen-Geiger climate classification, the survey area has a hot arid desert climate (Class BWh) (Peel, Finlayson & McMahon 2007). This classification is considered to represent a desert climate where annual rainfall is generally less than 200 mm or the region loses more water via evapotranspiration than it receives as rain, generally a result of hot, sunny weather without significant cloud. The mean average temperature exceeds 18°C, and summer temperatures are frequently over 40°C.

The closest Bureau of Meteorology (BoM) station with long term records for rainfall is Bonney Downs (BoM 2021 station no. 4006, operating since 1907) located approximately 70 km to the east of the survey area. The mean annual rainfall is 325.3 mm, with 60% falling from January to March (**Figure 2**). Rainfall in the 4 months preceding the field survey was approximately average with the most substantial rainfall events occurring during February. Data available from Cloudbreak BoM station (12 km from the survey area, short term records only) indicates that rainfall during April 2021 (60.6 mm) was substantially higher that than that recorded at Bonney Downs (38.1 mm). This suggests that seasonal conditions within the survey area may have been better than BoM data indicates.

The closes BoM station with long term records for temperature is Newman Aero (BoM 2021 station no. 7176, operating since 1971) located approximately 140 km to the south-east of the survey area. December is the hottest month with a mean maximum temperature of 39.2°C and minimum of 24.1°C. June is the coldest month with a mean maximum of 23.1°C and minimum of 7.5°C.

Figure 2 shows the average rainfall and temperatures for Bonney Downs (BoM 2021 station no. 4006, operating since 1907), with rainfall for the six months preceding the field survey.

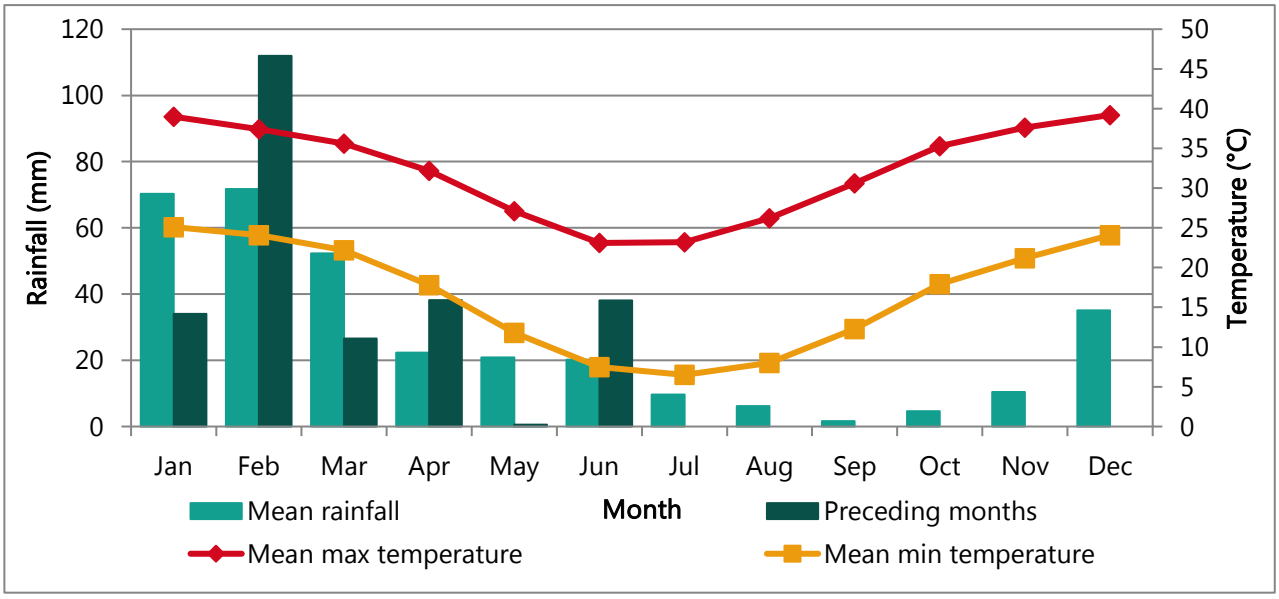


Figure 2: Rainfall and temperature data for the survey area Bonney Downs (BoM 2021a)

2.1.2 LAND SYSTEMS

According to the Department of Primary Industries and Rural Development (DPIRD 2020) soil landscape mapping, the following land systems intersect the survey area (**Table 2** and **Map 1**).

Table 2: Land systems (DPIRD 2020)

Mapping unit	Land system	Description	Extent (ha)	%
282Cp	Capricorn System	Rugged sandstone hills, ridges, stony footslopes and interfluves supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs.	260.82	0.86
282Mk	McKay System	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts.	3,950.99	13.07
282Ne	Newman System	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.	3,649.59	12.07
282Rk	Rocklea System	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs.	1,081.65	3.58
282Wo	Wona System	Basalt upland gilgai plains supporting Roebourne Plains grass and Mitchell grass tussock grasslands, minor hard spinifex grasslands or annual grasslands/herbfields.	225.44	0.75
283Mc	Macroy System	Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands.	307.60	1.02
283Rk	Rocklea System	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs.	15.55	0.05
283Ro	Robe System	Low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands.	139.84	0.46
284Ad	Adrian System	Stony plains and low silcrete hills supporting hard spinifex grasslands.	1,380.22	4.56
284Bg	Boolgeeda System	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	1,441.30	4.77
284Ca	Calcrete System	Low calcrete platforms and plains supporting shrubby hard spinifex grasslands.	343.94	1.14
284Ch	Christmas System	Stony alluvial plains supporting snakewood and mulga shrublands with sparse tussock grasses.	4,866.77	16.09
284Co	Coolibah System	Flood plains with weakly gilgaied clay soils supporting coolibah woodlands with tussock grass understorey.	15.662	0.05
284Cw	Cowra System	Plains fringing the Marsh land system and supporting snakewood and mulga shrublands with some halophytic undershrubs.	847.75	2.80
284Dv	Divide System	Gently undulating sandplains with minor dunes, supporting hard spinifex hummock grasslands with numerous shrubs.	1,626.99	5.38
284Fa	Fan System	Washplains and gilgai plains supporting groved mulga tall shrublands and minor tussock grasslands.	1,349.26	4.46
284Ft	Fortescue System	Alluvial plains and flood plains supporting patchy grassy eucalypt and acacia woodlands and shrublands and tussock grasslands.	1,910.78	6.32
284Jm	Jamindie System	Stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey.	5,449.40	18.02
284Ms	Marsh System	Lakebeds and flood plains subject to regular inundation, supporting samphire shrublands, salt water couch grasslands and chenopod shrublands.	612.05	2.02
284Ur	Urandy System	Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands.	763.20	2.52

2.1.1 GEOLOGY

The survey area is associated with the Roy Hill (SF50-12) map sheet of the 1:250 000 Geological Map of Western Australia (DMIRS 2020). According to this mapping, the survey areas intersect 20 geological units (**Table 3**, **Map 2**).

Table 3: Geology of the survey area

Code	Description	Area (ha)	%
AFj	Pelite, chert and thin-bedded metasandstone; intruded by metadolerite sills in the Hamersley Range	1823.52	5.71%
AFjo	Metamorphosed quartzitic sandstone, pelite and chert (locally stromatolitic)	568.14	1.78%
AFm	Amygdaloidal metabasaltic flora and breccia	1501.07	4.70%
AFmk	Metamorphosed volcanic sandstone, pelite, chert and metadolomite; local accretionary lapilli and stromatolites	210.88	0.66%
AFt	Metamorphosed mafic to intermediate volcanic sandstone, pelite, metabasaltic flows and breccia, chert and metadolerite; local accretionary lapilla and stromatolites	191.74	0.60%
AFtc	Metamorphosed stromatolitic limestone and dolomite, pelite and volcanic sandstone	206.77	0.65%
AgSm	Metamorphosed biotite monzogranite and minor granodiorite; weakly to strongly foliated; local metabasalt and metadolerite xenoliths intruded by a network of metamorphosed muscovite pegmatite veins	332.61	1.04%
AHm	Chert, banded iron-formation and pelite	2191.56	6.87%
Czc	Colluvium – partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits	476.97	1.49%
Czk	Calcrete – sheet carbonate; found along major drainage lines	138.37	0.43%
Czp	Robe pisolite: pisolitic limonite deposits developed along river channels	113.47	0.36%
Czr	Hematite-geothite deposits on banded iron-formation and adjacent scree deposits	762.56	2.39%
Czz	Brecciated siliceous caprock over dolomitic rock; angular chert fragments in a chert matrix; overlies Wittenoom Formation	854.33	2.68%
PLHb	Brockman Iron Formation" banded iron-formation, chert and pelite	489.99	1.54%
PLHj	Weeli Wolli Formation: banded iron-formation (commonly jaspilitic), pelite and numerous metadolerite sills	45.66	0.14%
Qa	Alluvium – unconsolidated silt, sand and gravel; in drainage channels and on adjacent floodplains	4391.04	13.76%
Qc	Colluvium – unconsolidated quartz and rock fragments in soil; locally derived soil and scree and talus deposits	1621.20	5.08%
Ql	Lacustrine deposits – clay and silt; claypan (predominantly fresh water) deposits	171.46	0.54%
Qs	Eolian deposit – sand; in sheets and longitudinal dunes	1772.80	5.55%
Qw	Alluvium and colluvium – red brown sandy and clayey soil; on low slopes and sheetwash areas	14054.37	44.03%

2.1.2 WETLANDS AND DRAINAGE

The survey area is in the Fortescue and Upper Fortescue River catchments (DWER 2018) and intersects the Fortescue Marsh and several non-perennial/intermittent drainage lines including Weeli Wolli creek.

The central portion of the survey area includes part of the Fortescue Marsh. The hydrology of the Marsh is described in some detail in Markey (2016). In summary, the Upper Fortescue River catchment terminates in the Fortescue Marsh, which has little surface connection to the Lower Fortescue River catchment west of the Goodiadarrie Hills. These hills form a barrier between the two sub-catchments such that they are only rarely connected following large flood events. The Marsh is fed by direct rainfall, surface runoff and groundwater sources, however, except for some permanent pools east of the study area, is only filled during years of extreme rainfall. The Fortescue Marsh wetland is considered to be saline, with surface waters becoming more saline over time due to the high evaporation rate.

The Fortescue Marsh is listed in the Directory of Important Wetlands of Australia as a *Wetland of National Significance* (Australian Government & Department of Agriculture Water and the Environment [DAWE] 2010) as it satisfies the following criteria for inclusion:

1. It is a good example of a wetland type occurring within a biogeographic region in Australia.
2. It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex.
3. It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail.
4. The wetland is of outstanding historical or cultural significance.

2.1.3 GROUNDWATER DEPENDENT ECOSYSTEMS

The Groundwater Dependent Ecosystems Atlas (BoM 2021b) indicates that the survey area is considered as having a high potential for terrestrial GDEs to occur where it intersects the Fortescue Marsh, with an IDE likelihood of 10 (high).

2.1.4 ENVIRONMENTALLY SENSITIVE AREAS

There are a number of areas around Western Australia identified as being of environmental significance within which the exemptions to the Native Vegetation Clearing Regulations do not apply. These are referred to as Environmentally Sensitive Areas (ESAs), and are declared under section 51B of EP Act and described in the *Environmental Protection (Environmentally Sensitive Areas) Notice*.

The survey area intersects one ESA, corresponding with the Fortescue Marsh (Landgate 2021). The next closest ESA is Karijini National Park, located approximately 30 km west of the survey area.

2.1.5 CONSERVATION LANDS

The National Reserve System is a network of protected areas managed for conservation under international guidelines. The objective of placing areas of bushland into the Conservation Estate is to achieve and maintain a comprehensive, adequate and representative reserve system for Western Australia. The Conservation and Parks Commission is the vesting body for conservation lands, forest and marine reserves that are managed by DBCA.

The survey area does not intersect with any conservation estate, i.e. it does not correspond with any Nature Reserves, National Parks or other areas vested for conservation. The nearest conservation estate is Karijini National Park, located approximately 30 km west of the survey area and Mungaroona Nature Reserve, located approximately 70 km north of the survey area.

A section of the survey area corresponds with DBCA Lands of Interest, part of a 2015 excision from Marillana Station that is proposed for conservation. The total area that intersects the survey area is 4,367.07 ha (**Map 4**).

2.1.6 LAND USE HISTORY

Dominant land uses in the survey area and surrounding areas include grazing, native pastures, Conservation and Aboriginal Reserves and mining leases. The survey area is intersected by pastoral station and exploration infrastructure and tracks.

2.2 BIOLOGICAL ENVIRONMENT

2.2.1 BIOGEOGRAPHIC REGION

Biogeographic regions are delineated on the basis of similar climate, geology, landforms, vegetation and fauna and are defined in the Interim Biogeographical Regionalisation for Australia (IBRA) (Department of Agriculture Water and the Environment 2020).

The survey area is located in the Pilbara IBRA region in the Chichester (PIL1) and Fortescue (PIL2) subregions, described as follows.

The Chichester subregion, as described by Kendrick & McKenzie (2001) is:

> *The Chichester subregion (PIL 1) comprises the northern section of the Pilbara Craton. Undulating Archaean granite and basalt plains include significant areas of basaltic ranges. Plains support a shrub steppe characterised by Acacia inaequilatera over Triodia wiseana (formerly Triodia pungens) hummock grasslands, while Eucalyptus leucophloia tree steppes occur on ranges. The climate is Semi-desert-tropical and receives 300 mm of rainfall annually. Drainage occurs to the north via numerous rivers (e.g. De Grey, Oakover, Nullagine, Shaw, Yule, Sherlock). Subregional area is 9,044,560 ha.*

The Fortescue subregion, as described by Kendrick (2001) is:

> *Alluvial plains and river frontage. Extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains in the east. Deeply incised gorge systems in the western (lower) part of the drainage. River gum woodlands fringe the drainage lines. Northern limit of Mulga (Acacia aneura). An extensive calcrete aquifer (originating within a palaeo-drainage valley) feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput Melaleuca woodlands. Climatic conditions are semi desert tropical, with average rainfall of 300 mm, falling mainly in summer cyclonic events. Drainage occurs to the north-west. Subregional area is 2,041,914 ha.*

2.2.2 PRE-EUROPEAN VEGETATION

During the 1970s, John Beard and associates conducted a systematic survey of native vegetation, describing the vegetation systems in Western Australia at a scale of 1:250 000 in the south-west and at a scale of 1:1,000,000 in less developed areas.

Beard's vegetation maps attempted to depict the native vegetation as it was presumed to be at the time of settlement and is known as the pre-European vegetation type and extent. Beard's vegetation maps have since been developed in digital form by Shepherd, Beeston & Hopkins (2002) and updated by DPIRD (2019). Extents are updated every two years by DBCA (2019a). This mapping indicates that the survey area intersects eight pre-European vegetation units:

- Association 29 described as: Sparse low woodland; mulga, discontinuous in scattered groups
- Association 93 described as: Hummock grasslands, shrub steppe; kanji over soft spinifex
- Association 111 described as: Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex
- Association 157 described as: Hummock grasslands, grass steppe; hard spinifex, *Triodia wiseana*
- Association 173 described as: Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt
- Association 175 described as: Short bunch grassland - savanna/grass plain (Pilbara)
- Association 562 described as: Mosaic: Low woodland; mulga in valleys / Hummock grasslands, open low tree-steppe; snappy gum over *Triodia wiseana*
- Association 676 described as: Succulent steppe; samphire.

The pre-European vegetation associations identified from the survey area (DPIRD 2019) and their pre-European and current extents are listed in **Table 4** (DBCA 2019a) and shown on **Map 3**.

Table 4: Pre-European vegetation association representation (DBCA 2019a)

Region	Vegetation association	Original extent (ha)	Current extent (ha)	% remaining
Western Australia	29	7,903,991.45	7,898,973.24	99.94
	93	3,044,309.52	3,040,640.98	99.88
	111	762,963.55	762,326.22	99.92
	157	502,728.56	499,311.84	99.32
	173	1,753,104.09	1,748,260.83	99.72
	175	526,957.95	524,640.18	99.56
	562	103,606.82	103,606.82	100.00
	676	2,063,413.95	1,963,881.55	95.18
IBRA biogeographic region (Pilbara)	29	1,133,219.76	1,131,712.01	99.87
	93	3,042,114.27	3,038,471.67	99.88
	111	550,286.99	550,232.45	99.99
	157	199,832.17	198,409.23	99.29
	173	1,752,520.89	1,747,677.63	99.72
	175	507,860.16	507,466.80	99.92
	562	103,606.82	103,606.82	100.00
	676	92,363.78	92,303.26	99.93
IBRA biogeographic sub-region (Chichester)	29	62,506.95	62,506.95	100.00
	93	2,940,348.04	2,936,731.54	99.88
	111	94,646.45	94,646.45	100.00
	157	73,276.35	72,429.76	98.84
	173	1,744,029.51	1,739,189.58	99.72
	175	230,987.86	230,952.43	99.98
	562	3,883.61	3,883.61	100.00
	676	N/A	N/A	N/A
IBRA biogeographic sub-region (Fortescue)	29	893,394.62	893,221.87	99.98
	93	5.21	5.21	100.00
	111	454,784.97	454,730.43	99.99
	157	12,230.75	12,227.56	99.97
	173	4,310.96	4,310.96	100.00
	175	69,513.33	69,479.26	99.95
	562	99,723.21	99,723.21	100.00
	676	81,984.10	81,976.21	99.99
LGA (Shire of Ashburton)	29	274,442.50	273,138.45	99.52
	93	83,790.26	83,790.26	100.00
	111	66,773.93	66,719.39	99.92
	157	270,458.76	270,403.05	99.98
	173	571,286.73	570,210.90	99.81
	175	267,900.95	267,555.16	99.87
	562	65,072.40	65,072.40	100.00
	676	45,155.52	44,695.18	98.98
LGA (Shire of East Pilbara)	29	906,243.49	905,848.35	99.96
	93	1,709,522.24	1,706,780.57	99.84
	111	498,619.98	498,619.98	100.00
	157	138,715.53	136,793.42	98.61
	173	1,085,704.89	1,081,937.46	99.65
	175	127,486.40	127,461.47	99.98
	562	38,534.42	38,534.42	100.00
	676	65,526.68	65,518.78	99.99

2.2.1 PREVIOUS VEGETATION MAPPING

Previous vegetation mapping is available for numerous surveys as listed in **Section 2.3** with codes and descriptions available for the majority of these surveys. The previous mapping covers a large proportion of the survey area (82.3%). The following vegetation types have been described within the survey area from the combined previous surveys outlined in **Section 2.3**:

- AaAbTe: *Acacia aneura* mid open woodland with occasional *Acacia rhodophloia x sibirica* and *Eucalyptus leucophloia* subsp. *leucophloia* over *Acacia bivenosa, Eremophila forrestii* and *Eremophila cuneifolia* mid shrubland over *Triodia epactia* low open hummock grassland
- AaAsCc: *Acacia aneura* and *Acacia pruinocarpa* woodland over *Acacia synchronicia* shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* tussock grassland
- AaAsCc: *Acacia aptaneura* low woodland over *Acacia synchronicia, A. tetragonophylla* and *Senna artemisioides* subsp*. oligophylla* mid sparse shrubland over **Cenchrus ciliaris* mid closed tussock grassland
- AaAsEs: *Acacia aneura* low to mid open woodland over *Acacia synchronicia* tall shrubland to open shrubland over *Eragrostis setifolia* low sparse grassland
- AaAsTp: *Acacia aneura, Acacia aptaneura* and *Acacia pruinocarpa* low woodland to open woodland over *Acacia synchronicia* and *Psydrax latifolia* tall open shrubland over *Triodia pungens* low hummock grassland
- AaEfTp: *Acacia aneura, Acacia pruinocarpa* and *Acacia aptaneura* low woodland over *Eremophila forrestii, Acacia ancistrocarpa* and *Acacia tetragonophylla* tall open shrubland over *Triodia pungens* low hummock grassland
- AaPiCf: *Acacia aneura* low woodland over *Psydrax latifolia, Acacia tetragonophylla* and *Acacia synchronicia* tall open shrubland over *Chrysopogon fallax* and **Cenchrus ciliaris* low to mid open tussock grassland
- AaPlTp: *Acacia ayersiana* x with isolated *Eucalyptus leucophloia* subsp. *leucophloia* woodland over *Petalostylis labicheoides, Dodonaea petiolaris* and *Acacia synchronicia* mid to tall shrubland over *Triodia pungens* and *Triodia basedowii* mid sparse hummock grassland
- AaSaEp: *Acacia aptaneura* and *A. pruinocarpa* low woodland over *Senna artemisioides* subsp. *oligophylla*, *Ptilotus obovatus* and *Acacia tetragonophylla* mid open shrubland over *Enneapogon polyphyllus, Aristida contorta* and *Chrysopogon fallax* low grassland
- AaTb: *Acacia ancistrocarpa, Grevillea wickhamii* and *Acacia pachyacra* mid open shrubland over *Triodia basedowii* and *T. schinzii* low hummock grassland with *Corymbia opaca* low scattered trees
- AaTp: *Acacia aptaneura* and *A. pruinocarpa* low woodland over *Triodia pungens* and **Cenchrus ciliaris* hummock grass mid hummock grassland/ tussock grassland
- AcAhCc: *Acacia citrinoviridis* and *Acacia pruinocarpa* low open woodland over *Atalaya hemiglauca* and *Hakea lorea* subsp. *lorea* tall isolated shrubland over **Cenchrus ciliaris* mid tussock grassland
- AcAsCc: *Acacia citrinoviridis* and *Atalaya hemiglauca* low woodland over *Acacia sclerosperma* subsp. *sclerosperma, Senna artemisioides* subsp. *helmsii* and *Acacia pyrifolia* var. *pyrifolia* mid sparse shrubland over **Cenchrus ciliaris* low tussock grassland
- AdAh: *Acacia dictyophleba* and *Grevillea juncifolia* subsp. *juncifolia* and *Crotalaria cunninghamii* tall open shrubland over *Aristida holathera* var. *holathera* and *Triodia schinzii* low tussock grassland/ hummock grassland
- AdTe: *Acacia dictyophleba* tall open shrubland over *Triodia epactia* mid hummock grassland
- AiDpAh: *Acacia incurvaneura, A. pruinocarpa* and *A. citrinoviridis* mid to low woodland over *Dodonaea petiolaris, A. tetragonophylla* and *A. arida* mid sparse shrubland over *Aristida holathera* var. *holathera, Enneapogon polyphyllus* and *Sporobolus australasicus* low grassland
- AiTb: *Acacia inaequilatera*, *Acacia bivenosa* and *Acacia pyrifolia* var. *pyrifolia* mid to tall shrubland over *Triodia basedowii* and *Triodia longiceps* low sparse hummock grassland
- AiTp: *Acacia inaequilatera, Acacia bivenosa* and *Acacia pyrifolia* var. *pyrifolia* mid to tall shrubland over *Triodia basedowii* and *Triodia longiceps* low sparse hummock grassland
- AiTp: *Acacia inaequilatera, Acacia pyrifolia* var. *pyrifolia* and *Grevillea pyramidalis* subsp. *pyramidalis* tall sparse shrubland over *Triodia pungens, Triodia wiseana* and *Triodia basedowii* low hummock grassland

- AlOc: *Aristida latifolia, Aristida inaequiglumis* and *Eriachne ciliata* mid sparse grassland over *Oldenlandia crouchiana, Heliotropium crispatum* and *Operculina aequisepala* low sparse herbland
- ApAdCc: *Acacia pruinocarpa, Corymbia hamersleyana* and *Acacia citrinoviridis* low to mid open woodland over *Acacia dictyophleba, Hakea lorea* subsp. *lorea* and *Acacia synchronicia* tall sparse shrubland over **Cenchrus ciliaris* and **Cenchrus setiger*
- ApAiTp: *Acacia pruinocarpa* and *Acacia citrinoviridis* low open woodland over *Acacia inaequilatera*, *Eremophila longifolia* and *Acacia ancistrocarpa* mid to tall shrubland over *Triodia pungens* low hummock grassland
- ApTp: *Acacia pachyacra, A. ancistrocarpa* and *A. inaequilatera* mid sparse shrubland over *Triodia pungens*, **Cenchrus ciliaris* and *Eragrostis eriopoda* low hummock grassland/ tussock grassland
- AsCc: *Acacia synchronicia* mid sparse shrubland over *Atriplex amnicola, Maireana pyramidata* and shrubland *Rhagodia eremaea* mid chenopod open shrubland
- AsCc1: *Acacia synchronicia* tall open shrubland over **Cenchrus ciliaris, Sclerolaena costata* and *Trianthema triquetrum* low open chenopod shrubland/ tussock grassland
- AtSaTp: *Acacia tumida* var. *pilbarensis, Grevillea wickhamii* subsp. *hispidula and Gossypium robinsonii* low open mallee shrubland over *Senna artemisioides* subsp. *oligophylla* and *Acacia adoxa* var. *adoxa* sparse heath shrubland over *Triodia pungens* hummock grassland
- CoAaTp: *Corymbia opaca, Acacia inaequilatera* and *Eucalyptus gamophylla* low open woodland over *Acacia ancistrocarpa, Petalostylis labicheoides* and *Grevillea wickhamii* subsp*. hispidula* tall shrubland over *Triodia pungens* low hummock grassland
- CoAdTs: *Corymbia opaca* and *Eucalyptus gamophylla* low isolated trees over *Acacia dictyophleba, Hakea chordophylla* and *Acacia ancistrocarpa* tall sparse shrubland over *Triodia schinzii, Triodia basedowii* and *Triodia pungens* low hummock grassland
- CoAsTb: *Corymbia opaca, Eucalyptus gamophylla* and *Acacia inaequilatera* low open woodland over *Acacia sclerosperma* subsp. *sclerosperma, Acacia dictyophleba* and *Acacia inaequilatera* tall sparse shrubland over *Triodia basedowii* low hummock grassland
- CoAsTp: *Corymbia opaca* and *Acacia inaequilatera* low to mid open woodland over *Acacia sclerosperma* subsp. *sclerosperma, Acacia dictyophleba* and *Acacia pachyacra* tall sparse shrubland over *Triodia pungens* low hummock grassland
- ElGwTs: *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Grevillea wickhamii* subsp. *hispidula* and *Acacia bivenosa* tall sparse shrubland over *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia epactia* low hummock grassland.
- ElGwTv: *Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Grevillea wickhamii*, *Acacia bivenosa* and *Senna glutinosa* subsp. x *luerssenii* mid sparse shrubland over *Triodia vanleeuwenii* and *Fimbristylis simulans* low hummock grassland/ sedgeland
- EvAcCc: *Eucalyptus victrix* and *Eucalyptus camaldulensis* subsp. *refulgens* mid woodland over *Acacia citrinoviridis*, *A. pyrifolia* var. *pyrifolia* and *A. tumida* var. *pilbarensis* tall sparse shrubland over **Cenchrus ciliaris*, *Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186)
- EvAhCc: *Eucalyptus victrix, Acacia citrinoviridis* and *Acacia pruinocarpa* mid open woodland over *Atalaya hemiglauca* and *Hakea lorea* subsp. *lorea* tall isolated shrubland over **Cenchrus ciliaris* and **Cenchrus setiger* mid tussock grassland
- SsCc: **Cenchrus ciliaris* and *Aristida inaequiglumis* low tussock grassland with *Stylobasium spathulatum* mid isolated shrubs
- SsTs: *Stylobasium spathulatum* and *Acacia dictyophleba* tall sparse shrubland over *Triodia schinzii* and *Triodia basedowii* low hummock grassland.

The above descriptions do not take into consideration taxonomic (name) changes since survey.

2.2.2 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

Threatened and Priority Ecological Communities (TEC/PECs) occurring within a 50 km buffer of the survey area were identified by a *Protected Matters Search Tool* (PMST) search (DAWE 2021, search reference

IEFI1W) and DBCA database search request (search reference 07-0321EC). No EPBC-listed TECs were identified by the PMST search. The results of the DBCA search are indicated in **Table 5** and shown on **Map 4**. PECs identified as intersecting the survey area are highlighted in blue.

Table 5: TECs and PECs identified by the DBCA database search

Ecological Community	BC Act status	WA status
Brockman Iron cracking clay communities of the Hamersley Range	-	Priority 1 PEC
Fortescue Marsh (Martuyitha) (Marsh Land System)		Priority 1 PEC
Four plant assemblages of the Wona Land System (previously 'Cracking clays of the Chichester and Mungaroona Range')	-	Priority 1 PEC
Freshwater claypans downstream of the Fortescue Marsh - Goodiadarrie Hills on Mulga Downs Station	-	Priority 1 PEC
Kumina Land System	-	Priority 3 PEC
Narbung Land System	-	Priority 3 PEC
Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region	-	Priority 2 PEC
Vegetation of sand dunes of the Hamersley Range/Fortescue Valley	-	Priority 3 PEC
Weeli Wolli Spring Community	-	Priority 3 PEC

2.2.3 THREATENED AND PRIORITY FLORA

The PMST search (as above) identified no EPBC-listed TF that are known to occur within the 50 km search buffer area.

A search of the DBCA databases (search reference 15-0221FL) was conducted using a 50 km buffer around the supplied shapefiles. The results incorporate the TPFL List, taken from Threatened and Priority Flora Report Forms and DBCA surveys, and WA Herb, taken from vouchered specimens held in the Western Australian Herbarium. **Map 4** shows the locations of conservation-listed flora identified by the DBCA database search.

Fortescue maintains a database of conservation-listed flora and other flora of conservation interest associated with its operational and exploration tenements. This database consists of DBCA database search results requested for flora and vegetation assessments and the results of field surveys it has commissioned. The resultant list, and associated location data, provides a comprehensive understanding of the conservation significant flora and other flora of conservation interest (e.g. significant range extensions, unusual forms) within and close to the survey area. **Map 4** shows the locations of conservation-listed flora identified by Fortescue's significant flora database.

The combined database searches identified 73 vascular flora taxa, listed in **Table 18** in **Appendix Three**, consisting of one TF (see below), 13 P1, 14 P2, 38 P3 and seven P4 taxa.

2.2.3.1 *Seringia exastia* (TF)

Seringia exastia (TF) was identified by the database searches. The recent advice provided by DBCA (19/2/2021) with database search results (reproduced below) indicates this species' listing as TF is a technicality based on outdated taxonomy:

> *The search results include records for Seringia exastia. S. exastia (previous known as Keraudrenia exastia) was a species only known from the Kimberley Region. A recently completed taxonomic study that assessed genomic and morphological characters in several Seringia taxa (Wilkins & Whitlock 2016) has concluded that Seringia exastia and S. elliptica are the same species. The taxonomy of the genus has been revised to synonymise S. exastia and S. elliptica under the oldest valid name of S. exastia. As S. elliptica is common and widespread throughout the Pilbara region, central WA and the Northern Territory and extends into South Australia, following the taxonomic revision S. exastia is now considered common and widespread.*

A nomination to delist the species due to no plausible significant threats to the species has been prepared and considered by the WA Threatened Species Scientific Committee (TSSC). We anticipate that at the next TSSC meeting recommendations will be made to the Minister to delist. However until changes are officially made to the threatened species list, S. exastia is still legally listed as threatened flora, and authorisation to take under section 40 of the Biodiversity Conservation Act 2016 is still required. Although some loss of plants is likely to have occurred and will continue to occur during mining and road works in some parts of the species' distribution, this is not expected to be significant in the context of the entire population. Therefore there should be no impediments to granting authorisation, following the standard process of application made to DBCA's Species and Communities Program.

To reduce timeframes and costs associated with approvals under the BC Act, DBCA will not require the standard targeted surveys to be undertaken to inform the threatened flora authorisation impact assessment for Seringa exastia. However, survey reports should still consider Seringia exastia as a listed threatened species and note the presence of the species within a survey area when encountered. Authorisation applications with basic details that the species is known to occur within the applied project area will be accepted and fast-tracked for approval.

2.2.3.2 Threatened and Priority Flora Likelihood Assessment

Ecoscape conducted a likelihood assessment to identify the TF and PF species that have potential to occur within the survey area. Information to assess the likelihood of a species occurring includes the following sources: ecology as listed on *FloraBase* (WAH 1998-2021; 2021, including specimen collection information) and information from recent nearby surveys, incorporating an assessment of habitats likely to be present in the survey area.

The attributes taken into consideration were:

- broad soil type usually associated with the species
- broad landform usually associated with the species
- usual vegetation (characteristic species) with which the species is usually associated
- species having previously been recorded from within approximately 20 km of the survey area (considered as 'nearby') taking locational accuracy into consideration
- time since recorded (i.e. within the previous 25 years), taking into consideration land use changes since collection
- reliability of record: species identified by only a TPFL record, without an accompanying verified vouchered specimen, may have been incorrectly identified or been subject to taxonomic updates since the record was entered
- number of records for the species
- if the record is for a not naturally occurring population (planted).

The likelihood rating is assigned using the categories listed in **Table 6**.

Table 6: Categories for likelihood of occurrence of TF and PF

Likelihood Category	Criteria
Known to occur	Species previously recorded within the survey area.
Likely to occur	Suitable habitat is known to occur within the survey area and multiple records of the species exist within close proximity*
May occur	Suitable habitat is expected to occur within the survey area and the species has previously been recorded within proximity**
Unlikely to occur	Suitable habitat is expected to occur within the survey area however previous records are limited and/or historic and/or not in proximity** OR Suitable habitat is not expected to occur within the survey area although previous records exist in proximity**
Very Unlikely to occur	Suitable habitat is not expected to occur in the survey area AND/OR previous records are limited and/or historic and/or not in proximity**

* close proximity = 12 km (¼ of the distance of the database search buffer)
** proximity = 25 km (½ of the distance of the database search buffer)

The likelihood assessment is available in **Table 18** in **Appendix Three**. Ten conservation-listed flora taxa have been previously recorded from within the survey area. Three P1, seven P3 and two P4 were identified as Likely to occur based on the information available during the desktop assessment and were prioritised for field survey.

The likelihood of occurrence was re-evaluated following the field survey when actual survey area characteristics (vegetation types, vegetation condition, visibility for individual species) were better understood, and the level of survey effort was considered. The post-survey likelihood is also incorporated into this table and discussed further in **Section 5.1.1.2**.

2.3 RELEVANT LITERATURE

The survey area has been subject to numerous previous flora and vegetation surveys that encompass the majority of the survey area has been subject to several previous flora and vegetation surveys as follows:

- Ecoscape (2018) *Fortescue Valley Flora and Vegetation Survey*, unpublished report for Fortescue Metals Group Ltd. This detailed survey includes the southern extent of the survey area (**Map 5**). Occurrences of the *Vegetation of sand dunes of the Hamersley Range/Fortescue Valley* PEC were mapped in detail within the survey area. The Ecoscape (2018) survey area also falls directly adjacent to the Billiards North survey area.
- Markey (2016) *Floristic Survey and Mapping of the Riparian and Halophyte Dominated Communities on the Fortescue Marsh (Martuyitha), Western Australia.* Areas of the central portion have been mapped that correspond with the Fortescue Marsh or adjacent vegetation.
- Cardno (2012a) *Addendum: Nyidinghu Flora and Vegetation Assessment*, prepared for Fortescue Metals Group. Mapping available from this survey corresponds with a portion of the *Vegetation of sand dunes of the Hamersley Range/Fortescue Valley* PEC.
- Cardno (2012b) *Nyidinghu flora and vegetation assessment*, unpublished report for Fortescue Metals Group. This survey includes the southern extent of the survey area.
- Cardno (2012c) *Nyidinghu Rail Spur Flora and Vegetation Assessment*, report prepared for Fortescue Metals Group. This survey area intersects the majority of the survey area from north to south with the exception of the option leading to the Cloudbreak Mine Site.
- ENV Australia Pty Ltd (2011a) *Cloudbreak Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Limited. Vegetation mapping is available for a small section of the survey area close to Cloudbreak Mine Site.
- Coffey Environments (2007) *Supplementary Vegetation and Flora Surveys of the Port Hedland to Cloudbreak Rail Corridor and Associated Borrow Pits and Infrastructure*. Small sections from the northern extent of the survey area are included.

- Mattiske Consulting Pty Ltd (2007) *Flora and Vegetation near Fortescue Marshes*, unpublished report for Fortescue Metals Group Ltd. Vegetation mapping is available near the division of the Transport Corridor survey area.
- Mattiske Consulting Pty Ltd (2005) *Flora and Vegetation on the Cloudbreak and White Knight Leases*, unpublished report for Fortescue Metals Group Ltd. Small areas intersect the survey area towards the northern end.
- Biota Environmental Sciences (2004a) *Vegetation and Flora Survey of the Proposed FMG Stage A Rail Corridor*, unpublished report for Fortescue Metals Group Ltd. This survey area intersects a large proportion of the survey area from north to south with the exception of the option leading to the Cloudbreak Mine Site.
- Biota Environmental Sciences (2004b) *Vegetation and Flora Survey of the Proposed FMG Stage B Rail Corridor and Mines Areas*, unpublished report for Fortescue Metals Group Ltd. This survey intersects small portions of the survey area near the northern extents of the transport corridor options.
- ATA Environmental (N/A) *Supplementary Flora Survey.* This survey intersects the northernmost extent of the survey area.

The extent of these previous surveys within the Nyidinghu Transport Corridor survey area is shown in **Map 5**.

The following documents have been reviewed for relevance to the current investigation:

- Ecologia Environment (2016) *Pilbara Bulk Ore Transportation System Project. Assessment on Proponent Information - Environmental Review Document*, report prepared for Mineral Resources Limited
- Lyons (2015) *The riparian flora and plant communities of the Pilbara region of Western Australia*
- Rio Tinto (2016) *Yandicoogina Pocket and Billiard South: detailed responses to public submissions in relation to flora and vegetation*
- Phoenix Environmental Sciences (2014a) *Flora and fauna desktop review for the Extension Project and Bulk Sample*, report prepared for Maiden Iron Pty Ltd
- Phoenix Environmental Sciences (2014b) *Flora and vegetation survey for the Extension Projec*t, report prepared for Australian Aboriginal Mining Corporation Pty Ltd
- ENV Australia Pty Ltd (2013) *Christmas Creek Life of Mine flora and vegetation assessment – update*, unpublished report for Fortescue Metals Group Ltd
- EPA (2013) *Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area. Advice of the Environmental Protection Authority to the Minister for Environment under Section 16(e) of the Environmental Protection Act 1986*
- Astron Environmental Services (2012a) *Cloudbreak Life of Mine Conservation Significant Flora Survey Phase 1*, report prepared for Fortescue Metals Group Limited
- Astron Environmental Services (2012b) *Iron Valley Project Flora and Vegetation Survey*, unpublished report for URS Australia Pty Ltd on behalf of Iron Ore Holdings Ltd
- Biota Environmental Sciences (2012) *A vegetation and flora survey of the Koodaideri study area*, report prepared for Rio Tinto
- Astron Environmental Services (2011) *Literature Review on Samphire Vegetation Focusing on the Water Requirements of the Community Associate with Fortescue Marsh*, unpublished report prepared for Fortescue Metals Group Limited
- G&G Environmental Pty Ltd (2011) *Flora and vegetation surveys of the FerrAus Limited rail corridor options*, unpublished report for FerrAus Ltd
- Mattiske Consulting Pty Ltd (2011) *Review of Flora and Vegetation Along Weeli Wolli, Mindy Mindy and Coondiner Creeklines*, unpublished report for Rio Tinto
- Onshore Environmental (2011) *Area C and Surrounds Flora and Vegetation Survey*, report prepared for BHP Billiton Iron Ore
- ENV Australia Pty Ltd (2010a) *Christmas Creek flora and vegetation assessment*, unpublished report for Fortescue Metals Group Ltd
- Batini (2009) *Eucalyptus victrix, Karijini National Park*, report to EPA

- Department of Environment and Conservation (2009) *Resource Condition Report for Significant Western Australian Wetland. Wetlands of the Fortescue River System*
- Ecologia Environment (2009a) *Brockman Resources Limited Marillana (E47/1408) Vegetation and Flora Report Version 5*, unpublished report for Brockman Resources Limited
- Ecologia Environment (2009b) *Roy Hill 1 Project Flora and Vegetation Assessment*, unpublished report for Hancock Prospecting Pty Ltd
- Ecologia Environment (2009c) *Roy Hill 1 Infrastructure flora assessment*, unpublished report for Hancock Prospecting Pty Ltd
- G&G Environmental Pty Ltd (2009)*Flora and Vegetation Survey of a Proposed Borefield for the Roy Hill 1 Iron Ore Project*, unpublished report for Roy Hill Iron Ore Pty Ltd
- Mattiske Consulting Pty Ltd (2009) *Flora and Vegetation on the Creeklines (Coondiner, Kalgan, Mindy Mindy and Unnamed) Associated with Hope Downs 4*, unpublished report for Pilbara Iron
- Mattiske Consulting Pty Ltd (2009c) *Review of flora and vegetation on Mindy Mindy and unnamed transects north of Hope Downs 4 2008 and 2009*, unpublished report for Rio Tinto
- Ecologia Environment (2008) *BHP Billiton Iron Ore Rapid Growth Project 5 (RGP5) Chichester Deviation Vegetation and Flora Report (Version 3)*, unpublished report for BHPBIO
- Mattiske Consulting Pty Ltd (2008) *Review of flora and vegetation on Coondiner and Kalgan Creeks north of Hope Downs 4*, unpublished report for Rio Tinto
- Greg Barrett & Associates Pty Ltd (2005) *Likely Impact of Drawdown of Groundwater from the Cloud Break Operations on Vegetation Communities.*

Common factors that are considered to be environmentally significant in many of the above documents and are also likely to be significant within the survey area are:

- PECs
- Groundwater Dependent Vegetation (GDV) or Potential GDV
- Sheet Flow Dependent Mulga vegetation
- Priority Flora species.

3 METHODS

3.1 SURVEY AIMS

The aims of the Detailed flora and vegetation survey were to:

- assess vegetation types and condition occurring within areas not previously surveyed and re-sample existing quadrats to inform vegetation mapping and condition in areas previously surveyed
- determine the regional significance of vegetation types identified as limited in spatial distribution within the survey area
- conduct target searches for and map the occurrences of conservation-listed flora and communities, and determine their regional significance
- identify and map the abundance of weed species and assess their impact on vegetation health
- prepare a comprehensive flora and vegetation report and associated data.

3.2 GUIDING PRINCIPLES

The flora and vegetation survey was conducted as a Detailed survey according to the Flora and Vegetation Technical Guidance (EPA 2016). The EPA considers that a Detailed survey requires:

- a comprehensive survey design, including giving consideration to the survey timing that should be conducted during the primary season of survey for the bioregion and disturbance events, and the potential requirement for supplementary surveys
- a minimum of three quadrats (in proportion to the extent of the vegetation unit), located throughout each preliminary vegetation types sampled throughout its geographic range, with additional quadrats and rescoring during supplementary surveys to clarify vegetation unit boundaries
- regional surveys if there is insufficient information available (identified during the desktop assessment) to provide local and regional context
- the survey may include a number of sampling techniques including quadrats, relevés, transects and traverses, as well as opportunistic observations
- the flora inventory should be comprised of data collected from quadrats and relevés, supplemented by opportunistic observations, systematic surveys and targeted inspections of various habitat areas
- it may be appropriate to increase survey effort in areas of unusual habitat
- sampling sites that are placed at representative locations throughout the survey area considering landform, geology, elevation, slope, aspect, surface or groundwater expression and soil type, as well as vegetation structure, composition and condition.

Targeted searches were also conducted in areas of habitat suitable for TF and PF identified during the desktop assessment and previous surveys as having potential to occur. The EPA considers that a Targeted survey requires:

- adequate survey design that considers survey timing for the botanical province
- one or more site visits by an experienced botanist to record locations of significant flora and/or vegetation
- systematic searches for significant flora and vegetation in all potentially suitable habitats, including where habitats extend outside the survey boundary
- follow-up Targeted survey (if necessary) where significant flora or vegetation is found during opportunistic sampling
- local or regional Targeted surveys if the results indicate that impacts are likely to occur to significant flora and vegetation.

3.3 FIELD SURVEY

3.3.1 FIELD SURVEY METHODS

The methods utilised during the field survey followed those outlined in the Flora and Vegetation Technical Guidance (EPA 2016), conducted as a Detailed survey. The surveys were also conducted in accordance with Fortescue's *Flora and Vegetation Assessment Guidelines* (100-GU-EN-005) (Fortescue 2014).

Conservation criteria used in this assessment are outlined in **Table 12**, **Table 13** and **Table 14** in **Appendix One**.

Survey method details are outlined below.

3.3.2 FIELD SURVEY TIMING

The field survey was conducted during two phases of field survey:

- 4-16 May 2021 by:
  - Stephen Kern (Principal Botanist, Flora Taking (Biological Assessment) Licence FB62000001; Threatened Flora Collecting Permit TFL74-1920)
  - Kyla Pannell (Botanist, FB62000261)
  - Louisa Carlsson (Ecologist, FB62000295)
  - Julia Mattner (Senior Botanist)
  - Sophie Cochrane (Environmental Scientist)
  - Nicola Storey (Environmental Scientist)
- 16-25 July 2021 by:
  - Stephen Kern
  - Kyla Pannell
  - Louisa Carlsson
  - Julia Mattner.

The survey timing is within the optimal period for primary and supplementary surveys within the bioregion according the Flora and Vegetation Technical Guidance (EPA 2016).

3.3.3 FLORISTIC QUADRATS

Floristic quadrat ('quadrat') locations were selected using aerial photography, environmental values and field observations to represent the vegetation values existing at the site. The unmarked quadrats were 50 m x 50 m in dimension, as required according to the Flora and Vegetation Technical Guidance (EPA 2016). Where the vegetation consisted of a narrow linear corridor, quadrats were linear but of the same overall size i.e. 2,500 m^2.

The following information was collected from within each quadrat:

- observer
- date
- quadrat/site number
- GPS location (GDA94) of the northwest corner
- digital photograph (spatially referenced with a reference number), taken from the northwest corner, looking diagonally across the quadrat
- broad soil type and colour
- topography
- list of flora species recorded with the average height and total cover within the quadrat for each species
- vegetation description (as per below)
- vegetation condition.

At least three quadrats per vegetation type were recorded for the Detailed survey where there was sufficient extent. Quadrat locations are displayed on the **Map 7** series.

3.3.4 TARGETED SEARCHES

Threatened and Priority Flora identified during the desktop analysis and previous surveys as known or having potential to occur were targeted for searches in areas of potential habitat. Targeted searches were conducted in potentially suitable habitat of target species, with the remainder of the site opportunistically searched during site traverses.

The locations of all targeted taxa collected were recorded using a handheld GPS with the following data recorded:

- observer, date and time
- reproductive status and other features such as health of plants, percentage flowering and fruiting
- local abundance/population size and/or population boundary, including outside the development envelopes where possible
- landform
- brief vegetation community description
- representative photos of each species and habitat
- collection of representative specimens.

3.3.5 INTRODUCED SPECIES

Introduced species (weeds) were recorded during the collection of the overall flora inventory.

3.3.6 VEGETATION DESCRIPTION AND CLASSIFICATION

Vegetation was described from each of the quadrats using the height and estimated cover of dominant and characteristic species of each stratum based on the National Vegetation Information System (NVIS), recorded at Level V (NVIS Technical Working Group & DotEE 2017) (**Table 15** and **Table 16** in **Appendix Two**). Up to three species per stratum from each stratum (upper, mid and ground) were used to formulate vegetation descriptions for each quadrat and each vegetation type.

Vegetation type descriptions were created by combining quadrat descriptions and modifying, where necessary, based on the wider vegetation. Vegetation codes were formulated using the first letter of genus and species names of the dominant species of each stratum e.g. **AaSaEp** refers to ***A****cacia* ***a****ptaneura* low woodland over ***S****enna* ***a****rtemisioides* subsp. *oligophylla* mid open shrubland over ***E****nneapogon* ***p****olyphyllus* low grassland. Where the dominant species make up more than one version of the same code they are distinguished by a number at the end of the code (e.g. **EgAaTb^{2}**). Where possible, previous vegetation codes were retained. However, due to the numerous previous surveys (and inconsistently applied coding systems), much of the vegetation type attribution required updating.

3.3.7 VEGETATION CONDITION ASSESSMENT

Vegetation condition was assessed broadly and continuously throughout the survey area and at each quadrat using the Vegetation Condition Scale for the Eremaean Botanical Province (EPA 2016) (**Table 17** in **Appendix Two**). As quadrats are located in the best condition parts of a vegetation type, the condition rating of the quadrat may not match that of the broader vegetation type due to the scale of mapping.

3.4 STATISTICAL ANALYSIS

3.4.1 POST-SURVEY LIKELIHOOD ASSESSMENT

Following the field survey, a post-survey likelihood assessment was conducted to identify conservation-listed species that have potential to occur on site. This assessment was based on survey results, survey effort and habitat identified within in the survey area.

3.4.2 FLORISTIC ANALYSIS

3.4.2.1 Survey Area Floristic Analysis

PATN© software (Blatant Fabrications Pty Ltd 2013) was used to undertake statistical analysis to generate floristic groups using the data collected from the quadrats and relevés, in order to better understand local significance of floristic units. PATN analysis has been used for several local floristic analyses including Gibson *et al.* (1994) for the Swan Coastal Plain.

PATN is a multivariate analysis tool that generates estimates of association (resemblance, affinity, distance) between sets of objects described by a suite of variables (attributes) and classifies the objects into groups and condenses the information and displays the patterns in the data graphically. It offers a choice of data transformations prior to multivariate analysis.

Floristic groups, identified using a dendrogram output of the analysis, are used as a tool to inform vegetation type groups at various levels and scales.

For this project the most informative analysis used the Bray Curtis similarity coefficient for rows (species) and columns (sites) as this provides a good estimation of association for ecological applications (Blatant Fabrications Pty Ltd 2013). For this analysis we used presence/absence (1/0) data for each species, deemed the most appropriate approach for data that included previous survey results.

Interpretation of these purely floristic groups into recognisable and mappable on-ground units is a tool used to identify broad vegetation types. Generally, quadrats that are closely floristically related on the dendrogram form identifiable vegetation units, however, interpretation is frequently required for imperfect results. Vegetation types are therefore determined as a combination of floristic analysis and on-ground interpretation using dominant and characteristic species.

3.4.2.2 Regional Floristic Analysis

Fortescue has supplied floristic quadrat data from surveys it has commissioned in the area surrounding the survey area. This data was used in a similar manner, using PATN to identify floristic groups, to form a regional floristic analysis. In total, 2,528 sites were included in the analysis, including 230 from the survey area.

Data was reconciled by removing all singletons (i.e. those species that only occurred once within the data) and all entries with doubtful identification (i.e. those that included a '?' or were only identified to genus or family level), combining taxa where there has been taxonomic review and combining species as a *sens. lat.* where there were entries to both species and subtaxa level and it was not possible to determine which subtaxa was applicable.

The aim of the regional floristics analysis is to determine if the survey area includes unique vegetation (at a floristic level) or if it is similar to other areas at a regional scale (broad analysis). The aim is not to provide a detailed analysis and discussion regarding floristics.

The data used in this analysis was sourced from the following surveys:

- this survey, annotated as '2021_Nyidi'
- Ecoscape (2018), *Fortescue Valley Flora and Vegetation Survey*, unpublished report for Fortescue Metals Group Ltd. – annotated as 'FortValley
- Biota Environmental Sciences (2004a), *Vegetation and Flora Survey of the Proposed FMG Stage A Rail Corridor*, unpublished Report for Fortescue Metals Group Ltd – annotated as associated with Cloudbreak
- Biota Environmental Sciences (2004b), *Vegetation and Flora Survey of the Proposed FMG Stage B Rail Corridor and Mines Areas*, unpublished Report for Fortescue Metals Group Ltd – annotated as associated with Christmas Creek ('ChrisCrk')
- Cardno (2012a), *Addendum: Nyidinghu Flora and Vegetation Assessment*, prepared for Fortescue Metals Group
- Cardno (2012b), *Nyidinghu flora and vegetation assessment*, unpublished report for Fortescue Metals Group

- Cardno (2012c), *Nyidinghu Rail Spur Flora and Vegetation Assessment*, report prepared for Fortescue Metals Group
- Coffey Environments (2010a), *Flora and Vegetation Assessment, Solomon Project and Investigator - Volume 1*, unpublished report for Fortescue Metals Group Ltd – annotated as 'SolInv'
- Coffey Environments (2010b), *Flora and Vegetation Assessment, Solomon Rail Project - Volume 1*, unpublished report for Fortescue Metals Group Ltd – annotated as SolRail
- Markey (2016) *Floristic Survey and Mapping of the Riparian and Halophyte Dominated Communities on the Fortescue Marsh (Martuyitha), Western Australia.* – annotated as 'DPaW Marsh'
- Ecologia Environment (2009d), *Roy Hill 1: Flora and Vegetation Assessment*, unpublished report for Hancock Prospecting Pty Ltd
- Ecologia Environment (2013), *Kutayi Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd
- Ecologia Environment (2014a), *Fig Tree Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd
- Ecologia Environment (2014b), *Investigator Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd, included in 'SolInv'
- Ecologia Environment (2014c), *Mt MacLeod Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd, annotated as 'MtMac'
- Ecologia Environment (2014d), *Solomon South Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd, annotated as 'SolSouth'
- Ecologia Environment (2014e), *Solomon Hub Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd, annotated as 'SolLOM'
- Ecoscape (2010a), *Level Two Flora and Vegetation Assessment, Firetail Mining Area*, unpublished report for Fortescue Metals Group Ltd, included in 'Solomon'
- Ecoscape (2010b), *Solomon Project Rail Re-alignment Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd, included in 'SolRail'
- ENV (2010a), *Christmas Creek flora and vegetation assessment*, unpublished report for Fortescue Metals Group Ltd
- ENV (2010b), *Solomon Project: Kings Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd
- ENV (2011b), *Christmas Creek Airstrip Flora, Vegetation and Fauna Assessment*, unpublished report for Fortescue Metals Group Ltd
- ENV (2011a), *Cloudbreak Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Limited
- ENV (2012), *Christmas Creek Life of Mine Flora and Vegetation Assessment*, unpublished report for Fortescue Metals Group Ltd.

3.4.3 ADEQUACY OF SAMPLING

In order to demonstrate adequacy of sampling, a species accumulation curve was generated by the software Species Diversity and Richness IV (Pisces Conservation Ltd 2010) using five random selections of sample order, using quadrat data only.

4 FIELD SURVEY RESULTS

4.1 FLORA

4.1.1 QUADRAT SUMMARY

A combined total of 268 floristic quadrats are known to occur within the survey area, summarised as follows:

- 147 quadrats sampled during 2021 including:
  - 97 previously established quadrats that were resampled
  - 50 newly established quadrats (including 18 at Billiards North)
- 84 previously established by Fortescue-commissioned surveys with data available
- 37 previously established for which data is not readily accessible and potentially unreliable due to survey timeframe (pre-2010).

4.1.2 FLORA INVENTORY

A total of 607 vascular flora were recorded from 194 genera and 59 families from the consolidated surveys including quadrats, relevés, opportunistic observations and searches for conservation-listed flora. There were 18 introduced flora (2.97%) included in the total inventory. Forty-nine (8.07%) of the flora taxa in the inventory are not identified to species level, though only 17 of these (2.80%) were arising from 2021 surveys with the remainder from previously sampled quadrats.

The most commonly represented families were Fabaceae (122 taxa, including one introduced), Poaceae (93, five introduced) and Malvaceae (67, one introduced). The most commonly represented genera were *Acacia* with 58 taxa, *Senna* (18), *Ptilotus* and *Sida* (17 each).

The number of species per quadrat ranged from three in quadrat A130 (not resampled during 2021) to 73 in quadrat NT2111, with an average species diversity per quadrat of 29.04. The most commonly recorded species were **Cenchrus ciliaris* recorded from 114 quadrats, *Ptilotus exaltatus* (107 quadrats) *Acacia pruinocarpa* (94 quadrats) and *Sporobolus australasicus* (93 quadrats).

The combined flora inventory is presented in **Table 19** in **Appendix Four**. Quadrat data is presented in **Appendix Five**.

4.1.3 CONSERVATION-LISTED FLORA

4.1.3.1 Threatened Flora

One Commonwealth EPBC Act or Western Australian BC Act-listed TF (*Seringia exastia*) was recorded during the field survey. The locations of *S. exastia* are indicated on **Map 6** and described in more detail in **Table 7**.

4.1.3.2 Priority Flora

Twelve PF were recorded during the field survey or are known to occur based on reliable previous records:

- one Priority 1:
  - *Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)
- one Priority 2:
  - *Euphorbia inappendiculata* var. *queenslandica* (P2)
- seven Priority 3:
  - *Atriplex flabelliformis*
  - *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479)
  - *Dysphania congestiflora*
  - *Eragrostis* sp. Erect spikelets (P.K. Latz 2122)
  - *Eremophila spongiocarpa*
  - *Stackhousia clementii*
  - *Swainsona thompsoniana*

- three Priority 4:
  - *Eremophila youngii* subsp. *lepidota*
  - *Goodenia nuda*
  - *Lepidium catapycnon.*

Locations of PF are indicated on **Map 6** and described in more detail in **Table 7**.

Table 7: TF and PF recorded during the field survey

***Seringia exastia* (T)**	
Description: Shrub to 1 m tall with pink flowers (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on flat to gently undulating sandplains with orange-red sand. **Location:** Transport corridor. **Survey results**: four records with a total of 88 plants in the survey area **Populations:** four populations. **Known records and distribution**: According to *Atlas of Living Australia*, this species is widespread across a large portion of Western Australia and the distribution extends into the Northern Territory and South Australia (ALA 2021).
***Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063) (P1)**	
Description: Low samphire shrub growing to 0.5 m high (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on seasonally inundated saline flats and floodplains with sandy clay soils. **Location:** Transport corridor where it intersects with the Fortescue Marsh. **Survey results**: 13 records with a total of 223 plants in the survey area. **Populations:** two populations. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 101 records of this species from the Pilbara and Little Sandy Desert, with an overall distribution of approximately 260 km (north-south) by 150 km (east-west), largely east of the survey area in Fortescue Marsh.

***Euphorbia inappendiculata* var. *queenslandica* (P2)**	
Description: Prostrate herb growing to 0.3 m high (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on cracking clays on flat landscapes. **Location:** Transport corridor. **Survey results**: two records with a total of 3 plants in the survey area. **Populations:** two populations. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 10 records of this species from the Pilbara and Ord Victoria Plain, with an overall distribution of approximately 500 km (north-south) by 1,150 km (east-west), largely west of the survey area. However, *Atlas of Living Australia* indicates this taxon has additional records across south-eastern Western Australia and is widespread in all other states of Australia (ALA 2021).
***Atriplex flabelliformis* (P3)**	
Description: Monoecious, erect, rounded perennial herb growing to 0.35 m high. Found in clay loam or loam soils on saline flats or marshes (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on seasonally inundated saline plains/marshes with clay/sandy clay soil. **Location:** Transport corridor where it intersects with the Fortescue Marsh. **Survey results**: two records with a total of 16 plants in the survey area. **Populations:** one population. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 51 records of this species with a scattered distribution across Western Australia of approximately 1,100 km (north-south) by 1,400 km (east-west).

***Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P3)**	
Description: Small herb with blue flowers growing to 0.1 m high. Typically found in clay or loam soil on crab hole plains, gentle slopes and in drainage lines (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on plains and claypans. **Location:** Northern section of the transport corridor within the Chichester Range. **Survey results**: four records with a total of 102 plants in the survey area. **Populations:** three populations. **Known records and distribution**: According to *FloraBase* (WAH 1998-2021; 2021), there are 29 records of this species from the Pilbara region.
***Dysphania congestiflora* (P3)**	
Description: Erect herb growing to 10 cm tall (WAH 1998-2021; 2021). Image unavailable	**Habitat:** has been recorded on seasonally inundated flats and saline floodplains with clay soils. **Location:** Fortescue Marsh. **Survey results**: not recorded during the 2021, existing reliable record from a previous survey. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 10 records of this species from the Pilbara and Carnarvon regions with an overall distribution of approximately 100 km (north-south) by 600 km (east-west). Most of the records occur within the Fortescue Marsh area.

***Eragrostis* sp. Erect Spikelets (P.K. Latz 2122) (P3)**	
Description: Erect perennial grass to 30 cm high (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on saline flats and calcrete rises. **Location:** transport corridor where it intersects the marsh. **Survey results**: three locations were recorded where it was abundant. **Populations:** one population. **Known records and distribution**: According to *FloraBase* (WAH 1998-2021; 2021), there are five records of this species from the Pilbara, Great Sandy Desert and Murchison region.
***Eremophila spongiocarpa* (P3)**	
Description: Compact, succulent-leaved shrub growing to 1 m high with white flowers (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on floodplain margins, saline flats and clay pans. **Location:** Transport corridor where it intersects the Fortescue Marsh. **Survey results**: 58 records with a total of 1,496 plants in the survey area. **Populations:** three populations. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 117 records of this species from the Pilbara with an overall distribution of approximately 50 km (north-south) by 150 km (east-west), largely within the Fortescue Marsh area.

***Stackhousia clementii* (P3)**	
Description: Dense broom-like perennial herb growing to 0.45 m with green/yellow/brown flowers (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on low sand dunes, floodplains and salt lakes/saline plains. **Location:** Transport corridor where it intersects the Fortescue Marsh. **Survey results**: two records with a total of 40 plants in the survey area. **Populations:** one population. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 39 records of this species from the Pilbara, Carnarvon, Murchison, Great Sandy Desert, Little Sandy Desert, Central Ranges and Great Victoria Desert regions with an overall distribution of approximately 700 km (north-south) by 1,500 km (east-west), largely within the Fortescue Marsh area.
***Swainsona thompsoniana* (P3)**	
Description: Erect herb growing to 0.2 m high with purple flowers (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on plains and floodplains with clay/cracking clay soil. **Location:** Transport corridor, north of where it intersects the Fortescue Marsh. **Survey results**: one records with one plant in the survey area. **Populations:** one population. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 23 records of this species from the Pilbara region, with an overall distribution of approximately 200 km (north-south) by 350 km (east-west), largely west of the survey area.

***Eremophila youngii* subsp. *lepidota* (P4)**	
Description: Dense spreading shrub to 3 m high, leaves narrow and scaly with tubular pink-purple flowers. 	**Habitat:** has been recorded on alluvial plains and clay depressions. **Location:** Transport corridor where it intersects the Fortescue Marsh. **Survey results**: a single location based on a previous survey result (considered reliable). **Populations:** one population. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 61 records of this species from Carnarvon, Gascoyne, Little Sandy Desert and the Pilbara in Western Australia and one record from the Northern Territory, with an overall distribution of approximately 500 km (north-south) by 1,800 km (east-west).
***Goodenia nuda* (P4)**	
Description: Erect to ascending herb with yellow flowers (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on plains, floodplains and riparian areas. **Location:** Transport corridor where it intersects with the Fortescue Marsh. **Survey results**: five records with a total of 18 plants in the survey area. **Populations:** three populations. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 130 records of this species, largely from the Pilbara bioregion with an overall distribution of approximately 500 km (north-south) by 600 km (east-west).

***Lepidium catapycnon* (P4)**	
Description: Open, woody perennial herb or shrub growing to 0.3 m high with white flowers. Typically found in skeletal soils on hillsides (WAH 1998-2021; 2021). 	**Habitat:** has been recorded on rocky ironstone hills. **Location:** Billiards North survey area. **Survey results**: two records with a total of eight plants in the survey area. **Populations:** one population. **Known records and distribution**: According to *NatureMap* (DBCA 2007-2021) there are 94 records of this species from the Pilbara region with an overall distribution of approximately 150 km (north-south) by 300 km (east-west). Most of the records occur to the west and south of the survey areas.

4.1.4 OTHER SIGNIFICANT FLORA

According to the criteria outlined in the Flora and Vegetation Technical Guidance (EPA 2016), *Tephrosia remotiflora* may be of significance as a range extension. This species is mostly distributed in the Kimberley region with one record in the Pilbara. A specimen was collected from quadrat C102, approximately 150 km southeast of the nearest record in the Pilbara and approximately 500 km southwest of the typical distribution in the Kimberley region.

4.1.5 FLORA OF TAXONOMIC INTEREST

4.1.5.1 *Corchorus* aff. *tectus*

A taxon recorded as '*Corchorus* aff. *tectus*' was recorded from 13 floristic quadrats, hence relatively common within the survey area from areas of sandy soils. Ecoscape's specimens match voucher specimens housed in the Western Australian Herbarium (P. Sweeny & D. Roberts ONS MC250.06 and J. Bull & A. Buckeridge ONS MTM 60.01) that are filed under the name of *C.* aff. *tectus*. Steve Dillon, Western Australian Herbarium Taxonomist, confirmed that earlier collections by Ecoscape arising from the *Fortescue Valley Flora and Vegetation Survey* (Ecoscape 2018) match the Herbarium specimens of *C*. aff. *tectus*, which differs from *C. tectus sens. str.* by having dendritic hairs on the fruit, amongst other characteristics.

It is apparent that the collections from the survey area also match specimens described as *C. elachocarpus* (Mitchell PRP1462 and Mitchel PRP1135 from Marillana Station) in Halford (2004), with this paper noting that these collections from near the survey area differ from *C. elachocarpus* in 'having narrowly ovate leaves, longer peduncles and pedicels, and broader fruit'. The Halford (2004) publication identified that this entity warrants formal recognition.

For consistency reasons, this species is referred to as *Corchorus* aff. *tectus* in this report. This taxon is considered of taxonomic interest rather than conservation significance as it appears to be locally common.

4.1.6 INTRODUCED FLORA

Eighteen introduced flora species (weeds) have been recorded within the survey area, inclusive of 2021 results and previous results, representing 2.97% of the overall flora inventory.

The majority of weeds were recorded at low density. The following species were the most commonly recorded introduced species occurring and were frequently significant contributor to vegetation condition assessments:

- **Aerva javanica*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Bidens subalternans*
- **Malvastrum americanum.*

None of the introduced flora are Declared Pest plants or WoNS species. Nine of the species are identified as 'Priority' weeds according to a list maintained by Fortescue for management purposes, being **Aerva javanica*, **Cenchrus ciliaris, *Cenchrus setiger* (both *Cenchrus* spp. subject to pastoral exclusion areas), **Chloris virgata,* **Echinochloa colona*, **Malvastrum americanum, *Rumex vesicarius, *Setaria verticillata* and **Vachellia farnesiana*. Weed locations are presented in **Map 9** and each is described in more detail in **Table 8**.

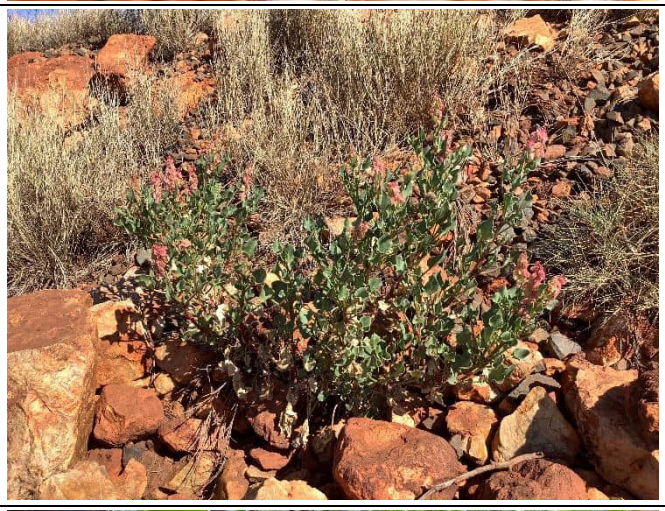
Table 8: Introduced flora species recorded from the survey area

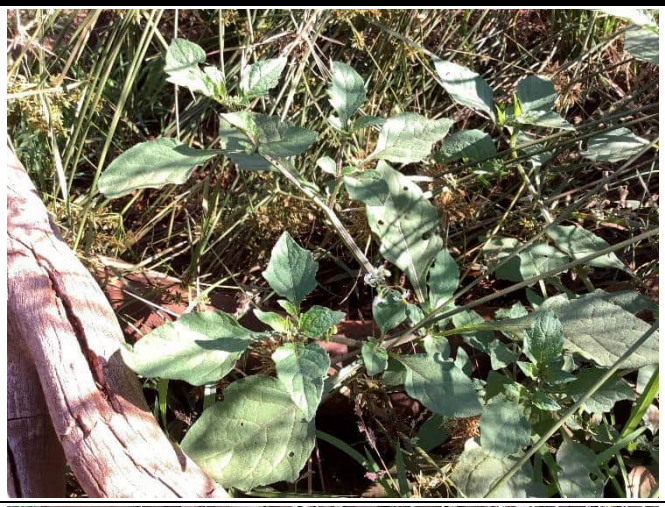
Species	Combined results	Photo
***_Aerva javanica_ (Kapok Bush)** Perennial herb to 1.6 m high (but usually less) with greyish white flowers throughout much of the year (WAH 1998-2021). Usually associated with disturbed areas and drainage lines, and is found throughout much of northern Western Australia. **This species is a Fortescue 'priority' weed.**	Location: Widespread within the survey area, particularly along existing BHP rail. Impact: significant along existing infrastructure.	
***_Argemone ochroleuca_ (Mexican Poppy)** Mexican Poppy is a prickly annual herb to 1 m high with cream or yellowish flowers mainly produced in spring. It occurs over much of Western Australia but is more commonly recorded in the Pilbara region (WAH 1998-2021) where it generally occurs in association with rivers and creeks.	Location: Recorded from Weeli Wolli Creek at low density. Impact: moderate within localised areas.	

Species	Combined results	Photo
***Bidens subalternans* (Beggartick)** Specimens of *Bidens* previously recorded as **Bidens bipinnata* have been identified as **Bidens subalternans* according to the most recent treatment of the genus in *Flora of Australia Vol. 37* (Orchard 2015). Many records of *Bidens* in the Pilbara are still listed as **B. bipinnata* (WAH 1998-2021), however, this species does not occur within Western Australia based on the recent revision of the genus. Presumably these records represent specimens yet to be formally reviewed and databased at the WAH. **Bidens subalternans* is an annual herb growing to 1.5 m high in good conditions, although it is more typically less than 0.5 m high. It occurs over much of Western Australia north of Geraldton (WAH 1998-2021).	Location: widespread throughout the survey area. Typically recorded from Mulga dominated plains. Impact: commonly recorded at low density so impact unlikely to be significant.	
***Cenchrus ciliaris* (Buffel Grass)** **Cenchrus ciliaris* is a perennial tussock-forming grass to 1 m high (WAH 1998-2021). It is generally associated with drainage lines and floodplains, and is more common in grazed areas. **Cenchrus ciliaris* was either deliberately planted for pasture or accidently introduced (Van Vreeswyk *et al*. 2004) , and has been known from the Pilbara bioregion since the early 1900s (Keighery 2010). **This species is a Fortescue 'priority' weed (subject to pastoral exclusion areas).**	Location: widespread and abundant throughout the survey area, particularly from Mulga dominated flats and drainage lines. Commonly recorded from large infestations where it is a dominant component of the vegetation. Impact: significant due to widespread distribution as a dominant component of the vegetation.	

Species	Combined results	Photo
***Cenchrus setiger* (Birdwood Grass)** **Cenchrus setiger* is a perennial tussock grass to 0.8 m high (WAH 1998-2021). It differs from **C. ciliaris* in its more robust seed heads but vegetatively the two are virtually identical. It occurs over much of the northern portion of Western Australia, and, like **C. ciliaris*, has been known from the Pilbara bioregion since the early 1900s (Keighery 2010). **This species is a Fortescue 'priority' weed (subject to pastoral exclusion areas).**	Location: widespread and abundant, particularly from the southern portion of the survey area from Mulga dominated flats and drainage lines. Frequently recorded as a dominant component of the vegetation. Impact: significant in some locations.	
***Chloris virgata* (Feathertop Rhodes Grass)** **Chloris virgata* is an annual grass to 1 m high (WAH 1998-2021). It is widespread across Western Australia. **This species is a Fortescue 'priority' weed.**	Location: single isolated location within the survey area. Impact: minor	 Photo: Atlas of Living Australia (ALA 2021). Photo credited to Forest & Kim Starr.
***Citrullus amarus* (Pie Melon)** **Citrullus amarus* is a trailing or climbing annual herb with yellow flowers and striped or mottled melon fruits, found over much of Western Australia where it favours disturbed areas (WAH 1998-2021).	Location: two locations from a single population along Weeli Wolli Creek. Impact: minor	

Species	Combined results	Photo
Citrullus colocynthis **Citrullus colocynthis* is a trailing or climbing perennial herb with yellow flowers and melon fruits, found over much of Western Australia where it favours disturbed areas (WAH 1998-2021).	Location: one population within the survey area based on previous data. Impact: minor	Image unavailable
***Echinochloa colona* (Awnless Barnyard Grass)** **Echinochloa colona* is an annual grass to 0.6 m high that is widespread across the Pilbara and Kimberley regions, with isolated records in the Perth region (WAH 1998-2021). **This species is a Fortescue 'priority' weed.**	Location: scattered existing locations. Typically recorded from drainage lines or Mulga groves. Impact: minor	
***Flaveria trinervia* (Speedy Weed)** **Flaveria trinervia* is an annual herb with distinctive red stems and three-veined leaves and is found throughout much of northern Western Australia. It is listed on *FloraBase* (WAH 1998-2021) as 'alien' (introduced), however, Hussey *et al.* (2007) and the Pilbara Ranking Summary (of the Weed Prioritisation Process) (DPaW 2013) do not list this species, indicating there is debate in relation to **Flaveria trinervia* being native or introduced.	Location: Commonly recorded from the Fortescue Marsh section of the survey area, largely absent elsewhere. Impact: minor and localised	
***Malvastrum americanum* (Spiked Malvastrum)** **Malvastrum americanum* is a perennial herb or shrub to 1.3 m high (WAH 1998-2021), although within the survey area it has generally been recorded as being less than 0.5 m high. It is usually, but not always, associated with drainage lines and has a wide distribution through northern and arid Western Australia. **This species is a Fortescue 'priority' weed.**	Location: widespread throughout the survey area. Typically recorded from Mulga dominated plains or drainage lines. Impact: common at low density so impact unlikely to be significant.	

Species	Combined results	Photo
***Portulaca pilosa* (Djanggara)** This species is a succulent herb that may be either erect or more usually prostrate, with linear leaves and most commonly with pink flowers. Within Australia it is distributed mostly in the northern part of the continent (ALA 2021). Until recently (2016) this species was not listed as a weed.	Location: two isolated locations at low density across the survey area, typically from Mulga woodlands/groves Impact: minor	
***Rumex vesicarius* (Ruby Dock)** **Rumex vesicarius* is a fleshy annual herb to 80cm high with red fruit and recorded from most of Western Australia except the tropics (WAH 1998-2021). It is frequently found in the Pilbara in disturbed areas including road verges and drainage lines. **This species is a Fortescue 'priority' weed.**	Location: single location adjacent to existing BHP rail. Impact: localised (minor)	
***Setaria verticillata* (Whorled Pigeon Grass)** **Setaria verticillata* is an annual grass to 1 m high (WAH 1998-2021), but more usually approximately 0.5 m. It is widely distributed within Western Australia and, within the Pilbara region, is mostly associated with drainage lines. **This species is a Fortescue 'priority' weed.**	Location: scattered at low density, particularly in Mulga and creeklines Impact: minor	

Species	Combined results	Photo
***Solanum nigrum* (Black Berry Nightshade)** **Solanum nigrum* is an erect perennial (or short-lived) herb with white flowers to 1 m high (WAH 1998-2021) with an almost State-wide distribution.	Location: single location along Weeli Wolli Creek. Impact: minor (localised).	
***Sonchus oleraceus* (Common Sowthistle)** **Sonchus oleraceus* is an annual or biennual herb to 1.5 m high (WAH 1998-2021) with an almost State-wide distribution.	Location: single population recorded from Weeli Wolli Creek. Impact: minor (localised).	
***Tridax procumbens* (Tridax)** **Tridax procumbens* is a prostrate to erect perennial herb with yellow and white flowers (WAH 1998-2021). It has a widespread distribution from northern Western Australia.	Location: single location along Weeli Wolli Creek. Impact: minor (localised).	

Species	Combined results	Photo
***Vachellia farnesiana* (Mimosa Bush)** **Vachellia farnesiana* is an erect spinescent tree or, more often, a shrub to 4 m high. It is widely distributed through the north of Western Australia, however it occurs sporadically in areas closer to Perth (WAH 1998-2021). Hussey *et al.* (2007) consider it to have been introduced to Australia prior to European settlement. **This species is a Fortescue 'priority' weed.**	Location: scattered locations throughout the survey area, particularly on clay soils and drainage lines. Impact: potentially significant at a localised scale.	

4.2 VEGETATION

4.2.1 VEGETATION TYPES

Twenty nine vegetation types were recorded from within the survey area (**Table 9**, **Map 7**) based on a combination of structural vegetation type as identified in the field, floristic analysis (see **Section 4.2.4**) and subsequent desktop review.

The vegetation types within the survey area, grouped broadly based on landform types, were:

- plains/flats and valley floors: **AaAsCc**, **AaCf**, **AaEfEp**, **AaPlTe**, **AaSaEp**, **AaTb**, **AaTe**, **AaTp**, **AcCc**, **ApAsCc**, **ApTp**, **AsCc**, **AxEc**, **EgAaTb^{2}**, **MgT**l, **Ti**
- cracking clay: **Eb**, **Nd**
- sand dunes: **AdTb**
- hills and slopes: **AaEfTb**, **AaSaEh**, **AiTw**, **EgAaTb^{1}**, **ElAiTe**, **ElGwTv**
- drainage lines: **AtTp**, **ElAmTw**, **EvAcCc**, **EvApTe**.

Table 9: Vegetation types

The quadrat photographed is indicated in **bold** font.

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plain	**AaAsCc**	*Acacia aptaneura* low woodland over *Acacia synchronicia, A. tetragonophylla* and *Senna artemisioides* subsp. *oligophylla* mid sparse shrubland over **Cenchrus ciliaris* mid closed tussock grassland	A079, A128, A129, A134, **B042**, B044, B045, B054, B058, B059, C009, C013, C016, C069, C070, C071, C121, FMG-BE		*Acacia aneura, Acacia citrinoviridis, Acacia pruinocarpa, Arivela viscosa, Boerhavia coccinea, Chrysopogon fallax, Cucumis variabilis, Gomphrena affinis* subsp. *pilbarensis, Hakea lorea* subsp. *lorea, Ipomoea muelleri, Portulaca oleracea, Ptilotus obovatus, Salsola australis, Sclerolaena cornishiana, Senna notabilis, Sporobolus australasicus*	1,757.68 ha 5.51%
Plain	**AaCf**	*Acacia aptaneura* and *A. catenulata* subsp. *occidentalis* low woodland over *Chrysopogon fallax*, *Dichanthium sericeum* subsp. *humilius* and *Iseilema vaginiflorum* closed tussock grassland	**C102**		*Acacia tetragonophylla, Setaria verticillata, Urochloa occidentalis* var. *occidentalis*	10.78 ha 0.03%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**AaEfEp**	*Acacia aptaneura, A. pruinocarpa* and *A. aneura* low open woodland over *Eremophila forrestii and Dodonaea petiolaris* mid sparse shrubland over *Enneapogon polyphyllus*, *Aristida contorta* and *A. inaequiglumis* low open grassland	A115, B153, B154, B157, B174, B184, C094, **C096**, C097, C100, C105, C106, C108, C111, C113, C116, C123, D3, D4, D6, D7, D9, FMG19, FMG42, FMG45, FMG55, NT2103, NT2105, NT2106, NT2107, NT2108, NT2114, NT2116, NT2117, NT2118, NT2132		*Abutilon lepidum, Acacia tetragonophylla, Arivela viscosa, *Bidens subalternans, Boerhavia coccinea, Cheilanthes sieberi* subsp. *sieberi, Chrysopogon fallax, Eriachne pulchella* subsp. *dominii, Evolvulus alsinoides* var. *villosicalyx, Psydrax latifolia, Ptilotus exaltatus, Ptilotus obovatus, Senna artemisioides* subsp. *helmsii, Senna glutinosa* subsp. *x luerssenii, Solanum lasiophyllum, Sporobolus australasicus*	8,252.53 ha 25.85%
Gentle slopes	**AaEfTb**	*Acacia aptaneura* and *A. sibirica* low woodland over *Eremophila forrestii* subsp. *forrestii* mid sparse shrubland over *Triodia brizoides* low open hummock grassland	C095, C101, **NT2102**		*Abutilon lepidum, Acacia pruinocarpa, Acacia tetragonophylla, Aristida contorta, Cheilanthes sieberi* subsp. *sieberi, Cucumis variabilis, Dodonaea petiolaris, Enneapogon polyphyllus, Euphorbia boophthona, Evolvulus alsinoides* var. *villosicalyx, Goodenia microptera, Hibiscus burtonii, Hibiscus sturtii* var. *campylochlamys, Hibiscus sturtii* var. *platychlamys, Indigofera monophylla, Maireana planifolia, Paspalidium clementii, Polycarpaea corymbosa* var. *corymbosa, Ptilotus exaltatus, Ptilotus obovatus, Sclerolaena cornishiana, Senna artemisioides* subsp. *helmsii, Senna glutinosa* subsp. *x luerssenii, Solanum lasiophyllum, Sporobolus australasicus*	223.39 ha 0.70%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**AaPlTe**	*Acacia ayersiana* and *A. pruinocarpa* low open forest over *Petalostylis labicheoides* mid sparse shrubland over *Triodia epactia* low sparse hummock grassland	A109, A110, **B146**		*Acacia aneura, Acacia inaequilatera, Afrohybanthus aurantiacus, Aristida contorta, Aristida inaequiglumis, Dodonaea petiolaris, Enneapogon polyphyllus, Eriachne pulchella* subsp. *dominii, Evolvulus alsinoides* var. *villosicalyx, Hibiscus burtonii, Hibiscus coatesii, Psydrax latifolia, Psydrax suaveolens, Ptilotus exaltatus, Sida fibulifera, Solanum lasiophyllum*	161.39 ha 0.51%
Hillslopes	**AaSaEh**	*Acacia aptaneura* and *Atalaya hemiglauca* mid woodland over *Senna artemisioides* subsp. *oligophylla* and *Acacia tetragonophylla* mid sparse shrubland over *Eriachne helmsii*, *Sida fibulifera* and *Rhynchosia minima* low tussock grassland/forbland	**C084**		*Acacia bivenosa, Aristida latifolia, Bothriochloa ewartiana*	28.45 ha 0.09%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**AaSaEp**	*Acacia aptaneura* and *A. pruinocarpa* low woodland over *Senna artemisioides* subsp. *oligophylla*, *Ptilotus obovatus* and *Acacia tetragonophylla* mid open shrubland over *Enneapogon polyphyllus*, *Aristida contorta* and *Chrysopogon fallax* low grassland	A035, A037, A038, A042, A082, **B155**, C022, C067		*Abutilon lepidum, Abutilon macrum, Arivela viscosa, Boerhavia coccinea, *Cenchrus ciliaris, Cucumis variabilis, Dactyloctenium radulans, Eremophila forrestii, Evolvulus alsinoides* var. *villosicalyx, Gomphrena affinis* subsp. *pilbarensis, Perotis rara, Portulaca oleracea, Psydrax latifolia, Ptilotus obovatus, Senna notabilis, Sida platycalyx, Sporobolus australasicus, Triodia epactia*	877.29 ha 2.75%
Plains	**AaTb**	*Acacia ancistrocarpa*, *A. sclerosperma* subsp. *sclerosperma* and *A. synchronicia* mid open shrubland over *Triodia basedowii* and **Cenchrus ciliaris* low hummock grassland/tussock grassland	B051, C015, C075, C117, C118, **C120**		*Abutilon otocarpum, Acacia dictyophleba, Acacia inaequilatera, Acacia pachyacra, Aristida holathera* var. *holathera, Arivela viscosa, Bonamia erecta, Chrysopogon fallax, Corchorus* aff. *tectus, Corymbia hamersleyana, Eragrostis eriopoda, Euphorbia boophthona, Portulaca oleracea, Ptilotus obovatus, Senna artemisioides* subsp. *oligophylla, Senna notabilis, Solanum lasiophyllum, Stylobasium spathulatum, Trianthema pilosum*	191.50 ha 0.60%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Valley floors	**AaTe**	*Acacia ancistrocarpa*, *A. bivenosa* and *Senna artemisioides* subsp. *oligophylla* mid open shrubland over *Triodia epactia, T. longiceps* and *Aristida latifolia* mid hummock/tussock grassland	**B131**, B133		*Abutilon lepidum, Abutilon macrum, Acacia inaequilatera, Acacia pyrifolia* var. *pyrifolia, Corchorus lasiocarpus, Euphorbia coghlanii, Evolvulus alsinoides* var. *villosicalyx, Goodenia forrestii, Gossypium australe, Hibiscus sturtii* var. *platychlamys, Indigofera monophylla, Senna notabilis, Triodia vanleeuwenii*	149.45 ha 0.47%
Valley floors	**AaTp**	*Acacia aptaneura* and *A. pruinocarpa* low open woodland over *Triodia pungens* low open hummock grassland	A104, A107, A111, A113, A119, B147, B151, B180, **C091**		*Acacia bivenosa, Acacia pyrifolia* var. *pyrifolia, Acacia tetragonophylla, Aristida contorta, Arivela viscosa, Boerhavia coccinea, Bulbostylis barbata, Corchorus lasiocarpus, Dodonaea petiolaris, Dysphania rhadinostachya, Enneapogon polyphyllus, Eremophila forrestii, Eremophila latrobei* subsp. *filiformis, Eriachne pulchella* subsp. *dominii, Evolvulus alsinoides var. villosicalyx, Hibiscus burtonii, Indigofera monophylla, Maireana planifolia, Polycarpaea holtzei, Portulaca oleracea, Ptilotus exaltatus, Ptilotus obovatus, Senna glutinosa* subsp. *glutinosa, Senna notabilis, Solanum lasiophyllum, Sporobolus australasicus*	1,617.86 ha 5.07%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**AcCc**	*Acacia citrinoviridis* and *A. pruinocarpa* low open woodland over **Cenchrus ciliaris* and **C. setiger* low tussock grassland	A080, A081, B041, NY2104, NY2110, **NY2118**		*Abutilon lepidum, Atalaya hemiglauca, Boerhavia coccinea, Hakea lorea* subsp. *lorea, Ptilotus obovatus, Senna notabilis, Solanum lasiophyllum, Triodia epactia*	362.32 ha 1.14%
Sand dunes	**AdTb**	*Acacia dictyophleba* and *Stylobasium spathulatum* mid open shrubland over *Triodia basedowii, T. schinzii* and **Cenchrus ciliaris* mid hummock/tussock grassland	C014, C072, **C073**, C074, C114, C119, C122, FMG48, FMG53, FMG-RB		*Acacia sclerosperma* subsp. *sclerosperma, Aristida holathera* var. *holathera, Bonamia erecta, Corchorus* aff. *tectus, Crotalaria cunninghamii, Eragrostis eriopoda, Eriachne aristidea, Eriachne gardneri, Hakea lorea* subsp. *lorea, Hibiscus brachychlaenus, Indigofera monophylla, Scaevola parvifolia* subsp. *pilbarae, Senna notabilis, Sida cardiophylla, Trianthema pilosum, Trichodesma zeylanicum* var. *grandiflorum, Yakirra australiensis* var. *australiensis*	83.76 ha 0.26%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Low stony hills	**AiTw**	*Acacia inaequilatera* and *A. bivenosa* mid sparse shrubland over *Triodia wiseana* low hummock grassland	A092, B132, **NT2131**		*Cucumis variabilis, Goodenia stobbsiana, Heliotropium chrysocarpum, Ptilotus astrolasius, Senna artemisioides* subsp. *oligophylla, Senna glutinosa* subsp. *glutinosa, Stackhousia intermedia*	276.46 ha 0.87%
Plains	**ApAsCc**	*Acacia pruinocarpa* low open woodland over *Acacia sclerosperma* subsp. *sclerosperma* and *A. dictyophleba* mid sparse shrubland over **Cenchrus ciliaris* and **C. setiger* low open tussock grassland	**A017**, A033, A039, B043, B048, B083, B092, C012		*Acacia citrinoviridis, Acacia inaequilatera, Acacia synchronicia, Arivela viscosa, Boerhavia coccinea, Corymbia hamersleyana, Gomphrena affinis* subsp. *pilbarensis, Hakea lorea* subsp. *lorea, Portulaca oleracea, Sclerolaena cornishiana, Senna artemisioides* subsp. *oligophylla, Senna notabilis, Solanum lasiophyllum, Sporobolus australasicus*	382.81 ha 1.20%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**ApTp**	*Acacia pachyacra, A. ancistrocarpa* and *A. inaequilatera* mid sparse shrubland over *Triodia pungens, *Cenchrus ciliaris* and *Eragrostis eriopoda* low hummock grassland/ tussock grassland	A034, B082, NY2101, **NY2106**, NY2109		*Acacia pruinocarpa, Boerhavia coccinea, Eriachne aristidea, Euphorbia coghlanii, Gossypium australe, Hakea lorea* subsp. *lorea, Hibiscus sturtii* var. *platychlamys, Senna artemisioides* subsp. *helmsii, Senna artemisioides* subsp. *oligophylla*	610.53 ha 1.91%
Plains	**AsCc**	*Acacia synchronicia* tall open shrubland over **Cenchrus ciliaris* and *Enneapogon polyphyllus* low open tussock grassland	A043, A131, **A132**, B057, C017		*Arivela viscosa, Chrysopogon fallax, Dactyloctenium radulans, Maireana pyramidata, Portulaca oleracea, Ptilotus obovatus, Rhagodia eremaea, Salsola australis, Sclerolaena cornishiana, Sporobolus australasicus*	503.16 ha 1.58%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Drainage lines (minor)	**AtTp**	*Acacia tumida* var. *pilbarensis, A. pyrifolia* var. *pyrifolia* and *G. wickhamii* mid open shrubland over *Triodia pungens* and **Cenchrus ciliaris* low hummock/tussock grassland	A090, A106, **B050**, B130, B145, B150, C088, FMG49, NY2108		*Arivela viscosa, Corchorus lasiocarpus, Corymbia hamersleyana, Cucumis variabilis, Cymbopogon ambiguus, Cymbopogon obtectus, Goodenia microptera, Gossypium robinsonii, Indigofera monophylla, Polycarpaea longiflora, Polymeria ambigua, Pterocaulon sphaeranthoides, Ptilotus obovatus, Senna artemisioides* subsp. *oligophylla, Senna glutinosa* subsp*. glutinosa, Senna notabilis Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186), *Themeda triandra, Trigastrotheca molluginea*	185.01 ha 0.58%
Plains	**AxEc**	*Acacia xiphophylla, A. synchronicia* and *A. aptaneura* low open shrubland over *Eremophila cuneifolia, Maireana pyramidata* and *Senna artemisioides* subsp. *helmsii* low sparse shrubland	**A114**, B156, B183, C099, C103, C104, D5, FMG13, FMG18, FMG40, FMG54, NT2104, NT2109, NT2120, NT2123		*Acacia tetragonophylla, Aristida contorta, *Cenchrus ciliaris, Enchylaena tomentosa, Enneapogon polyphyllus, Maireana triptera, Ptilotus exaltatus, Ptilotus obovatus, Rhagodia eremaea, Senna* sp. Meekatharra (E. Bailey 1-26), *Sporobolus australasicus*	3,122.73 ha 9.78%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Cracking Clay	**Eb**	*Eriachne benthamii*, *Eragrostis xerophila* and *Aristida latifolia* low tussock grassland	**NT2101**		*Hibiscus verdcourtii, Neptunia dimorphantha, Ptilotus gomphrenoides, Sida fibulifera, Stemodia kingii*	2.48 ha 0.01%
Low hills	**EgAaTb[1]**	*Eucalyptus gamophylla* sparse mallee shrubland over *Acacia ancistrocarpa* mid sparse shrubland over *Triodia brizoides* and *Bonamia erecta* low hummock grassland/forbland	A116, A121, **C124**		*Acacia bivenosa, Acacia maitlandii, Afrohybanthus aurantiacus, Aristida holathera* var. *holathera, Arivela viscosa, Boerhavia coccinea, Corchorus lasiocarpus, Eremophila forrestii, Goodenia microptera, Indigofera monophylla, Paraneurachne muelleri, Ptilotus calostachyus, Ptilotus exaltatus, Ptilotus obovatus, Senna artemisioides* subsp. *helmsii, Senna artemisioides* subsp. *oligophylla, Senna glutinosa* subsp. *glutinosa, Senna glutinosa* subsp. x *luerssenii, Senna notabilis, Solanum lasiophyllum, Sporobolus australasicus, Trigastrotheca molluginea*	296.16 ha 0.93%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**EgAaTb[2]**	*Eucalyptus gamophylla* and *Corymbia hamersleyana* low open woodland over *Acacia ancistrocarpa, A. sclerosperma* subsp. *sclerosperma* and *A. inaequilatera* mid sparse shrubland over *Triodia basedowii* low hummock grassland	A040, A041, A059, A061, A072, B052, B053, **B176**, B185, C018, C112, C115, FMG46, FMG47, FMG50, NY2105, NY2113, NY2114, NY2116, NY2117		*Acacia pachyacra, Aristida holathera* var. *holathera, Aristida inaequiglumis, Bonamia erecta, *Cenchrus ciliaris, Corchorus sidoides* subsp. *sidoides, Dicrastylis cordifolia, Eragrostis eriopoda, Hakea lorea* subsp. *lorea, Hibiscus sturtii* var. *platychlamys, Indigofera monophylla, Ptilotus astrolasius, Ptilotus exaltatus, Senna artemisioides* subsp. *oligophylla, Solanum lasiophyllum*	2,516.32 ha 7.88%
Hills	**ElAiTe**	*Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia inaequilatera, A. atkinsiana* and *A. arida* mid open shrubland over *Triodia epactia* and *T. vanleeuwenii* hummock grassland	A093, A094, A105, **A108**, A112, A118, B129, B144, B149, B152, B178, B179, B181, C080, C081, C085, C089, C092, C098, C125, D1, D11, D2, FMG67, FMG70, FMG72, FMG98, FMG-KD, NT2110, NT2112, NT2113, NT2115, NT2119, NT2121, NT2122, NT2124, NT2127, NT2128, NT2129, NT2130		*Acacia ancistrocarpa, Acacia bivenosa, Acacia maitlandii, Acacia pruinocarpa, Afrohybanthus aurantiacus, Corchorus lasiocarpus, Eriachne pulchella* subsp. *dominii, Fimbristylis simulans Goodenia stobbsiana, Grevillea wickhamii, Indigofera monophylla, Ptilotus calostachyus, Ptilotus exaltatus, Senna glutinosa* subsp. *glutinosa, Senna glutinosa* subsp. *pruinosa, Senna glutinosa* subsp. *x luerssenii* *Sida* sp. Pilbara (A.A. Mitchell PRP 1543) *Solanum lasiophyllum*	7,591.72 ha 23.78%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Gullies and minor drainage lines	**ElAmTw**	*Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Acacia monticola, Acacia maitlandii* and *A. bivenosa* mid open shrubland over *Triodia wiseana* low open hummock grassland	**A117**, A120		*Acacia pruinocarpa, Afrohybanthus aurantiacus, Corchorus crozophorifolius, Cucumis variabilis, Enneapogon polyphyllus, Eragrostis setifolia, Evolvulus alsinoides* var. *villosicalyx, Polycarpaea holtzei, Senna glutinosa* subsp. *glutinosa, Senna notabilis, Solanum lasiophyllum, Trachymene oleracea* subsp. *oleracea*	38.09 ha 0.12%
Hills	**ElGwTv**	*Eucalyptus leucophloia* subsp. *leucophloia* low open woodland over *Grevillea wickhamii, Acacia inaequilatera* and *Senna glutinosa* subsp. *glutinosa* mid sparse shrubland over *Triodia vanleeuwenii* low hummock grassland	NY2102, **NY2107**, NY2112		*Acacia hilliana, Acacia pruinocarpa, Corchorus lasiocarpus, Eriachne pulchella* subsp. *dominii, Fimbristylis simulans, Polycarpaea holtzei, Ptilotus calostachyus, Senna glutinosa* subsp. *pruinosa*	611.62 ha 1.92%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Drainage lines	**EvAcCc**	*Eucalyptus victrix* mid open woodland over *Acacia citrinoviridis, A. pyrifolia* var. *pyrifolia* and *G. wickhamii* tall sparse shrubland over *Corchorus crozophorifolius, Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186) and **Cenchrus ciliaris* open low shrubland/tussock grassland	A130, A133, B020, B023, FV17072, **NY2103**, NY2111, NY2115		*Arivela viscosa, Atalaya hemiglauca, Boerhavia coccinea, *Cenchrus setiger, Phyllanthus maderaspatensis, Ptilotus exaltatus, Waltheria indica*	350.38 ha 1.10%
Drainage lines	**EvApTe**	*Eucalyptus victrix* mid open woodland over *Acacia pyrifolia* var. *pyrifolia, Gossypium robinsonii* and *Petalostylis labicheoide*s mid open shrubland over *Triodia epactia, Eriachne tenuiculmis* low open hummock/tussock grassland	A089, C082, C087, C090, C093, NT2111, **NT2125**, NT2126		*Afrohybanthus aurantiacus, Atalaya hemiglauca, Cucumis variabilis, Cyperus vaginatus, Eragrostis cumingii, Indigofera monophylla, Phyllanthus maderaspatensis, Polymeria ambigua, Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186), *Themeda triandra*	390.35 ha 1.22%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Plains	**MgTl**	*Melaleuca glomerata* and *Acacia sclerosperma* subsp. *sclerosperma* mid sparse shrubland over *Triodia longiceps* low hummock grassland	B164, **B168**, B169, FMG14, FMG38, FMG41, FMG60, FMG61, MAT1		*Arivela viscosa, Corchorus sidoides subsp. sidoides, Enneapogon polyphyllus, Eragrostis dielsii, Eragrostis eriopoda, Portulaca oleracea, Ptilotus astrolasius, Ptilotus exaltatus, Senna artemisioides* subsp. *oligophylla, Solanum lasiophyllum, Sporobolus australasicus, Trianthema triquetrum, Trianthema turgidifolium*	478.35 ha 1.50%
Cracking clay	**Nd**	*Neptunia dimorphantha, Eriachne mucronata* and *Aristida latifolia* low open shrubland/tussock grassland with *Acacia synchronicia* and *A. tetragonophylla* isolated shrubs	C083, **C086**		*Corchorus tridens, Crotalaria medicaginea* var. *neglecta, Cucumis melo, Cynodon convergens, Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479), *Goodenia muelleriana, Heliotropium tanythrix, Operculina aequisepala, Phyllanthus maderaspatensis, Senna artemisioides* subsp. *oligophylla, Sida* sp. L (A.M. Ashby 4202), *Streptoglossa bubakii, Tephrosia* sp. clay soils (S. van Leeuwen et al. PBS 0273)	60.15 ha 0.19%

Landform	Mapping unit	Vegetation type	Floristic quadrats	Representative photograph	Other characteristic species	Area (ha) and extent (%)
Marsh	**Ti**	*Tecticornia indica* subsp. *leiostachya, T. auriculata* and *T.* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552) low samphire shrubland	B158, B159, **B160**, B161, B162, B163, B165, B166, B167, FMG15, FMG16, FMG-BD, FMG-MF, FMG-ML, MAT2, MAT3		**Cenchrus ciliaris, Cullen cinereum, Dactyloctenium radulans, Eragrostis pergracilis, Eremophila spongiocarpa, *Flaveria trinervia, Frankenia ambita, Lawrencia densiflora, Maireana luehmannii, Nicotiana heterantha, Ptilotus exaltatus, Salsola australis, Sida fibulifera, Swainsona kingii*	431.78 ha 1.35%
		Not native vegetation (cleared)			354.59 ha	1.11%
		TOTAL EXTENT			**31,919.08 ha**	**100%**

4.2.2 VEGETATION SIGNIFICANCE

4.2.2.1 TECs

No vegetation recorded from the survey area was assessed as being representative of any currently described TEC.

4.2.2.2 PECs

Database searches (**Section 2.2.2**) identified four PECs as occurring within the survey area. Each of these were confirmed to occur, based on vegetation and landform present and are described in the following sections.

Brockman Iron cracking clay communities of the Hamersley Range

The *Brockman Iron cracking clay communities of the Hamersley Range* PEC is described as:

> *Rare tussock grassland dominated by Astrebla lappacea in the Hamersley Range, on the Brockman land system. Tussock grassland on cracking clays - derived in valley floors, depositional floors. This is a rare community and the landform is rare* (Species and Communities Program DBCA 2021).

Threats to this PEC are identified as heavy grazing, clearing for mining and infrastructure/agriculture developments and altered fire regimes.

The **Eb** vegetation type is considered representative of the *Brockman Iron cracking clay communities of the Hamersley Range* PEC within the survey area. This vegetation type was recorded from a single location corresponding with the location of this PEC identified by the DBCA database searches. The landform (cracking clay) and vegetation (tussock grassland) is consistent with the description of the PEC. However, the dominant species as identified in the community description, *Astrebla lappacea*, was not recorded. The **Eb** vegetation type has a small extent within the survey area of 2.48 ha (0.01%), as shown in **Map 7**. The location was assessed to be in Very Good condition, despite evidence of grazing by cattle. The **Eb** vegetation type is shown in **Image 1** and **Image 2**.

Image 1: Brockman PEC

Image 2: Brockman PEC at quadrat NT2101

Fortescue Marsh (Martuyitha) (Marsh Land System)

The *Fortescue Marsh (Martuyitha) (Marsh Land System)* PEC is described as:

> *Fortescue Marsh is an extensive, episodically inundated samphire marsh at the upper terminus of the Fortescue River and the western end of Goodiadarrie Hills. It is regarded as the largest ephemeral wetland in the Pilbara. It is a highly diverse ecosystem with fringing mulga woodlands (on the northern side), samphire shrublands and groundwater dependant riparian ecosystems. It is an arid wetland utilized by waterbirds and supports a rich diversity of restricted aquatic and terrestrial invertebrates. Recorded locality for night parrot and bilby and several other threatened vertebrate fauna. Endemic Eremophila species, populations of priority flora and several near-endemic and novel samphires* (Species and Communities Program DBCA 2021).

Threats to this PEC are identified as clearing for mining, altered hydrology (watering and fresh water), grazing and weed invasion.

The samphire-dominated **Ti** vegetation type is considered representative of the *Fortescue Marsh (Martuyitha) (Marsh Land System)* PEC within the survey area. This vegetation type was recorded from a single location corresponding with the location of this PEC identified by the DBCA database searches. The landform (episodically inundated marsh) and vegetation (samphire dominated) is consistent with the description of the PEC. Two other vegetation types (**MgTl** and **AxMp**) occur within the area mapped as Marsh land system but are not dominated by samphires and hence not considered representative of the PEC. The **Ti** vegetation type has an extent within the survey area of 431.78 ha (1.35%), as shown in **Map 7**.

The existing BHP rail appears to have resulted in structural change in vegetation with the small section to the west of the rail that containing a dominant shrub mid stratum (particularly *Acacia stenophylla*). The modified structure is evident in the foreground of **Image 3** with typical vegetation of the Fortescue Marsh shown in **Image 4**.

Image 3: Fortescue Marsh PEC within survey area

Image 4: Fortescue Marsh PEC within survey area

Four plant assemblages of the Wona Land System (previously 'Cracking clays of the Chichester and Mungaroona Range')

The most applicable of the four plant representative assemblages of this PEC is described as:

> *Cracking clays of the Chichester and Mungaroona Range. This shrubless plain of stony gibber community occurs on the tablelands with very little vegetative cover during the dry season, however during the wet a suite of ephemerals/annuals and short-lived perennials emerge, many of which are poorly known and range-end taxa* (Species and Communities Program DBCA 2021).

Threats to this PEC are identified as grazing, clearing for mining related activities and altered fire regimes.

The **Nd** vegetation type is considered representative of this PEC. This vegetation type was recorded from two locations, corresponding with the mapped locations of this PEC identified by the DBCA database searches. The landform (stony gibber on table lands) and vegetation (largely shrubless with a suite of ephemerals and annuals) is consistent with the description of the PEC (**Image 5** and **Image 6**). The **Nd** vegetation type has an extent within the survey area of 60.15 ha (0.19%), as shown in **Map 7**.

Image 5: Wona PEC at quadrat C083

Image 6: Wona PEC at quadrat C086

Vegetation of sand dunes of the Hamersley Range/Fortescue Valley

The *Vegetation of sand dunes of the Hamersley Range/Fortescue Valley* PEC is described as:

> *These red linear iron-rich sand dunes lie on the Divide Land system at the junction of the Hamersley Range and Fortescue Valley, between Kalgan Creek and the low hills to the west. A small number are vegetated with Acacia dictyophleba scattered tall shrubs over Crotalaria cunninghamii, Trichodesma zeylanicum var. grandiflorum open shrubland. They are regionally rare, small and fragile and highly susceptible to threatening processes* (Species and Communities Program DBCA 2021).

Threats to this PEC are identified as weed invasion, grazing by cattle, altered fire regimes, erosion and clearing for mining and infrastructure.

The linear sand dunes that characterise this PEC were mapped as vegetation type **AdTb**, the description of which closely matches that of the PEC including dominant flora species present. **AdTb** was recorded from a series of linear dunes towards the southern end of the Transport Corridor survey area (**Map 7**), corresponding with the mapped locations of this PEC identified by the DBCA database searches as well as previous surveys. The **AdTb** vegetation type has an extent within the survey area of 83.76 ha (0.26%), shown in **Image 7** and **Image 8**.

Image 7: Sand Dunes PEC within the survey area displaying characteristic linear formation

Image 8: Sand Dunes PEC vegetation at quadrat C014

4.2.3 OTHER SIGNIFICANT VEGETATION

According to the criteria outlined in the Flora and Vegetation Technical Guidance (EPA 2016), the following vegetation types are considered to be significant, discussed below:

- **EvAcCc** and **EvApTe** as PGDV]
- **AaAsCc**, **AaEfEp** and **AaSaEp** as SFDV.

4.2.3.1 Groundwater Dependent Vegetation

Eucalyptus camaldulensis sens. lat. is considered to be an obligate phreatophyte, and therefore vegetation with this species included is representative of GDV (Eamus et al. 2006; Grierson 2010). *Eucalyptus camaldulensis* subsp*. refulgens* was recorded from a single quadrat (NY2104) within the **EvAcCc** vegetation type corresponding with Weeli Wolli Creek. However, it was not a dominant species at this location or elsewhere within the **EvAcCc** vegetation type and therefore this vegetation type is not considered to represent GDV.

Eucalyptus victrix may be regarded as a facultative phreatophyte although there is some evidence that it is not dependent on groundwater in all circumstances (Batini 2009; Eamus 2009; Equinox Environmental 2017; Resource and Environmental Management Pty Ltd 2007). Therefore, vegetation dominated or characterised by *Eucalyptus victrix* is considered to be representative of potential GDV. *Eucalyptus victrix* was a dominant species of two vegetation types (**EvAcCc** and **EvApTe**). **EvAcCc** largely corresponds with Weeli Wolli Creek and occupies 350.38 ha or 1.10% of the survey area. **EvApTe** corresponds with mid-sized drainage lines of the Chichester Range towards the north of the survey area and occupies 390.35 ha or 1.22% of the survey area.

There were numerous dead or unhealthy trees observed along the section of Weeli Wolli Creek that intersects the Billiards North survey area (**Image 9**-**Image 12**). Despite surface water being observed during the survey timeframe, there were numerous long-dead trees (presumably *Eucalyptus victrix* or *E. camaldulensis*) as well as visible signs of water stress on surviving trees such as leaf die off, defoliation and bark fracturing. There may be existing impacts to this area of potential GDV from mining operations upstream.

Image 9: Weeli Wolli Creek within Billiards North area

Image 10: Weeli Wolli Creek within Billiards North area

Image 11: Bark fracturing evident on *Eucalypt victrix* trees within Weeli Wolli Creek within Billiards North area

Image 12: Weeli Wolli Creek within Billiards North area

4.2.3.2 Sheet Flow Dependent Vegetation

Vegetation dominated by Mulga species (*Acacia aneura, A. aptaneura, A. ayersiana, A. incurvaneura, A. paraneura* and *A. pteraneura*) may be considered to be significant as sheet flow dependent vegetation (SFDV) that is characterised by Mulga grove/intergrove formations.

There were eight vegetation types dominated by the various Mulga species occurring on valley floors within the survey area including **AaAsCc**, **AaCf**, **AaEfEp**, **AaEfTb**, **AaPlTe**, **AaSaEh**, **AaSaEp** and **AaTp**. Of these **AaAsCc** (1,757.68 ha, 5.51%), **AaEfEp** (8,252.53 ha, 25.85%) and **AaSaEp** (877.29 ha, 2.75%) display the characteristic grove-intergrove formation considered to be most representative of SFDV. These vegetation types therefore have the potential to be adversely affected by hydrological change relating to sheetflow.

Vegetation types considered to represent SFDV occupied a combined total of 10,887.50 ha within the survey area (34.11%).

4.2.3.3 Vegetation Types of Limited Spatial Extent

The majority of the survey area (78%) is occupied by six of the 29 vegetation types. Thirteen vegetation types have a limited spatial extent within the survey area of less than 1%. The limited extent may be attributable to the linear survey area and aside from their small extent, they are not considered as significant unless they are significant for reasons other than their size. Three of these small-extent vegetation types are PEC (see **Section 4.2.2.2**) and one is SFDV (**Section 4.2.3.3**) and are significant for these reasons. However, the remainder occur on commonly-occurring landforms and have been interpreted as different vegetation types due to combinations of dominant species, but having no particular significance, or occur on small-scale but otherwise common landforms, including being associated with gullies or drainage lines; see also **Section 4.2.4.2**.

4.2.3.4 Vegetation Characterised by Conservation-listed Flora

The following vegetation types have conservation-listed flora (both P3) as characteristic species, however, in each case they were not recorded as dominant species:

- **Nd**, with *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) characteristic at low percentage cover
- **Ti**, with *Eremophila spongiocarpa* as characteristic at low percentage cover at a typically low percentage cover.

4.2.4 FLORISTIC ANALYSIS

4.2.4.1 Local Floristic Analysis

The floristic analysis dendrogram (**Figure 5** in **Appendix Seven**) indicates that the floristic groups typically correspond (at least broadly) with the assigned vegetation types. However, several vegetation types exhibited poor floristic clustering within the dendrogram (at least in part), outlined as follows:

- **AaAsCc**; a good floristic unit, quadrat A134 is an outlier, possibly because it is intersected by a drainage feature.
- **AaSaEp**; a poor floristic unit, likely attributable to varied vegetation condition and historical impacts. The vegetation includes grove/intergrove formation that may have also impacted floristics (if quadrats located largely within the intergrove rather than the grove).
- **AaTb**; a poor floristic unit, likely attributable to varying levels of existing degradation and weed invasion.
- **AcCc**; all quadrats broadly cluster in the same clade of the dendrogram. This vegetation type has typically high levels of existing disturbance, likely contributing to this result.
- **AdTd**; a good floristic group with the exception of two quadrats (C119, C120) that are in poor condition.
- **AsCc**; this large and broad vegetation type is generally a good floristic unit with the majority of sites clustering at the top of the dendrogram. There are numerous outliers that may be the result of contrasting survey timeframes, alternative fire histories and potentially being situated at intergrades between vegetation types.
- **EgAaTb^2**; a good floristic unit with the exception of several quadrats that appear to correspond with higher degradation or contrasting fire history.
- **ElAiTe**, a good floristic unit with the exception of quadrat D11.
- **EvApTe**; a good floristic unit with the exception of quadrat C090.
- **EvAvCc**; a poor floristic unit, likely attributable to varying levels of disturbance.
- **MgTl**; a poor floristic unit with widely separated quadrats, considered largely attributable to varied survey timeframes with contrasting fire history and seasonal conditions.

4.2.4.2 Regional Floristic Analysis

The data used in this analysis was sourced from the various surveys, outlined in **Section 3.4.2.2**. The regional analysis was conducted using data from 2,581 floristic quadrats. In total, 831 vascular flora taxa were included in this data. Species richness ranged from one to 78 and averaged 23.97.

The aim of the regional floristic analysis was its use as a tool to identify if vegetation types identified from the survey area that may be restricted in extent are locally significant (i.e. locally restricted but widespread) or locally and regionally significant (i.e. not widespread).

The regional floristic analysis, the dendrogram for which is included in **Figure 6** in **Appendix Seven**, indicates that overall the quadrats included in the survey area ('2021_Nyidi') most typically were grouped with 'Nyidinghu' (Cardno 2012b, 2012c), 'FortValley' (Ecoscape 2018), 'Cloudbreak' and 'Christmas Creek' quadrats. The quadrats from this survey associated with the Fortescue Marsh were grouped with DPaW's Marsh quadrats (Markey 2016).

The regional analysis broadly indicates that the majority of vegetation types recorded within the survey area are likely to be represented within the surrounding region, with no major clustering of the floristic quadrats from the survey area.

4.2.5 VEGETATION CONDITION

The vegetation condition within the survey area ranged from Degraded to Excellent condition, with the Very Good category having the highest proportion, followed by Excellent and Very Good condition (**Table 10**, **Map 9**). Areas of hills typically supported vegetation in the best condition, whilst plains, valley floors and drainage lines were typically in lesser condition. The main factors affecting vegetation condition were grazing by cattle, weed infestation (particularly **Cenchrus ciliaris*) and existing infrastructure.

Table 10: Vegetation condition

Vegetation condition	Extent (ha)	Proportion (%)
Excellent	8,101.49	25.38%
Very Good	12,798.96	40.10%
Good	7,119.75	22.31%
Poor	3,139.20	9.83%
Degraded	405.09	1.27%
Completely Degraded	-	0%
Not vegetated	354.59	1.11%

4.2.6 ADEQUACY OF SURVEY

Adequacy of survey can be demonstrated using a species accumulation curve; if the curve has reached (or almost reached) an asymptote it is considered that most species are likely to have been recorded from the survey area.

A species accumulation curve was generated using quadrat data (**Figure 3**). Opportunistic observations, which increase the number of species recorded, are not included in the analysis.

The species accumulation curve suggests that additional survey would identify additional flora taxa. However, the Bootstrap estimate of species richness is 631.6 which is only slightly higher than the actual total of 608 flora taxa when taking opportunistic records into account. This indicates that the overwhelming majority (96.3%) of flora taxa would have been recorded from the survey area.

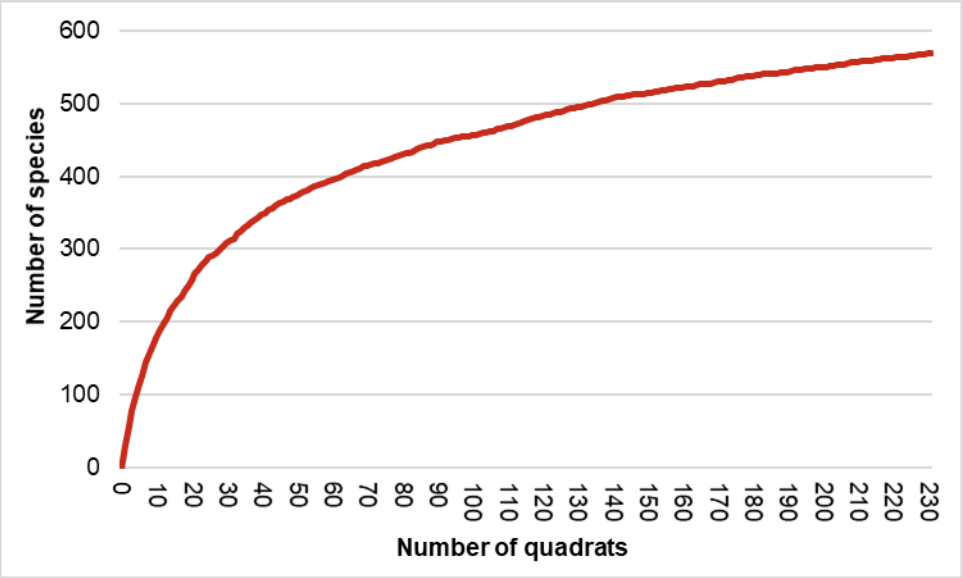


Figure 3: Species accumulation curve

4.3 BOTANICAL LIMITATIONS

Survey design: Two phase, quadrat-based flora and vegetation survey with extensive traverses searching for conservation significant flora. Results from previous surveys were considered as part of survey design and the desktop assessment.

Survey type: Detailed flora and vegetation survey with extensive searches for significant flora conducted over a single phase. All areas were adequately surveyed through the use of floristic quadrats to sample vegetation types, and targeted searches for conservation significant flora.

Type of vegetation classification system: Vegetation classified at NVIS Level V (NVIS Technical Working Group & DotEE 2017) using largely structural vegetation types defined using dominant and characteristic species and vegetation structure as recorded during the field surveys. Floristic analysis was used to identify major floristic groups and outlier groups of floristic interest.

A full summary of botanical limitations is presented in **Table 11**.

Table 11: Botanical limitations

Possible limitations	Constraints (yes/no): Significant, moderate or negligible	Comment
Availability of contextual information at a regional and local scale	No	The majority of the survey area has been subject to multiple previous flora and vegetation surveys and there have been many other surveys in the vicinity. Thus, there is good information available to provide local and regional context.
Competence/experience of the team conducting the survey, including experience in the bioregion surveyed	No	The lead botanist conducting/overseeing the field surveys (Stephen Kern) has over 15 years' experience conducting flora and vegetation surveys in Western Australia, including the Pilbara region.

Possible limitations	Constraints (yes/no): Significant, moderate or negligible	Comment
Proportion of the flora recorded and/or collected, and any identification issues	Negligible	608 vascular flora taxa have been recorded from combined surveys. Whilst there are a substantial amount in the inventory that are not identified to species level (49, 8.05%), the majority arise from previous surveys and cannot be retrospectively determined. There were 17 flora taxa (2.79%) from the 2021 surveys that could not be identified with certainty to species level due to the lack of diagnostic reproductive material. None of the unidentified taxa from 2021 are considered likely to represent any conservation-listed flora from the region.
Was the appropriate area fully surveyed (effort and extent)	No	The survey area was surveyed adequately to describe the flora, vegetation types and condition. The majority of the vegetation types are represented by at least three floristic quadrats recorded from within them. Vegetation types represented by less than three quadrats have a small spatial extent within the survey area.
Access restrictions within the survey area	No	The majority of the survey area was readily accessible by vehicle and on foot. A helicopter was provided to enable access to the entire survey area.
Survey timing, rainfall, season of survey	No	The Phase 1 field survey was conducted during May 2021, within the optimal timeframe for primary season for survey in the Pilbara bioregion. The rainfall in the four months prior to the field survey was above the mean for this period (**Figure 2**), also indicated by the rainfall deciles (**Figure 4**).
Disturbance that may have affected the results of the survey e.g. fire, flood, clearing	No	No disturbance was considered a significant limitation to the survey results.

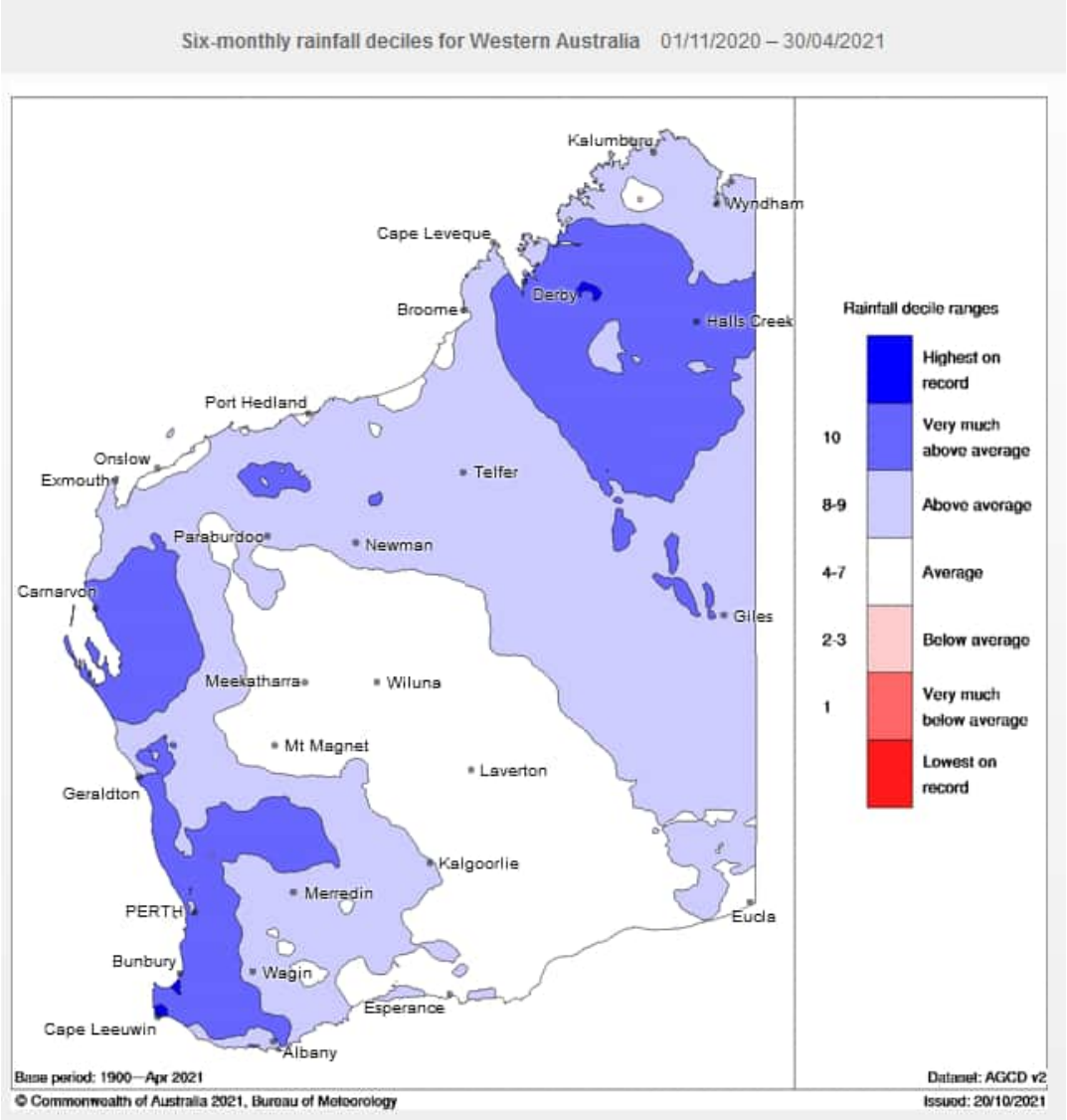


Figure 4: Rainfall deciles for the 6 months prior to the Phase 1 field survey (BoM 2021c)

5 DISCUSSION

5.1 FLORA SIGNIFICANCE

A total of 607 vascular flora species have been recorded from the 2021 and previous surveys from 268 floristic quadrats and opportunistic observations, including during searches for conservation-listed flora. A relatively small proportion of the total flora inventory (18 species; 2.97%) were introduced species, reflecting the level of disturbance in the survey area.

Forty-nine taxa (8.07%) could not be identified to species level due to lack of reproductive material. Many of these unidentified taxa (32, 65.3%) records arise from previous surveys that could not be verified. None of the unidentified taxa collected during the 2021 surveys bear any similarity to conservation listed flora identified by the database searches.

The species accumulation curve indicates that the overwhelming majority of species are likely to have been recorded from the survey area. This indicates that the survey intensity and effort was adequate for the survey area.

5.1.1 LOCAL AND REGIONAL ASSESSMENT OF FLORA SIGNIFICANCE

5.1.1.1 Conservation-listed Flora

Threatened Flora

One Threatened Flora species (*Seringia exastia*) listed for protection under the Commonwealth EPBC Act and Western Australian BC Act was recorded from within the survey area. However, this species has been subject to recent taxonomic review indicating that its listing is a result of outdated taxonomy as it is no longer considered to be under threat (see **Section 2.2.3.1**). There have been four locations of this species recorded from the survey area with a combined total of 88 plants.

None of the unidentified taxa from the 2021 resemble any currently described TF.

Priority Flora

Twelve PF were recorded from the survey area:

- one Priority 1:
  - *Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063); this taxon was recorded from the section of the survey area that intersects the Fortescue Marsh. According to *NatureMap* (DBCA 2007-2021) there are 101 records of this species from the Pilbara and Little Sandy Desert.
- one Priority 2:
  - *Euphorbia inappendiculata* var. *queenslandica* (P2); this taxon was recorded from isolated plants of two populations within the survey area. According to *NatureMap* (DBCA 2007-2021) there are 10 records of this species from Western Australia (Pilbara and Ord Victoria Plain),. However, *Atlas of Living Australia* indicates this taxon has additional records across southeastern Western Australia and is widespread in all other states of Australia (ALA 2021).
- seven Priority 3:
  - *Atriplex flabelliformis*; this species was recorded from the section of the survey area that intersects the Fortescue Marsh. According to *NatureMap* (DBCA 2007-2021) there are 51 records of this species with a scattered distribution across Western Australia.
  - *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479); This taxon was recorded from locations, restricted to areas of cracking clay soil. According to *FloraBase* (WAH 1998-2021; 2021), there are 29 records of this species from the Pilbara region.
  - *Dysphania congestiflora*; despite not being recorded during the 2021 survey, this species is known to occur within the survey area based on reliable previous records. According to *NatureMap* (DBCA 2007-

2021) there are 10 records of this species from the Pilbara and Carnarvon regions, most from the Fortescue Marsh area.
  - *Eragrostis* sp. Erect spikelets (P.K. Latz 2122); this taxon was recorded from the section of the survey area where it intersects the Fortescue Marsh. According to *FloraBase* (WAH 1998-2021; 2021), there are five records of this species from the Pilbara, Great Sandy Desert and Murchison region.
  - *Eremophila spongiocarpa*; this species was relatively abundant within the Fortescue Marsh section of the survey area. According to *NatureMap* (DBCA 2007-2021) there are 117 records of this species from the Pilbara, largely from the Fortescue Marsh.
  - *Stackhousia clementii*; this species was recorded from the Fortescue Marsh section of the survey area. According to *NatureMap* (DBCA 2007-2021) there are 39 records of this species from a relatively broad distribution.
  - *Swainsona thompsoniana*; this species was recorded from areas of cracking clay soil within the survey area. According to *NatureMap* (DBCA 2007-2021) there are 23 records of this species from the Pilbara region.
- three Priority 4:
  - *Eremophila youngii* subsp. *lepidota*; this taxon is known to occur within the survey area based on a previous reliable record from the Fortescue Marsh section of the survey area. According to *NatureMap* (DBCA 2007-2021) there are 61 records of this species from several bioregions.
  - *Goodenia nuda*; several isolated records of this species were recorded. According to *NatureMap* (DBCA 2007-2021) there are 130 records of this species, largely from the Pilbara bioregion.
  - *Lepidium catapycnon*; two locations of this species were recorded from the Billiards North area of the survey area. According to *NatureMap* (DBCA 2007-2021) there are 94 records of this species from the Pilbara region

None of the unidentified taxa from the 2021 survey resemble any currently described PF taxa.

P1 flora taxa are considered poorly known and are known from few locations which are potentially at risk (DBCA 2019b). One P1 taxon was recorded: *Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer *et al.* KS 1063), recorded from the survey area where it intersects the Fortescue Marsh. This taxon has been widely recorded and mapped by previous surveys across the Fortescue Marsh (Ecoscape 2018; Markey 2016). Potential impact to this species within the Fortescue Marsh section of the survey area is considered likely to be negligible.

P2 species are considered poorly known and are known from few locations, however, some populations occur in lands reserved for conservation (DBCA 2019b). One P2 taxon was recorded from the survey area, *Euphorbia inappendiculata* var. *queenslandica*. Current records within Western Australia suggest this species is not well known and mostly occurs in the Pilbara (ALA 2021). However, it appears widespread and common across other states, particularly New South Wales. With an extensive national distribution, any impacts to this species within the survey area are unlikely to be significant.

Seven P3 taxa were recorded from the survey areas. P3 taxa are considered poorly known and in need of further survey but are not currently under threat (DBCA 2019b). As such, and based on the known distribution, the P3 taxa within the survey area (listed above) are unlikely to be considered currently under threat and the potential impact is considered negligible.

Three P4 taxa were recorded from the survey area. P4 taxa are rare but present on conservation lands, near threatened but have been adequately surveyed and are not considered to be currently threatened, or are otherwise in need of monitoring (DBCA 2019b). P4 taxa are not currently under threat and, as such, potential impact to the taxa recorded from the survey area is considered likely negligible.

5.1.1.2 Post-survey Likelihood Assessment

The likelihood of conservation-listed flora occurring in the survey area was revised following the field survey. This revised likelihood, that took into account vegetation condition, grazing and other disturbances, actual habitat availability and search effort, is included in **Table 18** in **Appendix Three**. The revised, post-survey

likelihood identified that only one additional conservation-listed flora taxa, *Calotis squamigera* (P1), was considered 'likely' to occur. This taxon has been recorded in close proximity to the survey area, including during 2021 (Ecoscape 2021) from Mulga groves similar to vegetation types recorded within the survey area. Nine taxa (three P1, four P3 and one P4) 'may' occur within the survey area following the post survey likelihood assessment including:

- *Lindernia* sp. Pilbara (M.N. Lyons & L. Lewis FV 1069) (P1)
- *Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702) (P1)
- *Synostemon hamersleyensis* (P1)
- *Euphorbia inappendiculata* var. *inappendiculata* (P2)
- *Eleocharis papillosa* (P3)
- *Euphorbia australis* var. *glabra* (P3)
- *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)
- *Triodia basitricha* (P3)
- *Rhynchosia bungarensis* (P4).

Despite extensive targeted searches for the above taxa, it is considered a possibility that they may occur due to close proximity to known records and suitable habitat occurring within the survey area.

5.1.1.3 Previous Records of Conservation-Listed Flora

The following flora taxa locations within the survey area arising from the database searches are considered unreliable or erroneous and have been excluded from results:

- *Eragrostis crateriformis* (P3); two records of this species have been previously documented within the survey area near the southeastern extent. Both records arise from a previous survey (Cardno 2012b). Both locations were investigated during current and previous surveys (Ecoscape 2018) and no *Eragrostis crateriformis* plants were located. However, the morphologically similar species *Eragrostis leptopoda* was observed at these locations. Therefore, it is considered likely that the identification of this taxon may be erroneous.
- *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) (P3); three records of this taxon have been documented within the survey area based on previous surveys, however, they are not included in the DBCA database search results. The locations were extensively searched, without locating any plants of this taxon. The morphologically similar *Goodenia pascua* was recorded elsewhere within the survey area. According to the *Rare and Priority Flora Plants of the Pilbara* mobile app (DPaW and Rio Tinto 2015), the nominated specimen of *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) is indistinct from *G. pascua*. Therefore, it is unclear on what basis *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) can be justified as a distinct taxon. Accordingly, *Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727) has been excluded from the flora inventory.
- *Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702) (P1); there is a single record of this taxon within the Fortescue Marsh section of the survey area based on a previous DBCA survey. This location was searched and corresponds with the **MgTl** vegetation type dominated by *Melaleuca glomerata* and *Triodia longiceps*. *Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702) is more typically recorded within of samphire dominated vegetation. There were no plants recorded at the known location or elsewhere within the Fortescue Marsh. This taxon is typically easy to distinguish from a distance as it has characteristic dark green foliage (contrasting with the reddish colouring of the surrounding samphires) and is typically taller than the surrounding samphire vegetation. A drone was utilised to assist with targeted searches for this taxon based on the ability to detect if from a distance. The previous record of *Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702) is therefore considered unreliable and potentially erroneous.
- *Eremophila spongiocarpa* (P3); this taxon was extensively recorded from the Fortescue Marsh section of the survey area. However, there is a previous DBCA database search record within the survey area south of the Fortescue Marsh (corresponding with sandplain landform type); this record is considered an inaccurate location.

5.1.1.4 Other Significant Flora

The record of *Tephrosia remotiflora* may be of significance as a range extension, approximately 150 km southeast of the nearest record in the Pilbara and approximately 500 km southwest of the typical distribution in the Kimberley region. This species is not significant for any other reason.

Corchorus aff. *tectus* is of potential taxonomic interest, as outlined in **Section 4.1.5.1**. However, this taxon appears to be locally common.

Frankenia ambita was considered by Markey (2016) to be a species of taxonomic interest; it was encountered within the Fortescue Marsh section of the survey area and has been recorded widely from other parts of the Fortescue Marsh (Ecoscape 2018; Markey 2016).

Tecticornia auriculata was considered as significant by Markey (2016) as it is mostly a coastal species. While this observation is generally reasonable, it also occurs in two other inland locations (Lake Disappointment and Lake Sunshine, both in the Little Sandy Desert IBRA region) thus its suggested significance in association with the Fortescue Marsh is only broadly applicable.

5.1.1.5 Introduced Flora

Eighteen introduced species were recorded during the field survey from the survey area. None of the recorded introduced species have any significance i.e. they are not Declared Pest plants or WoNS species. Nine of the species are identified as 'Priority' weeds according to a list maintained by Fortescue for management purposes, being **Aerva javanica*, **Cenchrus ciliaris, *Cenchrus setiger* (both *Cenchrus* spp. subject to pastoral exclusion areas), **Chloris virgata, *Echinochloa colona*, **Malvastrum americanum, *Rumex vesicarius, **Setaria verticillata* and **Vachellia farnesiana*.

The most significant weed infestations were of **Cenchrus ciliaris* (Buffel Grass), from plains, valley floors and drainage lines, including 114 of the quadrats. This species was also recorded as a dominant species within numerous quadrats and several vegetation types. **Cenchrus ciliaris* has the ability to invade native vegetation when the soil surface is disturbed and can be considered as a significant weed, however, occurrences within the survey area are likely a result of livestock grazing.

Another 'priority' weed species, **Aerva javanica*, is particularly abundant along the existing BHP rail.

There is no formal requirement for Fortescue to control any of the weed species recorded.

5.2 VEGETATION SIGNIFICANCE

Twenty-nine vegetation types were recorded from the survey area, associated broadly with plains/flats, cracking clay, sand dunes, hills/slopes and drainage lines. The majority of vegetation types are broadly supported by the floristic analysis. The deviation from floristic units of vegetation types was most commonly attributable to factors such as degradation, fire history, quadrat placement and sampling from multiple contrasting seasons.:

5.2.1 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

No vegetation was considered similar to any current Western Australian-listed or Commonwealth EPBC Act-listed TEC.

Four PECs have been previously recorded as corresponding, at least in part, with the survey area. These PECs, and the vegetation types associated with them, are described below.

5.2.1.1 Brockman Iron cracking clay communities of the Hamersley Range

Vegetation type **Eb**, which occurred as a single occurrence occupying 2.48 ha (0.01% of the survey area), intersected an area mapped as the *Brockman Iron cracking clay communities of the Hamersley Range* PEC by the DBCA. However, the species characteristic of the PEC according to the DBCA Species and Communities Program (2021), *Astrebla lappacea*, was not recorded with this vegetation type which was

characterised by *Eriachne benthamii*, *Eragrostis xerophila* and *Aristida latifolia*. However, advice from the DBCA, summarised in Ecoscape (2016), indicates that:

- the community can include other dominant perennial grass species including *Eriachne benthamii* and/or *Aristida latifolia*
- can also include herbfields and occasional emergent shrubs
- occurs on the Brockman and, occasionally, Newman land systems
- the characteristic feature is cracking clay soils.

Neither of these land systems intersect the survey area at the location of the mapped DBCA PEC occurrence, however, the vegetation type is associated with cracking clay soils.

Only one quadrat was recorded within vegetation type **Eb** due to its small extent. The quadrat and vegetation type can be broadly considered representative of the PEC as it has characteristic cracking clay soil and is a perennial tussock grassland with at least some species characteristic of the *Brockman Iron cracking clay communities of the Hamersley Range* PEC. The majority of the PEC is mapped as occurring approximately 100 km to the west of the survey area and to the south of the Hamersley Range, although there are closer outlier occurrences including within Karijini National Park, West Angelas and Juna Downs (Ecoscape 2016).

Vegetation type **Eb** extends out of the survey area to the northwest, however, the total extent of the vegetation type is unknown. The existing DBCA mapping of the *Brockman Iron cracking clay communities of the Hamersley Range* PEC at this location appears to be based on a point location with a 500 m buffer applied. The likely extent of this vegetation type outside of the survey area, based on interpretation of imagery, is 27.97 ha (shown on **Map 7**). Therefore 8.14% of this likely PEC polygon occurs within the survey area.

5.2.1.2 Fortescue Marsh (Martuyitha) (Marsh Land System)

The Fortescue Marsh PEC occurs as a single unit, associated with the Marsh Land System. The survey area corresponds with 612.05 ha of the land system representing 0.63% of the total land system extent (Payne 2004).

One vegetation type recorded within the survey area, **Ti**, was considered to represent the *Fortescue Marsh* PEC. This vegetation type was characterised by Samphire species (*Tecticornia* species in the Chenopodiaceae family) and occupied 431.78 ha within the survey area. **Ti** extends to the east, through the Marsh, although its total extent is unknown.

5.2.1.3 Four plant assemblages of the Wona Land System

The *Four plant assemblages of the Wona Land System* (previously 'Cracking clays of the Chichester and Mungaroona Range') ('Wona') PEC consists of the following components (Species and Communities Program DBCA 2021):

- Cracking clays of the Chichester and Mungaroona Range. This shrubless plain of stony gibber community occurs on the tablelands with very little vegetative cover during the dry season, however during the wet a suite of ephemerals/annuals and short-lived perennials emerge, many of which are poorly known and range-end taxa. Priority 1.
- Annual Sorghum grasslands on self mulching clays with a moderate-dense overlay of rocks. This community appears very rare and restricted to the Pannawonica-Robe valley end of Chichester Range. Naturally species poor when dry. Threat: weed invasion. Priority 1.
- Mitchell grass plains (*Astrebla* spp.) on gilgai Priority 3(iii).
- Mitchell grass and Roebourne Plain grass (*Eragrostis xerophila*) plain on gilgai. *Astrebla pectinata*, *A. elymoides*, *E. xerophila*, *Aristida latifolia*, *Eriachne* and *Sida fibulifera*. Typical type, heavily grazed.

Vegetation type **Nd**, occupying 60.15 ha (0.19% of the survey area) is considered to represent the Wona PEC and the description is consistent with the Cracking clays of the Chichester and Mungaroona Range description above. There are two, small, mapped occurrences of this vegetation type is within the Wona Land System

(the eastern patch with quadrat C083). Both occurrences are on upland gilgai plains (tablelands) and largely or entirely confined to the survey area. It is unknown if there are other areas of similar vegetation nearby.

5.2.1.4 Vegetation of sand dunes of the Hamersley Range/Fortescue Valley

The sand dunes were occupied by a single vegetation type: **AdTb** (*Acacia dictyophleba* and *Stylobasium spathulatum* mid open shrubland over *Triodia basedowii*, *T. schinzii* and **Cenchrus ciliaris* mid hummock/tussock grassland), recorded from 10 quadrats located in the southern section of the Transport Corridor survey area. This vegetation type occupied 83.76 ha.

The interdunal areas and surrounding sandplains were almost entirely mapped as **AaTb**.

The dunes comprising this PEC are regionally restricted in extent and considered to be highly susceptible to threatening processes (Species and Communities Program DBCA 2021).

5.2.2 OTHER SIGNIFICANT VEGETATION

Based on the criteria provided in the Flora and Vegetation Technical Guidance (EPA 2016), several vegetation types may be considered as locally or regionally significant.

5.2.2.1 Groundwater Dependent Vegetation

There were no vegetation types recorded within the survey area that were dominated by phreatophytic species that rely on access to groundwater for some stages of their life cycle. *Eucalyptus camaldulensis* subsp. *refulgens* was recorded from a single quadrat (NY2104) along Weeli Wolli Creek. though it was not the dominant tree species. Therefore, it is unlikely that any of the vegetation types recorded may be considered GDV.

5.2.2.2 Potential Groundwater Dependent Vegetation

Several drainage lines within the survey area were dominated by *Eucalyptus victrix*, the dominant species of the upper stratum from the **EvAcCc** and **EvApTe** vegetation types. *Eucalyptus victrix* is considered to be a facultative phreatophyte, although there is some evidence that in some circumstances this species is not dependent on groundwater (Batini 2009; Eamus 2009; Environmental Protection Authority & Hamersley Iron Pty Ltd 2010; Equinox Environmental 2017; Resource and Environmental Management Pty Ltd 2007).

There were numerous dead or unhealthy trees observed along the section of Weeli Wolli Creek that intersects the Billiards North survey area, indicating that there may be existing impacts on this PGDV from upstream mining operations.

Any changes to groundwater or surface water flow may have the potential to affect the **EvAcCc** and **EvApTe** vegetation types.

5.2.2.3 Mulga Communities

There were eight vegetation types dominated by the various Mulga species of which **AaAsCc**, **AaEfEp** and **AaSaEp** display the characteristic grove-intergrove formation considered to be most representative of SFDV. Vegetation types considered to represent SFDV occupied a combined total of 10,887.50 ha within the survey area (34.11%).

Sheet Flow Dependent Vegetation has the potential to be affected by changes to surface water flows that may be caused by obstacles, including roads or railways (or any linear infrastructure), or any changes to topography that prevents heavy rainfall from moving across the slightly-sloping landscape as a ‘sheet’ (Astron Environmental Services 2010).

Fire is also a threat to Mulga vegetation as most Mulga species are fire sensitive and killed by even cool burns (Maslin & Reid 2012), although some are known to resprout from trunks or roots particularly if only scorched (Maslin, van Leeuwen & Reid 2010). Frequent burning has led to the loss of Mulga communities in some areas including in the Pilbara (Maslin & Reid 2012), and it is likely that Mulga seedlings or resprouts within reach of cattle or feral herbivores in particular would be preferentially grazed before *Triodia* species and similar

less palatable plants, leading to the loss of Mulga or reduction in the numbers of plants. Native herbivores would also likely preferentially graze Mulga seedlings or resprouts.

SFDV is widespread in Australia and occurs in Queensland, South Australia and New South Wales, as well as Western Australia (Dunkerley 2002), and therefore cannot be considered to occupy a restricted extent.

5.2.2.4 Vegetation Characterised by Conservation-listed Flora

The following two vegetation types have conservation-listed P3 flora as characteristic species, however, in each case they were not recorded as dominant species:

- **Nd**, with *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) characteristic at low percentage cover
- **Ti**, with *Eremophila spongiocarpa* as characteristic at low percentage cover at a typically low percentage cover.

Both of these vegetation types are also significant due to being representative of different PECs.

5.2.3 LOCAL AND REGIONAL ASSESSMENT OF VEGETATION SIGNIFICANCE

Vegetation types may be considered to be locally or regionally significant if conservation-listed or for criteria outlined above in **Section 5.2.2**.

Thirteen vegetation types within the survey area had small extents (<1%) relative to other vegetation types. Aside from their small extent, they are not considered as significant unless they are significant for reasons other than their size (see above).

5.2.4 VEGETATION CONDITION

The vegetation of the survey area ranged from Excellent to Degraded condition. Large, cleared areas were classified as 'not native vegetation'. Areas of hills typically supported vegetation in the best condition, whilst plains, valley floors and drainage lines were typically in lesser condition. The main factors affecting vegetation condition were grazing by cattle, weed infestation and existing infrastructure. There were significant infestations of **Cenchrus ciliaris* (Buffel Grass), particularly from the southern portion of the survey area where this species was commonly the dominant species in the ground stratum, resulting in lesser condition for such areas.

5.3 FORTESCUE MARSH

The survey area incorporates a small portion of the Fortescue Marsh. The Marsh is considered to be significant for a number of reasons, reflected in its listing in the Directory of Important Wetlands of Australia as a *Wetland of National Significance* (Australian Government & DAWE 2010). The vegetation of the Marsh, as it relates to the corresponding PEC, is discussed above in **Section 5.2.1.2** above.

Threats to the Marsh ecosystem include (Department of Environment and Conservation 2009);

- cattle; grazing native vegetation, introduction and spread of weeds, soil damage by trampling and wallowing
- altered hydrology including changes due to the construction of Ophthalmia Dam in 1981 that has reduced inflow into the Marsh (although Markey (2016) indicates that flood frequency has been increasing in the last 20 years)
- surrounding mining operations including dewatering, groundwater extraction, long-term or accidental discharge into creeks altering local hydrology, reinjection
- weeds
- climate change that may alter the frequency and longevity of inundation, temperature rise, changes to drought and flood frequency
- eutrophication caused by cattle
- fire, especially late dry season fires that are hotter and expose more soil to erosion, weed invasion and loss of nitrogen in smoke.

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MAPS

LEGEND

Transport Corridor Survey Area

Billiards North Survey Area

Soil Landscape Mapping (DPIRD 2019)

- 282Cp: Rugged sandstone hills, ridges, stony footslopes and interfluves supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs
- 282Mk: Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts
- 282Ne: Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands
- 282Rk: Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs
- 282Wo: Basalt upland gilgai plains supporting Roebourne Plains grass and Mitchell grass tussock grasslands, minor hard spinifex grasslands or annual grasslands/herbfields
- 283Mc: Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands
- 283Rk: Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs
- 283Ro: Low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands
- 284Ad: Stony plains and low silcrete hills supporting hard spinifex grasslands
- 284Bg: Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands
- 284Ca: Low calcrete platforms and plains supporting shrubby hard spinifex grasslands
- 284Ch: Stony alluvial plains supporting snakewood and mulga shrublands with sparse tussock grasses
- 284Co: Flood plains with weakly gilgaied clay soils supporting coolibah woodlands with tussock grass understorey
- 284Cw: Plains fringing the Marsh land system and supporting snakewood and mulga shrublands with some halophytic undershrubs
- 284Dv: Gently undulating sandplains with minor dunes, supporting hard spinifex hummock grasslands with numerous shrubs
- 284Fa: Washplains and gilgai plains supporting groved mulga tall shrublands and minor tussock grasslands
- 284Ft: Alluvial plains and flood plains supporting patchy grassy eucalypt and acacia woodlands and shrublands and tussock grasslands
- 284Jm: Stony hardpan plains and rises supporting groved mulga shrublands, occasionally with spinifex understorey
- 284Ms: Lakebeds and flood plains subject to regular inundation, supporting samphire shrublands, salt water couch grasslands and chenopod shrublands
- 284Ne: Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands
- 284Ri: Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex
- 284Ur: Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands
- 285Bg: Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands
- 285Ne: Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands
- 285Ri: Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex

DATASOURCES :
SOURCE DATA: SOIL-LANDSCAPE MAPPING WESTERN AUSTRALIA - BEST AVAILABLE SOILS (DPIRD 2018);
TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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SOIL LANDSCAPE MAPPING

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

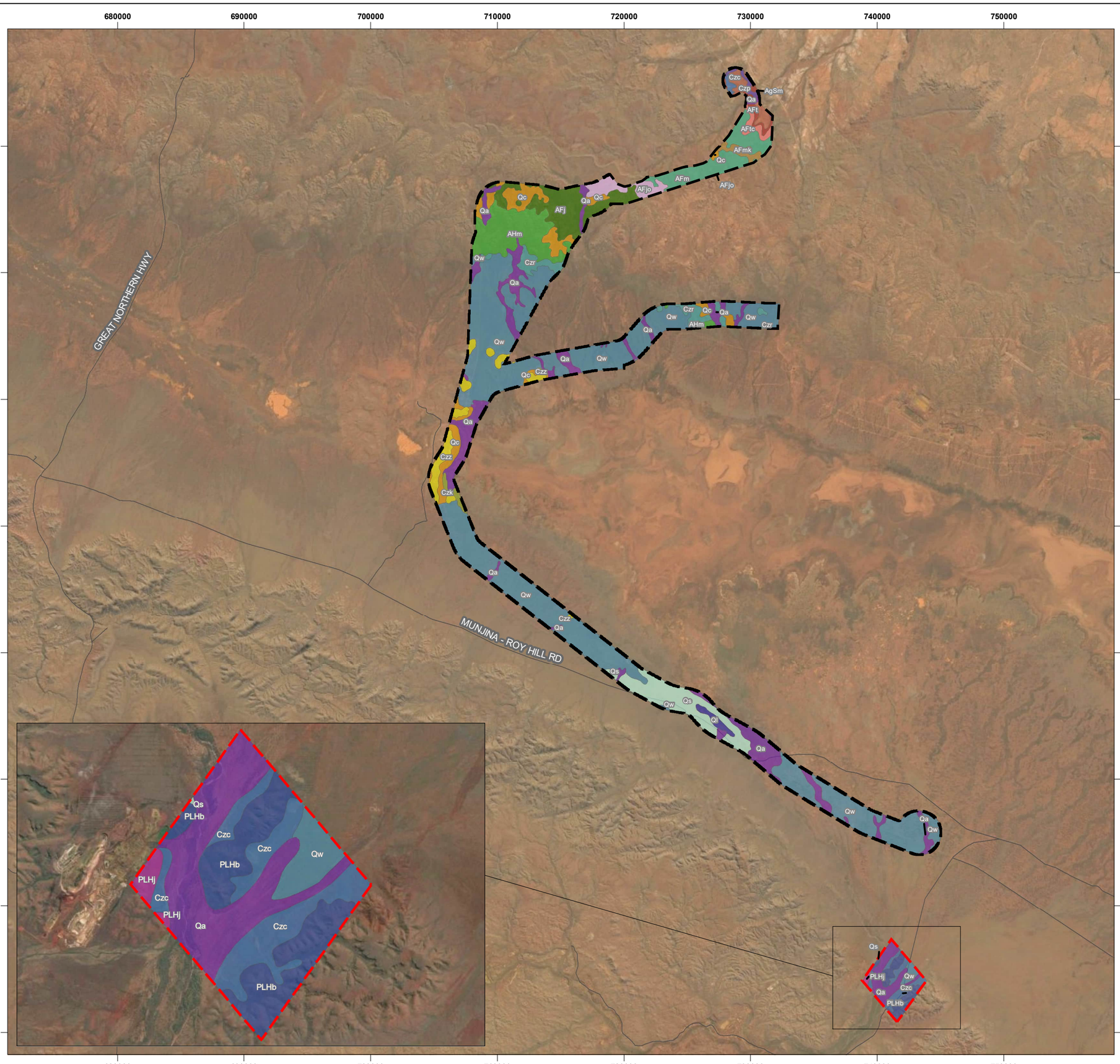
SCALE: 1:300,000 @ A3

0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP	SB	15/12/2021

MAP 01



LEGEND

Transport Corridor Survey Area

Billiards North Survey Area

Geological units

- AFj: Pelite, chert and thin-bedded metasandstone; intruded by metadolerite sills in the Hamersley Range
- AFjo: Metamorphosed quartzitic sandstone, pelite and chert (locally stromatolitic)
- AFm: Amygdaloidal metabasaltic flora and breccia
- AFmk: Metamorphosed volcanic sandstone, pelite, chert and metadolomite; local accretionary lapilli and stromatolites
- AFt: Metamorphosed mafic to intermediate volcanic sandstone, pelite, metabasaltic flows and breccia, chert and metadolerite; local accretionary lapilla and stromatolites
- AFtc: Metamorphosed stromatolitic limestone and dolomite, pelite and volcanic sandstone
- AHm: Chert, banded iron-formation and pelite
- AgSm: Metamorphosed biotite monzogranite and minor granodiorite; weakly to strongly foliated; local metabasalt and metadolerite xenoliths intruded by a network of metamorphosed muscovite pegmatite veins
- Czc: Colluvium – partly consolidated quartz and rock fragments in silt and sand matrix; old valley-fill deposits
- Czk: Calcrete – sheet carbonate; found along major drainage lines
- Czp: Robe pisolite: pisolitic limonite deposits developed along river channels
- Czr: Hematite-geothite deposits on banded iron-formation and adjacent scree deposits
- Czz: Brecciated siliceous caprock over dolomitic rock; angular chert fragments in a chert matrix; overlies Wittenoom Formation
- PLHb: Brockman Iron Formation" banded iron-formation, chert and pelite
- PLHj: Weeli Wolli Formation: banded iron-formation (commonly jaspilitic), pelite and numerous metadolerite sills
- Qa: Alluvium – unconsolidated silt, sand and gravel; in drainage channels and on adjacent floodplains
- Qc: Colluvium – unconsolidated quartz and rock fragments in soil; locally derived soil and scree and talus deposits
- Ql: Lacustrine deposits – clay and silt; claypan (predominantly fresh water) deposits
- Qs: Eolian deposit – sand; in sheets and longitudinal dunes
- Qw: Alluvium and colluvium – red brown sandy and clayey soil; on low slopes and sheetwash areas

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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GEOLOGY

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

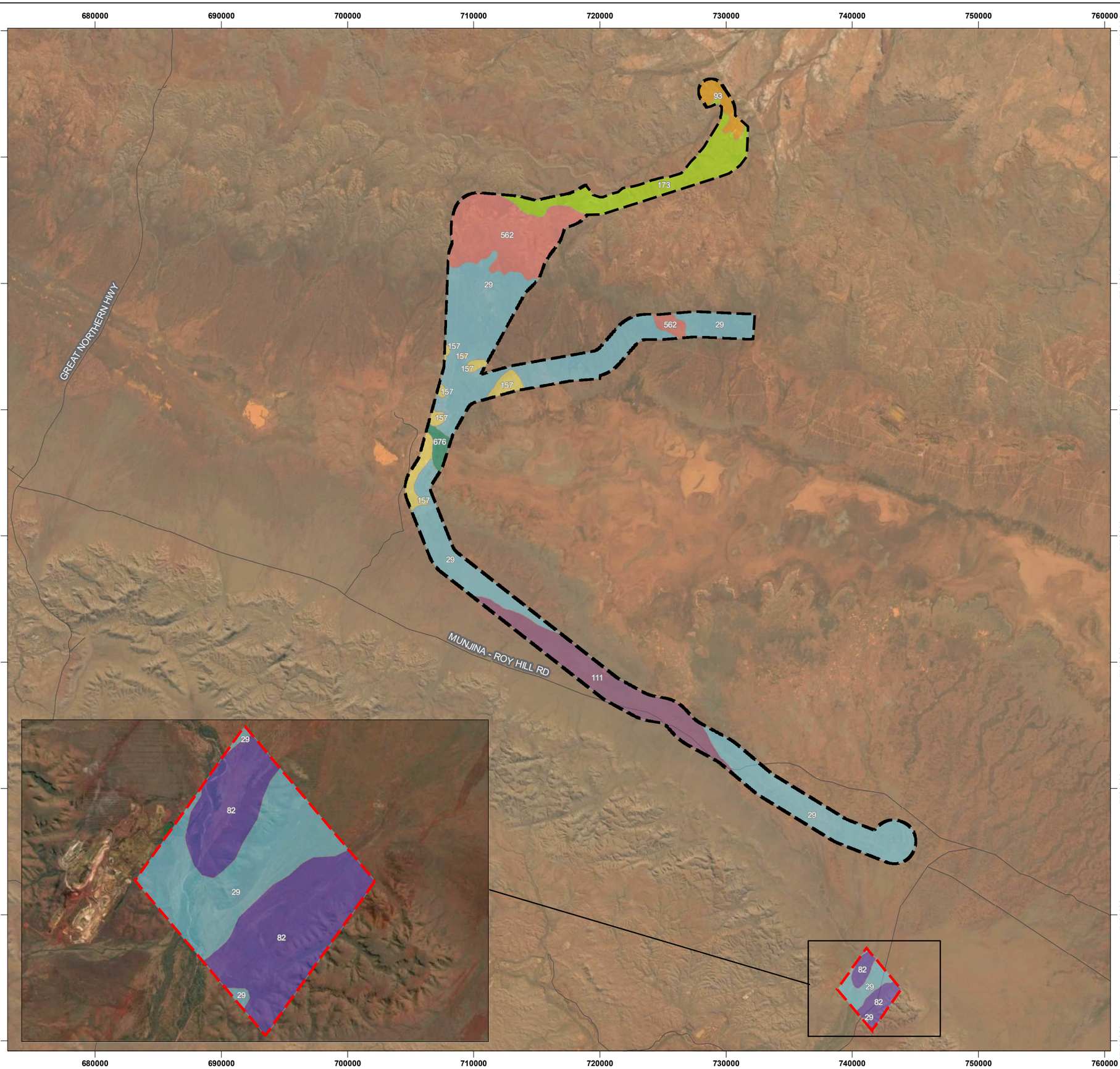
SCALE: 1:300,000 @ A3

0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP	SB	15/12/2021

MAP 02



LEGEND

Transport Corridor Survey

Billiards North Survey

Pre-European Vegetation Association

- 29: Mulga *Acacia aneura* and associated species
- 82: Hummock grassland with scattered bloodwoods and snappy gum *Triodia* spp., *Corymbia dichromophloia, Eucalyptus leucophloia*
- 93: Hummock grassland with scattered shrubs or mallee *Triodia* spp. *Acacia* spp., *Grevillea* spp. *Eucalyptus* spp
- 111: Hummock grassland with scattered shrubs or mallee *Triodia* spp. *Acacia* spp., *Grevillea* spp. *Eucalyptus* spp
- 157: Hummock grassland; *Triodia*
- 173: Hummock grassland with scattered shrubs or mallee *Triodia* spp. *Acacia* spp., *Grevillea* spp. *Eucalyptus* spp
- 562: Hummock grassland with scattered bloodwoods and snappy gum *Triodia* spp., *Corymbia dichromophloia, Eucalyptus leucophloia*
- 676: *Tecticornia* spp. communities in saline

DATASOURCES:
SOURCE DATA: PRE-EUROPEAN VEGETATION – WESTERN AUSTRALIA (NVIS COMPLIANT VERSION 20110715) (DPIRD 2019); TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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PRE-EUROPEAN VEGETATION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

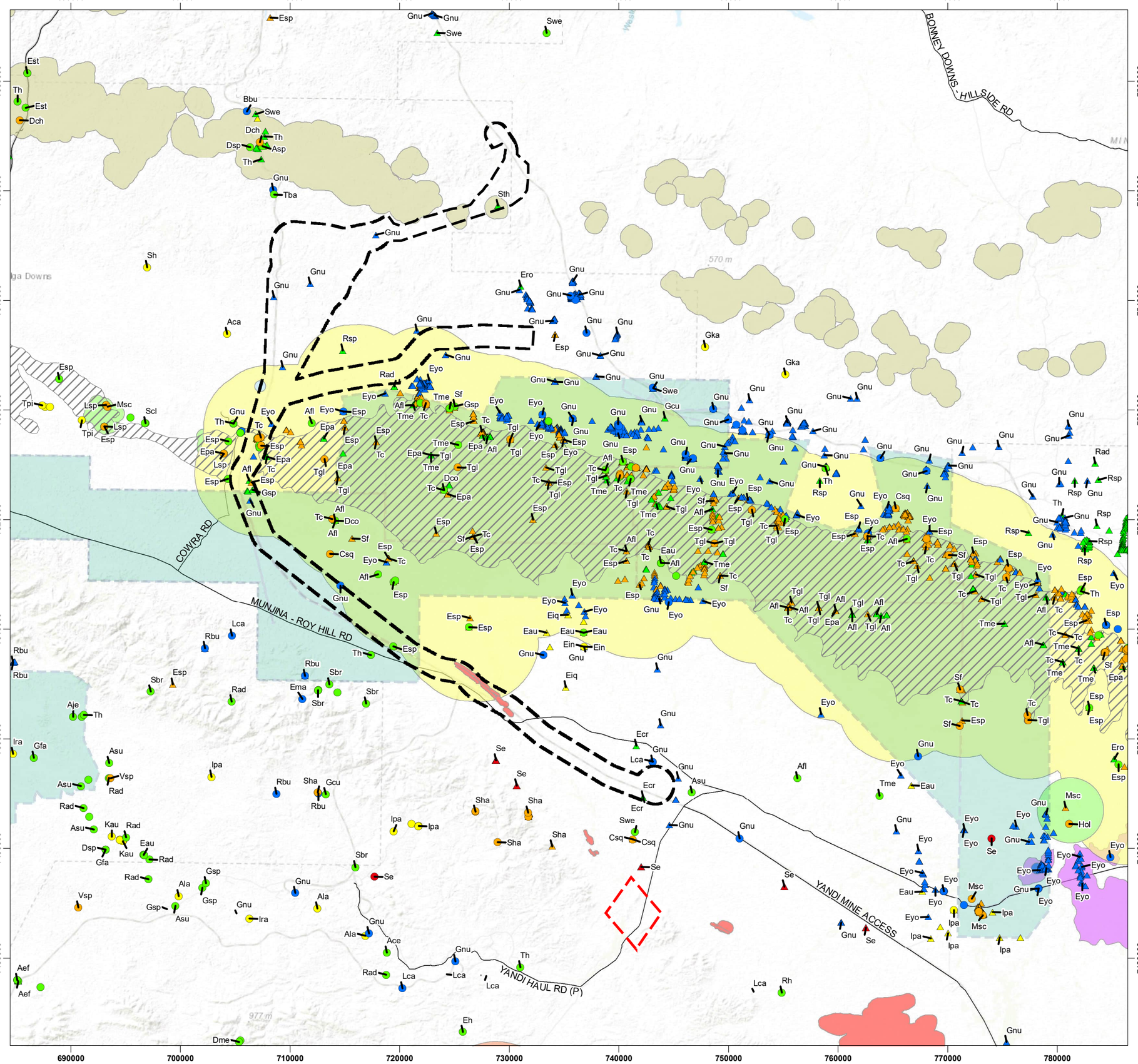
SCALE: 1:300,000 @ A3

0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP	SB	15/12/2021

MAP 03



LEGEND

- Transport Corridor Survey Area
- Billiards North Survey Area

DBCA Conservation Listed Flora

- Threatened
- Priority 1
- Priority 2
- Priority 3
- Priority 4

FMG Conservation Listed Flora

- Threatened
- Priority 1 (DBCA)
- Priority 2 (DBCA)
- Priority 3 (DBCA)
- Priority 4 (DBCA)
- Environmentally Sensitive Areas
- DBCA Lands of Interest

Threatened & Priority Ecological Communities (DBCA 2021)

- Brockman Iron cracking clay communities
- Fortescue Marsh
- Fortescue Valley Sand Dunes
- Freshwater claypans of the Fortescue Valley
- Narbung LS
- Weeli Wolli
- Wona Land System
- Narbung System

Code	Taxon	Status	Code	Taxon	Status
Asp	*Abutilon* sp. Prilzelianum (S. van Leeuwen 5095)	3	Gcu	*Gymnanthera cunninghamii*	3
Abr	*Acacia bromilowiana*	4	Hol	*Helichrysum oligochaetum*	1
Aef	*Acacia effusa*	3	Hmu	*Heliotropium muricatum*	3
Ale	*Acacia levata*	3	Hsp	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen M.ET 15708)	2
Asu	*Acacia subliliformis*	3	Igi	*Indigofera gilesii*	3
Aca	*Adiantum capillus-veneris*	2	Ise	*Isotasperma sessilifolium*	3
Ace	*Amaranthus centralis*	3	Ira	*Ipomoea racemigera*	2
Apr	*Ampelopteris prolifera*	3	Ipa	*Isotropis parviflora*	2
Aje	*Aristida jerichoensis* var. *subspinulifera*	3	Kau	*Kohautia australiensis*	2
Ala	*Aristida lazaridis*	2	Lca	*Lepidium catapycnon*	4
Afl	*Atriplex flabelliformis*	3	Lsp	*Lindernia* sp.A43C76	1
Beh	*Barbula ehrenbergii*	1	Msc	*Myriocephalus scalpellus*	1
Bbu	*Bulbostylis burbidgeae*	4	Num	*Nicotiana umbratica*	3
Csq	*Calotis squamigera*	1	Osp	*Oxalis* sp. Pilbara (M.E. Trudgen 12725)	2
Cpr	*Cladium procerum*	2	Pre	*Paspalidium retiglume*	2
Cma	*Cochlospermum macnamarae*	1	Plr	*Pilbara trudgenii*	3
Csm	*Crotalaria smithiana*	3	Pmo	*Pilotus mollis*	4
Dme	*Dampiera metallorum*	3	Rh	*Rhagodia* sp. Hamersley (M. Trudgen 9794)	3
Dch	*Dipteracanthus chichesterensis*	1	Rbu	*Rhynchosia bungarensis*	4
Dsp	*Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479)	3	Rf	*Roripa* sp. Fortescue Valley (M.N. Lyons & R.A. Coppen FV 0760)	1
Dco	*Dysphania congestiflora*	3	Rad	*Rostellaria adscendens* var. *latifolia*	3
Epa	*Eleocharis papillosa*	3	Rin	*Rothia indica subsp. australis*	3
Ecr	*Eragrostis crateriformis*	3	Sf	*Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	1
Ee	*Eragrostis* sp. Erect spikelets (P.K. Latz 2722)	3	Sh	*Scaevola* sp. Hamersley Range basalts (S. van Leeuwen 3675)	2
Ema	*Eremophila magnifica subsp. magnifica*	4	Sex	*Seringia exastis*	T
Epi	*Eremophila pilosa*	1	Sbr	*Sida* sp. Barlee Range (S. van Leeuwen 1642)	3
Epu	*Eremophila pusilliflora*	2	Scl	*Stackhousia clementii*	3
Eh	*Eremophila* sp. Hamersley Range (K. Walker KW 136)	3	Sbh	*Stemodia* sp. Battle Hill (A.L. Payne 1006)	1
Ew	*Eremophila* sp. West Angelas (S. van Leeuwen 4068)	1	Swe	*Stylidium weeliwolli*	3
Esp	*Eremophila spongiocarpa*	3	Sth	*Swainsona thompsoniana*	3
Eyo	*Eremophila youngii subsp. lepidota*	4	Sha	*Synostemon hamersleyensis*	1
Ero	*Eucalyptus rowleyi*	3	Tgl	*Tecticornia globulifera*	1
Eau	*Euphorbia australis* var. *glabra*	3	Tme	*Tecticornia medusa*	3
Ein	*Euphorbia inappendiculata* var. *inappendiculata*	2	Tc	*Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	3
Eiq	*Euphorbia inappendiculata* var. *queenslandica*	2	Tpi	*Teucrium pilbaranum*	2
Est	*Euphorbia stevenii*	3	Th	*Themeda* sp. Hamersley Station (M.E. Trudgen 1143)	3
Fsi	*Fimbristylis sieberiana*	3	Tba	*Triodia basitricha*	3
Gfa	*Glycine falcata*	3	Tk	*Triodia* sp. Karijini (S. van Leeuwen 4111)	1
Gka	*Gompholobium karijini*	2	Tm	*Triodia* sp. Mt Ella (M.E. Trudgen 12739)	3
Gnu	*Goodenia nuda*	4	Tve	*Triodia veniciae*	1
Gsp	*Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727)	3	Vsp	*Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684)	1
Gsa	*Grevillea saxicola*	3	Xbo	*Xerochrysum boreale*	3

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FLORA AND COMMUNITIES DATABASE SEARCH RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

DATASOURCES :
BASEMAP: GEOSCIENCE AUSTRALIA SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:350,000 @ A3
0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	28/09/2021
1	KCP	SK	01/02/2022

MAP
04

690000 700000 710000 720000 730000 740000 750000 760000

7550000 7540000 7530000 7520000 7510000 7500000 7490000 7480000

GREAT NORTHERN HWY

Mulga Downs

570 m

COWRA RD

998 m

MUNJINA - ROY HILL RD

YANDI MINE ACCESS

YANDI HAUL RD (P)

690000 700000 710000 720000 730000 740000 750000 760000

LEGEND

- Transport Corridor Survey Area
- Billiards North Survey Area

Previous Surveys

- Fortesue Valley Flora & Vegetation Report (Ecoscape, 2018)
- Fortescue Marsh Vegetation Mapping (DPAW, 2016)
- Nyidinghu Rail Spur Flora & Vegetation Assessment (Cardno, 2012)
- Nyidinghu Flora and Vegetation Assessment (Cardno, 2012)
- Addendum. Niyidinghu Flora & Vegetation Assessment (Cardno, 2012)
- Cloudbreak Flora and Vegetation Assessment (ENV Australia, 2011)
- Supplementary Surveys Port Headland to Cloud Break Rail Corridor (Coffey, 2007)
- Flora & Vegetation Cloud Break & White Knight Leases (Mattiske, 2007)
- Flora & Vegetation Near Fortescue Marshes (Mattiske, 2005)
- Stage B Rail Corridor, Christmas Ck, Mt Lewin, Mt Nicholas, Mindy Mindy (Biota, 2004)
- Vegetation & Flora Survey of the Proposed FMG Stage A Rail Corridor (Biota, 2004)
- Supplementary Flora Survey (ATA Environmental, No Date)

DATASOURCES :
SOURCE DATA: PREVIOUS SURVEYS: ECOSCAPE (2018); DPAW (2016); CARDNO (2012); ENV (2011); COFFEY (2007); MATTISKE (2005); BIOTA (2004); ATA ENVIRONMENTAL (NO DATE)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

ecoscape

PREVIOUS SURVEYS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

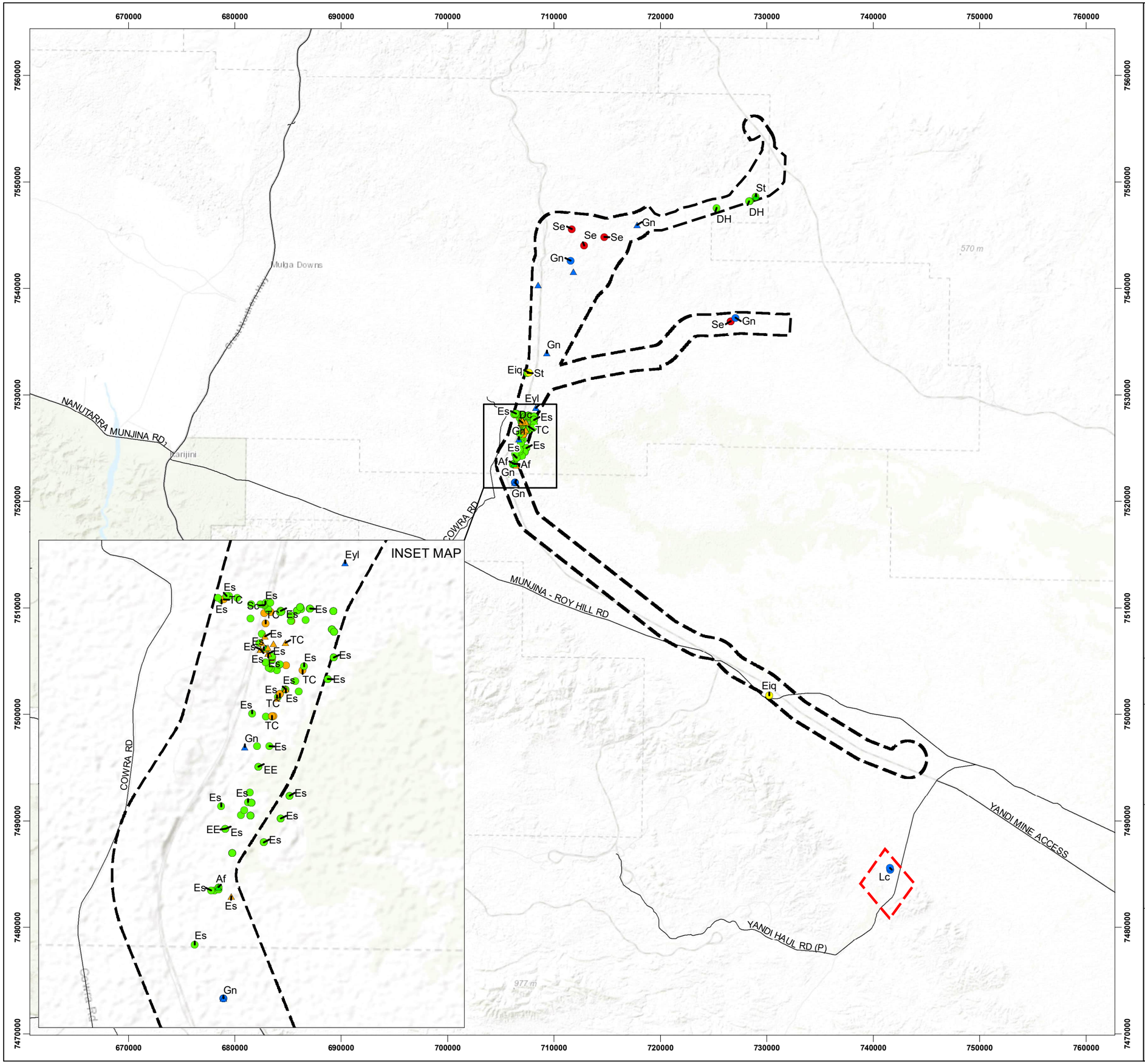
SCALE: 1:300,000 @ A3

0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	28/09/2021

MAP 05



LEGEND

- Transport Corridor Survey Area
- Billiards North Survey Area

Conservation-listed Flora (Ecoscape 2021)

- TF
- P1
- P2
- P3
- P4

Conservation-listed Flora (FMG 2021)

- P1
- P3
- P4

LABEL	TAXON	STATUS
Af	*Atriplex flabelliformis*	P3
Dc	*Dysphania congestiflora*	P3
DH	*Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3
EE	*Eragrostis* sp. Erect spikelets (P.K. Latz 2122)	P3
Es	*Eremophila spongiocarpa*	P1
Eiq	*Euphorbia inappendiculata* var. queenslandica	P2
Eyl	*Eremophila youngii* subsp. *lepidota*	P4
Gn	*Goodenia nuda*	P4
Lc	*Lepidium catapycnon*	P4
Sc	*Stackhousia clementii*	P3
Se	*Seringia exastia*	TF
St	*Swainsona thompsoniana*	P3
TC	*Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	P1

ecoscape

CONSERVATION LISTED FLORA SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

DATASOURCES :
BASEMAP: GEOSCIENCE AUSTRALIA SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

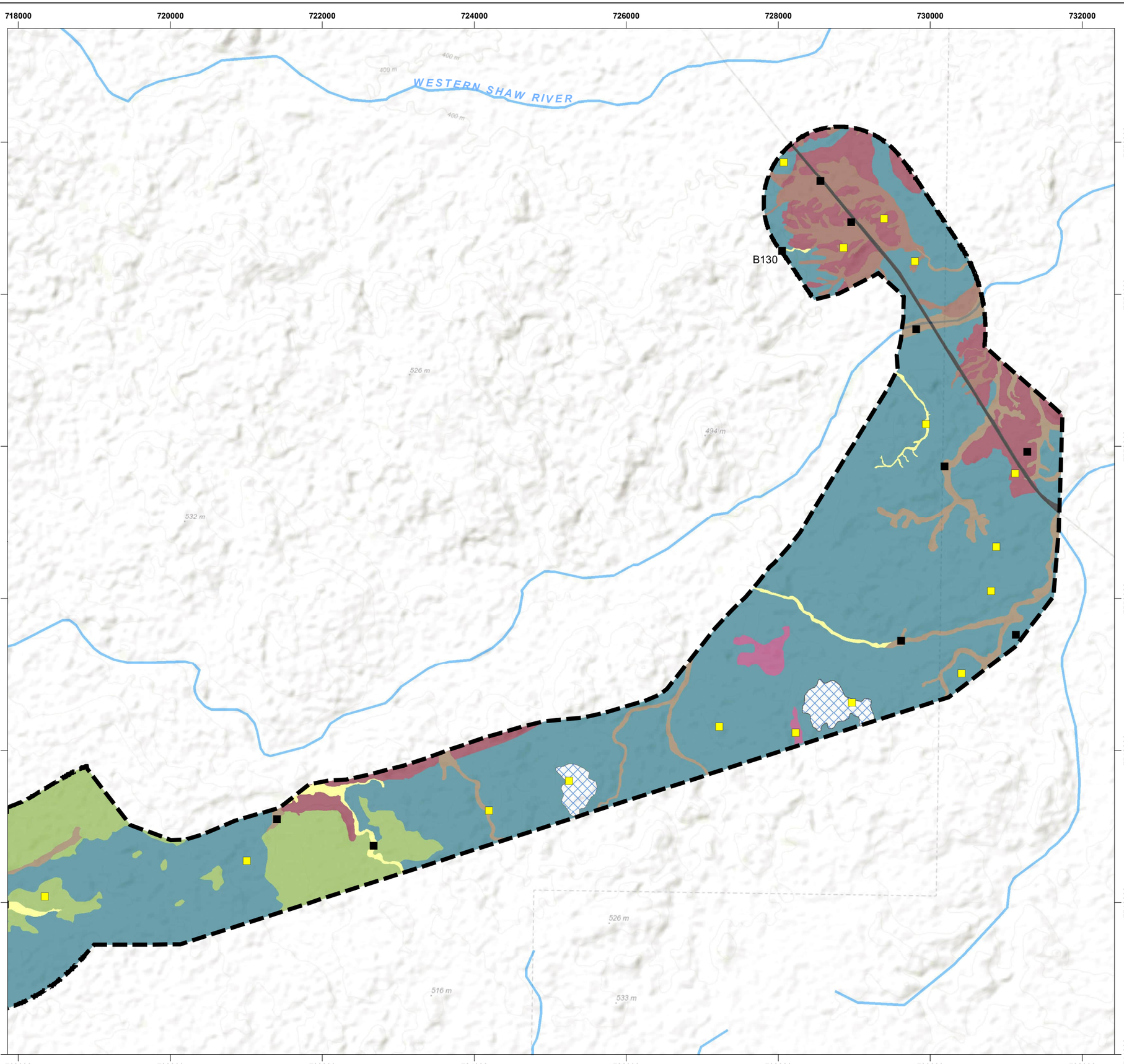
SCALE: 1:350,000 @ A3

0 2 4 6 8 10 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SK	15/12/2021

MAP 06



LEGEND

- Transport Corridor Survey Area

Quadrats

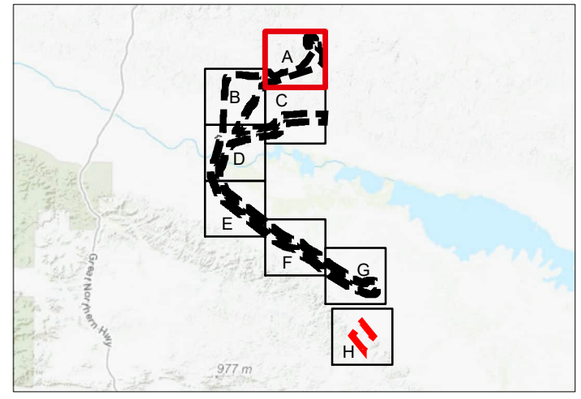
Scored

- Y
- N

Vegetation Types

- AaSaEh
- AaTe
- AaTp
- AiTw
- AtTp
- ElAiTe
- EvApTe
- Nd (PEC)
- No Vegetation
- Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP
7A

704000 706000 708000 710000 712000 714000 716000

7548000 7546000 7544000 7542000 7540000 7538000 7536000

A104

438 m

977 m

Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrats

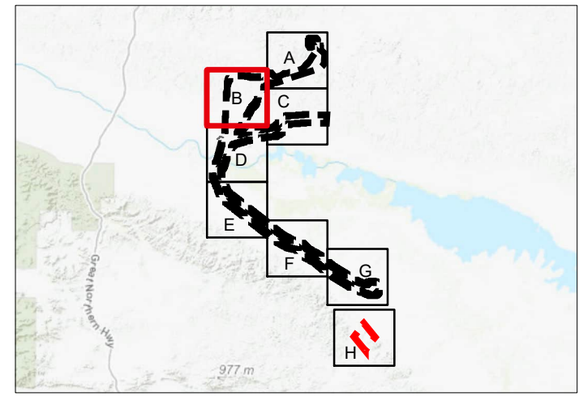
Scored

- **Y**
- **N**

Vegetation Types

- **AaEfEp**
- **AaEfTb**
- **AaPlTe**
- **AaTp**
- **AtTp**
- **AxEc**
- **ElAiTe**
- **EvApTe**
- **No Vegetation**
- Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

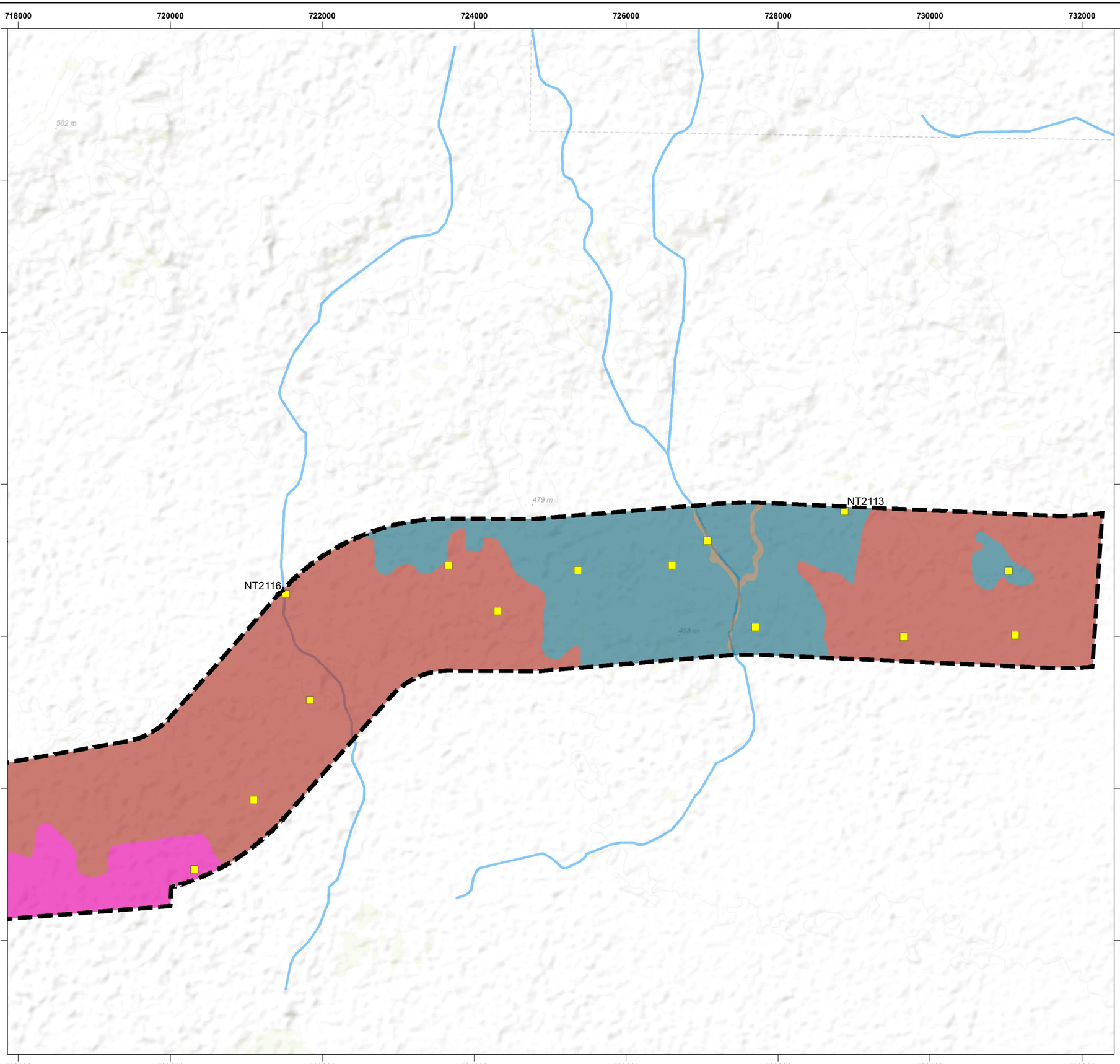
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP
7B



LEGEND

Transport Corridor Survey Area

Quadrats

Scored

Y

Vegetation Types

AaEfEp

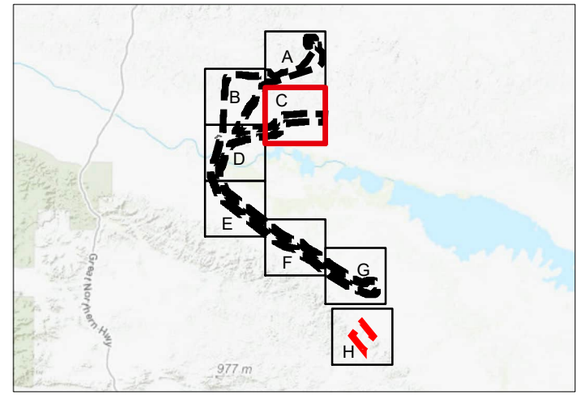
AxEc

ElAiTe

EvApTe

Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP 7C

704000 706000 708000 710000 712000 714000 716000

7534000 7532000 7530000 7528000 7526000 7524000 7522000

NT2101

A121

467 m 456 m 434 m 471 m 462 m 439 m

Cowra Rd

LEGEND

Transport Corridor Survey Area

Quadrats

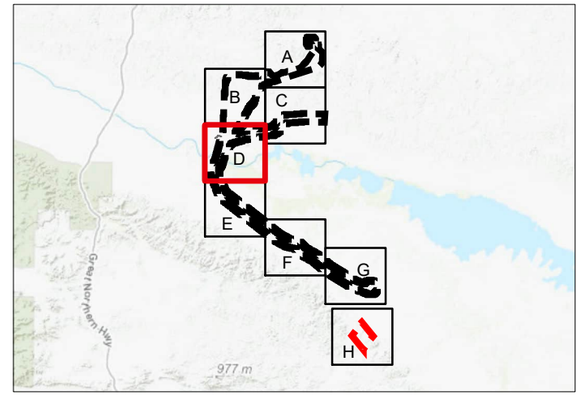
Scored

- **Y**
- **N**

Vegetation Types

- **AaAsCc**
- **AaCf**
- **AaEfEp**
- **AaEfTb**
- **AaSaEp**
- **AxEc**
- **Eb (PEC)**
- **EgAaTb1**
- **ElAiTe**
- **ElAmTw**
- **MgTl**
- **No Vegetation**
- **Ti (PEC)**
- Brockman Iron cracking clay communities of the Hamersley Range PEC (DBCA 2021)
- Drainage lines

DATASOURCES:
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP 7D

704000 706000 708000 710000 712000 714000 716000

7520000 7518000 7516000 7514000 7512000 7510000

Roy Hill Rd

Munjina-Roy Hill Rd

475 m

481 m

977 m

Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrats

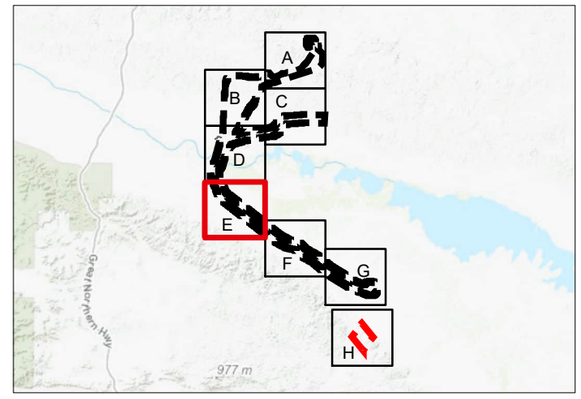
Scored

- **Y**
- **N**

Vegetation Types

- **AaAsCc**
- **AaEfEp**
- **AxEc**
- **EgAaTb2**
- **No Vegetation**
- Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP 7E

718000 720000 722000 724000 726000 728000 730000 732000

7512000 7510000 7508000 7506000 7504000 7502000 7500000

B054

WEELI WOLLI CREEK

Munjina-Roy Hill Rd

Munjina-Roy Hill Rd

Mainline Creek Railway

Mainline Creek Railway

543 m

438 m

977 m

Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrats

Scored

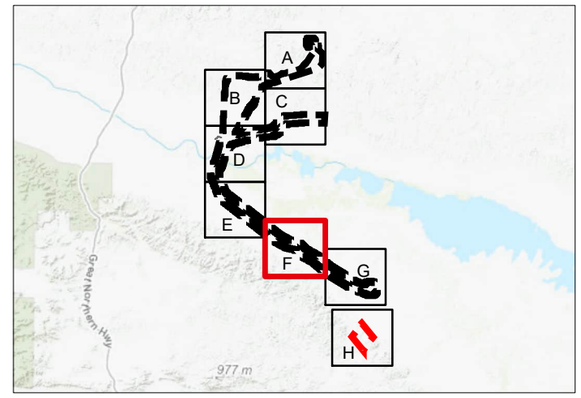
- Y
- N

Vegetation Types

- AaAsCc
- AaEfEp
- AaSaEp
- AaTb
- AdTb (PEC)
- ApAsCc
- AsCc
- AtTp
- EgAaTb2
- EvAcCc
- No Vegetation

Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP
7F

734000 736000 738000 740000 742000 744000 746000

7504000 7502000 7500000 7498000 7496000 7494000 7492000

435 m

WEELI WOLLI CREEK

Munjina-Roy Hill Rd

456 m

977 m

Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrats

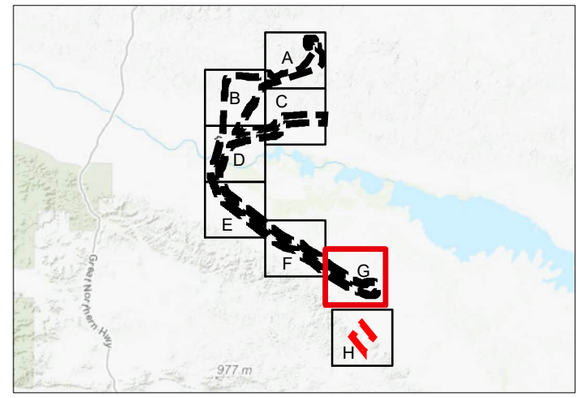
Scored

- Y
- N

Vegetation Types

- AaAsCc
- AaSaEp
- AcCc
- ApAsCc
- ApTp
- AsCc
- EvAcCc
- No Vegetation
- Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP 7G

738000
740000
742000
744000
7486000
7484000
7482000
7480000
WEELI WOLLI CREEK
WEELI WOLLI CREEK
WEELI WOLLI CREEK
539 m
631 m
600 m
613 m

LEGEND

Billiards North Survey Area

Quadrats

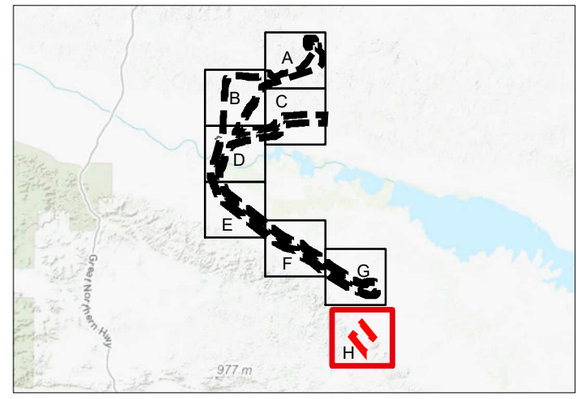
Scored

- Y

Vegetation Types

- AcCc
- ApTp
- AtTp
- EgAaTb2
- ElGwTv
- EvAcCc
- Drainage lines

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION TYPES

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:30,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	KP/AHC	SB	15/12/2021
1	KCP	SK	01/02/2022

MAP 7H

720000 722500 725000 727500 730000

7557500 7555000 7552500 7550000 7547500 7545000

B129 P8M P8N B132 B131 B130 B133 P8O A090 A092 A089 NT2131 A093 A094 C082 C080 C081 C083 C085 C084 C086 C087 C090 C088 C089 C091

409 m 400 m 526 m 494 m 532 m 526 m 516 m 533 m

LEGEND

Transport Corridor Survey Area

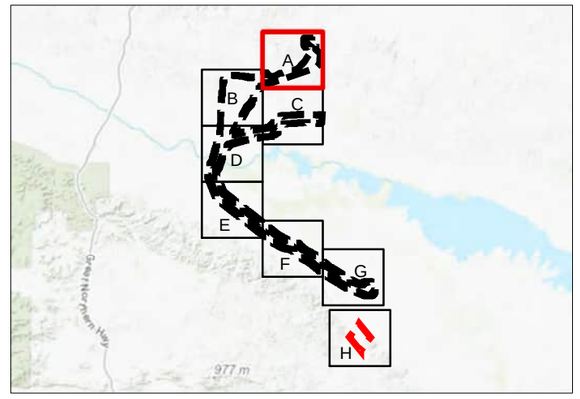
Quadrat Condition

- Excellent
- Very Good
- N/A
- Ground Survey Tracks
- Helicopter Flight Path

Vegetation Condition

- Excellent
- Very Good

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8A

705000 707500 710000 712500 715000 717500

7547500 7545000 7542500 7540000 7537500

A104 A105 A106 A107 A108 A109 A110 A111 A112 A113 A114 A115
B144 B145 B146 B147 B148 B149 B150 B151 B178 B179 B180 B181
C092 C093 C094 C095 C096 C097
D1 D2 D3 D4 D6 D7 D9
FMG19 FMG54 FMG55 FMG67 FMG72 FMG97 FMG98
MAT4
NT2121 NT2122 NT2123 NT2124 NT2125 NT2126 NT2127 NT2128 NT2129 NT2130
438 m

LEGEND

Transport Corridor Survey Area

Quadrat Condition

- Excellent
- Very Good
- Good
- N/A

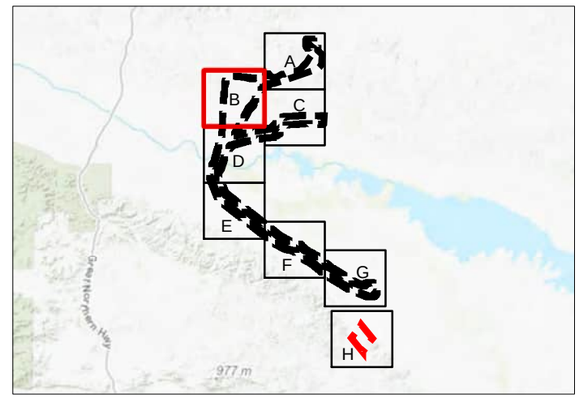
Ground Survey Tracks

Helicopter Flight Path

Vegetation Condition

- Excellent
- Very Good
- Good

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8B

720000 722500 725000 727500 730000

7542500 7540000 7537500 7535000 7532500

502 m 479 m 458 m

NT2116 NT2108 NT2119 NT2110 NT2111 NT2113 NT2112 NT2117 NT2115 NT2114 NT2118 NT2107 NT2106 NT2109

720000 722500 725000 727500 730000

LEGEND

Transport Corridor Survey Area

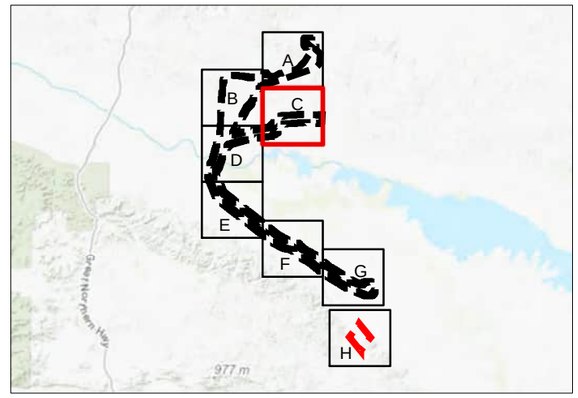
Quadrat Condition

- Excellent
- Very Good
- Good
- Ground Survey Tracks
- Helicopter Flight Path

Vegetation Condition

- Excellent
- Very Good
- Good

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8C

705000 707500 710000 712500 715000 717500

7535000 7532500 7530000 7527500 7525000 7522500

C098 FMG18 D5 B152 FMG70 FMG-KD D11 B153 C099 FMG17 B154 FMG-KE NT2101 C100 B155 C101 B183 C123 A116 B157 C124 B156 B162 B158 FMG-MF FMG15 MAT1 FMG38 B159 MAT3 FMG16 A117 B160 B161 B164 B163 B165 C125 A118 B166 A119 B167 B168 FMG-ML A120 B169 FMG41 FMG61 FMG14 C102 A121

NT2120 NT2104 NT2105 NT2103 NT2102

457 m 471 m 439 m 463 m 977 m

Cowra Rd Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrat Condition

- Excellent
- Very Good
- Good
- N/A

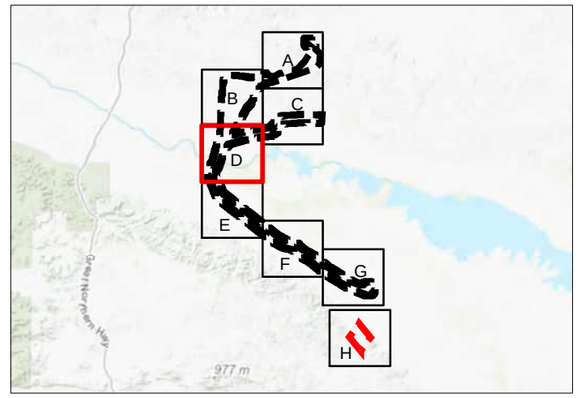
Ground Survey Tracks

Helicopter Flight Path

Vegetation Condition

- Excellent
- Very Good
- Good

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

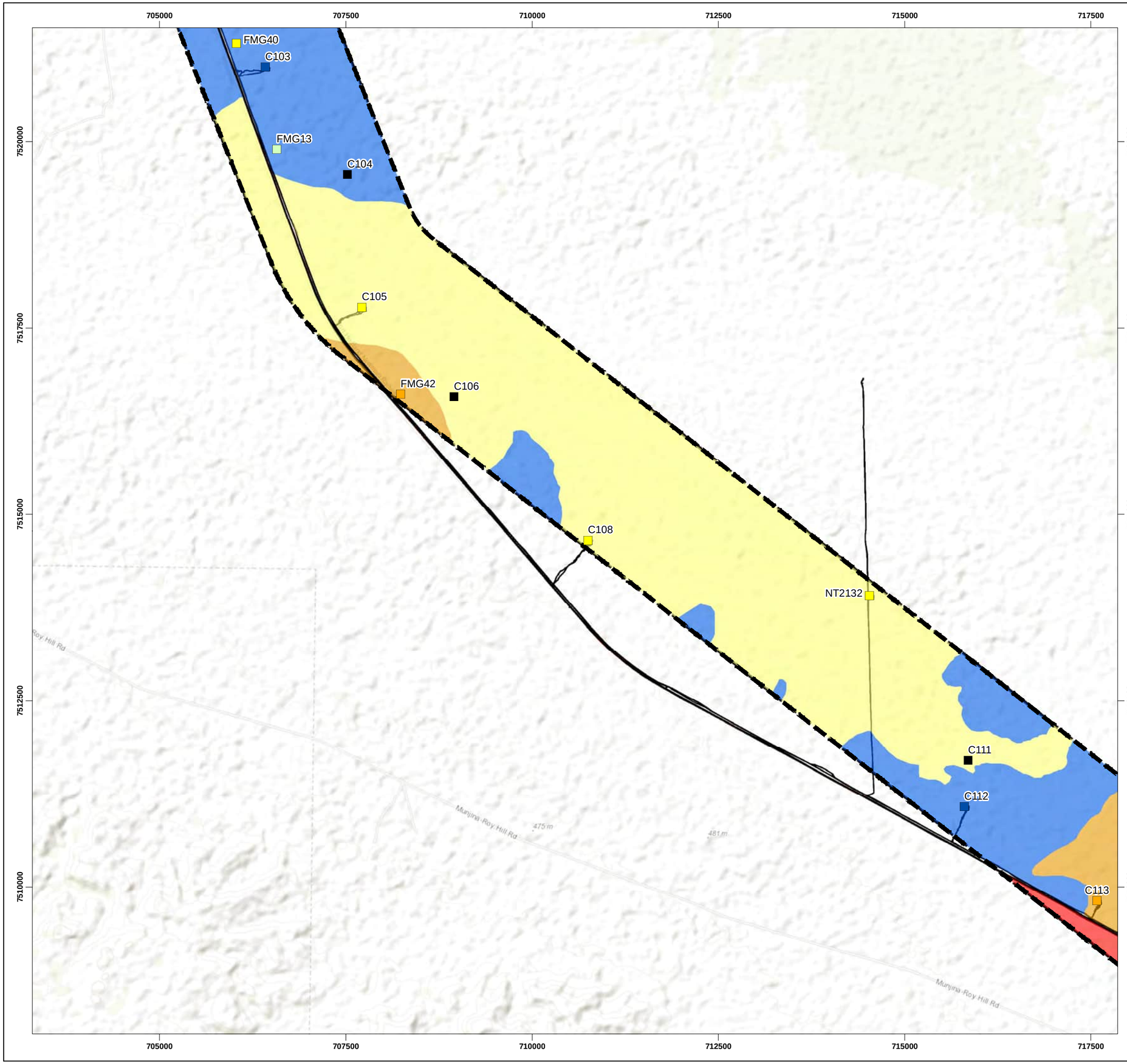
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8D



LEGEND

Transport Corridor Survey Area

Quadrat Condition

- Excellent
- Very Good
- Good
- Poor
- N/A

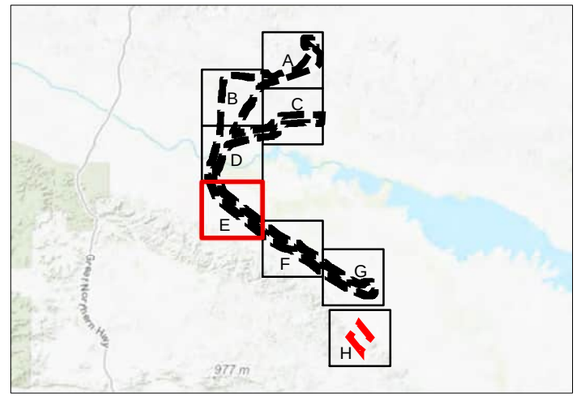
Ground Survey Tracks

Helicopter Flight Path

Vegetation Condition

- Degraded
- Very Good
- Good
- Poor

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8E

720000 722500 725000 727500 730000

7510000 7507500 7505000 7502500 7500000

B184 B174 FMG45 B176 C115 C116 B185 FMG46 C017 B057 C018 C073 C072 A040 FMG-RB FMG47 FMG48 C074 B054 A072 A041 B058 C014 A061 FMG-BE C015 A042 A043 B053 C114 B059 C118 A059 C016 C117 C121 FMG50 B052 C120 B051 B050 FMG49 C119 A134 C122 C071 FV17072 C009 C070 A133 C069 B083 B048 B023

Munjina-Roy Hill Rd

543 m

428 m

977 m

Mantarra Creek Railway

Great Northern Hwy

LEGEND

Transport Corridor Survey Area

Quadrat Condition

- Very Good
- Good
- Poor
- Degraded
- N/A

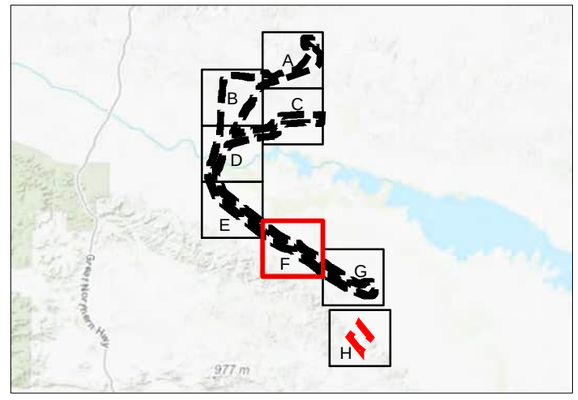
Ground Survey Tracks

Helicopter Flight Path

Vegetation Condition

- Degraded
- Very Good
- Good
- Poor

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

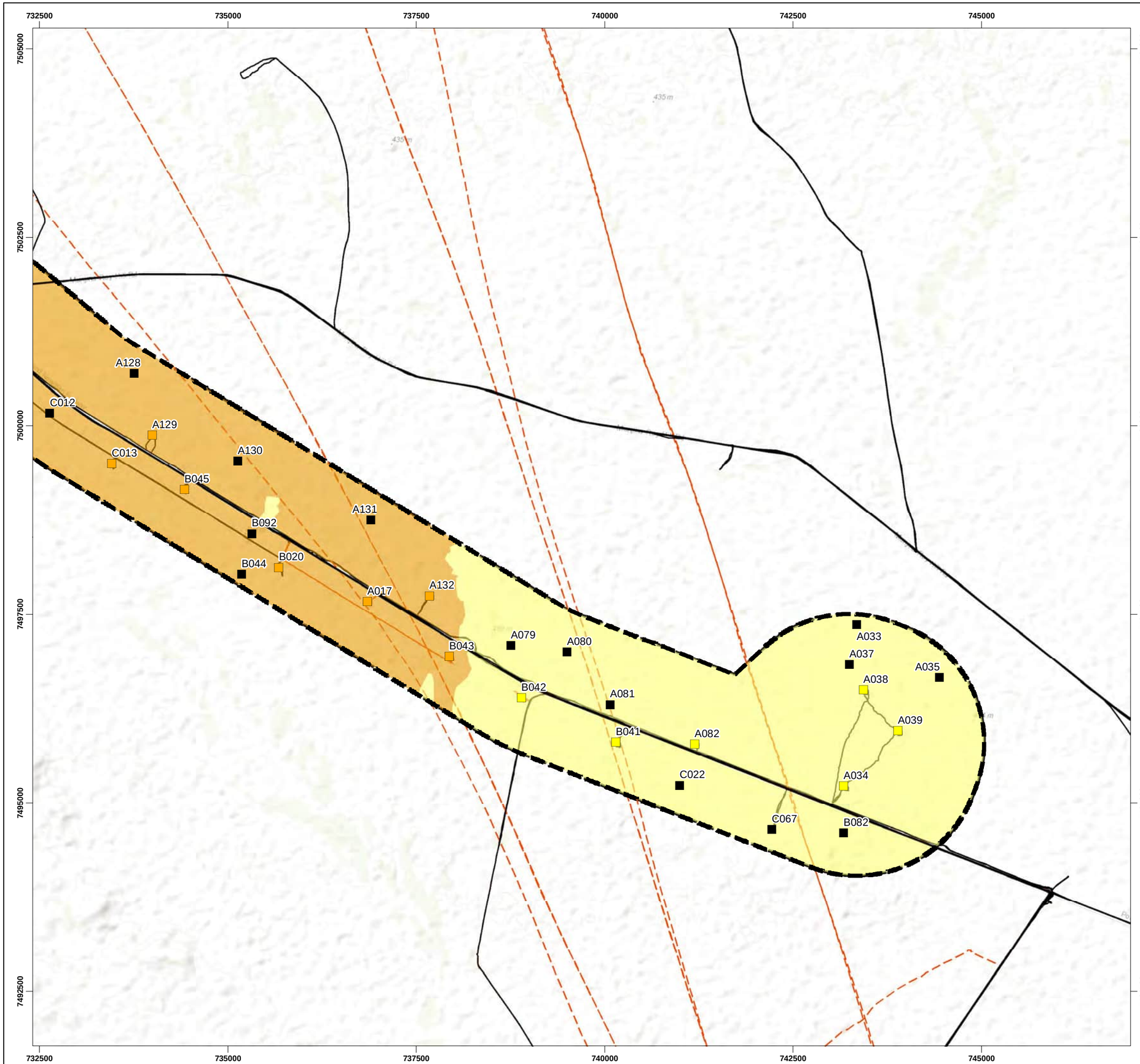
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP 8F



LEGEND

- Transport Corridor Survey Area

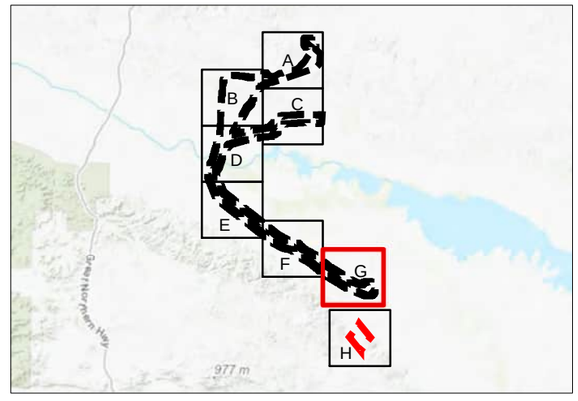
Quadrat Condition

- Good
- Poor
- N/A
- Ground Survey Tracks
- Helicopter Flight Path

Vegetation Condition

- Good
- Poor

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP
8G

737500
740000
742500
745000
7487500
7485000
7482500
7480000

NY2118
NY2110
NY2103
NY2104
NY2112
NY2105
NY2102
NY2111
NY2101
NY2116
NY2109
NY2115
NY2114
NY2113
NY2107
NY2108
NY2106
NY2117

LEGEND

Billiards North Survey Area

Quadrat Condition

- Excellent
- Very Good
- Good
- Degraded

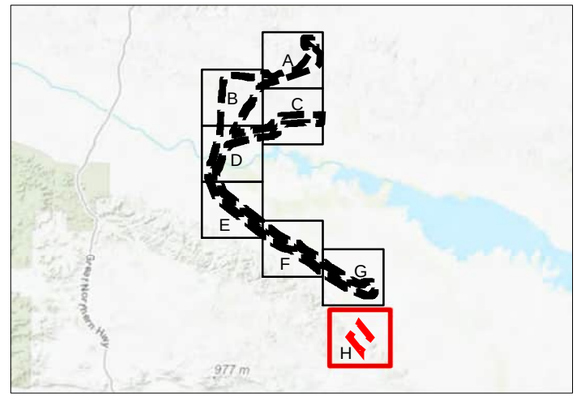
Ground Survey Tracks

Helicopter Flight Path

Vegetation Condition

- Degraded
- Excellent
- Very Good
- Good

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY



ecoscape

VEGETATION CONDITION

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

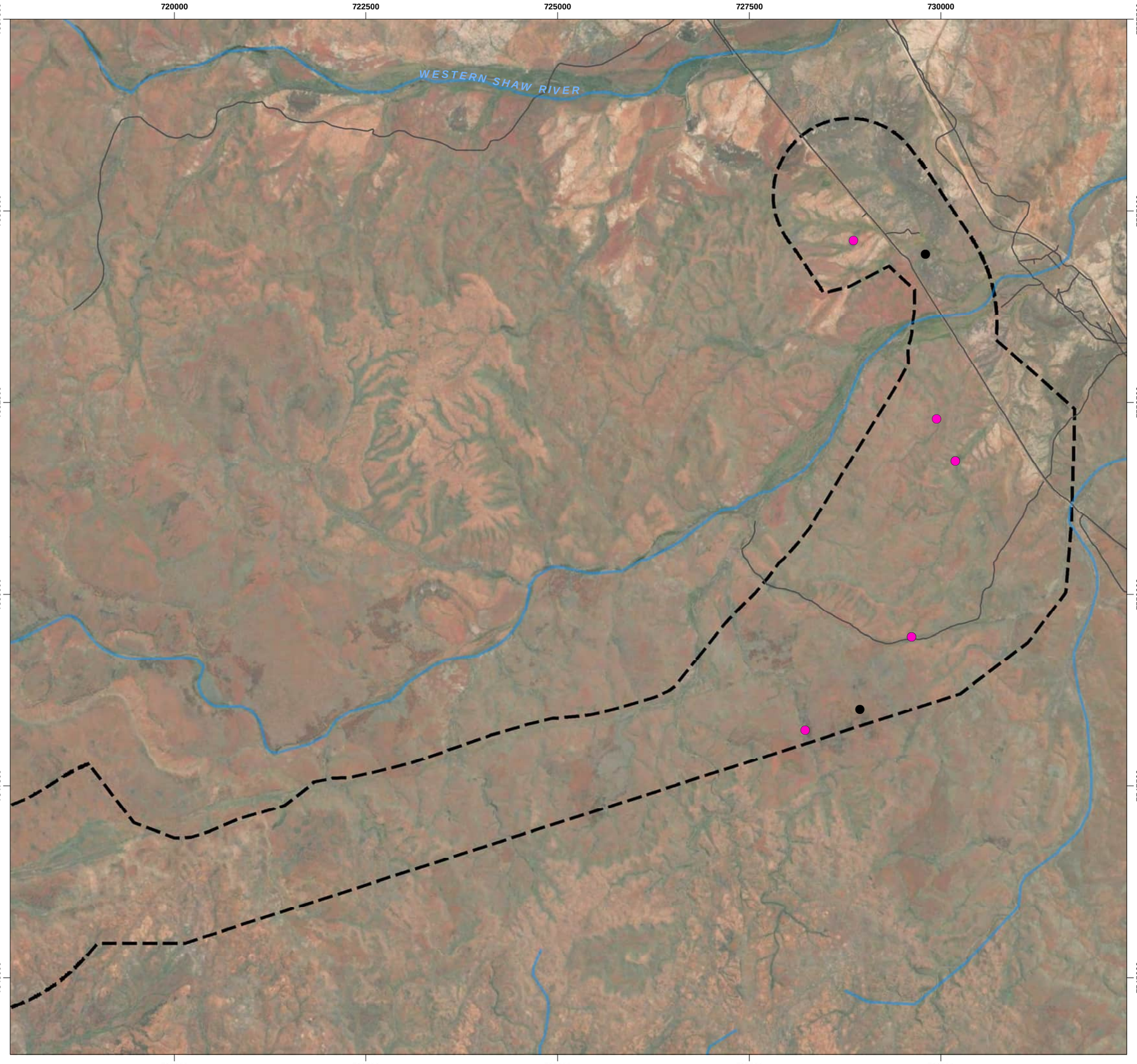
SCALE: 1:30,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	15/12/2021

MAP
8H



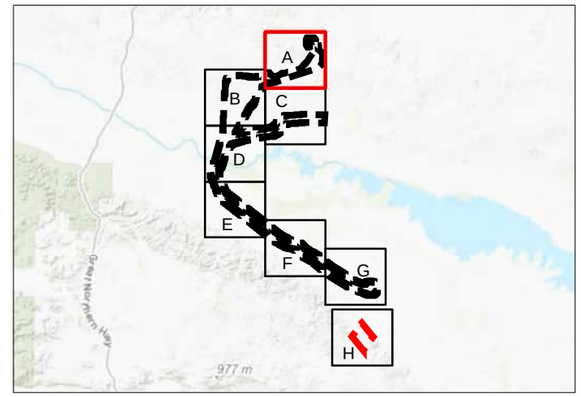
LEGEND

- Transport Corridor Survey
- FMG Tracks

FMG Significant Weeds

- *Aerva javanica*
- *Cenchrus ciliaris*
- *Malvastrum americanum*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3
0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP
9A

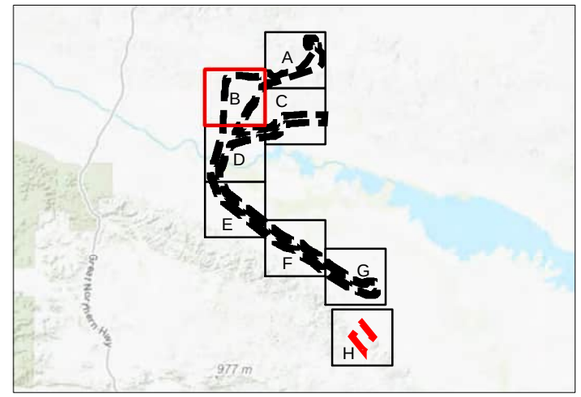
LEGEND

- Transport Corridor Survey
- FMG Tracks

FMG Significant Weeds

- **Aerva javanica*
- **Bidens subalternans*
- **Cenchrus ciliaris*
- **Echinochloa colona*
- **Malvastrum americanum*
- **Setaria verticillata*
- **Vachellia farnesiana*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

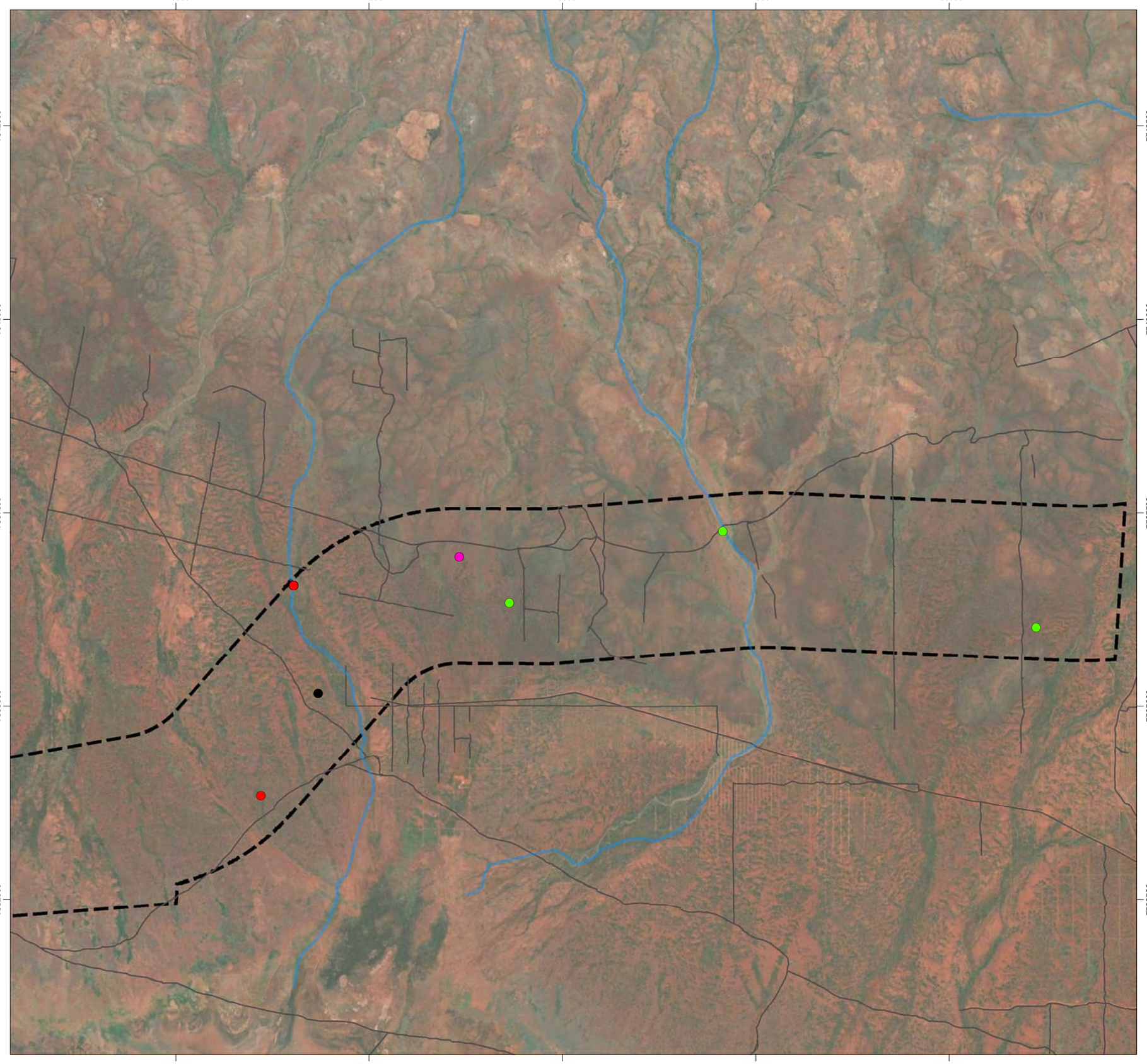
PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP
9B

720000 722500 725000 727500 730000

7542500 7540000 7537500 7535000 7532500



LEGEND

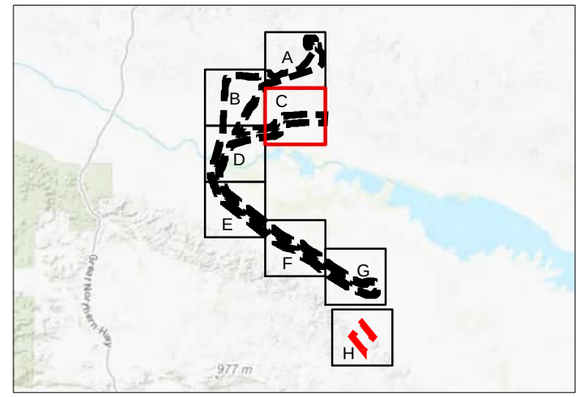
Transport Corridor Survey

FMG Tracks

FMG Significant Weeds

- **Bidens subalternans*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Echinochloa colona*
- **Malvastrum americanum*
- **Setaria verticillata*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP 9C

705000 707500 710000 712500 715000 717500

7535000 7532500 7530000 7527500 7525000 7522500

COWRA RD

LEGEND

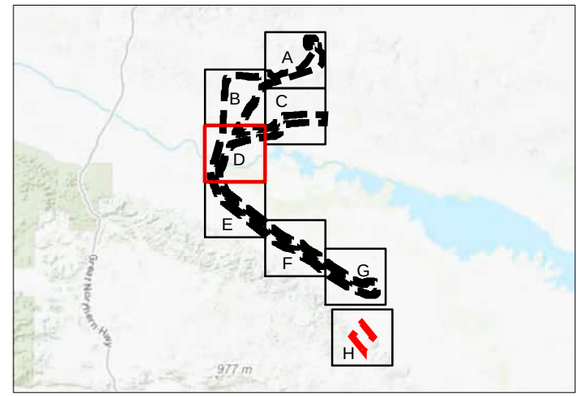
Transport Corridor Survey

FMG Tracks

FMG Significant Weeds

- **Aerva javanica*
- **Bidens subalternans*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Echinochloa colona*
- **Flaveria trinervia*
- **Malvastrum americanum*
- **Portulaca pilosa*
- **Rumex vesicarius*
- **Setaria verticillata*
- **Vachellia farnesiana*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

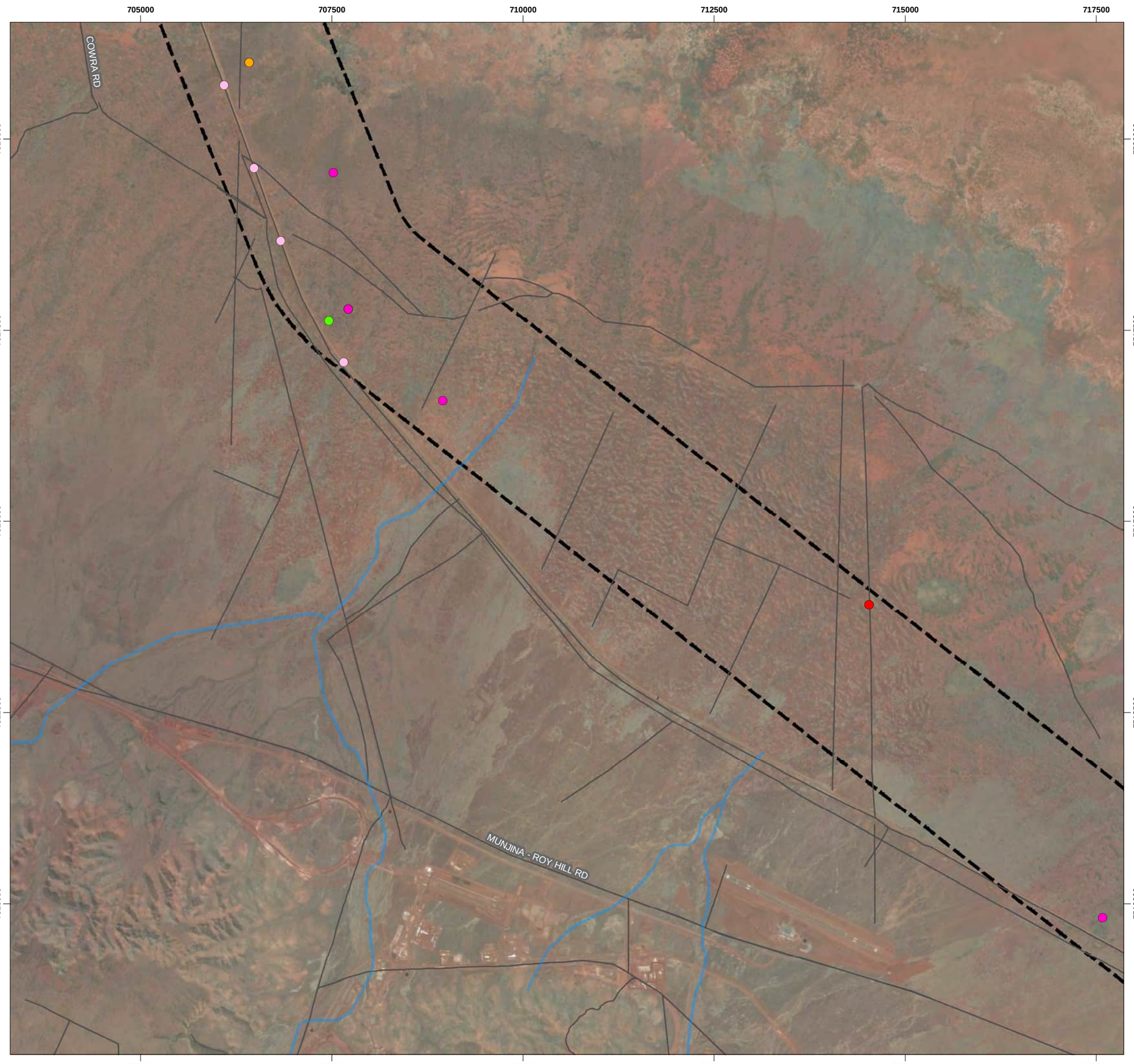
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP
9D



LEGEND

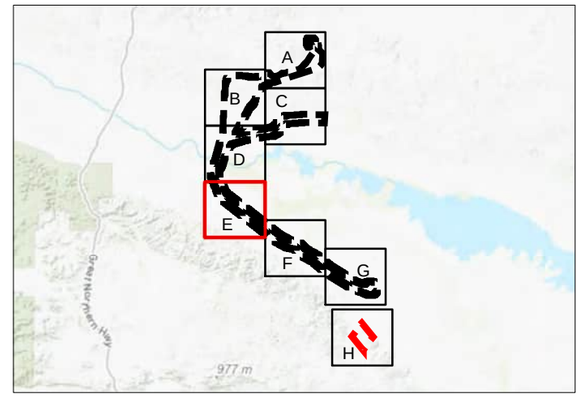
Transport Corridor Survey

FMG Tracks

FMG Significant Weeds

- **Aerva javanica*
- **Bidens subalternans*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Setaria verticillata*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

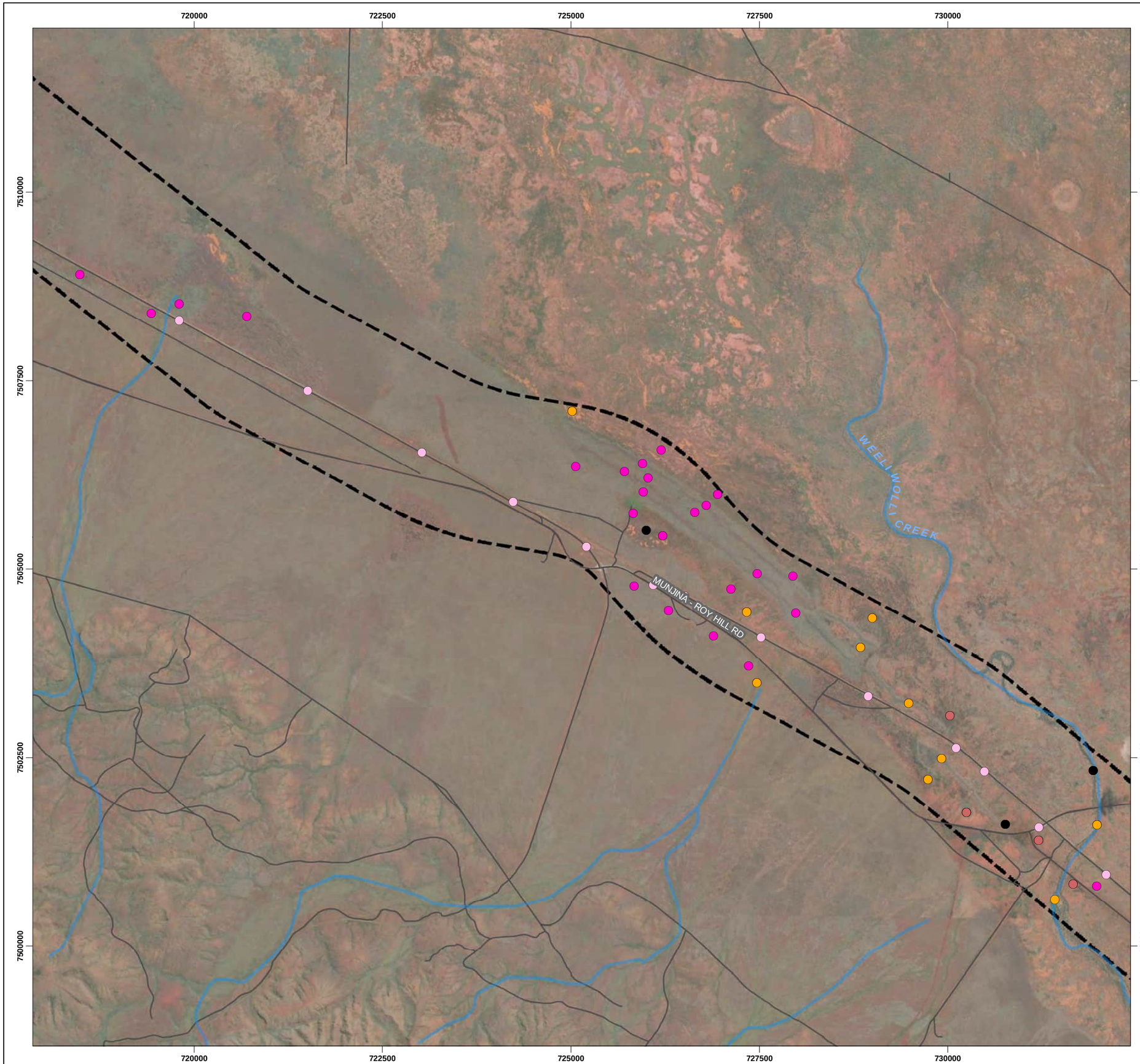
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP 9E



LEGEND

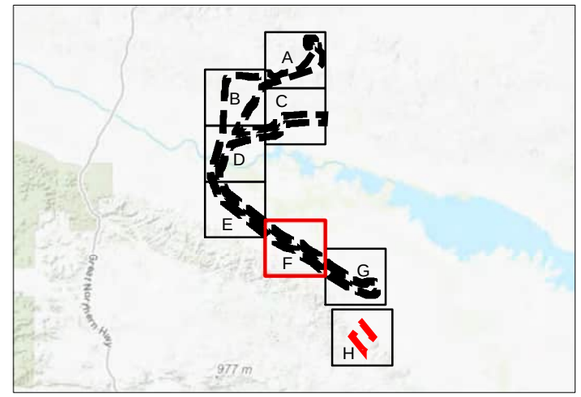
Transport Corridor Survey Area

FMG Tracks

FMG Significant Weeds

- **Aerva javanica*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Malvastrum americanum*
- **Vachellia farnesiana*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP 9F

732500 735000 737500 740000 742500 745000

7505000 7502500 7500000 7497500 7495000 7492500

MUNJINA - ROY HILL RD

WEELI WOLLI CREEK

WEELI WOLLI CREEK

WEELI WOLLI CREEK

LEGEND

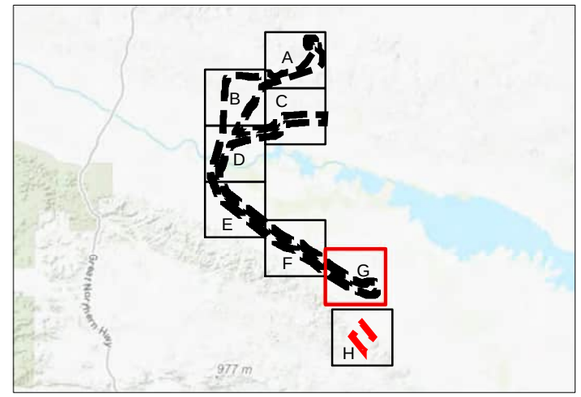
Transport Corridor Survey Area

FMG Tracks

FMG Significant Weeds

- **Aerva javanica*
- **Bidens subalternans*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Chloris virgata*
- **Malvastrum americanum*
- **Portulaca pilosa*
- **Vachellia farnesiana*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

FMG Fortescue The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

N

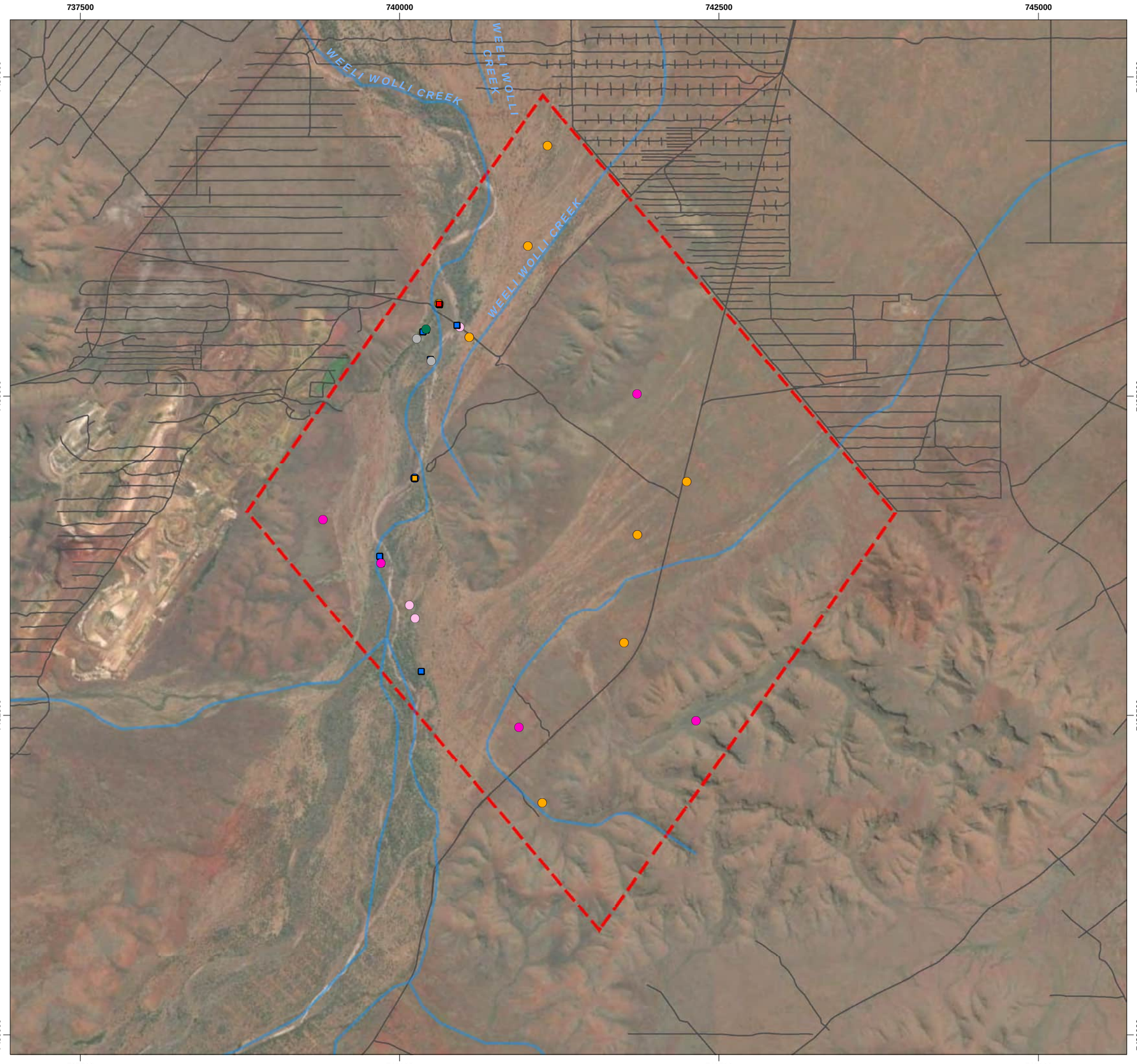
SCALE: 1:50,000 @ A3

0 1 km

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP 9G



LEGEND

Billiards North Survey Area

FMG Tracks

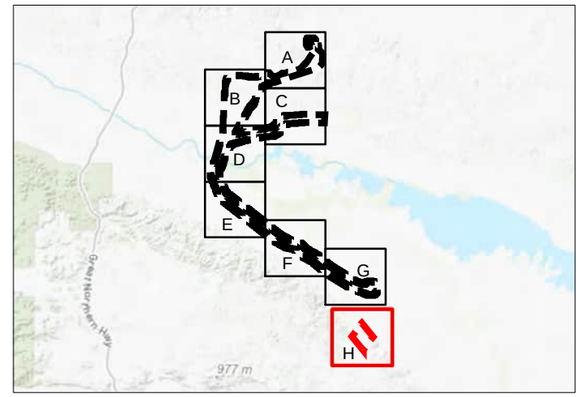
FMG Significant Weeds

- **Aerva javanica*
- **Cenchrus ciliaris*
- **Cenchrus setiger*
- **Echinochloa colona*
- **Solanum nigrum*
- **Sonchus oleraceus*

Other

- **Argemone ochroleuca*
- **Citrullus amarus*
- **Tridax procumbens*

DATASOURCES :
SOURCE DATA: TRANSPORT ROAD CENTRELINES (MRWA 2012)
BASEMAP: GEOSCIENCE AUSTRALIA
SERVICE LAYERS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN,



ecoscape

WEED MAPPING SURVEY RESULTS

NYIDINGHU TRANSPORT CORRIDOR FLORA AND VEGETATION SURVEY

Fortescue
The New Force in Iron Ore

COORDINATE SYSTEM: GDA 1994 MGA ZONE 50
PROJECTION: TRANSVERSE MERCATOR
DATUM: GDA 1994
UNITS: METER

SCALE: 1:30,000 @ A3

N

PROJECT NO: 4611-21

REV	AUTHOR	APPROVED	DATE
0	AHC	SB	20/08/2021

MAP
9H

APPENDIX ONE LEGISLATIVE CONTEXT, DEFINITIONS AND CRITERIA

COMMONWEALTH ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The EPBC Act is a legal framework to protect and manage matters of national environmental significance (MNES) including important flora, fauna, ecological communities and heritage areas listed under the Act.

Threatened taxa (flora and fauna) are protected under the EPBC Act, which lists species and ecological communities that have been assessed as meeting the criteria to be listed as Critically Endangered, Endangered, Vulnerable, Conservation Dependant, Extinct, or Extinct in the Wild, as detailed in **Table 12**.

Threatened Ecological Communities protected under the EPBC Act are categorised as Critically Endangered, Endangered or Vulnerable, also detailed in this table.

Migratory species subject to international agreements are also protected under the EPBC Act. The definition of a migratory species under the Act follows that prescribed by the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (Department of the Environment 2021):

> *Migratory species are the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.*

Species listed by the following international agreements are currently protected under the EPBC Act:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
- China-Australia Migratory Bird Agreement (CAMBA)
- Japan-Australia Migratory Bird Agreement (JAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

Table 12: EPBC Act categories for flora, fauna and ecological communities

Category	Threatened species	Threatened Ecological Communities
Extinct	A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.	n/a
Extinct in the wild	A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time: (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.	n/a
Critically Endangered (CE)	A native species is eligible to be included in the *critically endangered* category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the *critically endangered* category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria

Category	Threatened species	Threatened Ecological Communities
Endangered (EN)	A native species is eligible to be included in the *endangered* category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the *endangered* category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
Vulnerable (VU)	A native species is eligible to be included in the *vulnerable* category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.	An ecological community is eligible to be included in the *vulnerable* category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.
Conservation Dependent	A native species is eligible to be included in the conservation dependent category at a particular time if, at that time: (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or (b) the following subparagraphs are satisfied: (i) the species is a species of fish; (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long-term survival in nature are maximised; (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory; (iv) cessation of the plan of management would adversely affect the conservation status of the species.	n/a

WESTERN AUSTRALIAN ENVIRONMENTAL PROTECTION ACT 1986

The Western Australian EP Act was created to provide for an Environmental Protection Authority (the EPA) that has the responsibility for:

- prevention, control and abatement of pollution and environmental harm
- conservation, preservation, protection, enhancement and management of the environment
- matters incidental to or connected with the above.

The EPA is responsible for providing the guidance and policy under which environmental assessments are conducted. It conducts environmental impact assessments (based on the information provided by the proponent), initiates measures to protect the environment and provides advice to the Minister responsible for environmental matters.

WESTERN AUSTRALIAN BIODIVERSITY CONSERVATION ACT 2016

The Western Australian BC Act provides for the conservation, protection and ecologically sustainable use of biodiversity and biodiversity components in Western Australia.

Threatened species (both flora and fauna) and ecological communities that meet the categories listed within the BC Act are protected under this legislation and require authorisation by the Minister to take or disturb. These are known as Threatened Flora, Threatened Fauna and Threatened Ecological Communities. The conservation categories of Critically Endangered, Endangered and Vulnerable are detailed in **Table 13**; these categories align with those of the EPBC Act. Some State-listed threatened species and ecological communities are provided with additional protection as they are also listed under the Commonwealth EPBC Act (see **Table 12** for conservation status category descriptions).

The most recent Western Australian flora and fauna listings were published in the Government Gazette on 11 September 2018 (Government of Western Australia 2018a).

PRIORITY-LISTED FLORA AND FAUNA

Flora are listed as PF where populations are geographically restricted or threatened by local processes, or where there is insufficient information to formally assign them to TF categories. Whilst PF are not specifically listed in the BC Act, some may qualify as being of special conservation interest and thereby have a greater level of protection than unlisted species.

There are three categories covering Western Australian-listed TF and four categories covering PF species which are outlined in **Table 13**. PF for Western Australia are regularly reviewed by the DBCA whenever new information becomes available, with species status altered or removed from the list when data indicates that they no longer meet these requirements.

Conservation significant fauna species are listed by the DBCA as Priority Fauna where populations are geographically restricted or threatened by local processes, or where there is insufficient information to formally assign them to threatened fauna categories. Whilst Priority Fauna are not specifically listed in the BC Act, these have a greater level of significance than other native species. The categories covering Priority Fauna species are outlined in **Table 13**.

Flora and fauna species may be listed as being of special conservation interest if they have a naturally low population, have a restricted natural range, are subject to or recovering from a significant population decline or reduction of range or are of special interest, and the Minister considers that taking may result in depletion of the species. Migratory species and those subject to international agreement are also listed under the Act. These are known as 'specially protected species' in the BC Act.

Table 13: Conservation codes for Western Australian flora and fauna (DBCA 2019b)

Conservation Codes for Western Australian Flora and Fauna	
Threatened, Extinct and Specially Protected fauna or flora[1] are species[2] which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such. **The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.** **Categories of Threatened, Extinct and Specially Protected fauna and flora are:**	
T	**Threatened species** Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act). Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna. Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora. 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.

Conservation Codes for Western Australian Flora and Fauna	
CR	**Critically endangered species** Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*". Listed as critically endangered undersection 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.
EN	**Endangered species** Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*". Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.
VU	**Vulnerable species** Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*". Listed as vulnerable undersection 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.
Extinct species **Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.**	
EX	**Extinct species** Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act). Published as presumed extinct under schedule 4of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.
EW	Extinct in the wild species Species that "*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25of the BC Act). Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.
Specially protected species **Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.** **Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.**	
MI	**Migratory species** Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15of the BC Act). Includes 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 fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species. Published as migratory birds protected under an international agreement under schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018.
CD	**Species of special conservation interest (conservation dependent fauna)** Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14of the BC Act). Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*
OS	**Other specially protected species** Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18of the BC Act). Published as other specially protected fauna under schedule 7of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

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

[1] The definition of flora includes algae, fungi and lichens.
[2] Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

Western Australian TECs are protected under the BC Act and are categorised much like those of the EPBC Act. Western Australian definitions and criteria for TECs are shown in **Table 14**.

Currently described TECs are listed on the DBCA website, with the most recent list endorsed by the Minister for Environment in June 2018 (DBCA 2018).

DBCA also maintains a list of Priority Ecological Communities (PECs). PECs include potential TECs that do not meet survey criteria, or that are not adequately defined. They are not protected under legislation but are taken into consideration as part of the environmental approvals process.

Currently described PECs are listed on the DBCA website, with the most recent list dated 20 March 2021 (Species and Communities Program, DBCA 2021). Definitions and criteria for PECs are shown in **Table 14**.

Table 14: DBCA definitions and criteria for TECs and PECs (DEC 2013)

Criteria	Definition
Threatened Ecological Communities	
Presumed Totally Destroyed (PD)	An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future. An ecological community will be listed as presumed totally destroyed if there are no recent records of the community being extant and either of the following applies (A or B): A. Records within the last 50 years have not been confirmed despite thorough searches of known or likely habitats or B. All occurrences recorded within the last 50 years have since been destroyed
Critically Endangered (CR)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated. An ecological community will be listed as Critically Endangered when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future. This will be determined on the basis of the best available information, by it meeting any one or more of the following criteria (A, B or C): A. The estimated geographic range, and/or total area occupied, and/or number of discrete occurrences since European settlement have been reduced by at least 90% and either or both of the following apply (i or ii): i. geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is imminent (within approximately 10 years); ii. modification throughout its range is continuing such that in the immediate future (within approximately 10 years) the community is unlikely to be capable of being substantially rehabilitated. B. Current distribution is limited, and one or more of the following apply (i, ii or iii): i. geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the immediate future (within approximately 10 years); ii. there are very few occurrences, each of which is small and/or isolated and extremely vulnerable to known threatening processes; iii. there may be many occurrences but total area is very small and each occurrence is small and/or isolated and extremely vulnerable to known threatening processes. C. The ecological community exists only as highly modified occurrences that may be capable of being rehabilitated if such work begins in the immediate future (within approximately 10 years).
Endangered (EN)	An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future. An ecological community will be listed as Endangered when it has been adequately surveyed and is not Critically Endangered but is facing a very high risk of total destruction in the near future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B, or C): A. The geographic range, and/or total area occupied, and/or number of discrete occurrences have been reduced by at least 70% since European settlement and either or both of the following apply (i or ii): i. the estimated geographic range, and/or total area occupied and/or number of discrete occurrences are continuing to decline such that total destruction of the community is likely in the short term future (within approximately 20 years); ii. modification throughout its range is continuing such that in the short term future (within approximately 20 years) the community is unlikely to be capable of being substantially restored or rehabilitated. B. Current distribution is limited, and one or more of the following apply (i, ii or iii): i. geographic range and/or number of discrete occurrences, and/or area occupied is highly restricted and the community is currently subject to known threatening processes which are likely to result in total destruction throughout its range in the short term future (within approximately 20 years); ii. there are few occurrences, each of which is small and/or isolated and all or most occurrences are very vulnerable to known threatening processes; iii. there may be many occurrences but total area is small and all or most occurrences are small and/or isolated and very vulnerable to known threatening processes. The ecological community exists only as very modified occurrences that may be capable of being substantially restored or rehabilitated if such work begins in the short-term future (within approximately 20 years).

Criteria	Definition
Vulnerable (VU)	An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range. An ecological community will be listed as Vulnerable when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing a high risk of total destruction or significant modification in the medium to long-term future. This will be determined on the basis of the best available information by it meeting any one or more of the following criteria (A, B or C): A. The ecological community exists largely as modified occurrences that are likely to be capable of being substantially restored or rehabilitated. B. The ecological community may already be modified and would be vulnerable to threatening processes, is restricted in area and/or range and/or is only found at a few locations. C. The ecological community may be still widespread but is believed likely to move into a category of higher threat in the medium to long term future because of existing or impending threatening processes.
Priority ecological communities	
Priority One	*Poorly known ecological communities* Ecological communities with apparently few, small occurrences, all or most not actively managed for conservation (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) and for which current threats exist. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority Two	*Poorly known ecological communities* Communities that are known from few small occurrences, all or most of which are actively managed for conservation (e.g. within national parks, conservation parks, nature reserves, state forest, unallocated Crown land, water reserves, etc.) and not under imminent threat of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities, but do not meet adequacy of survey requirements, and / or are not well defined, and appear to be under threat from known threatening processes.
Priority Three	*Poorly known ecological communities* i. Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or; ii. Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat, or; iii. Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, and inappropriate fire regimes. Communities may be included if they are comparatively well known from several localities, but do not meet adequacy of survey requirements and / or are not well defined, and known threatening processes exist that could affect them.
Priority Four	Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring. i. Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change These communities are usually represented on conservation lands. ii. Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. iii. Ecological communities that have been removed from the list of threatened communities during the past five years.
Priority Five	*Conservation Dependent Ecological Communities* Ecological Communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

FLORA CRITERIA

OTHER SIGNIFICANT FLORA

According to the Flora and Vegetation Technical Guidance (EPA 2016) other than being listed as Threatened or Priority Flora, a species can be considered as significant if it is considered to be:

- locally endemic or association with a restricted habitat type (e.g. Groundwater Dependent Ecosystems, Sheet Flow Dependent Vegetation)
- a new species or has anomalous features that indicate a potential new species
- at the extremes of range, recently discovered range extensions (generally considered greater than 100 km or in a different bioregion), or isolated outliers of the main range)
- unusual species, including restricted subspecies, varieties or naturally occurring hybrids
- relictual status, being representative of taxonomic groups that no longer occur widely in the broader landscape.

INTRODUCED FLORA

Introduced plant species, known as weeds, are plants that are not indigenous to an area and have been introduced either directly or indirectly (unintentionally) through human activity. Species are regarded as introduced if they are listed as 'alien' on *FloraBase* (Western Australian Herbarium [WAH] 1998-2021) and are designated with an asterisk (*) in this document.

Weeds of National Significance

At a national level there are 32 weed species listed as Weeds of National Significance (WoNS) (Weeds Australia & Centre for Invasive Species Solutions 2021). The Commonwealth *Australian Weeds Strategy 2017-2027* (Invasive Plants and Animals Committee 2016) describes broad goals and objectives to manage these species.

Declared Pest Plants

The Western Australian Organism List (WAOL) details organisms listed as Declared Pests under the *Biosecurity and Agriculture Management Act 2007* (BAM Act). Under the BAM Act, Declared Pests are listed as one of the three categories, or exempt:

- C1 (exclusion), that applies to pests not established in Western Australia; control measures are to be taken to prevent their entry and establishment
- C2 (eradication), that applies to pests that are present in Western Australia but in low numbers or in limited areas where eradication is still a possibility
- C3 (management), that applies to established pests where it is not feasible or desirable to manage them in order to limit their damage
- exempt (no category).

VEGETATION CRITERIA

OTHER SIGNIFICANT VEGETATION

According to the Flora and Vegetation Technical Guidance (EPA 2016) other than being listed as a TEC or PEC, vegetation can be considered as significant if it is considered to have:

- restricted distribution
- a degree of historical impact from threatening processes
- a role as a refuge
- provides an important function required to maintain ecological integrity of a significant ecosystem.

Groundwater Dependent and Sheet Flow Dependent (Mulga) Vegetation may be considered as significant and are described below.

Groundwater Dependent Vegetation

Groundwater Definition

Groundwater is water that is found in the saturated zone of the soil, where all soil pores are filled with water. The water table is the upper surface of the saturated zone in an unconfined aquifer. Groundwater may also occur as a perched aquifer located above unsaturated rock formations as a result of a discontinuous permeable layer or held under pressure in a confined aquifer (Goulburn-Murray Water 2010).

Groundwater Dependent Ecosystems Definition

Groundwater Dependent Ecosystems (GDEs) have been defined as ecosystems that are dependent on groundwater for their survival at some stage or stages of their lifecycle, however groundwater use cannot be equated with groundwater dependence (Eamus 2009). In some contexts (including that of a flora and vegetation assessment), GDEs are also known as Groundwater Dependent Vegetation (GDV).

Hatton and Evans (1998) identified four types of GDEs based on their geographic setting: terrestrial vegetation (vegetation communities and dependent fauna that have seasonal or episodic dependence on groundwater), river base flow systems (aquatic and riparian ecosystems that exist in or adjacent to streams that are fed by groundwater base flow), aquifer and cave ecosystems, and wetlands.

Eamus *et al.* (2006) identified three primary classes based on type of groundwater reliance:

5. Aquifer and cave ecosystems.
6. All ecosystems dependent on the surface expression of groundwater:
    a) river base flows
    b) wetlands, swamplands
    c) seagrass beds in estuaries
    d) floodplains
    e) mound springs
    f) riparian vegetation
    g) saline discharge to lakes
    h) low lying forests.
7. All ecosystems dependent on the subsurface presence of groundwater, often accessed via the capillary fringe (non-saturated zone above the water table) when roots penetrate this zone:
    a) River Red Gum (*Eucalyptus camaldulensis*) forests
    b) Banksia woodlands
    c) Riparian vegetation in the wet/dry tropics.

GDEs in arid areas, including the Pilbara region, are generally determined to be vegetation associated with riparian areas. GDEs dependent on the surface expression of groundwater (Eamus *et al.* 2006 class 2) includes vegetation associated with wetlands (permanent or semi-permanent pools) within riparian areas, and generally includes *Melaleuca argentea* in association with other species described below.

GDEs associated with the subsurface presence of groundwater (Eamus *et al.* 2006 class 3) includes riparian vegetation characterised by the phreatophytic species described below.

Direct impacts on GDEs (clearing), and indirect impacts, including from dewatering and reinjection, frequently feature as being a significant environmental impact in mining approvals documents e.g. Office of the Appeals Convenor (2016a, 2016b), Rio Tinto (2016).

Phreatophytic Species

Phreatophytic species rely on groundwater sources for water intake (Maunsell Australia Pty Ltd 2006) essentially the water requirements of phreatophytes are greater than can be provided from the surface soil profile (e.g. riparian vegetation) or they are dependent on free water availability (e.g. wetland species). They frequently show low tolerance to extended water stress due to a lack of physiological and/or morphological adaptation to drought and respond to significant water deficit by a decline in health and eventual death (*ibid.).*

Obligate phreatophytes are dependent on free access to water (i.e. they are wetland species) whereas facultative phreatophytes can switch their water source between the soil surface profile in times of rain, to groundwater in times of drought when the soil surface profile (vadosphere) is depleted (Grierson 2010).

Phreatophytic species likely to occur in the Pilbara include:

- *Eucalyptus camaldulensis sens. lat.*, which is regarded as a facultative phreatophyte that is dependent on groundwater for part of its lifecycle and/or in times of drought. This species has been reported to be tolerant of groundwater falls of up to 4 m per year (Maunsell Australia Pty Ltd 2006), has both lateral and sinker roots and is tolerant of waterlogging (Grierson 2010).
- *Eucalyptus victrix*, which may be regarded as a facultative phreatophyte. It is considered to be relatively drought tolerant and likely to be tolerant of gradual declines to the water table (to a degree) (Maunsell Australia Pty Ltd 2006). *Eucalyptus victrix* has lateral and sinker roots (i.e. a dimorphic root system) but is not tolerant of waterlogging (Grierson 2010). There is some conjecture that this species is actually a vadophyte (i.e. relies on water from within the soil surface profile, and is independent of groundwater) or, at best, weakly phreatophytic (Resource and Environmental Management Pty Ltd 2007). Depth to groundwater is likely to be an important indicator of groundwater dependence (Equinox Environmental 2017).
- wetland species such as *Melaleuca argentea*
- *Melaleuca xerophila* may be groundwater dependent in some areas (Markey 2016).

Vegetation containing *Eucalyptus camaldulensis sens. lat.* and *Melaleuca argentea* is generally considered to represent a GDE.

However, there is supporting evidence that, in some circumstances, *Eucalyptus victrix* does not always depend on groundwater (Batini 2009; Eamus 2009; EPA 2010; Resource and Environmental Management Pty Ltd 2007). Depth to groundwater provides guidance to determining if the vegetation is likely to be groundwater dependent or not. Where the depth to groundwater is more than 10 m below the soil surface *Eucalyptus victrix* is unlikely to be able to access the resource (Barron *et al.* 2012); therefore *Eucalyptus victrix*-dominated vegetation is not likely to be groundwater dependent. However, where the depth to groundwater is less than 10 m, or where depth to groundwater is unknown but is potentially in this range, *Eucalyptus victrix*-dominated vegetation is considered to be potentially groundwater dependent (i.e. representative of a potential GDE).

Atlas of Groundwater Dependent Ecosystems

The Groundwater Dependent Ecosystems Atlas (BoM 2021b) indicates the presence of known GDEs and Inflow Dependent Ecosystems (IDEs) in Australia.

An Inflow Dependent Ecosystem is one in which the vegetation within the landscape is likely to be accessing water in addition to rainfall, from soil or surface water or groundwater, assessed using remotely sensed data. The likelihood of a landscape using additional water is rated from one to 10 (low to high), with a rating above six indicating that a landscape is likely to be inflow dependent (BoM 2021b).

Sheet Flow Dependent Vegetation

Sheet Flow Dependent Vegetation (SFDV) occurs through much of the arid and semi-arid zones of the world and is characterised by a mosaic of low cover or bare areas with low water infiltration rates (run-off areas) and high biomass cover with high infiltration rates (run-on areas) (Saco, Willgoose & Hancock 2007). The high biomass component in Australia is generally characterised by Mulga (a suite of related *Acacia* species; Maslin & Reid 2012), although other vegetation is also considered as SFDV (Ecologia Environment 2010).

These mosaics form over time due to a positive feedback wherein the increases in soil moisture in vegetated patches reinforces the pattern. They are considered to have an important role in stabilising the ecosystem and assist ecosystem recovery from disturbance. World-wide, these mosaics occur frequently in the form of irregular clusters of vegetation surrounded by bare soil, but also form bands, stripes or arcs with banded vegetation usually forming along contour lines and intercepting surface water flow. They occur most frequently on gentle slopes but also occur on relatively steep slopes. Interruptions to the banding pattern result in the

formation of erosion gullies and rills that concentrate water flow, with the landscape no longer displaying sheet flow and disrupting the formation of banded vegetation (Saco, Willgoose & Hancock 2007).

The most commonly known form of SFDV in Australia is 'grove-intergrove' Mulga wherein the 'grove' of Mulga trees and shrubs form the high-infiltration, high-biomass component and the 'intergrove' represents the low-infiltration, low-biomass component of the system. These form on relatively flat (very gently sloping) landscapes (Muller 2005; The University of Western Australia, Grierson & Page 2012). Grove-intergrove Mulga formations are known to occur over much of Australia including in Queensland, Western Australia, New South Wales and South Australia, and all occur on gently sloping alluvial-colluvial plains (Dunkerley 2002). The relatively soil high nutrient status (due to interception and retention of organic material), moisture (including soil moisture), shelter and diversity of structure within the Mulga groves are significant as habitat for both flora and fauna species (Freudenberger & Hiernaux 2001; Page 2013; Woinarski, Burbidge & Harrison 2014), including fossorial fauna species that, through their burrows and nests, aerate the soil and increase rainwater infiltration (Tongway 1994), in an otherwise depauperate environment.

Linear infrastructure, including roads and railways, are known to alter surface water hydrology, thereby placing SFDV at risk of degradation (Astron Environmental Services 2010).

ENVIRONMENTALLY SENSITIVE AREAS

There are a number of areas within Western Australia identified as being of environmental significance within which the exemptions to the Native Vegetation Clearing Regulations do not apply. These are referred to as Environmentally Sensitive Areas (ESAs), and are declared under section 51B of the EP Act and described in the *Environmental Protection (Environmentally Sensitive Areas) Notice*.

CONSERVATION ESTATE

The National Reserve System is a network of protected areas managed for conservation under international guidelines. The objective of placing areas of bushland into the Conservation Estate is to achieve and maintain a comprehensive, adequate and representative reserve system for Western Australia. The Conservation and Parks Commission is the vesting body for conservation lands, forest and marine reserves that are managed by DBCA (Government of Western Australia 2018b).

APPENDIX TWO FIELD SURVEY CRITERIA

Table 15: NVIS structural formation terminology, terrestrial vegetation (NVIS Technical Working Group & DotEE 2017)

	Cover characteristics							
	Foliage cover *	70-100	30-70	10-30	<10	» 0 (scattered)	0-5 (clumped)	unknown
	Cover code	d	c	i	r	bi	bc	unknown
Growth Form	**Height Ranges (m)**	**Structural Formation Classes**						
tree, palm	<10,10-30, >30	closed forest	open forest	woodland	open woodland	isolated trees	isolated clumps of trees	tree, palm
tree mallee	<3, <10, 10-30	closed mallee forest	open mallee forest	mallee woodland	open mallee woodland	isolated mallee trees	isolated clumps of mallee trees	tree mallee
shrub, cycad, grass-tree, tree-fern	<1,1-2,>2	closed shrubland	shrubland	open shrubland	sparse shrubland	isolated shrubs	isolated clumps of shrubs	shrub, cycad, grass-tree, tree-fern
mallee shrub	<3, <10, 10-30	closed mallee shrubland	mallee shrubland	open mallee shrubland	sparse mallee shrubland	isolated mallee shrubs	isolated clumps of mallee shrubs	mallee shrub
heath shrub	<1,1-2,>2	closed heathland	heathland	open heathland	sparse heathland	isolated heath shrubs	isolated clumps of heath shrubs	heath shrub
chenopod shrub	<1,1-2,>2	closed chenopod shrubland	chenopod shrubland	open chenopod shrubland	sparse chenopod shrubland	isolated chenopod shrubs	isolated clumps of chenopod shrubs	chenopod shrub
samphire shrub	<0.5,>0.5	closed samphire shrubland	samphire shrubland	open samphire shrubland	sparse samphire shrubland	isolated samphire shrubs	isolated clumps of samphire shrubs	samphire shrub
hummock grass	<2,>2	closed hummock grassland	hummock grassland	open hummock grassland	sparse hummock grassland	isolated hummock grasses	isolated clumps of hummock grasses	hummock grass
tussock grass	<0.5,>0.5	closed tussock grassland	tussock grassland	open tussock grassland	sparse tussock grassland	isolated tussock grasses	isolated clumps of tussock grasses	tussock grass
other grass	<0.5,>0.5	closed grassland	grassland	open grassland	sparse grassland	isolated grasses	isolated clumps of grasses	other grass
sedge	<0.5,>0.5	closed sedgeland	sedgeland	open sedgeland	sparse sedgeland	isolated sedges	isolated clumps of sedges	sedge
rush	<0.5,>0.5	closed rushland	rushland	open rushland	sparse rushland	isolated rushes	isolated clumps of rushes	rush
herb	<0.5,>0.5	closed herbland	herbland	open herbland	sparse herbland	isolated herbs	isolated clumps of herbs	herb
fern	<1,1-2,>2	closed fernland	fernland	open fernland	sparse fernland	isolated ferns	isolated clumps of ferns	fern
bryophyte	<0.5	closed bryophyte-land	bryophyte-land	open bryophyteland	sparse bryophyteland	isolated bryophytes	isolated clumps of bryophytes	bryophyte
lichen	<0.5	closed lichenland	lichenland	open lichenland	sparse lichenland	isolated lichens	isolated clumps of lichens	lichen
vine	<10,10-30, >30	closed vineland	vineland	open vineland	sparse vineland	isolated vines	isolated clumps of vines	vine

Table 16: NVIS height classes (NVIS Technical Working Group & DotEE 2017)

Height		Growth form				
Height Class	Height Range (m)	Tree, vine (M & U), palm (single-stemmed)	Shrub, heath shrub, chenopod shrub, ferns, samphire shrub, cycad, tree-fern, grass-tree, palm (multi-stemmed)	Tree mallee, mallee shrub	Tussock grass, hummock grass, other grass, sedge, rush, forbs, vine (G)	Bryophyte, lichen, seagrass, aquatic
8	>30	tall	NA	NA	NA	NA
7	10-30	mid	NA	tall	NA	NA
6	<10	low	NA	mid	NA	NA
5	<3	NA	NA	low	NA	NA
4	>2	NA	tall	NA	tall	NA
3	1-2	NA	mid	NA	tall	NA
2	0.5-1	NA	low	NA	mid	tall
1	<0.5	NA	low	NA	low	low
Source: (based on Walker & Hopkins 1990)						

Table 17: Vegetation condition scale for the Eremaean and Northern Botanical Provinces (EPA 2016)

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

APPENDIX THREE DESKTOP ASSESSMENT RESULTS AND LIKELIHOOD ASSESSMENTS

Table 18: Flora database search results, habitat and likelihood assessment

Blue shading indicates high likelihood; dark blue indicates species is known (recorded) from the survey area

DBCA*	FMG **	*Map code*	Species name	Habitat	Flowering	Distance (km) ****	Likelihood of occurrence	
							Desktop	Post-survey
			Threatened Flora					
WAH	X	Ser	*Seringia exastia*	Sandplains with red sand. Pindan Plain. Sand dunes and gravel plains	Apr – Dec	18	May occur	Known
			DBCA Priority 1					
WAH	X	Csq	*Calotis squamigera*	Pebbly loam	Jul	2	Likely	Likely
WAH	X	Cma	*Cochlospermum macnamarae*	Granite outcrop, granite hills. Skeletal red-brown sand	-	36	Very unlikely	Very unlikely
WAH		Dch	*Dipteracanthus chichesterensis*	Red/brown (cracking) clay	Sep	8	May occur	Unlikely
WAH, TP		Hol	*Helichrysum oligochaetum*	Red clay. Alluvial plains	-	36	Unlikely	Unlikely
WAH		Lsp	*Lindernia* sp. Pilbara (M.N. Lyons & L. Lewis FV 1069)	Edge of water features on clay	-	1	May occur	May occur
WAH, TP	X	Msc	*Myriocephalus scalpellus*	Clay. Depression on flood plain	-	13	May occur	Unlikely
WAH		Rsp	*Rorippa* sp. Fortescue Valley (M.N. Lyons & R.A. Coppen FV 0760)	Riparian slope at water's edge	-	30	Unlikely	Unlikely
WAH	X	Ssf	*Samolus* sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	Sandy clay loam soil. Floodplain/marsh	-	0	Known	May occur
WAH	X	Sha	*Synostemon hamersleyensis*	Brown sandy loam. Rocky ironstone hills	-	6	Likely	May occur
WAH, TP	X	Tgl	*Tecticornia globulifera*	Brown clayey loam. saline flat / marsh	-	5	Likely	Unlikely
WAH	X	TsC	*Tecticornia* sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	Red-orange/white sandy clay/sandy loam. Plains	-	0	Known	Known
WAH		Tve	*Triodia veniciae*	Clay loam. Gentle slopes/small hills	-	25	Very unlikely	Very unlikely
WAH	X	Vsp	*Vittadinia* sp. Coondewanna Flats (S. van Leeuwen 4684)	Red-brown sandy clay. Plains/low hills	-	25	Unlikely	Unlikely
			DBCA Priority 2					
WAH		Aca	*Adiantum capillus-veneris*	Moist, sheltered sites in gorges and on cliff walls	-	4	Unlikely	Very unlikely
WAH	X	Ala	*Aristida lazaridis*	Sand or loam	Apr	23	May occur	Unlikely
WAH	X	Cpr	*Cladium procerum*	Perennial pools	-	34	Unlikely	Very unlikely

DBCA*	FMG **	*Map code*	Species name	Habitat	Flowering	Distance (km) ****	Likelihood of occurrence	
							Desktop	Post-survey
WAH	X	Epu	*Eremophila pusilliflora*	Red / brown loamy soil. Plains	Feb-Mar	24	Very unlikely	Very unlikely
WAH	X	Eii	*Euphorbia inappendiculata* var. *inappendiculata*	Red-brown sandy/loamy clay. Plains / claypan	May	8	May occur	May occur
WAH	X	Eiq	*Euphorbia inappendiculata* var. *queenslandica*	Brownish loamy clay. Cracking claypan or plain	-	29	May occur	Known
WAH	X	Gka	*Gompholobium karijini*	Plateau, flat to gently undulating or on top of hills / slopes	Aug-Sep	16	Unlikely	Unlikely
WAH		Hsp	*Hibiscus* sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	Riparian zones. Gorges	Apr	46	Unlikely	Unlikely
WAH	X	Ira	*Ipomoea racemigera*	Brown silty loam. Drainage lines or flats	Apr-Jun	27	Unlikely	Unlikely
WAH		Ipa	*Isotropis parviflora*	Valley slope or ironstone plateau	Mar	13	May occur	Unlikely
WAH		Kau	*Kohautia australiensis*	Brown sandy loam. Calcrete plains or hills	-	29	Unlikely	Unlikely
WAH	X	Pre	*Paspalidium retiglume*	Clay	Apr	45	Unlikely	Unlikely
WAH		SsH	*Scaevola* sp. Hamersley Range basalts (S. van Leeuwen 3675)	Skeletal, brown gritty soil over basalt. Summits of hills, steep hills	Jul-Aug	11	Unlikely	Unlikely
WAH	X	Tpi	*Teucrium pilbaranum*	Crab hole plain in a river floodplain, margin of calcrete table	May or Sep	14	May occur	Unlikely
			DBCA Priority 3					
WAH		Asp	*Abutilon* sp. Pritzelianum (S. van Leeuwen 5095)	Plains, floodplains, sand dunes. Red-brown or orange-brown sandy or loamy soil. Open *Acacia* shrubland over *Triodia* grassland	Apr-Sep	7	May occur	Unlikely
WAH, TP		Aef	*Acacia effusa*	Scree slopes of low ranges, undulating stony plains. Stony red-brown loam soil	May-Aug	44	Very unlikely	Very unlikely
WAH, TP		Ale	*Acacia levata*	Hillslopes. Sand or sandy loam over granite. *Triodia* grassland with scattered *Acacia* shrubs	May	25	Unlikely	Unlikely
WAH, TP	X	Asu	*Acacia subtiliformis*	Rocky ridges, calcrete hills, undulating plains. Light brown rocky loam or brown clay soils. *Acacia* shrubland over *Triodia* grassland with scattered *Eucalyptus* and *Corymbia* trees	Apr-Jun	2	May occur	Unlikely
WAH		Ace	*Amaranthus centralis*	Sand plains, granite outcrops, river banks, flats. Clay loam or sandy soil. Open woodland of *Acacia/Eucalyptus/Corymbia* over mixed shrubland with *Triodia* spp	May	23	Very unlikely	Very unlikely
WAH		Apr	*Ampelopteris prolifera*	Gullies, wetlands	-	40	Very unlikely	Very unlikely
WAH	X	Aje	*Aristida jerichoensis* var. *subspinulifera*	Hardpan plains. Mulga/open *Acacia* shrubland over open *Triodia* grassland and/or tussock grassland with scattered *Eucalyptus* trees	Mar-Jul	22	Unlikely	Unlikely
WAH	X	Afl	*Atriplex flabelliformis*	Saline flats or marshes with red-brown clay loam soil. Samphire vegetation	-	0	Known	Known

DBCA*	FMG **	*Map code*	Species name	Habitat	Flowering	Distance (km) ****	Likelihood of occurrence	
							Desktop	Post-survey
WAH, TP		Dme	*Dampiera metallorum*	Steep slopes, summits of hills. Skeletal red-brown gravelly soil over banded ironstone	Apr-Oct	24	Unlikely	Unlikely
WAH		Dsp	*Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479)	Crabhole plains, drainage lines, gentle slopes. Clay or loam soil	Mar	8	May occur	Known
WAH	X	Dco	*Dysphania congestiflora*	Saline floodplains. Red-brown saline clay soils	Jul	0	Known	Known
WAH	X	Epa	*Eleocharis papillosa*	Claypans, open clay flats. Red/brown clay soil	Nov	1	Likely	May occur
WAH	X	Ecr	*Eragrostis crateriformis*	Creek banks, depressions. Clayey loam or clay	Jan-Jul	31	Unlikely	Unlikely
WAH		Ees	*Eragrostis* sp. Erect spikelets (P.K. Latz 2122)	Low calcrete rise	-	0	Known	Known
WAH		EsH	*Eremophila* sp. Hamersley Range (K. Walker KW 136)	Rocky hill slopes, hill crests, gullies. Skeletal red-brown clay loam, sandy loam soil	Jun-Sep	26	Unlikely	Unlikely
WAH, TP	X	Esp	*Eremophila spongiocarpa*	Weakly saline alluvial plains on margins of marsh.	May-Sep	0	Known	Known
WAH	X	Eau	*Euphorbia australis* var. *glabra*	Plains and floodplains. Occasionally on cracking clay	May-Sep	9	Likely	May occur
WAH		Est	*Euphorbia stevenii*	Clay, sandy soils		25	Unlikely	Unlikely
WAH, TP	X	Fsi	*Fimbristylis sieberiana*	Pool edges, sandstone cliffs. Mud, skeletal soil pockets	May-Jun	25	Very unlikely	Very unlikely
WAH, TP	X	Gfa	*Glycine falcata*	Black clayey sand. Along drainage depressions in crabhole plains on river floodplains	May-Jul	28	Unlikely	Unlikely
WAH, TP	X	Gsp	*Goodenia* sp. East Pilbara (A.A. Mitchell PRP 727)	Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains	Sep	0	Known	Unlikely
WAH		Gsa	*Grevillea saxicola*	Rocky hill tops and slopes	Feb-Jul	46	Unlikely	Unlikely
WAH	X	Gcu	*Gymnanthera cunninghamii*	Creek beds, drainage lines, on margins of mound springs. Sandy soils	Dec-Jan	14	Unlikely	Unlikely
WAH		Hmu	*Heliotropium murinum*	Plains, undulating plains, floodplains. Red-brown soil	May-Sep	48	Very unlikely	Very unlikely
WAH	X	Igi	*Indigofera gilesii*	Pebbly loam. Amongst boulders and outcrops, hills	May-Aug	25	Unlikely	Unlikely
WAH	X	Ise	*Iotasperma sessilifolium*	Cracking clay, black loam. Edges of waterholes, plains	Jul-Sep	30	Unlikely	Unlikely
WAH		Num	*Nicotiana umbratica*	Rocky outcrops with shallow soils	Apr-Jun	22	Very unlikely	Very unlikely
WAH, TP	X	RsH	*Rhagodia* sp. Hamersley (M. Trudgen 17794)	Plains with red-brown clay loams over ironstone	Mar-Nov	20	Unlikely	Unlikely
WAH	X	Rad	*Rostellularia adscendens* var. *latifolia*	Ironstone soils. Near creeks, rocky hills	Apr-May	13	Unlikely	Unlikely
WAH		Rin	*Rothia indica* subsp. *australis*	Sandhills and sandy flats. Sandy soils	Apr-Aug	43	Very unlikely	Very unlikely

DBCA*	FMG **	*Map code*	Species name	Habitat	Flowering	Distance (km) ****	Likelihood of occurrence	
							Desktop	Post-survey
WAH	X	SsB	*Sida* sp. Barlee Range (S. van Leeuwen 1642)	Skeletal red-brown soils. On rocky slopes and in gullies	Aug	5	Likely	Unlikely
WAH		Scl	*Stackhousia clementii*	Skeletal soils. Sandstone hills	Feb-Nov	0.6	Likely	Known
WAH, TP	X	Swe	*Stylidium weeliwolli*	Gritty sand soil, sandy clay. Edge of watercourses	-	3	Likely	Unlikely
	X	Sth	*Swainsona thompsoniana*	Cracking clay	Apr-Jun	0	Known	Known
WAH	X	Tme	*Tecticornia medusa*	Clay pans, floodplains, edges of salt lakes. Red clay loam soil	Nov	5	May occur	Highly unlikely
WAH	X	TsH	*Themeda* sp. Hamersley Station (M.E. Trudgen 11431)	Clay pan, grass plain	Aug	1	Likely	May occur
WAH		Tba	*Triodia basitricha*	Hill tops, rocky plains and in gullies. Gravelly soils, red-brown clay loam over ironstone	May-Jul	3	Likely	May occur
WAH	X	Tsm	*Triodia* sp. Mt Ella (M.E. Trudgen 12739)	Amongst rocks and outcrops, gully slopes. Light orange-brown pebbly loam	Sep	50	Very unlikely	Very unlikely
			DBCA Priority 4					
WAH, TP	X	Abr	*Acacia bromilowiana*	Rocky hills, breakaways, scree slopes, gorges, creek beds	Jul - Aug	23	Unlikely	Very unlikely
WAH, TP	X	Bbu	*Bulbostylis burbidgeae*	Granite outcrops, cliff bases, slopes. Brown skeletal clay-loam soils	Mar-Aug	11	May occur	Unlikely
WAH	X	Ema	*Eremophila magnifica* subsp. *magnifica*	Skeletal soils over ironstone. Rocky screes	Aug - Nov	8	May occur	Unlikely
WAH	X	Eyo	*Eremophila youngii* subsp. *lepidota*	Stony red sandy loam. Flats plains, floodplains, sometimes semi-saline, clay flats.		0	Known	Known
WAH, TP	X	Gnu	*Goodenia nuda*	Seasonally inundated clay soils and drainage lines	Apr-Aug	0	Known	Known
WAH, TP	X	Lca	*Lepidium catapycnon*	Skeletal soils. Hillsides		0.4	Likely	Known
WAH	X	Rbu	*Rhynchosia bungarensis*	Rock piles, gorges, riverbeds and alluvial soils	May-Nov	7	Likely	May occur

* WAH = herbarium record (vouchered specimen)

TP = Threatened and Priority Flora Report Form record; may be unconfirmed i.e. without vouchered specimen

** Fortescue Metals Group database

*** distance from survey area

APPENDIX FOUR FIELD SURVEY RESULTS

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
Acanthaceae	*Dicladanthera forrestii*																																	X																	
	Rostellularia adscendens var. *clementii*																										X					X		X	X															
Aizoaceae	*Trianthema glossostigmum*																																																			
	Trianthema oxycalyptrum var. *oxycalyptrum*				X					X				X	X																																					
	Trianthema pilosum												X	X																																							
	Trianthema triquetrum																																																		
	Trianthema turgidifolium													X						X	X	X																														
Amaranthaceae	*Aerva javanica*	*																																																		
	Alternanthera nana								X												X																	X													
	Alternanthera nodiflora																																																		
	Amaranthus cuspidifolius																					X												X				X													
	Amaranthus undulatus			X	X		X	X	X	X			X		X	X					X			X		X								X																	
	Gomphrena affinis subsp. *pilbarensis*											X															X																									
	Gomphrena canescens subsp. *canescens*																																																			
	Gomphrena cunninghamii																										X																									
	Gomphrena kanisii																																																		
	Ptilotus aervoides																													X								X													
	Ptilotus astrolasius											X				X	X							X		X									X				X												
	Ptilotus auriculifolius																					X		X			X			X																					
	Ptilotus axillaris									X																																										
	Ptilotus calostachyus																											X			X		X		X				X		X	X									
	Ptilotus carinatus																																																		
	Ptilotus clementii																																								X										
	Ptilotus exaltatus									X				X	X		X				X						X		X	X		X	X	X	X	X	X	X	X			X	X		X				X	
	Ptilotus fusiformis																															X																		
	Ptilotus gaudichaudii								X																		X			X						X														
	Ptilotus gomphrenoides																																					X													
	Ptilotus helipteroides								X	X				X							X																														
	Ptilotus latifolius																																																	
	Ptilotus obovatus						X	X				X	X	X							X							X		X		X		X				X					X	X	X		X			
	Ptilotus polystachyus														X	X	X																			X														
	Ptilotus schwartzii																																		X															
	Ptilotus xerophilus								X																																									
Apocynaceae	*Cynanchum floribundum*																																																		
	Cynanchum viminale																													X												X							
	Vincetoxicum lineare															X																					X			X						X			
Araliaceae	*Trachymene oleracea* subsp. *oleracea*																					X					X		X	X									X				X	X					
Asteraceae	*Angianthus cyathifer*																																																		
	Asteraceae sp.																																																		
	Bidens subalternans	*							X																																									
	Blumea tenella																																					X													
	Calotis multicaulis							X						X																																					
	Centipeda minima subsp. *macrocephala*																																					X													
	Chrysocephalum gilesii																										X																									
	Flaveria trinervia	*																																																	
	Pentalepis trichodesmoides subsp. *trichodesmoides*																									X																									
	Peripleura virgata																																																		
	Pluchea dentex																																																		
	Pluchea dunlopii																																																	
	Pluchea ferdinandi-muelleri																																																		
	Pluchea rubelliflora																					X												X				X												
	Pluchea tetranthera																																																		
	Pseudognaphalium luteoalbum																																																		
	Pterocaulon serrulatum																																																		
	Pterocaulon sp.													X																X	X			X				X		X										
	Pterocaulon sphacelatum																																																X		X	
	Pterocaulon sphaeranthoides													X																																					
	Rutidosis helichrysoides																																																		
	Sonchus oleraceus	*																																																	
	Streptoglossa ?odora																																																		
	Streptoglossa adscendens																																																		
	Streptoglossa bubakii								X																																										

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Streptoglossa decurrens																													X		X														X					
	Streptoglossa odora																																																			
	Streptoglossa tenuiflora																																																			
	Tridax procumbens	*																																																		
Boraginaceae	*Ehretia saligna* var. *saligna*																																																			
	Heliotropium chrysocarpum																							X																													
	Heliotropium cunninghamii																				X																																
	Heliotropium heteranthum																								X											X																
	Heliotropium inexplicitum						X																				X			X								X															
	Heliotropium ovalifolium																																																				
	Heliotropium tanythrix																																																			
	Heliotropium tenuifolium																																																			
	Trichodesma zeylanicum																													X						X																
	Trichodesma zeylanicum var. *grandiflorum*								X	X					X								X																														
Brassicaceae	*Lepidium catapycnon*		4																																																		
	Lepidium pedicellosum																																																			
	Lepidium phlebopetalum																																																			
	Lepidium platypetalum																																																			
	Stenopetalum nutans							X																																												
Campanulaceae	*Lobelia arnhemiaca*																																																			
	Wahlenbergia tumidifructa																																																			
Capparaceae	*Capparis lasiantha*																																																			
	Capparis spinosa subsp. *nummularia*																																																			
	Capparis umbonata									X																			X							X															
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*							X														X		X				X	X					X				X	X												
	Polycarpaea holtzei																							X			X		X	X				X				X		X			X								
	Polycarpaea longiflora																																																			
Celastraceae	*Stackhousia clementii*		3																																																	
	Stackhousia intermedia																							X																													
Chenopodiaceae	*Atriplex ?amnicola*													X																																							
	Atriplex ?bunburyana													X																																							
	Atriplex amnicola																																																			
	Atriplex bunburyana																																																			
	Atriplex codonocarpa																																																			
	Atriplex flabelliformis		3																																																	
	Dysphania kalpari																																																			
	Dysphania rhadinostachya						X							X					X			X		X			X		X	X				X		X		X		X										
	Dysphania rhadinostachya subsp. *inflata*																																																			
	Dysphania rhadinostachya subsp. *rhadinostachya*																																																			
	Dysphania sp.						X	X																																												
	Dysphania sphaerosperma																																																			
	Einadia nutans subsp. *eremaea*																																																			
	Enchylaena tomentosa							X																													X															
	Eremophea spinosa																																																			
	Maireana carnosa																																																			
	Maireana georgei																																																			
	Maireana luehmannii																																																			
	Maireana planifolia								X				X																							X		X							X						
	Maireana planifolia x villosa																																																			
	Maireana platycarpa																																																			
	Maireana pyramidata													X																																						
	Maireana sp.																																																			
	Maireana tomentosa subsp. *tomentosa*																																																			
	Maireana triptera																																																			
	Maireana villosa																																																			
	Rhagodia eremaea													X																								X								X			X	X		X
	Salsola australis						X			X				X				X		X	X			X						X							X								X	X		X	X		
	Sclerolaena ?deserticola																																																			
	Sclerolaena cornishiana			X			X		X	X			X	X							X														X			X							X	X		X	X		
	Sclerolaena costata												X																																							
	Sclerolaena cuneata																																																			

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Sclerolaena densiflora									X																																								
	Sclerolaena deserticola																																																		
	Sclerolaena diacantha																																																		
	Sclerolaena lanicuspis																																																		
	Tecticornia ?indica																																																		
	Tecticornia auriculata																																																		
	Tecticornia indica subsp. *bidens*																																																		
	Tecticornia indica subsp. *leiostachya*																																																		
	Tecticornia sp.																																																		
	Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		1																																																
	Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)																																																		
Cleomaceae	*Arivela viscosa*				X		X	X	X	X			X	X	X			X			X			X			X						X				X	X			X		X				X		X
	Cleome oxalidea						X																																												
Commelinaceae	*Commelina ensifolia*																																																		
Convolvulaceae	*Bonamia erecta*										X	X			X	X	X						X					X										X												
	Bonamia pannosa																																																		
	Bonamia pilbarensis																										X																								
	Convolvulus angustissimus subsp. *angustissimus*																																																		
	Convolvulus clementii																																																		
	Duperreya commixta							X					X																						X	X	X	X			X					X			
	Evolvulus alsinoides																																																		
	Evolvulus alsinoides var. *decumbens*																																																		
	Evolvulus alsinoides var. *villosicalyx*							X	X	X			X								X		X				X		X			X	X	X	X	X		X		X			X				X			
	Ipomoea calobra																																																		
	Ipomoea coptica																																																		
	Ipomoea muelleri																																															X		X			X
	Ipomoea polymorpha																										X																								
	Ipomoea sp.					X																																													
	Operculina aequisepala																																																		
	Polymeria ambigua																					X	X						X																						
	Polymeria longifolia																																																		
Cucurbitaceae	*Austrobryonia pilbarensis*																																																		
	Citrullus amarus	*																																																	
	Citrullus colocynthis	*																																				X												
	Cucumis melo																																																		
	Cucumis variabilis				X			X	X													X	X	X					X					X		X			X		X			X					X
Cyperaceae	*Bulbostylis barbata*							X																			X		X	X				X				X		X									
	Bulbostylis turbinata																																																		
	Cyperus cunninghamii subsp. *cunninghamii*																																																	
	Cyperus difformis																																																		
	Cyperus pulchellus																																																	
	Cyperus squarrosus																																																	
	Cyperus vaginatus																					X																												
	Fimbristylis depauperata																																																	
	Fimbristylis dichotoma																																															X		
	Fimbristylis microcarya																																																	
	Fimbristylis simulans																											X																				X		
Elatinaceae	*Bergia pedicellaris*																																																	
	Bergia perennis subsp. *obtusifolia*																																																	
Euphorbiaceae	*Euphorbia ?australis*							X							X																																			
	Euphorbia ?biconvexa																																																	
	Euphorbia australis									X				X							X								X					X				X											
	Euphorbia australis var. *hispidula*			X																																														
	Euphorbia australis var. *subtomentosa*																																																	
	Euphorbia biconvexa																																															X		
	Euphorbia boophthona									X						X						X					X							X					X	X			X						
	Euphorbia careyi																									X																	X				X		
	Euphorbia coghlanii				X	X			X	X						X							X																											
	Euphorbia inappendiculata var. *queenslandica*		2																																														

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Euphorbia schultzii																													X				X																	
	Euphorbia sp.																		X																																	
	Euphorbia tannensis subsp. *eremophila*																																																			
Fabaceae	*Acacia ?aneura*																													X																					
	Acacia ?aptaneura																																																		
	Acacia ?paraneura													X																																						
	Acacia ?rhodophloia																																												X	X						
	Acacia ?sericophylla																							X																												
	Acacia ?synchronicia																																																			
	Acacia acradenia																																																			
	Acacia adoxa var. *adoxa*																																		X																	
	Acacia adsurgens															X																																				
	Acacia ancistrocarpa														X	X	X						X						X		X			X											X	X						
	Acacia aneura				X		X	X					X	X		X		X	X								X					X	X											X			X			X	
	Acacia aptaneura								X	X			X																				X		X	X										X					X	
	Acacia arida																						X				X								X																
	Acacia arrecta																																																			
	Acacia atkinsiana																																		X																	
	Acacia ayersiana																																X	X																	
	Acacia ayersiana x																																	X					X												
	Acacia bivenosa																							X					X	X									X					X	X						
	Acacia catenulata subsp. *occidentalis*																																						X												
	Acacia citrinoviridis			X														X		X	X																									X	X			X		
	Acacia colei																																																			
	Acacia coriacea subsp. *pendens*																																																			
	Acacia cowleana																																																			
	Acacia dictyophleba				X	X				X					X					X									X																							
	Acacia elachantha																						X						X			X																			
	Acacia eriopoda																																																			
	Acacia exigua																																																			
	Acacia hilliana																																																			
	Acacia inaequilatera											X			X	X	X	X		X					X	X	X					X	X			X									X			X			X	
	Acacia incurvaneura																													X				X				X											X				
	Acacia ligulata																																																			
	Acacia maitlandii																																	X	X		X		X		X		X								
	Acacia marramamba																															X			X																
	Acacia monticola																														X			X	X				X				X								
	Acacia orthocarpa																																																			
	Acacia pachyacra				X	X									X																																					
	Acacia paraneura																				X																																
	Acacia pruinocarpa			X	X		X			X								X		X	X						X			X			X	X	X	X			X			X	X		X	X			
	Acacia pteraneura																																																			
	Acacia ptychophylla																																																			
	Acacia pyrifolia var. *pyrifolia*									X												X	X				X		X	X				X																
	Acacia rhodophloia																																																			
	Acacia sclerosperma subsp. *sclerosperma*			X		X				X	X	X			X	X																																X		X	
	Acacia sericophylla																										X																								
	Acacia sibirica																																																			
	Acacia sp.																												X					X												X			X	X
	Acacia spondylophylla																																																		
	Acacia stellaticeps																																																		
	Acacia stenophylla																																																		
	Acacia synchronicia			X	X	X	X	X					X	X					X	X	X	X																								X	X		X	X	X	X
	Acacia tenuissima																																X					X												
	Acacia tetragonophylla			X	X			X				X	X							X	X									X				X		X	X							X						X
	Acacia trachycarpa																					X	X																													
	Acacia trachycarpa x ?																																																			
	Acacia tumida var. *pilbarensis*																																	X	X																
	Acacia victoriae																																																			
	Acacia wanyu																																																			
	Acacia xiphophylla																																			X	X														
	Aeschynomene indica																																																			
	Alysicarpus muelleri			X																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Crotalaria cunninghamii																																																	
	Crotalaria dissitiflora subsp. *benthamiana*																																			X															
	Crotalaria medicaginea var. *neglecta*																																																	
	Crotalaria novae-hollandiae subsp. *novae-hollandiae*																																																	
	Cullen ?leucochaites																																														X			
	Cullen cinereum																																				X													
	Cullen graveolens																																																	
	Cullen leucanthum																																																	
	Cullen leucochaites																																																X	
	Fabaceae sp.																																																	
	Glycine canescens								X																									X															
	Gompholobium oreophilum																										X															X						
	Indigofera colutea								X	X																												X											
	Indigofera linifolia					X				X											X																X								X		X	
	Indigofera linnaei																				X																X								X		X	
	Indigofera monophylla									X	X	X			X	X	X					X	X	X			X		X				X		X				X		X	X		X				
	Indigofera rugosa																									X																							
	Indigofera sp.				X																																												
	Indigofera trita																																																	
	Isotropis atropurpurea																						X																	X								
	Isotropis iophyta																																																
	Lotus australis																					X																											
	Lotus cruentus																																																
	Neptunia dimorphantha																																				X													
	Petalostylis cassioides																																																
	Petalostylis labicheoides															X	X						X				X		X			X																
	Rhynchosia minima			X		X			X	X											X	X	X																						X		X		
	Senna ?sp. Meekatharra (E. Bailey 1-26)																																																
	Senna artemisioides																																																
	Senna artemisioides subsp. *helmsii*									X											X																				X			X				
	Senna artemisioides subsp. *oligophylla*					X		X		X		X					X	X			X			X			X		X				X				X		X				X		X		X		
	Senna artemisioides subsp. *oligophylla x helmsii*				X															X										X			X	X			X										
	Senna glaucifolia																																X																
	Senna glutinosa																																																
	Senna glutinosa subsp. *chatelainiana*																																																
	Senna glutinosa subsp. *glutinosa*																						X	X					X				X		X	X				X		X	X	X					
	Senna glutinosa subsp. *pruinosa*																							X					X	X	X			X														
	Senna glutinosa subsp. *x luerssenii*																								X														X		X							
	Senna notabilis			X	X		X	X	X	X					X			X	X	X		X	X				X		X	X		X		X			X		X	X	X	X	X	X						
	Senna sericea																														X																		
	Senna sp.																																																
	Senna sp. Meekatharra (E. Bailey 1-26)																																				X	X					X					
	Senna stricta																																																
	Senna symonii																																																
	Senna venusta																																																
	Sesbania cannabina																																																
	Swainsona formosa																																																
	Swainsona kingii																																																
	Swainsona stenodonta																					X																											
	Swainsona thompsoniana		3																																														
	Tephrosia densa																																																
	Tephrosia remotiflora																																																
	Tephrosia rosea var. *clementii*																									X																							
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																				X		X						X		X			X				X									X	
	Tephrosia sp.																							X																									
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																																																
	Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)																																																
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)					X			X	X											X																X									X		

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Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)																																																		
	Tephrosia supina																																	X																	
	Vachellia farnesiana	*																																										X						X
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)																																																		
Frankeniaceae	*Frankenia ambita*																																																		
	Frankenia setosa																																																		
Gentianaceae	*Schenkia clementii*																																																		
Goodeniaceae	*Dampiera candicans*																										X			X																						
	Goodenia collaris																																																		
	Goodenia cusackiana																																																		
	Goodenia forrestii																												X																						
	Goodenia lamprosperma																																																		
	Goodenia microptera															X	X										X												X	X		X		X						
	Goodenia muelleriana																													X																					
	Goodenia nuda		4																																																
	Goodenia pascua																																																		
	Goodenia prostrata						X	X																										X				X												
	Goodenia scaevolina																							X					X									X		X										
	Goodenia sp.																																																		
	Goodenia stobbsiana																					X	X				X						X		X				X											
	Goodenia triodiophila																																																		
	Scaevola amblyanthera var. *centralis*																																																		
	Scaevola parvifolia subsp. *pilbarae*										X	X				X	X																						X												
	Scaevola spinescens												X	X															X																						
Gyrostemonaceae	*Codonocarpus cotinifolius*																													X											X										
Haloragaceae	*Gonocarpus ephemerus*																																																		
	Haloragis gossei var. gossei																													X				X																	
	Haloragis trigonocarpa																																																		
Lamiaceae	*Clerodendrum floribundum*																																				X														
	Dicrastylis cordifolia										X	X			X	X	X																					X													
Lauraceae	*Cassytha capillaris*																																																		
Loranthaceae	*Amyema fitzgeraldii*																																															X			X
Lythraceae	*Ammannia baccifera*																																																		
	Ammannia multiflora																																																		
Malvaceae	*Abutilon ?lepidum*																																																		
	Abutilon cunninghamii																																																		
	Abutilon fraseri subsp. *fraseri*																																				X									X					
	Abutilon lepidum			X	X				X	X			X							X		X		X					X									X				X						X	
	Abutilon macrum								X				X									X												X					X		X								
	Abutilon malvifolium																												X							X														
	Abutilon otocarpum												X									X																										X			
	Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)																																														X			
	Abutilon sp.																																																	
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)																																																	
	Abutilon sp. Pilbara (W.R. Barker 2025)					X																																												
	Androcalva luteiflora																												X																					
	Corchorus aff. *tectus*																																																	
	Corchorus crozophorifolius																					X												X					X		X								
	Corchorus incanus subsp. *incanus*																																																	
	Corchorus lasiocarpus																						X				X			X	X	X		X	X			X			X	X		X				
	Corchorus sidoides subsp. *sidoides*														X	X	X					X					X		X							X		X		X				X			X	X	
	Corchorus sp.					X																																									X			X	
	Corchorus tectus																																																	
	Corchorus tridens				X			X						X																								X							X				
	Corchorus walcottii														X															X																			
	Gossypium australe				X	X									X							X	X						X																			
	Gossypium robinsonii																						X				X		X						X													
	Hibiscus brachychlaenus										X																																						
	Hibiscus brachysiphonius																																																	
	Hibiscus burtonii																													X		X				X													

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Hibiscus coatesii																						X									X	X	X		X															
	Hibiscus leptocladus																																					X															
	Hibiscus sp. Gardneri (A.L. Payne PRP 1435)																																																			
	Hibiscus sp. Mt Robinson (G. Byrne 3537)																																																			
	Hibiscus sturtii																																				X															
	Hibiscus sturtii var. *campylochlamys*								X																										X			X													
	Hibiscus sturtii var. *grandiflorus*																																																			
	Hibiscus sturtii var. *platychlamys*					X				X											X		X																													
	Hibiscus sturtii var. *truncatus*																																										X									
	Hibiscus verdcourtii																																				X															
	Lawrencia ?densiflora																																																			
	Lawrencia densiflora																																																			
	Lawrencia glomerata																																																			
	Lawrencia helmsii																																																			
	Malvaceae sp.																																																			
	Malvastrum americanum	*						X					X																								X															
	Melhania oblongifolia																						X																													
	Seringia exastia		T																												X																				
	Seringia nephrosperma																																		X																
	Sida arenicola																																		X																
	Sida arsiniata																																																			
	Sida cardiophylla										X											X												X					X												
	Sida clementii																																		X								X								
	Sida echinocarpa																														X				X															
	Sida ectogama																																X																	
	Sida fibulifera								X	X											X										X	X					X	X	X											
	Sida platycalyx			X			X														X																X													
	Sida sp.								X						X	X	X							X																											
	Sida sp. Articulation below (A.A. Mitchell PRP 1605)																																																			
	Sida sp. dark green fruits (S. van Leeuwen 2260)																																																			
	Sida sp. Excedentifolia (J.L. Egan 1925)																										X																								
	Sida sp. L (A.M. Ashby 4202)																															X						X												
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)																						X	X			X			X																					
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)																																																			
	Sida sp. Supplejack Station (T.S. Henshall 2345)																																				X															
	Sida spinosa																																																			
	Triumfetta chaetocarpa																																																			
	Triumfetta clementii																																																			
	Triumfetta leptacantha																																																			
	Triumfetta maconochieana																																																			
	Waltheria indica																				X																															
Marsileaceae	*Marsilea exarata*																																																			
	Marsilea hirsuta																																																			
Molluginaceae	*Trigastrotheca molluginea*																						X											X					X												
Moraceae	*Ficus brachypoda*																																																			
Myrtaceae	*Calytrix carinata*																																																			
	Corymbia candida																																																			
	Corymbia deserticola subsp. *deserticola*																																																			
	Corymbia ferriticola																																																			
	Corymbia hamersleyana			X	X			X		X							X				X	X		X	X					X																				
	Eucalyptus camaldulensis subsp. *refulgens*																																																			
	Eucalyptus gamophylla										X	X			X	X	X																X		X				X												
	Eucalyptus leucophloia subsp. *leucophloia*																														X								X	X		X								
	Eucalyptus sp.																																																			
	Eucalyptus victrix																					X																													X	X
	Eucalyptus xerothermica																																																			
	Melaleuca glomerata																																																			

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Melaleuca linophylla																																																	
	Melaleuca sp.																																																		
Nyctaginaceae	*Boerhavia burbidgeana*																																				X											X	
	Boerhavia coccinea			X			X	X	X	X			X	X	X						X	X	X				X							X			X	X	X			X				X	X	
	Boerhavia gardneri																									X																								
	Boerhavia paludosa																																																	
	Boerhavia repleta																																																X	
	Boerhavia schomburgkiana																																																	
Oleaceae	*Jasminum didymum* subsp. *lineare*																						X																											
Orobanchaceae	*Striga curviflora*																																																	
Papaveraceae	*Argemone ochroleuca*	*																																																
Phrymaceae	*Mimulus gracilis*																																					X												
	Uvedalia linearis																																																	
Phyllanthaceae	*Flueggea virosa* subsp. *melanthesoides*																																																	
	Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)																																					X												
	Phyllanthus erwinii																																																	
	Phyllanthus exilis																																																	
	Phyllanthus maderaspatensis												X									X	X															X												
Plantaginaceae	*Stemodia grossa*																																																	
	Stemodia kingii																																																	
	Stemodia sp.																																																	
	Stemodia viscosa																																	X																
Plumbaginaceae	*Muellerolimon salicorniaceum*																																																	
Poaceae	*Amphipogon sericeus*																										X	X															X							
	Aristida contorta					X	X	X													X				X		X			X			X	X		X	X				X							
	Aristida holathera var. *holathera*										X	X			X	X								X							X		X						X		X	X		X					
	Aristida inaequiglumis														X	X					X										X	X		X						X		X							
	Aristida latifolia																																			X														
	Aristida obscura																																																	
	Bothriochloa ewartiana								X																																									
	Cenchrus ciliaris	*		X	X			X	X	X			X	X	X			X	X	X	X	X	X														X						X	X	X	X	X	X	X	X
	Cenchrus setiger	*		X					X	X																																	X			X	X	X	
	Chloris pectinata																																																	
	Chloris pumilio																																																	
	Chloris virgata	*							X																																									
	Chrysopogon fallax					X		X	X				X	X					X															X				X			X			X	X		X	X		
	Cymbopogon ambiguus																					X	X					X					X	X								X							
	Cymbopogon obtectus																						X																											
	Cynodon convergens																																																	
	Cynodon prostratus												X																																					
	Dactyloctenium radulans				X		X	X					X	X																															X			X			
	Dichanthium sericeum subsp. *humilius*							X																										X			X	X											
	Digitaria brownii																																	X															
	Digitaria ctenantha							X	X																																								
	Diplachne fusca subsp. *fusca*																																																	
	Echinochloa colona	*																																																
	Elytrophorus spicatus																																																	
	Enneapogon caerulescens									X											X																X												
	Enneapogon lindleyanus																																																	
	Enneapogon polyphyllus			X	X	X			X	X							X				X										X	X	X	X	X	X	X		X			X			X		
	Enneapogon robustissimus																					X																X												
	Enteropogon ramosus							X						X																																				X
	Eragrostis cumingii																													X																			
	Eragrostis dielsii																																																	
	Eragrostis eriopoda				X						X	X		X	X	X	X				X			X							X					X		X					X				
	Eragrostis leptocarpa																																																	
	Eragrostis pergracilis																										X																							
	Eragrostis setifolia							X																															X					X						
	Eragrostis sp.																																																	
	Eragrostis sp. Erect spikelets (P.K. Latz 2122)		3																																			X												
	Eragrostis tenellula																																																
	Eragrostis xerophila												X								X										X					X								X				

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
	Eriachne aristidea				X	X			X		X																												X	X										
	Eriachne benthamii																																																		
	Eriachne ciliata																													X						X				X										
	Eriachne gardneri																																																		
	Eriachne helmsii																						X												X																
	Eriachne lanata																											X																								
	Eriachne mucronata																																X																			
	Eriachne pulchella subsp. *dominii*							X																	X		X	X		X	X	X	X	X	X	X	X	X													
	Eriachne pulchella subsp. *pulchella*						X																				X			X						X																
	Eriachne tenuiculmis																																																				
	Eulalia aurea																				X																					X				X			X			
	Iseilema eremaeum																																																			
	Iseilema macratherum																																X																			
	Iseilema membranaceum								X																																											
	Iseilema vaginiflorum																																																			
	Panicum decompositum																																				X															
	Panicum laevinode																																																			
	Paractaenum refractum																																																			
	Paraneurachne muelleri																X						X						X				X	X	X				X	X										
	Paspalidium basicladum							X																																											
	Paspalidium clementii																										X															X										
	Paspalidium jubiflorum																																																			
	Paspalidium rarum																																																			
	Paspalidium tabulatum																																																			
	Perotis rara							X					X																			X		X																
	Poaceae sp.			X	X											X										X																										
	Schizachyrium fragile																										X									X					X		X								
	Setaria dielsii																																																			
	Setaria verticillata	*																																																		
	Sorghum plumosum var. *plumosum*																																																			
	Sporobolus australasicus			X			X	X		X			X	X				X			X	X			X		X							X		X	X	X	X			X		X		X		X	X		
	Sporobolus mitchellii																																																			
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)																																																			
	Themeda triandra																						X						X						X																
	Tragus australianus																																					X														
	Triodia ?basedowii														X																																					
	Triodia ?brizoides																																						X													
	Triodia ?longiceps																																																			
	Triodia angusta																																																			
	Triodia basedowii										X	X	X	X	X	X	X																																				
	Triodia brizoides																																																			
	Triodia epactia				X	X	X	X		X								X	X	X	X				X	X																											
	Triodia epactia/pungens																						X								X	X	X																		
	Triodia longiceps																																																			
	Triodia pungens																					X		X			X		X	X				X		X															
	Triodia schinzii																																																			
	Triodia sp.																																																			
	Triodia vanleeuwenii																											X			X		X		X						X	X									
	Triodia wiseana																							X		X			X											X		X	X	X								
	Triraphis mollis																																																			
	Urochloa occidentalis var. *ciliata*								X				X																																						
	Urochloa occidentalis var. *occidentalis*																																																			
	Xerochloa barbata																																																			
	Yakirra australiensis var. *australiensis*				X			X				X																						X						X										
Polygalaceae	*Polygala glaucifolia*																																																			
	Polygala isingii																																																			
Polygonaceae	*Duma florulenta*																																																			
	Rumex vesicarius	*																																																	
Portulacaceae	*Calandrinia ptychosperma*																																																		
	Portulaca ?cyclophylla																																																		
	Portulaca oleracea			X			X	X	X	X			X	X				X									X		X				X				X				X									
	Portulaca pilosa	*																																																	
Potamogetonaceae	*Potamogeton tepperi*																																																		

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	A017	A033	A034	A035	A037	A038	A039	A040	A041	A042	A043	A059	A061	A072	A079	A080	A081	A082	A089	A090	A092	A093	A094	A104	A105	A106	A107	A108	A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120	A121	A128	A129	A130	A131	A132	A133	A134
Proteaceae	*Grevillea berryana*																																																		
	Grevillea pyramidalis subsp. *leucadendron*																						X			X																										
	Grevillea stenobotrya																																																		
	Grevillea wickhamii																																		X																
	Grevillea wickhamii subsp. *hispidula*														X																																					
	Hakea chordophylla																										X																			X			X		X		
	Hakea lorea subsp. *lorea*				X	X		X				X	X		X	X	X	X	X	X	X								X																							X
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*							X	X																		X																									
Rubiaceae	*Dolichocarpa crouchiana*																							X					X					X						X											
	Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)		3																																																
	Psydrax latifolia							X	X				X																			X		X	X		X							X							
	Psydrax suaveolens																													X		X					X														
	Scleromitrion galioides																																																		
	Spermacoce brachystema																																	X																	
	Synaptantha tillaeacea var. *tillaeacea*																										X											X													
Santalaceae	*Anthobolus leptomerioides*															X	X																			X															
	Santalum lanceolatum																												X										X												
	Santalum sp.																																																		
Sapindaceae	*Atalaya hemiglauca*									X										X		X							X																					X	X
	Dodonaea coriacea																							X			X													X											
	Dodonaea lanceolata var. *lanceolata*																																																		
	Dodonaea petiolaris							X																						X		X	X	X	X	X	X						X							
Scrophulariaceae	*Eremophila ?longifolia*																																																		
	Eremophila cuneifolia																													X																						
	Eremophila forrestii							X	X					X							X									X		X		X		X	X		X					X	X						
	Eremophila forrestii subsp. *forrestii*												X																				X		X																
	Eremophila glabra																																																		
	Eremophila jucunda subsp. *pulcherrima*																																																	
	Eremophila lanceolata							X	X					X																																					
	Eremophila latrobei																																																		
	Eremophila latrobei subsp. *filiformis*												X														X			X							X		X											
	Eremophila latrobei subsp. *glabra*																																																		
	Eremophila longifolia				X																X							X	X							X															
	Eremophila sp.																																																		
	Eremophila spongiocarpa		3																																																	
	Eremophila youngii subsp. *lepidota*		4																																																
Solanaceae	*Nicotiana benthamiana*																																																		
	Nicotiana heterantha																																																		
	Nicotiana occidentalis																																																		
	Nicotiana occidentalis subsp. *obliqua*																																	X																
	Nicotiana occidentalis subsp. *occidentalis*																					X																												
	Solanum cleistogamum																																																		
	Solanum diversiflorum																					X																												
	Solanum elatius																																																		
	Solanum lasiophyllum						X			X	X	X	X		X	X		X						X			X		X	X		X	X	X		X		X		X		X	X						
	Solanum morrisonii																																																		
	Solanum nigrum	*																																																	
	Solanum phlomoides																																						X												
	Solanum sp.																																																		
Surianaceae	*Stylobasium spathulatum*										X	X																																							
Typhaceae	*Typha domingensis*																																																		
Violaceae	*Afrohybanthus aurantiacus*																						X								X	X	X		X			X	X	X	X	X	X							
Zygophyllaceae	*Roepera compressa*																																																		
	Roepera eichleri																																																		
	Tribulopis angustifolia																																																	
	Tribulus astrocarpus																			X																		X												
	Tribulus hirsutus																																																	X	
	Tribulus macrocarpus									X				X	X							X			X																										
	Tribulus occidentalis				X																																														
	Tribulus sp.			X						X																													X												
	Tribulus suberosus																																		X								X		X						

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
Acanthaceae	*Dicladanthera forrestii*																																						X											
	Rostellularia adscendens var. *clementii*																														X				X															
Aizoaceae	*Trianthema glossostigmum*																																																		
	Trianthema oxycalyptrum var. *oxycalyptrum*																																																	
	Trianthema pilosum					X							X		X																																				
	Trianthema triquetrum																X	X			X																						X						X			X
	Trianthema turgidifolium																																																X			
Amaranthaceae	*Aerva javanica*	*							X													X					X																								
	Alternanthera nana																								X																										
	Alternanthera nodiflora																																										X								
	Amaranthus cuspidifolius																																						X												
	Amaranthus undulatus																															X																		
	Gomphrena affinis subsp. *pilbarensis*			X		X	X	X		X											X															X	X	X		X		X							X
	Gomphrena canescens subsp. *canescens*																																																		
	Gomphrena cunninghamii																															X																		
	Gomphrena kanisii																																																		
	Ptilotus aervoides							X													X																														
	Ptilotus astrolasius													X									X		X			X																						X		
	Ptilotus auriculifolius																							X					X			X																			
	Ptilotus axillaris																						X																													
	Ptilotus calostachyus													X									X	X				X			X		X		X	X														
	Ptilotus carinatus																																																		
	Ptilotus clementii																											X																							
	Ptilotus exaltatus			X						X		X		X	X						X		X					X			X				X	X	X	X		X	X	X		X				X	X	X	X
	Ptilotus fusiformis			X																												X	X			X														
	Ptilotus gaudichaudii																																																		
	Ptilotus gomphrenoides																																																		X
	Ptilotus helipteroides																																									X	X								
	Ptilotus latifolius																																																	
	Ptilotus obovatus			X								X	X	X		X	X	X	X								X	X	X		X	X		X	X			X	X	X	X								
	Ptilotus polystachyus														X																																				
	Ptilotus schwartzii																																																		
	Ptilotus xerophilus																																																	
Apocynaceae	*Cynanchum floribundum*																																																		
	Cynanchum viminale																																																		
	Vincetoxicum lineare																																																		
Araliaceae	*Trachymene oleracea* subsp. *oleracea*																							X								X				X														
Asteraceae	*Angianthus cyathifer*																																																	X		
	Asteraceae sp.												X																																						
	Bidens subalternans	*																																		X	X	X												
	Blumea tenella																																																		
	Calotis multicaulis																																																		
	Centipeda minima subsp. *macrocephala*															X			X																									X							
	Chrysocephalum gilesii																																																		
	Flaveria trinervia	*																																									X		X	X				X	X	X
	Pentalepis trichodesmoides subsp. *trichodesmoides*																																																		
	Peripleura virgata																															X																		
	Pluchea dentex																																																		
	Pluchea dunlopii																																																	
	Pluchea ferdinandi-muelleri																																																X		
	Pluchea rubelliflora																																																	
	Pluchea tetranthera																																									X						X		
	Pseudognaphalium luteoalbum																																																	
	Pterocaulon serrulatum												X																																					
	Pterocaulon sp.																																																	
	Pterocaulon sphacelatum			X																	X				X																									X
	Pterocaulon sphaeranthoides																	X					X						X					X	X	X				X		X							
	Rutidosis helichrysoides																																																		
	Sonchus oleraceus	*																																																
	Streptoglossa ?odora																																																	
	Streptoglossa adscendens																																																	
	Streptoglossa bubakii																														X																		

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Streptoglossa decurrens																							X	X																						X		X	X
	Streptoglossa odora																																																		
	Streptoglossa tenuiflora																																																	
	Tridax procumbens	*																																																
Boraginaceae	*Ehretia saligna* var. *saligna*			X																																													
	Heliotropium chrysocarpum																									X																								
	Heliotropium cunninghamii			X								X																										X												
	Heliotropium heteranthum																																																	
	Heliotropium inexplicitum																																																	
	Heliotropium ovalifolium																																																	
	Heliotropium tanythrix																																																	
	Heliotropium tenuifolium																											X																							
	Trichodesma zeylanicum												X																																						
	Trichodesma zeylanicum var. *grandiflorum*																																																	
	Trichodesma zeylanicum var. *zeylanicum*					X						X			X																																			
Brassicaceae	*Lepidium catapycnon*		4																																																
	Lepidium pedicellosum																																																	
	Lepidium phlebopetalum																																																	
	Lepidium platypetalum																																																	
	Stenopetalum nutans																																																	
Campanulaceae	*Lobelia arnhemiaca*																																																	
	Wahlenbergia tumidifructa																																																	
Capparaceae	*Capparis lasiantha*																																																	
	Capparis spinosa subsp. *nummularia*																																																	
	Capparis umbonata																																																	
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*													X																																				
	Polycarpaea holtzei												X											X						X	X																			
	Polycarpaea longiflora			X									X											X					X		X			X	X														
Celastraceae	*Stackhousia clementii*		3																																															
	Stackhousia intermedia																									X																								
Chenopodiaceae	*Atriplex ?amnicola*																																																	
	Atriplex ?bunburyana																																																	
	Atriplex amnicola																X																																	
	Atriplex bunburyana																																					X												
	Atriplex codonocarpa																															X																	
	Atriplex flabelliformis		3																																														X
	Dysphania kalpari												X	X					X					X					X					X		X												
	Dysphania rhadinostachya																	X																																
	Dysphania rhadinostachya subsp. *inflata*																																																
	Dysphania rhadinostachya subsp. *rhadinostachya*																														X	X			X														
	Dysphania sp.																																																
	Dysphania sphaerosperma																																														X		
	Einadia nutans subsp. *eremaea*																																															X
	Enchylaena tomentosa																																															
	Eremophea spinosa																																													X		
	Maireana carnosa																																															
	Maireana georgei																																													X		
	Maireana luehmannii																																											X		X		X	X
	Maireana planifolia																																		X													
	Maireana planifolia x villosa																																															
	Maireana platycarpa																																															
	Maireana pyramidata															X	X															X																
	Maireana sp.																																																
	Maireana tomentosa subsp. *tomentosa*																													X																		
	Maireana triptera																																																
	Maireana villosa																																																
	Rhagodia eremaea														X		X		X																						X	X	X							
	Salsola australis				X		X	X	X	X			X				X	X	X		X																								X				X	X
	Sclerolaena ?deserticola																																																
	Sclerolaena cornishiana						X	X		X								X			X																		X			X							
	Sclerolaena costata																																															
	Sclerolaena cuneata																X																												X		X				

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Sclerolaena densiflora																		X																							X								
	Sclerolaena deserticola																																																		
	Sclerolaena diacantha								X								X																																		
	Sclerolaena lanicuspis																																																		
	Tecticornia ?indica																																									X								
	Tecticornia auriculata																																										X	X	X	X	X		X		
	Tecticornia indica subsp. *bidens*																																																	
	Tecticornia indica subsp. *leiostachya*																																										X	X	X	X	X		X		X
	Tecticornia sp.																																									X								
	Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		1																																									X	X						
	Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)																																											X	X				X		
Cleomaceae	*Arivela viscosa*			X		X	X	X	X			X	X	X	X	X		X	X		X										X			X	X								X				X			
	Cleome oxalidea																																											X							
Commelinaceae	*Commelina ensifolia*																																																		
Convolvulaceae	*Bonamia erecta*													X											X			X			X																			
	Bonamia pannosa																																			X															
	Bonamia pilbarensis																						X			X																								
	Convolvulus angustissimus subsp. *angustissimus*																																																		
	Convolvulus clementii																			X																	X	X		X		X								
	Duperreya commixta														X				X								X	X		X		X		X	X														
	Evolvulus alsinoides																							X																										
	Evolvulus alsinoides var. *decumbens*																															X																		
	Evolvulus alsinoides var. *villosicalyx*				X										X				X						X		X	X		X				X			X	X		X									
	Ipomoea calobra																																																		
	Ipomoea coptica																																														X				
	Ipomoea muelleri			X					X									X	X																	X														
	Ipomoea polymorpha																																																	
	Ipomoea sp.																																																	
	Operculina aequisepala																																																	
	Polymeria ambigua																							X				X	X					X															
	Polymeria longifolia																																																	
Cucurbitaceae	*Austrobryonia pilbarensis*																																																	
	Citrullus amarus	*																																																
	Citrullus colocynthis	*																																																
	Cucumis melo																																																		
	Cucumis variabilis					X				X					X										X	X					X			X	X			X	X									
Cyperaceae	*Bulbostylis barbata*																							X							X	X																	
	Bulbostylis turbinata																																																		
	Cyperus cunninghamii subsp. *cunninghamii*																																																		
	Cyperus difformis																																																		
	Cyperus pulchellus																																																		
	Cyperus squarrosus																																																		
	Cyperus vaginatus																																																		
	Fimbristylis depauperata																																																		
	Fimbristylis dichotoma																																																		
	Fimbristylis microcarya																																																		
	Fimbristylis simulans																										X					X			X															
Elatinaceae	*Bergia pedicellaris*																																																		
	Bergia perennis subsp. *obtusifolia*																																																		
Euphorbiaceae	*Euphorbia ?australis*													X					X																																
	Euphorbia ?biconvexa																																																		
	Euphorbia australis																																		X								X							
	Euphorbia australis var. *hispidula*							X																													X														
	Euphorbia australis var. *subtomentosa*									X					X												X	X										X												
	Euphorbia biconvexa									X		X								X																				X		X		X								
	Euphorbia boophthona							X					X				X		X																									X								
	Euphorbia careyi																																																		
	Euphorbia coghlanii														X											X		X																								
	Euphorbia inappendiculata var. *queenslandica*		2																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Euphorbia schultzii																							X																											
	Euphorbia sp.																																																		
	Euphorbia tannensis subsp. *eremophila*									X					X																				X															
Fabaceae	*Acacia ?aneura*																																																		
	Acacia ?aptaneura																																																		
	Acacia ?paraneura																																																		
	Acacia ?rhodophloia																																																		
	Acacia ?sericophylla																																																		
	Acacia ?synchronicia								X		X		X	X		X	X	X	X			X								X			X	X																
	Acacia acradenia																																																		
	Acacia adoxa var. *adoxa*																																																		
	Acacia adsurgens														X																																					
	Acacia ancistrocarpa										X			X	X								X		X	X	X	X			X		X																
	Acacia aneura						X		X				X			X		X												X		X		X	X	X														
	Acacia aptaneura						X			X																											X	X	X		X										
	Acacia arida																							X				X					X																	
	Acacia arrecta																																			X															
	Acacia atkinsiana																																																		
	Acacia ayersiana																													X																				
	Acacia ayersiana x																																																		
	Acacia bivenosa																									X	X	X	X		X												X							X		
	Acacia catenulata subsp. *occidentalis*																																																		
	Acacia citrinoviridis			X	X	X			X	X	X											X																													
	Acacia colei																																																		
	Acacia coriacea subsp. *pendens*																																																		
	Acacia cowleana																																																		
	Acacia dictyophleba										X	X	X		X					X																															
	Acacia elachantha																																																		
	Acacia eriopoda																																	X																
	Acacia exigua																																																		
	Acacia hilliana																																																		
	Acacia inaequilatera					X	X		X		X			X	X						X	X		X	X	X	X	X																						
	Acacia incurvaneura																																																		
	Acacia ligulata																																																		
	Acacia maitlandii																																X	X	X															
	Acacia marramamba																																X																	
	Acacia monticola																						X											X																
	Acacia orthocarpa																																																		
	Acacia pachyacra														X					X											X																			
	Acacia paraneura																		X																																
	Acacia pruinocarpa					X	X	X	X	X	X			X						X	X	X	X							X	X	X			X															
	Acacia pteraneura					X																																													
	Acacia ptychophylla																																																		
	Acacia pyrifolia var. *pyrifolia*			X								X											X	X	X		X				X			X															
	Acacia rhodophloia																																																		
	Acacia sclerosperma subsp. *sclerosperma*														X	X		X		X																													X			
	Acacia sericophylla																																																		
	Acacia sibirica																																																		
	Acacia sp.																																									X								
	Acacia spondylophylla																																																		
	Acacia stellaticeps																																																		
	Acacia stenophylla																																																X			
	Acacia synchronicia							X		X												X	X					X	X	X		X						X		X										
	Acacia tenuissima																																		X																
	Acacia tetragonophylla							X										X									X		X	X	X				X			X	X											
	Acacia trachycarpa																									X																									
	Acacia trachycarpa x ?																																																		
	Acacia tumida var. *pilbarensis*										X																				X			X	X															
	Acacia victoriae																																																		
	Acacia wanyu																																																		
	Acacia xiphophylla																																									X	X							
	Aeschynomene indica																																												X			X			
	Alysicarpus muelleri																																																		X

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Crotalaria cunninghamii																																																	
	Crotalaria dissitiflora subsp. *benthamiana*																																																
	Crotalaria medicaginea var. *neglecta*									X															X													X												
	Crotalaria novae-hollandiae subsp. *novae-hollandiae*																							X																										
	Cullen ?leucochaites																																																
	Cullen cinereum																																								X	X		X				X	X
	Cullen graveolens																																																
	Cullen leucanthum																																																
	Cullen leucochaites					X									X						X																													
	Fabaceae sp.																																		X															
	Glycine canescens																												X												X								
	Gompholobium oreophilum																																																
	Indigofera colutea			X		X				X																																							
	Indigofera linifolia					X															X																													X
	Indigofera linnaei																				X																												
	Indigofera monophylla											X		X	X			X	X				X	X	X		X	X	X		X		X	X												X		
	Indigofera rugosa																																																
	Indigofera sp.																																																
	Indigofera trita																																																
	Isotropis atropurpurea																																	X		X													
	Isotropis iophyta																																																
	Lotus australis																																																
	Lotus cruentus																																																
	Neptunia dimorphantha																																													X			
	Petalostylis cassioides																																																
	Petalostylis labicheoides																													X	X																	
	Rhynchosia minima			X		X				X					X						X						X											X										
	Senna ?sp. Meekatharra (E. Bailey 1-26)												X	X																																			
	Senna artemisioides																												X																				
	Senna artemisioides subsp. *helmsii*						X		X																X						X				X			X										
	Senna artemisioides subsp. *oligophylla*							X	X	X			X				X				X			X	X	X	X	X	X								X		X		X					X			
	Senna artemisioides subsp. *oligophylla x helmsii*																																				X		X									X	
	Senna glaucifolia																																																
	Senna glutinosa																	X																																
	Senna glutinosa subsp. *chatelainiana*																																																
	Senna glutinosa subsp. *glutinosa*													X					X				X	X		X		X			X		X		X	X												
	Senna glutinosa subsp. *pruinosa*																						X										X			X					X								
	Senna glutinosa subsp. *x luerssenii*																						X				X	X	X			X			X											X		
	Senna notabilis					X		X	X	X			X	X	X					X			X	X	X		X	X			X	X			X													
	Senna sericea																																																
	Senna sp.																																					X												
	Senna sp. Meekatharra (E. Bailey 1-26)																																																
	Senna stricta																																																
	Senna symonii																								X																									
	Senna venusta																																																	
	Sesbania cannabina																				X																		X										
	Swainsona formosa																																																
	Swainsona kingii															X																													X	X	X		X		X		
	Swainsona stenodonta																																																	
	Swainsona thompsoniana		3																																													X		
	Tephrosia densa																																																
	Tephrosia remotiflora																																																
	Tephrosia rosea var. *clementii*																																																
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)											X												X	X						X			X														
	Tephrosia sp.																																																
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																											X																					
	Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)																																																
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)					X																															X	X			X								

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)																											X																							
	Tephrosia supina																																																		X
	Vachellia farnesiana	*																			X																														
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)																																																		
Frankeniaceae	*Frankenia ambita*																																									X	X			X					X
	Frankenia setosa																																																	
Gentianaceae	*Schenkia clementii*																																																	
Goodeniaceae	*Dampiera candicans*											X																																						
	Goodenia collaris																																																	
	Goodenia cusackiana																						X																										
	Goodenia forrestii																										X		X																				
	Goodenia lamprosperma																																																	
	Goodenia microptera					X						X		X	X										X	X					X			X												X			
	Goodenia muelleriana																																				X	X												
	Goodenia nuda		4																															X		X														
	Goodenia pascua																																																	
	Goodenia prostrata						X			X																											X			X									
	Goodenia scaevolina																																		X														
	Goodenia sp.																																																	
	Goodenia stobbsiana																						X			X																							
	Goodenia triodiophila																																X																
	Scaevola amblyanthera var. *centralis*																																																	
	Scaevola parvifolia subsp. *pilbarae*																																																	
	Scaevola spinescens					X																					X														X	X			X					
Gyrostemonaceae	*Codonocarpus cotinifolius*																																																	
Haloragaceae	*Gonocarpus ephemerus*																																																	
	Haloragis gossei var. gossei												X	X	X														X																					
	Haloragis trigonocarpa																																																	
Lamiaceae	*Clerodendrum floribundum*																																																	
	Dicrastylis cordifolia													X																																				
Lauraceae	*Cassytha capillaris*																																																	
Loranthaceae	*Amyema fitzgeraldii*																																																	
Lythraceae	*Ammannia baccifera*																																																	
	Ammannia multiflora																																																	
Malvaceae	*Abutilon ?lepidum*																																				X													
	Abutilon cunninghamii																																																	
	Abutilon fraseri subsp. *fraseri*																		X																		X												
	Abutilon lepidum					X	X																		X	X	X		X								X	X	X	X	X								X
	Abutilon macrum																										X																							
	Abutilon malvifolium																																																	
	Abutilon otocarpum					X				X			X																										X											
	Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)																																									X								
	Abutilon sp.			X																	X											X																
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)																																																	
	Abutilon sp. Pilbara (W.R. Barker 2025)																																																
	Androcalva luteiflora																											X		X				X															
	Corchorus aff. *tectus*														X																																			
	Corchorus crozophorifolius			X																																														
	Corchorus incanus subsp. *incanus*																									X																								
	Corchorus lasiocarpus											X											X	X	X		X	X			X		X	X	X	X												
	Corchorus sidoides subsp. *sidoides*					X								X	X	X		X	X	X																												X		
	Corchorus sp.					X	X			X											X																													
	Corchorus tectus																																																	
	Corchorus tridens			X		X				X																																							
	Corchorus walcottii																																																	
	Gossypium australe								X				X		X			X	X	X				X	X		X	X																X	X					
	Gossypium robinsonii											X															X				X			X															
	Hibiscus brachychlaenus														X																																			
	Hibiscus brachysiphonius																																																	
	Hibiscus burtonii																												X																					

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Hibiscus coatesii																									X	X																							
	Hibiscus leptocladus																																																	
	Hibiscus sp. Gardneri (A.L. Payne PRP 1435)																																																	
	Hibiscus sp. Mt Robinson (G. Byrne 3537)																																																	
	Hibiscus sturtii																																																	
	Hibiscus sturtii var. *campylochlamys*																										X				X		X																	
	Hibiscus sturtii var. *grandiflorus*																																			X												X		
	Hibiscus sturtii var. *platychlamys*														X										X		X														X						X		
	Hibiscus sturtii var. *truncatus*																																															X		
	Hibiscus verdcourtii																																																	
	Lawrencia ?densiflora																																	X																
	Lawrencia densiflora																																											X	X				X	X	
	Lawrencia glomerata																																																	
	Lawrencia helmsii																																																X		
	Malvaceae sp.																										X																							
	Malvastrum americanum	*				X																					X		X							X	X	X										
	Melhania oblongifolia																										X																							
	Seringia exastia		T																																															
	Seringia nephrosperma													X																					X																
	Sida arenicola																						X																											
	Sida arsiniata																																																X		
	Sida cardiophylla														X										X																									
	Sida clementii																																																		
	Sida echinocarpa																									X																						X		
	Sida ectogama																																																	
	Sida fibulifera																								X									X											X	X			X	X	
	Sida platycalyx						X											X																																	
	Sida sp.																								X																									
	Sida sp. Articulation below (A.A. Mitchell PRP 1605)																																																	
	Sida sp. dark green fruits (S. van Leeuwen 2260)																															X																	
	Sida sp. Excedentifolia (J.L. Egan 1925)																														X																	
	Sida sp. L (A.M. Ashby 4202)																																																	
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)													X									X										X																
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)					X																						X	X				X		X														
	Sida sp. Supplejack Station (T.S. Henshall 2345)																																					X											
	Sida spinosa																																																	
	Triumfetta chaetocarpa																																																	
	Triumfetta clementii																																																	
	Triumfetta leptacantha																																																	
	Triumfetta maconochieana																																																	
	Waltheria indica			X								X																																						
Marsileaceae	*Marsilea exarata*																																					X												
	Marsilea hirsuta																																											X			X			
Molluginaceae	*Trigastrotheca molluginea*											X	X										X	X	X		X																						
Moraceae	*Ficus brachypoda*																																																	
Myrtaceae	*Calytrix carinata*																																																	
	Corymbia candida																																																	
	Corymbia deserticola subsp. *deserticola*																																			X			X										
	Corymbia ferriticola																																																	
	Corymbia hamersleyana			X									X						X			X	X				X	X					X																
	Eucalyptus camaldulensis subsp. *refulgens*													X																																				
	Eucalyptus gamophylla																																																	
	Eucalyptus leucophloia subsp. *leucophloia*																													X	X																		
	Eucalyptus sp.																																																	
	Eucalyptus victrix			X	X																																												
	Eucalyptus xerothermica																																																	
	Melaleuca glomerata																																																X		

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Melaleuca linophylla																																																	
	Melaleuca sp.																																																	
Nyctaginaceae	*Boerhavia burbidgeana*																				X																													
	Boerhavia coccinea			X		X	X	X	X	X			X	X	X			X	X	X	X			X	X									X			X												
	Boerhavia gardneri																																																
	Boerhavia paludosa																																																
	Boerhavia repleta									X											X															X												
	Boerhavia schomburgkiana																																																
Oleaceae	*Jasminum didymum* subsp. *lineare*																																																
Orobanchaceae	*Striga curviflora*																																																
Papaveraceae	*Argemone ochroleuca*	*																																															
Phrymaceae	*Mimulus gracilis*																																																
	Uvedalia linearis																																																
Phyllanthaceae	*Flueggea virosa* subsp. *melanthesoides*																																																
	Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)																		X																														
	Phyllanthus erwinii																																																
	Phyllanthus exilis																																																
	Phyllanthus maderaspatensis																							X			X										X	X											
Plantaginaceae	*Stemodia grossa*																												X																				
	Stemodia kingii																																																
	Stemodia sp.																																																
	Stemodia viscosa																																																
Plumbaginaceae	*Muellerolimon salicorniaceum*																																																
Poaceae	*Amphipogon sericeus*																						X																											
	Aristida contorta			X			X						X	X				X											X				X			X	X											
	Aristida holathera var. *holathera*							X		X			X	X	X					X					X														X										
	Aristida inaequiglumis												X	X	X																				X				X										
	Aristida latifolia																								X		X																						
	Aristida obscura																													X																			
	Bothriochloa ewartiana																																																
	Cenchrus ciliaris	*		X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X				X											X	X	X	X			X				X	X
	Cenchrus setiger	*		X	X	X	X	X		X		X									X																		X					X						
	Chloris pectinata																																				X		X										
	Chloris pumilio																																																X
	Chloris virgata	*																																															
	Chrysopogon fallax						X			X	X	X	X			X		X	X	X				X													X	X	X										
	Cymbopogon ambiguus																								X																								
	Cymbopogon obtectus														X									X				X			X		X															
	Cynodon convergens																																																
	Cynodon prostratus																																																
	Dactyloctenium radulans												X			X	X	X																					X	X	X			X			X	X	X
	Dichanthium sericeum subsp. *humilius*																																				X	X											
	Digitaria brownii																																																
	Digitaria ctenantha																								X																								
	Diplachne fusca subsp. *fusca*																																													X			
	Echinochloa colona	*																																												X			
	Elytrophorus spicatus																																																
	Enneapogon caerulescens																									X	X								X		X	X								X		
	Enneapogon lindleyanus																								X											X												
	Enneapogon polyphyllus					X								X											X					X								X	X			X						X	
	Enneapogon robustissimus																																								X								
	Enteropogon ramosus																																																
	Eragrostis cumingii					X																							X																				
	Eragrostis dielsii							X		X																																							
	Eragrostis eriopoda												X	X	X					X																			X							X				
	Eragrostis leptocarpa																																																
	Eragrostis pergracilis																																									X	X	X	X	X	X		X		X
	Eragrostis setifolia																																													X				
	Eragrostis sp.																																																
	Eragrostis sp. Erect spikelets (P.K. Latz 2122)		3																																									X				X	X
	Eragrostis tenellula																	X											X																			
	Eragrostis xerophila																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
	Eriachne aristidea													X	X																																			
	Eriachne benthamii																																						X											
	Eriachne ciliata																																																
	Eriachne gardneri																																																
	Eriachne helmsii																													X																				
	Eriachne lanata																						X																											
	Eriachne mucronata																															X		X	X	X													
	Eriachne pulchella subsp. *dominii*			X										X														X		X		X	X	X	X		X	X										
	Eriachne pulchella subsp. *pulchella*																																																
	Eriachne tenuiculmis																																																
	Eulalia aurea														X																																	X			
	Iseilema eremaeum																																																
	Iseilema macratherum																																					X											
	Iseilema membranaceum																																																
	Iseilema vaginiflorum																																																
	Panicum decompositum																																																
	Panicum laevinode																																																
	Paractaenum refractum																																																
	Paraneurachne muelleri																								X			X																				X			
	Paspalidium basicladum																																																
	Paspalidium clementii																													X																				
	Paspalidium jubiflorum																																													X			X	
	Paspalidium rarum																																																
	Paspalidium tabulatum																																																
	Perotis rara									X			X							X					X									X	X		X	X	X									
	Poaceae sp.																							X							X		X																
	Schizachyrium fragile																																																
	Setaria dielsii																																																
	Setaria verticillata	*																																					X										
	Sorghum plumosum var. *plumosum*																																																
	Sporobolus australasicus			X			X	X		X	X						X	X	X		X							X		X			X			X	X	X	X	X	X				X		X			
	Sporobolus mitchellii																																																
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)																																																
	Themeda triandra											X															X	X																					
	Tragus australianus							X																														X			X								
	Triodia ?basedowii																															X		X															
	Triodia ?brizoides																																																
	Triodia ?longiceps																																																
	Triodia angusta																																																
	Triodia basedowii													X	X			X																															
	Triodia brizoides																																			X		X			X								
	Triodia epactia					X	X													X							X		X		X																	
	Triodia epactia/pungens																						X	X	X		X				X			X														
	Triodia longiceps												X														X		X	X																X		X	
	Triodia pungens																																																
	Triodia schinzii																																																
	Triodia sp.																																																
	Triodia vanleeuwenii																						X		X	X	X	X					X															
	Triodia wiseana																									X	X	X																				
	Triraphis mollis																																																
	Urochloa occidentalis var. *ciliata*																																																
	Urochloa occidentalis var. *occidentalis*																																				X	X	X										
	Xerochloa barbata																																																
	Yakirra australiensis var. *australiensis*														X										X																								
Polygalaceae	*Polygala glaucifolia*																									X		X		X																			
	Polygala isingii																																																
Polygonaceae	*Duma florulenta*																																						X											X
	Rumex vesicarius	*																																															
Portulacaceae	*Calandrinia ptychosperma*																																																
	Portulaca ?cyclophylla																																																
	Portulaca oleracea					X	X	X	X				X	X				X	X		X																		X		X						X			
	Portulaca pilosa	*																																															
Potamogetonaceae	*Potamogeton tepperi*																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B020	B023	B041	B042	B043	B044	B045	B048	B050	B051	B052	B053	B054	B057	B058	B059	B082	B083	B092	B129	B130	B131	B132	B133	B144	B145	B146	B147	B148	B149	B150	B151	B152	B153	B154	B155	B156	B157	B158	B159	B160	B161	B162	B163	B164	B165	B166	B167
Proteaceae	*Grevillea berryana*																													X																					
	Grevillea pyramidalis subsp. *leucadendron*																							X																												
	Grevillea stenobotrya																																																			
	Grevillea wickhamii											X											X			X							X	X		X																
	Grevillea wickhamii subsp. *hispidula*																																																			
	Hakea chordophylla																																X																			
	Hakea lorea subsp. *lorea*					X					X			X	X				X	X	X	X	X																			X						X				
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*																													X											X									
Rubiaceae	*Dolichocarpa crouchiana*																																																			
	Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)		3																																																	
	Psydrax latifolia																													X							X	X	X												
	Psydrax suaveolens																													X																					
	Scleromitrion galioides																																																			
	Spermacoce brachystema																																																			
	Synaptantha tillaeacea var. *tillaeacea*																																																			
Santalaceae	*Anthobolus leptomerioides*																										X																									
	Santalum lanceolatum																																																			
	Santalum sp.																											X			X																				
Sapindaceae	*Atalaya hemiglauca*			X	X	X				X														X			X																									
	Dodonaea coriacea																																			X																
	Dodonaea lanceolata var. *lanceolata*																																																			
	Dodonaea petiolaris																													X					X																
Scrophulariaceae	*Eremophila ?longifolia*																																																			
	Eremophila cuneifolia																																																			
	Eremophila forrestii													X																	X												X								
	Eremophila forrestii subsp. *forrestii*						X																				X															X								
	Eremophila glabra																																																			
	Eremophila jucunda subsp. *pulcherrima*																																																		
	Eremophila lanceolata																																																		
	Eremophila latrobei																																																		
	Eremophila latrobei subsp. *filiformis*																																						X												
	Eremophila latrobei subsp. *glabra*																						X																												
	Eremophila longifolia								X									X										X						X			X														
	Eremophila sp.																																																			
	Eremophila spongiocarpa		3																															X												X	X	X	
	Eremophila youngii subsp. *lepidota*		4																													X																		
Solanaceae	*Nicotiana benthamiana*																														X																				
	Nicotiana heterantha																																X	X	X				X		X								
	Nicotiana occidentalis																															X																		
	Nicotiana occidentalis subsp. *obliqua*																		X																																
	Nicotiana occidentalis subsp. *occidentalis*																																																			
	Solanum cleistogamum																																																			
	Solanum diversiflorum																																																			
	Solanum elatius																																																			X
	Solanum lasiophyllum					X		X					X	X				X	X	X	X			X							X	X		X	X				X					X				
	Solanum morrisonii																																																			
	Solanum nigrum	*																																																		
	Solanum phlomoides																									X																										
	Solanum sp.																																																			
Surianaceae	*Stylobasium spathulatum*											X	X																																							
Typhaceae	*Typha domingensis*																																																			
Violaceae	*Afrohybanthus aurantiacus*										X	X											X				X			X		X	X		X															
Zygophyllaceae	*Roepera compressa*																																																			
	Roepera eichleri																																																			
	Tribulopis angustifolia														X																																					
	Tribulus astrocarpus						X	X																																												
	Tribulus hirsutus																							X																												
	Tribulus macrocarpus																																																			
	Tribulus occidentalis			X																																															
	Tribulus sp.					X		X		X																			X																					
	Tribulus suberosus												X	X																	X																				

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
Acanthaceae	*Dicladanthera forrestii*																																													X	X			
	Rostellularia adscendens var. *clementii*																																																		
Aizoaceae	*Trianthema glossostigmum*																																																	
	Trianthema oxycalyptrum var. *oxycalyptrum*																																																	
	Trianthema pilosum																	X								X		X	X	X	X																			
	Trianthema triquetrum			X	X														X	X		X																												
	Trianthema turgidifolium																																																	
Amaranthaceae	*Aerva javanica*	*																								X								X																
	Alternanthera nana																																																	
	Alternanthera nodiflora																																																	
	Amaranthus cuspidifolius																									X	X																							
	Amaranthus undulatus																																	X										X						
	Gomphrena affinis subsp. *pilbarensis*														X		X	X								X	X																							
	Gomphrena canescens subsp. *canescens*																																																		
	Gomphrena cunninghamii																																							X				X							
	Gomphrena kanisii																																																	
	Ptilotus aervoides								X		X					X																										X									
	Ptilotus astrolasius			X				X	X													X																				X			X						
	Ptilotus auriculifolius										X																					X		X																
	Ptilotus axillaris																																																	
	Ptilotus calostachyus							X														X																			X			X				X		
	Ptilotus carinatus																																		X															X
	Ptilotus clementii																																																	
	Ptilotus exaltatus							X	X	X		X	X	X	X					X		X													X	X					X			X	X		X	X	X	X	X
	Ptilotus fusiformis																													X											X						X			
	Ptilotus gaudichaudii																																																	
	Ptilotus gomphrenoides																																	X		X		X												
	Ptilotus helipteroides																																													X			
	Ptilotus latifolius																																																	
	Ptilotus obovatus					X	X			X		X	X			X		X	X	X	X	X	X				X				X								X					X				X	
	Ptilotus polystachyus																	X				X						X		X																X				
	Ptilotus schwartzii																				X					X																								
	Ptilotus xerophilus																																																	
Apocynaceae	*Cynanchum floribundum*																																																	
	Cynanchum viminale																																																	
	Vincetoxicum lineare				X																					X																			X					
Araliaceae	*Trachymene oleracea* subsp. *oleracea*							X																										X						X				X					
Asteraceae	*Angianthus cyathifer*																																																	
	Asteraceae sp.																																																	
	Bidens subalternans	*																					X	X																		X		X					
	Blumea tenella																X						X	X																					X					
	Calotis multicaulis																																																	
	Centipeda minima subsp. *macrocephala*																																									X								
	Chrysocephalum gilesii																																																	
	Flaveria trinervia	*																																																
	Pentalepis trichodesmoides subsp. *trichodesmoides*																															X																		
	Peripleura virgata																																																	
	Pluchea dentex									X																														X	X			X					
	Pluchea dunlopii																																																	
	Pluchea ferdinandi-muelleri																					X																												
	Pluchea rubelliflora																					X																												
	Pluchea tetranthera										X																																							
	Pseudognaphalium luteoalbum																																																	
	Pterocaulon serrulatum																																																	
	Pterocaulon sp.																						X	X																											
	Pterocaulon sphacelatum																X									X																									
	Pterocaulon sphaeranthoides								X				X							X		X		X								X		X							X									
	Rutidosis helichrysoides																																								X									
	Sonchus oleraceus	*																																																
	Streptoglossa ?odora																																																	
	Streptoglossa adscendens																																																	
	Streptoglossa bubakii																																		X	X		X												

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Streptoglossa decurrens												X		X		X																																	
	Streptoglossa odora																																X																	X
	Streptoglossa tenuiflora																																																	
	Tridax procumbens	*																																																
Boraginaceae	*Ehretia saligna* var. *saligna*																																					X	X											
	Heliotropium chrysocarpum																																																	
	Heliotropium cunninghamii																																																	
	Heliotropium heteranthum											X																																						
	Heliotropium inexplicitum																																																	
	Heliotropium ovalifolium																																																	
	Heliotropium tanythrix																																		X	X		X											
	Heliotropium tenuifolium								X																																								
	Trichodesma zeylanicum																																									X					X				
	Trichodesma zeylanicum var. *grandiflorum*																	X										X	X																				
	Trichodesma zeylanicum var. *zeylanicum*					X	X																																										X	
Brassicaceae	*Lepidium catapycnon*		4																																														
	Lepidium pedicellosum																																																
	Lepidium phlebopetalum																																														X		
	Lepidium platypetalum																																																
	Stenopetalum nutans																						X																										
Campanulaceae	*Lobelia arnhemiaca*																																									X							
	Wahlenbergia tumidifructa																																									X							
Capparaceae	*Capparis lasiantha*																																																
	Capparis spinosa subsp. *nummularia*																																																
	Capparis umbonata																																																
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*																							X																						X		X			
	Polycarpaea holtzei							X	X		X																					X								X									
	Polycarpaea longiflora								X																											X				X		X							
Celastraceae	*Stackhousia clementii*		3																																														
	Stackhousia intermedia																																																
Chenopodiaceae	*Atriplex ?amnicola*																																																
	Atriplex ?bunburyana				X																																												
	Atriplex amnicola																				X																												
	Atriplex bunburyana																																																
	Atriplex codonocarpa				X																																												
	Atriplex flabelliformis		3																																														
	Dysphania kalpari							X	X		X	X									X	X																												X
	Dysphania rhadinostachya																		X					X	X	X								X												X			X
	Dysphania rhadinostachya subsp. *inflata*																					X																											
	Dysphania rhadinostachya subsp. *rhadinostachya*																															X																
	Dysphania sp.																																																
	Dysphania sphaerosperma																																																
	Einadia nutans subsp. *eremaea*																																																
	Enchylaena tomentosa																				X													X													X		X
	Eremophea spinosa																																																
	Maireana carnosa																																																
	Maireana georgei																																																
	Maireana luehmannii																																																
	Maireana planifolia					X				X			X										X	X	X			X																		X			X
	Maireana planifolia x villosa																																																
	Maireana platycarpa																																																
	Maireana pyramidata																				X																												
	Maireana sp.																					X																											
	Maireana tomentosa subsp. *tomentosa*												X																																				
	Maireana triptera											X																																					
	Maireana villosa					X																																											
	Rhagodia eremaea															X					X	X																								X			X
	Salsola australis							X							X					X	X	X			X	X	X																					X
	Sclerolaena ?deserticola																					X																											
	Sclerolaena cornishiana								X	X		X			X	X									X	X																		X	X			X
	Sclerolaena costata																					X																											
	Sclerolaena cuneata																				X																											

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Sclerolaena densiflora				X																																													
	Sclerolaena deserticola																																																		
	Sclerolaena diacantha																				X																															
	Sclerolaena lanicuspis																																																		
	Tecticornia ?indica																																																		
	Tecticornia auriculata																																																		
	Tecticornia indica subsp. *bidens*																																																		
	Tecticornia indica subsp. *leiostachya*																																																		
	Tecticornia sp.																																																		
	Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		1																																																
	Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)																																																		
Cleomaceae	*Arivela viscosa*			X		X			X				X			X			X	X	X	X		X	X	X	X			X	X					X			X		X			X						
	Cleome oxalidea																																																		
Commelinaceae	*Commelina ensifolia*																																													X						
Convolvulaceae	*Bonamia erecta*									X				X				X				X						X	X	X	X												X	X		X			X	
	Bonamia pannosa																																																		
	Bonamia pilbarensis																																																		
	Convolvulus angustissimus subsp. *angustissimus*																																																		
	Convolvulus clementii																										X																									
	Duperreya commixta					X							X															X													X			X		X					
	Evolvulus alsinoides																																																		
	Evolvulus alsinoides var. *decumbens*																																												X						
	Evolvulus alsinoides var. *villosicalyx*					X	X			X							X						X	X			X													X			X		X	X	X	X	X	X	
	Ipomoea calobra																																																		
	Ipomoea coptica																																																		
	Ipomoea muelleri														X	X	X						X	X		X	X			X														X							
	Ipomoea polymorpha																																																		
	Ipomoea sp.																																																		
	Operculina aequisepala																																		X			X												
	Polymeria ambigua																																X			X								X						
	Polymeria longifolia																																					X													
Cucurbitaceae	*Austrobryonia pilbarensis*																																					X													
	Citrullus amarus	*																																																	
	Citrullus colocynthis	*																																																	
	Cucumis melo																																		X			X													
	Cucumis variabilis											X	X		X		X						X	X		X	X							X					X	X		X			X	X		X			
Cyperaceae	*Bulbostylis barbata*							X				X										X		X							X									X	X		X								
	Bulbostylis turbinata																																																X			
	Cyperus cunninghamii subsp. *cunninghamii*																																																		
	Cyperus difformis																																																		
	Cyperus pulchellus																																																		
	Cyperus squarrosus																																									X								
	Cyperus vaginatus																																	X					X			X			X					
	Fimbristylis depauperata																							X																										
	Fimbristylis dichotoma																																																		
	Fimbristylis microcarya																																																		
	Fimbristylis simulans																																																X		
Elatinaceae	*Bergia pedicellaris*																																																		
	Bergia perennis subsp. *obtusifolia*																																																		
Euphorbiaceae	*Euphorbia ?australis*																																																		
	Euphorbia ?biconvexa																									X																									
	Euphorbia australis								X													X									X												X			X				
	Euphorbia australis var. *hispidula*																																																		
	Euphorbia australis var. *subtomentosa*																									X																				X				
	Euphorbia biconvexa																																					X		X					X					
	Euphorbia boophthona															X			X																											X					
	Euphorbia careyi																																																	
	Euphorbia coghlanii																		X															X															
	Euphorbia inappendiculata var. *queenslandica*		2											X																																				

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Euphorbia schultzii																																																	
	Euphorbia sp.																																																		
	Euphorbia tannensis subsp. *eremophila*																															X							X												
Fabaceae	*Acacia ?aneura*															X					X		X	X			X																								
	Acacia ?aptaneura																																												X	X					
	Acacia ?paraneura																																																		
	Acacia ?rhodophloia																																										X								
	Acacia ?sericophylla																																																		
	Acacia ?synchronicia															X			X	X	X	X	X	X	X		X			X																						
	Acacia acradenia																																																		
	Acacia adoxa var. *adoxa*																																																		
	Acacia adsurgens						X							X																																						
	Acacia ancistrocarpa					X	X			X				X																																						
	Acacia aneura					X	X					X	X							X							X																									
	Acacia aptaneura					X	X			X					X		X								X	X					X					X						X		X		X		X	X	X	
	Acacia arida								X	X																														X	X			X							
	Acacia arrecta																																																		
	Acacia atkinsiana																																										X								
	Acacia ayersiana																																																		
	Acacia ayersiana x																																																		
	Acacia bivenosa							X		X	X																							X		X							X	X	X				X	
	Acacia catenulata subsp. *occidentalis*																																										X								
	Acacia citrinoviridis															X	X									X	X																			X					
	Acacia colei																																										X								
	Acacia coriacea subsp. *pendens*																																			X			X	X		X			X		X				
	Acacia cowleana																																																		
	Acacia dictyophleba																	X	X									X	X	X																						
	Acacia elachantha																																																		
	Acacia eriopoda																																																		
	Acacia exigua																																																		
	Acacia hilliana																																																	X	
	Acacia inaequilatera													X		X			X					X							X	X	X	X			X													
	Acacia incurvaneura																																							X											
	Acacia ligulata				X								X																																						
	Acacia maitlandii																																			X			X										X	
	Acacia marramamba																																																	
	Acacia monticola																																						X	X									X	
	Acacia orthocarpa																																																	
	Acacia pachyacra						X				X								X												X	X																		
	Acacia paraneura																																																		
	Acacia pruinocarpa					X	X									X							X		X	X	X																	X			X	X			X	
	Acacia pteraneura																																																		
	Acacia ptychophylla																																																		
	Acacia pyrifolia var. *pyrifolia*								X		X																							X		X				X			X		X		X		X		
	Acacia rhodophloia																																																		
	Acacia sclerosperma subsp. *sclerosperma*				X														X	X					X		X	X	X	X	X																				
	Acacia sericophylla													X												X																										
	Acacia sibirica																																																		
	Acacia sp.																																																		
	Acacia spondylophylla																																																	
	Acacia stellaticeps																																																	
	Acacia stenophylla																																																	
	Acacia synchronicia				X		X	X				X	X		X		X										X				X				X	X											X		
	Acacia tenuissima					X	X																														X													
	Acacia tetragonophylla							X		X	X	X							X		X			X											X		X	X				X		X	X	X	X		
	Acacia trachycarpa																																	X									X		X					
	Acacia trachycarpa x ?							X																																											
	Acacia tumida var. *pilbarensis*						X	X																															X											
	Acacia victoriae																																																		
	Acacia wanyu																																																		
	Acacia xiphophylla									X		X																																				X		X
	Aeschynomene indica																																																	
	Alysicarpus muelleri																X																																	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Crotalaria cunninghamii																	X										X	X																					
	Crotalaria dissitiflora subsp. *benthamiana*																																	X															X		
	Crotalaria medicaginea var. *neglecta*																																	X			X							X						
	Crotalaria novae-hollandiae subsp. *novae-hollandiae*																																			X															
	Cullen ?leucochaites																																																		
	Cullen cinereum																																	X	X																
	Cullen graveolens																																																		
	Cullen leucanthum														X																																				
	Cullen leucochaites						X							X	X		X																																			
	Fabaceae sp.								X																							X																		
	Glycine canescens					X																																						X			X					
	Gompholobium oreophilum								X																																										
	Indigofera colutea																									X														X											
	Indigofera linifolia																																																		
	Indigofera linnaei																																																		
	Indigofera monophylla					X		X	X		X			X				X										X	X	X		X		X					X				X	X			X				
	Indigofera rugosa																																X																		
	Indigofera sp.																																																		
	Indigofera trita																																	X				X	X					X						
	Isotropis atropurpurea																																							X									X		
	Isotropis iophyta																																																	
	Lotus australis																																																		
	Lotus cruentus																																	X																	
	Neptunia dimorphantha																																		X	X		X													
	Petalostylis cassioides																											X	X																		X				
	Petalostylis labicheoides																																																		
	Rhynchosia minima														X																	X		X		X			X						X		X	X		
	Senna ?sp. Meekatharra (E. Bailey 1-26)																																																		
	Senna artemisioides																X																																			
	Senna artemisioides subsp. *helmsii*					X	X			X		X	X					X				X	X												X	X										X	X	X		
	Senna artemisioides subsp. *oligophylla*				X	X	X		X	X					X	X			X						X						X			X	X		X								X	X		
	Senna artemisioides subsp. *oligophylla x helmsii*																																	X																
	Senna glaucifolia					X																																													
	Senna glutinosa																																																		
	Senna glutinosa subsp. *chatelainiana*																																																		
	Senna glutinosa subsp. *glutinosa*							X	X	X	X			X								X										X		X	X												X		
	Senna glutinosa subsp. *pruinosa*							X	X		X																									X				X					X		X		
	Senna glutinosa subsp. *x luerssenii*					X				X		X	X									X								X				X									X	X				X		
	Senna notabilis							X		X	X				X		X	X		X		X	X	X	X		X	X	X				X									X	X				X		
	Senna sericea																																							X											
	Senna sp.																																																		
	Senna sp. Meekatharra (E. Bailey 1-26)																																															X		X
	Senna stricta																																									X								
	Senna symonii																																		X															
	Senna venusta																																																		
	Sesbania cannabina																																																		
	Swainsona formosa																																																		
	Swainsona kingii																																																		
	Swainsona stenodonta																																																		
	Swainsona thompsoniana		3																																																
	Tephrosia densa																																																		
	Tephrosia remotiflora																																																		
	Tephrosia rosea var. *clementii*																																X																		
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																			X			X	X					X		X				
	Tephrosia sp.																							X																											
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																																																		
	Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)																																					X			X										
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)																																																	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)																																																	X	
	Tephrosia supina			X																																														
	Vachellia farnesiana	*													X		X								X																				X						X
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)																																				X														
Frankeniaceae	*Frankenia ambita*																																																		
	Frankenia setosa																																																		
Gentianaceae	*Schenkia clementii*																																																		
Goodeniaceae	*Dampiera candicans*																																																		
	Goodenia collaris																																																		
	Goodenia cusackiana																																																		
	Goodenia forrestii																																											X							
	Goodenia lamprosperma																																											X							
	Goodenia microptera							X	X													X																		X	X			X							
	Goodenia muelleriana																																		X	X		X													
	Goodenia nuda		4																																								X			X				
	Goodenia pascua																																																		
	Goodenia prostrata											X					X																																			
	Goodenia scaevolina										X																																									
	Goodenia sp.																																	X																		
	Goodenia stobbsiana																															X								X											
	Goodenia triodiophila																																																		
	Scaevola amblyanthera var. *centralis*																																																		
	Scaevola parvifolia subsp. *pilbarae*													X				X										X	X	X																					
	Scaevola spinescens				X							X	X																					X																		
Gyrostemonaceae	*Codonocarpus cotinifolius*													X																																						
Haloragaceae	*Gonocarpus ephemerus*																																																			
	Haloragis gossei var. gossei										X																																									
	Haloragis trigonocarpa																																																			
Lamiaceae	*Clerodendrum floribundum*																																																			
	Dicrastylis cordifolia																																																			
Lauraceae	*Cassytha capillaris*																																																			
Loranthaceae	*Amyema fitzgeraldii*																										X																					X				
Lythraceae	*Ammannia baccifera*																																							X		X									
	Ammannia multiflora																																																		
Malvaceae	*Abutilon ?lepidum*																																																		
	Abutilon cunninghamii																																																		
	Abutilon fraseri subsp. *fraseri*					X																																X													
	Abutilon lepidum					X									X		X						X	X		X	X			X	X					X									X	X	X		
	Abutilon macrum																							X																									X		
	Abutilon malvifolium																																		X															
	Abutilon otocarpum			X			X															X			X				X															X			X		
	Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)																																																		
	Abutilon sp.											X																																							
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)																																																	
	Abutilon sp. Pilbara (W.R. Barker 2025)																					X																												
	Androcalva luteiflora																																																		
	Corchorus aff. *tectus*																	X							X			X	X	X	X																			
	Corchorus crozophorifolius																								X																										
	Corchorus incanus subsp. *incanus*																																																		
	Corchorus lasiocarpus							X	X	X	X																					X						X	X	X									X	
	Corchorus sidoides subsp. *sidoides*			X		X	X						X	X								X				X																							
	Corchorus sp.														X		X					X											X																	
	Corchorus tectus																																																		
	Corchorus tridens															X	X						X	X	X		X								X			X											
	Corchorus walcottii																					X																													
	Gossypium australe						X							X								X			X							X								X	X								
	Gossypium robinsonii						X																			X											X														
	Hibiscus brachychlaenus												X					X										X	X	X																					
	Hibiscus brachysiphonius																																		X																
	Hibiscus burtonii					X						X	X																															X			X				

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Hibiscus coatesii																																																	
	Hibiscus leptocladus																																																	
	Hibiscus sp. Gardneri (A.L. Payne PRP 1435)																																																	
	Hibiscus sp. Mt Robinson (G. Byrne 3537)																																																
	Hibiscus sturtii																																																
	Hibiscus sturtii var. *campylochlamys*																X																												X		X	X	X		
	Hibiscus sturtii var. *grandiflorus*																																																
	Hibiscus sturtii var. *platychlamys*					X	X															X									X																		
	Hibiscus sturtii var. *truncatus*																																																
	Hibiscus verdcourtii																																																
	Lawrencia ?densiflora																																																
	Lawrencia densiflora																																																
	Lawrencia glomerata																																																
	Lawrencia helmsii																																																
	Malvaceae sp.																																																
	Malvastrum americanum	*													X		X									X																		X		X	X		
	Melhania oblongifolia																																	X									X		X				
	Seringia exastia		T																																														
	Seringia nephrosperma																																																
	Sida arenicola																																																
	Sida arsiniata																																																
	Sida cardiophylla													X				X										X	X	X																		
	Sida clementii																																											X						
	Sida echinocarpa								X													X																						X						
	Sida ectogama																																																
	Sida fibulifera			X																				X												X								X		X	X		X
	Sida platycalyx																						X	X																										
	Sida sp.																																																
	Sida sp. Articulation below (A.A. Mitchell PRP 1605)																																																
	Sida sp. dark green fruits (S. van Leeuwen 2260)									X																																	X						
	Sida sp. Excedentifolia (J.L. Egan 1925)																																															X	
	Sida sp. L (A.M. Ashby 4202)					X	X																			X					X				X	X		X					X					
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)									X																																	X						
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)						X																																										X	
	Sida sp. Supplejack Station (T.S. Henshall 2345)																																																
	Sida spinosa																																		X														
	Triumfetta chaetocarpa																																																
	Triumfetta clementii																																	X														
	Triumfetta leptacantha																																																
	Triumfetta maconochieana																																																
	Waltheria indica																																																
Marsileaceae	*Marsilea exarata*																																																
	Marsilea hirsuta																																												X			X		
Molluginaceae	*Trigastrotheca molluginea*								X																									X								X	X			X			
Moraceae	*Ficus brachypoda*																																										X						
Myrtaceae	*Calytrix carinata*																																																
	Corymbia candida																																																
	Corymbia deserticola subsp. *deserticola*					X																																										X	
	Corymbia ferriticola																																																
	Corymbia hamersleyana										X			X						X						X	X	X				X						X											
	Eucalyptus camaldulensis subsp. *refulgens*																																																
	Eucalyptus gamophylla													X																																				
	Eucalyptus leucophloia subsp. *leucophloia*							X		X	X																																	X	X					
	Eucalyptus sp.																																																
	Eucalyptus victrix																				X													X					X			X			X			
	Eucalyptus xerothermica																																																
	Melaleuca glomerata			X																																									X					

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Melaleuca linophylla																																					X			X			X				
	Melaleuca sp.				X																																												
Nyctaginaceae	*Boerhavia burbidgeana*														X				X		X			X																										
	Boerhavia coccinea			X		X	X					X								X		X		X	X	X					X																		
	Boerhavia gardneri																																																	
	Boerhavia paludosa																																		X															
	Boerhavia repleta														X												X																			X		X			
	Boerhavia schomburgkiana																																																	
Oleaceae	*Jasminum didymum* subsp. *lineare*																																					X	X											
Orobanchaceae	*Striga curviflora*																																																	
Papaveraceae	*Argemone ochroleuca*	*																																																
Phrymaceae	*Mimulus gracilis*																																																	
	Uvedalia linearis																																																	
Phyllanthaceae	*Flueggea virosa* subsp. *melanthesoides*																																					X												
	Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)																																	X																
	Phyllanthus erwinii																																																	
	Phyllanthus exilis																																							X										
	Phyllanthus maderaspatensis																X																	X	X	X		X	X			X			X						
Plantaginaceae	*Stemodia grossa*																																	X					X			X			X						
	Stemodia kingii																																																	
	Stemodia sp.																																							X										
	Stemodia viscosa																																										X			X						
Plumbaginaceae	*Muellerolimon salicorniaceum*																																																	
Poaceae	*Amphipogon sericeus*																																																	
	Aristida contorta					X									X																														X		X		X	X		
	Aristida holathera var. *holathera*						X						X	X				X				X			X																			X		X					
	Aristida inaequiglumis					X	X							X								X	X											X												X				
	Aristida latifolia																																		X	X		X										X		
	Aristida obscura																																																	
	Bothriochloa ewartiana																																			X														
	Cenchrus ciliaris	*				X	X					X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X		X				X				X	X			X		X
	Cenchrus setiger	*													X	X	X			X	X					X	X	X																			X				
	Chloris pectinata																				X		X	X		X																									
	Chloris pumilio																						X																												
	Chloris virgata	*																																																
	Chrysopogon fallax											X				X	X				X	X	X	X			X				X			X					X	X	X		X	X				
	Cymbopogon ambiguus																																			X		X	X											
	Cymbopogon obtectus							X																												X														
	Cynodon convergens																																	X			X													
	Cynodon prostratus			X						X		X																																						
	Dactyloctenium radulans												X								X		X	X		X																									
	Dichanthium sericeum subsp. *humilius*																																														X		X	X		
	Digitaria brownii					X																																													
	Digitaria ctenantha																						X	X																											
	Diplachne fusca subsp. *fusca*																																																	
	Echinochloa colona	*																																													X				
	Elytrophorus spicatus																																																	
	Enneapogon caerulescens																																															X		
	Enneapogon lindleyanus																																						X					X						
	Enneapogon polyphyllus			X		X			X											X			X	X		X																		X			X	X	X	X	X	
	Enneapogon robustissimus																																	X						X									X		
	Enteropogon ramosus																																															X		
	Eragrostis cumingii																							X										X						X		X			X					
	Eragrostis dielsii			X																		X																							X						
	Eragrostis eriopoda			X	X													X	X			X						X	X	X	X																			
	Eragrostis leptocarpa																							X																											
	Eragrostis pergracilis				X																																													X
	Eragrostis setifolia																				X		X	X																										X
	Eragrostis sp.								X																																								
	Eragrostis sp. Erect spikelets (P.K. Latz 2122)		3																																														
	Eragrostis tenellula																						X																											
	Eragrostis xerophila																																		X				X									X		

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
	Eriachne aristidea																	X				X						X	X	X																				
	Eriachne benthamii											X	X																					X						X										
	Eriachne ciliata																																																	
	Eriachne gardneri																	X										X	X																					
	Eriachne helmsii					X																														X							X							
	Eriachne lanata																																																	
	Eriachne mucronata							X		X																									X			X							X	X			X	
	Eriachne pulchella subsp. *dominii*								X	X	X																														X									
	Eriachne pulchella subsp. *pulchella*																																								X		X	X			X			
	Eriachne tenuiculmis																																											X						
	Eulalia aurea					X									X					X					X	X				X													X						
	Iseilema eremaeum																					X																												
	Iseilema macratherum																																														X		X		
	Iseilema membranaceum																						X	X																									X		
	Iseilema vaginiflorum																																																	
	Panicum decompositum																																											X						
	Panicum laevinode																				X																													
	Paractaenum refractum																													X																				
	Paraneurachne muelleri									X																		X						X									X						
	Paspalidium basicladum																																																	
	Paspalidium clementii																															X											X					X	
	Paspalidium jubiflorum																																																
	Paspalidium rarum																							X																										
	Paspalidium tabulatum																																																
	Perotis rara																					X	X	X																					X				X	
	Poaceae sp.																						X	X									X																	
	Schizachyrium fragile																																															X	
	Setaria dielsii																																																
	Setaria verticillata	*																																															
	Sorghum plumosum var. *plumosum*																																			X														
	Sporobolus australasicus			X					X			X	X						X	X	X	X	X	X		X	X				X			X						X			X	X	X	X		X
	Sporobolus mitchellii																																																
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)																																															
	Themeda triandra																																							X	X				X		X				
	Tragus australianus																																														X			
	Triodia ?basedowii																																																
	Triodia ?brizoides																																																
	Triodia ?longiceps																																																
	Triodia angusta																																			X														
	Triodia basedowii					X	X							X				X	X			X						X	X	X	X																			
	Triodia brizoides																																															X		
	Triodia epactia									X													X	X								X			X		X		X		X		X		X				
	Triodia epactia/pungens																																X			X														
	Triodia longiceps			X	X							X																																						
	Triodia pungens							X	X																						X		X									X							
	Triodia schinzii																	X										X	X																				
	Triodia sp.																																																
	Triodia vanleeuwenii									X																																X			X				
	Triodia wiseana										X																																						
	Triraphis mollis																								X																								
	Urochloa occidentalis var. *ciliata*																																															X	
	Urochloa occidentalis var. *occidentalis*																																													X		X		
	Xerochloa barbata																																																
	Yakirra australiensis var. *australiensis*																	X										X	X	X																				
Polygalaceae	*Polygala glaucifolia*																																																	
	Polygala isingii																																					X												
Polygonaceae	*Duma florulenta*																																																
	Rumex vesicarius	*																																						X		X		X					
Portulacaceae	*Calandrinia ptychosperma*																																																
	Portulaca ?cyclophylla																							X																										
	Portulaca oleracea			X		X										X			X	X	X	X	X			X	X																X			X			X
	Portulaca pilosa	*																						X																										
Potamogetonaceae	*Potamogeton tepperi*																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	B168	B169	B174	B176	B178	B179	B180	B181	B183	B184	B185	C009	C012	C013	C014	C015	C016	C017	C018	C022	C067	C069	C070	C071	C072	C073	C074	C075	C080	C081	C082	C083	C084	C085	C086	C087	C088	C089	C090	C091	C092	C093	C094	C095	C096	C097	C098	C099
Proteaceae	*Grevillea berryana*																																																	
	Grevillea pyramidalis subsp. *leucadendron*																																X																		
	Grevillea stenobotrya																																																	
	Grevillea wickhamii																																																	
	Grevillea wickhamii subsp. *hispidula*																																																	
	Hakea chordophylla																																																	X
	Hakea lorea subsp. *lorea*						X							X		X		X	X	X					X		X	X	X	X						X	X								X	X				
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*																							X			X																	X			X	X	X	X		
Rubiaceae	*Dolichocarpa crouchiana*								X																																										
	Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)		3																																X			X												
	Psydrax latifolia					X						X	X										X	X																					X			X			
	Psydrax suaveolens																																													X			X			
	Scleromitrion galioides																																																	
	Spermacoce brachystema																						X	X																										
	Synaptantha tillaeacea var. *tillaeacea*																																																	
Santalaceae	*Anthobolus leptomerioides*													X																																				
	Santalum lanceolatum																																			X				X							X			
	Santalum sp.																																																	
Sapindaceae	*Atalaya hemiglauca*														X				X						X	X	X				X			X		X			X	X		X			X					
	Dodonaea coriacea													X																																				
	Dodonaea lanceolata var. *lanceolata*																																																	
	Dodonaea petiolaris					X																																								X	X	X			
Scrophulariaceae	*Eremophila ?longifolia*																																																	
	Eremophila cuneifolia									X		X	X																																					
	Eremophila forrestii						X						X								X	X	X	X							X															X		X		
	Eremophila forrestii subsp. *forrestii*					X				X																																		X		X				
	Eremophila glabra																						X																											
	Eremophila jucunda subsp. *pulcherrima*																																																
	Eremophila lanceolata															X											X				X																X		
	Eremophila latrobei																																																	
	Eremophila latrobei subsp. *filiformis*												X																																	X		X			
	Eremophila latrobei subsp. *glabra*																																																	
	Eremophila longifolia						X																X		X													X												
	Eremophila sp.																																																	
	Eremophila spongiocarpa		3																																															
	Eremophila youngii subsp. *lepidota*		4																																														
Solanaceae	*Nicotiana benthamiana*																																																	
	Nicotiana heterantha																																																	
	Nicotiana occidentalis																																																	
	Nicotiana occidentalis subsp. *obliqua*																							X																										
	Nicotiana occidentalis subsp. *occidentalis*																																X																	
	Solanum cleistogamum													X																																					
	Solanum diversiflorum																																																	
	Solanum elatius																																																	
	Solanum lasiophyllum				X	X	X	X	X				X			X	X		X	X		X	X				X			X	X	X											X		X	X		
	Solanum morrisonii																																																	
	Solanum nigrum	*																																																
	Solanum phlomoides																															X								X									
	Solanum sp.																																							X									
Surianaceae	*Stylobasium spathulatum*			X														X	X			X					X	X	X	X																		
Typhaceae	*Typha domingensis*																																																
Violaceae	*Afrohybanthus aurantiacus*							X																												X		X				X	X				X	
Zygophyllaceae	*Roepera compressa*																																																
	Roepera eichleri										X																																						X
	Tribulopis angustifolia																																																
	Tribulus astrocarpus																																																
	Tribulus hirsutus																	X					X							X														X					
	Tribulus macrocarpus																	X					X							X	X																		
	Tribulus occidentalis																													X																			
	Tribulus sp.																																																
	Tribulus suberosus																																																

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
Acanthaceae	*Dicladanthera forrestii*																													X	X				X																X
	Rostellularia adscendens var. *clementii*			X																												X																		
Aizoaceae	*Trianthema glossostigmum*																										X																									
	Trianthema oxycalyptrum var. *oxycalyptrum*						X																																												
	Trianthema pilosum														X	X		X	X				X																													
	Trianthema triquetrum						X																																												
	Trianthema turgidifolium																																			X															
Amaranthaceae	*Aerva javanica*	*																												X					X							X								
	Alternanthera nana																																			X															
	Alternanthera nodiflora																							X																											X
	Amaranthus cuspidifolius																																																		
	Amaranthus undulatus																																																		
	Gomphrena affinis subsp. *pilbarensis*			X		X	X								X	X				X	X			X							X		X		X						X	X	X						
	Gomphrena canescens subsp. *canescens*																																				X														
	Gomphrena cunninghamii																																																	X	X
	Gomphrena kanisii																																																		
	Ptilotus aervoides				X						X																									X															
	Ptilotus astrolasius																																																		
	Ptilotus auriculifolius																																																		
	Ptilotus axillaris																																																		
	Ptilotus calostachyus																								X		X	X	X																					X	
	Ptilotus carinatus																																																		
	Ptilotus clementii																								X																										
	Ptilotus exaltatus			X	X		X		X		X	X		X				X			X			X	X		X	X	X	X	X	X				X			X		X		X				X	X	X
	Ptilotus fusiformis																																																		X
	Ptilotus gaudichaudii			X		X																																													
	Ptilotus gomphrenoides					X																																					X			X					
	Ptilotus helipteroides				X						X														X																										
	Ptilotus latifolius																		X																																
	Ptilotus obovatus			X		X	X	X	X	X	X	X		X		X	X				X			X	X	X	X			X	X							X	X		X	X	X	X	X				
	Ptilotus polystachyus				X														X																															
	Ptilotus schwartzii																																										X						X	
	Ptilotus xerophilus					X																																												
Apocynaceae	*Cynanchum floribundum*																																																		
	Cynanchum viminale																																																		
	Vincetoxicum lineare			X																								X							X						X						X		X
Araliaceae	*Trachymene oleracea* subsp. *oleracea*																								X																									
Asteraceae	*Angianthus cyathifer*																																																		
	Asteraceae sp.																																																		
	Bidens subalternans	*		X		X			X															X				X			X	X	X	X	X							X	X		X		X	X			X
	Blumea tenella																																	X									X								
	Calotis multicaulis																																																		
	Centipeda minima subsp. *macrocephala*																																	X		X	X				X				X					
	Chrysocephalum gilesii																																																		
	Flaveria trinervia	*																																				X													
	Pentalepis trichodesmoides subsp. *trichodesmoides*																																																		
	Peripleura virgata																																																		
	Pluchea dentex																																																		X
	Pluchea dunlopii																																																		
	Pluchea ferdinandi-muelleri																																																		
	Pluchea rubelliflora																																																		
	Pluchea tetranthera																																		X															
	Pseudognaphalium luteoalbum																																																		
	Pterocaulon serrulatum																																																		
	Pterocaulon sp.																																																		
	Pterocaulon sphacelatum					X																						X			X		X		X	X	X				X			X			X			
	Pterocaulon sphaeranthoides				X									X																																					
	Rutidosis helichrysoides																																																		X
	Sonchus oleraceus	*																																																	
	Streptoglossa ?odora																																																		
	Streptoglossa adscendens																																			X															
	Streptoglossa bubakii					X																													X															

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Streptoglossa decurrens					X																													X															
	Streptoglossa odora				X																																													
	Streptoglossa tenuiflora																																																	
	Tridax procumbens	*																																																
Boraginaceae	*Ehretia saligna* var. *saligna*																																																	
	Heliotropium chrysocarpum																																																	
	Heliotropium cunninghamii																															X																		
	Heliotropium heteranthum																																X																	
	Heliotropium inexplicitum																																																	
	Heliotropium ovalifolium																																																	
	Heliotropium tanythrix																																																	
	Heliotropium tenuifolium																																																	
	Trichodesma zeylanicum																X		X							X																									
	Trichodesma zeylanicum var. *grandiflorum*														X																																				
	Trichodesma zeylanicum var. *zeylanicum*								X		X		X	X																						X														X	
Brassicaceae	*Lepidium catapycnon*		4																																																
	Lepidium pedicellosum																																																	
	Lepidium phlebopetalum																																																	
	Lepidium platypetalum																																																	
	Stenopetalum nutans																																																	
Campanulaceae	*Lobelia arnhemiaca*																																																	
	Wahlenbergia tumidifructa																																																	
Capparaceae	*Capparis lasiantha*																																																	
	Capparis spinosa subsp. *nummularia*																																				X														
	Capparis umbonata																																																	
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*				X																																													
	Polycarpaea holtzei																																																	X
	Polycarpaea longiflora																															X																		X
Celastraceae	*Stackhousia clementii*		3																																															
	Stackhousia intermedia																																																	
Chenopodiaceae	*Atriplex ?amnicola*																																																	
	Atriplex ?bunburyana																																																	
	Atriplex amnicola																																																	
	Atriplex bunburyana						X	X																																										
	Atriplex codonocarpa																																																	
	Atriplex flabelliformis		3																																															
	Dysphania kalpari				X												X											X							X										X				
	Dysphania rhadinostachya				X																																													
	Dysphania rhadinostachya subsp. *inflata*																																																	
	Dysphania rhadinostachya subsp. *rhadinostachya*																																																	
	Dysphania sp.																																																	
	Dysphania sphaerosperma																																																	
	Einadia nutans subsp. *eremaea*																																																	
	Enchylaena tomentosa					X	X	X						X																													X	X				X			
	Eremophea spinosa																																																	
	Maireana carnosa						X																																											
	Maireana georgei						X																																										X	
	Maireana luehmannii																																							X									
	Maireana planifolia								X					X		X	X																																	
	Maireana planifolia x villosa																																																	
	Maireana platycarpa						X	X																																										
	Maireana pyramidata						X	X																																										
	Maireana sp.																																																	
	Maireana tomentosa subsp. *tomentosa*																																																	
	Maireana triptera						X	X		X																																	X				X			
	Maireana villosa								X		X																				X														X		X			
	Rhagodia eremaea			X		X										X	X				X			X																			X		X	X	X		X		
	Salsola australis								X		X	X		X			X																												X	X			X			
	Sclerolaena ?deserticola																																																	
	Sclerolaena cornishiana				X												X					X		X																			X		X			X	X		X	
	Sclerolaena costata																																															X	X					
	Sclerolaena cuneata						X	X																																								X	X				X	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Sclerolaena densiflora																																																		
	Sclerolaena deserticola																											X																								
	Sclerolaena diacantha						X																																												
	Sclerolaena lanicuspis																																										X					X			
	Tecticornia ?indica																																																	
	Tecticornia auriculata																																						X												
	Tecticornia indica subsp. *bidens*																																			X	X														
	Tecticornia indica subsp. *leiostachya*																																					X													
	Tecticornia sp.																																			X	X													
	Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		1																																																
	Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)																																						X												
Cleomaceae	*Arivela viscosa*					X			X	X	X	X		X		X	X						X												X			X					X	X	X				X
	Cleome oxalidea																																																		
Commelinaceae	*Commelina ensifolia*																														X	X	X	X	X												X				
Convolvulaceae	*Bonamia erecta*												X		X			X			X		X		X				X																				X	X
	Bonamia pannosa																																																		
	Bonamia pilbarensis																																																		
	Convolvulus angustissimus subsp. *angustissimus*																																X																		
	Convolvulus clementii					X																																													
	Duperreya commixta								X		X			X				X												X					X										X		X	X	X
	Evolvulus alsinoides																																																		
	Evolvulus alsinoides var. *decumbens*																																																		X
	Evolvulus alsinoides var. *villosicalyx*			X		X			X		X		X	X		X	X				X			X				X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X		X	
	Ipomoea calobra																																																		
	Ipomoea coptica																																																		
	Ipomoea muelleri																																X		X	X											X				
	Ipomoea polymorpha																																																	
	Ipomoea sp.																																																	
	Operculina aequisepala																																																	
	Polymeria ambigua																																																	X
	Polymeria longifolia																																																	
Cucurbitaceae	*Austrobryonia pilbarensis*																																X																	
	Citrullus amarus	*																																																
	Citrullus colocynthis	*																																																
	Cucumis melo					X																																													
	Cucumis variabilis			X	X	X					X					X							X				X	X				X	X	X											X				X
Cyperaceae	*Bulbostylis barbata*																										X						X		X														
	Bulbostylis turbinata																																																	
	Cyperus cunninghamii subsp. *cunninghamii*																																																	
	Cyperus difformis																																																		
	Cyperus pulchellus																																																	X
	Cyperus squarrosus																																																	
	Cyperus vaginatus																																																	
	Fimbristylis depauperata																																																	X
	Fimbristylis dichotoma																																																	
	Fimbristylis microcarya																																																	
	Fimbristylis simulans																								X			X																							
Elatinaceae	*Bergia pedicellaris*																																																		X
	Bergia perennis subsp. *obtusifolia*																																																	
Euphorbiaceae	*Euphorbia ?australis*																																																	
	Euphorbia ?biconvexa																																																	
	Euphorbia australis																							X									X			X														
	Euphorbia australis var. *hispidula*																						X																									X		X	X
	Euphorbia australis var. *subtomentosa*								X		X		X								X						X				X	X		X															
	Euphorbia biconvexa																	X			X																														X
	Euphorbia boophthona				X																X															X														X
	Euphorbia careyi																																																	
	Euphorbia coghlanii			X																				X												X														
	Euphorbia inappendiculata var. *queenslandica*		2																																															

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Euphorbia schultzii																																																		
	Euphorbia sp.																																																		
	Euphorbia tannensis subsp. *eremophila*										X					X						X																			X									
Fabaceae	*Acacia ?aneura*																																																		
	Acacia ?aptaneura				X			X				X										X																									X				
	Acacia ?paraneura																																																		
	Acacia ?rhodophloia																																																		
	Acacia ?sericophylla																																																		
	Acacia ?synchronicia																																																		
	Acacia acradenia																																																		
	Acacia adoxa var. *adoxa*																																																		
	Acacia adsurgens												X			X										X																										
	Acacia ancistrocarpa								X	X			X	X								X			X	X																							X		
	Acacia aneura									X	X	X		X			X							X					X		X			X															X		
	Acacia aptaneura			X		X			X		X			X		X				X	X		X	X					X	X	X	X										X	X	X	X	X	X	X	X	X	X	X
	Acacia arida																										X		X																							
	Acacia arrecta																											X																								
	Acacia atkinsiana																										X																								
	Acacia ayersiana								X			X	X																X	X	X																			X		
	Acacia ayersiana x																																																		
	Acacia bivenosa				X																				X	X		X																						X		
	Acacia catenulata subsp. *occidentalis*					X																																													
	Acacia citrinoviridis																				X										X		X		X	X															X
	Acacia colei																																																		
	Acacia coriacea subsp. *pendens*																																			X															
	Acacia cowleana																																																		
	Acacia dictyophleba														X			X	X	X	X		X						X																						
	Acacia elachantha																																																		
	Acacia eriopoda																																																		X
	Acacia exigua																																																		
	Acacia hilliana																									X																									
	Acacia inaequilatera												X					X			X						X																									
	Acacia incurvaneura																											X					X		X																	
	Acacia ligulata																																																		
	Acacia maitlandii																								X	X	X	X	X	X																				X	X
	Acacia marramamba																										X		X																							
	Acacia monticola																									X			X																							
	Acacia orthocarpa																																																		
	Acacia pachyacra																	X																																	
	Acacia paraneura																																																		
	Acacia pruinocarpa				X				X	X	X	X		X		X	X						X			X	X	X	X	X	X		X	X	X					X		X				X	X		X	
	Acacia pteraneura																																																		
	Acacia ptychophylla																																																		
	Acacia pyrifolia var. *pyrifolia*																												X	X																				X	X
	Acacia rhodophloia																																																	
	Acacia sclerosperma subsp. *sclerosperma*															X	X	X		X	X			X																											
	Acacia sericophylla																																			X															
	Acacia sibirica																																										X							
	Acacia sp.																																																		
	Acacia spondylophylla																																																	
	Acacia stellaticeps																																																	
	Acacia stenophylla																																																	
	Acacia synchronicia			X		X	X	X				X				X				X		X		X							X		X									X	X	X	X	X	X			X		
	Acacia tenuissima																									X			X																				X		
	Acacia tetragonophylla			X		X																	X			X					X	X		X	X							X	X		X	X	X	X	X		
	Acacia trachycarpa								X																																										
	Acacia trachycarpa x ?																																																		
	Acacia tumida var. *pilbarensis*								X	X																				X	X																				X
	Acacia victoriae																																								X										
	Acacia wanyu								X	X																																									
	Acacia xiphophylla			X			X	X																X							X												X	X	X	X			X		
	Aeschynomene indica																																									X										
	Alysicarpus muelleri			X		X																		X										X											X						

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Crotalaria cunninghamii														X				X	X			X																											
	Crotalaria dissitiflora subsp. *benthamiana*																																																		
	Crotalaria medicaginea var. *neglecta*					X																									X																				X
	Crotalaria novae-hollandiae subsp. *novae-hollandiae*																																																		
	Cullen ?leucochaites																																																	
	Cullen cinereum																																					X			X										
	Cullen graveolens																																							X										
	Cullen leucanthum																																																	
	Cullen leucochaites																																																	
	Fabaceae sp.																																							X										
	Glycine canescens					X					X																			X	X																		X
	Gompholobium oreophilum																										X		X																					
	Indigofera colutea			X		X																		X																											
	Indigofera linifolia																																																		
	Indigofera linnaei																																																	
	Indigofera monophylla								X				X		X										X	X	X	X	X		X			X														X	X
	Indigofera rugosa																																																	
	Indigofera sp.																																																	
	Indigofera trita																																																	
	Isotropis atropurpurea																																																	
	Isotropis iophyta																																																	X
	Lotus australis																																																	
	Lotus cruentus																																																	
	Neptunia dimorphantha																															X																		
	Petalostylis cassioides														X																																			
	Petalostylis labicheoides																																																X	X
	Rhynchosia minima			X		X										X														X	X	X																	
	Senna ?sp. Meekatharra (E. Bailey 1-26)																																																
	Senna artemisioides																																																	
	Senna artemisioides subsp. *helmsii*			X					X					X	X	X								X	X				X	X	X	X		X	X					X		X				X		
	Senna artemisioides subsp. *oligophylla*								X							X				X	X	X	X							X										X				X				
	Senna artemisioides subsp. *oligophylla x helmsii*																														X										X								
	Senna glaucifolia																																																X	
	Senna glutinosa																																																
	Senna glutinosa subsp. *chatelainiana*																																																
	Senna glutinosa subsp. *glutinosa*								X	X				X							X				X	X		X	X		X																X	
	Senna glutinosa subsp. *pruinosa*																								X		X				X																		
	Senna glutinosa subsp. *x luerssenii*			X	X		X				X	X		X			X							X	X	X				X											X	X				X		X	
	Senna notabilis			X	X	X			X				X				X		X	X	X			X		X	X		X	X				X										X		X	X
	Senna sericea																																																	
	Senna sp.																																																	
	Senna sp. Meekatharra (E. Bailey 1-26)							X																																	X		X	X		X	X		X	X	
	Senna stricta																																																	
	Senna symonii																																																	
	Senna venusta																																																	
	Sesbania cannabina																																		X															
	Swainsona formosa																																																	
	Swainsona kingii																													X																				
	Swainsona stenodonta																																																	
	Swainsona thompsoniana		3																													X																		
	Tephrosia densa																																																	
	Tephrosia remotiflora					X																																												
	Tephrosia rosea var. *clementii*																																																	
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																													X																			X	X
	Tephrosia sp.																															X																		
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																																																	
	Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)																																																	
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)			X																																													

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)																																																			
	Tephrosia supina				X																																													
	Vachellia farnesiana	*		X																																			X											
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)																																																		
Frankeniaceae	*Frankenia ambita*																																																		
	Frankenia setosa																																																		
Gentianaceae	*Schenkia clementii*																																					X														
Goodeniaceae	*Dampiera candicans*																																																	X		
	Goodenia collaris																																																		
	Goodenia cusackiana																																																		
	Goodenia forrestii																																																		
	Goodenia lamprosperma																																			X															X
	Goodenia microptera				X						X		X												X	X		X														X								
	Goodenia muelleriana					X																										X																		
	Goodenia nuda		4			X																																												X	X
	Goodenia pascua																																																		
	Goodenia prostrata					X					X						X							X											X								X							
	Goodenia scaevolina																																																		
	Goodenia sp.																																																		
	Goodenia stobbsiana																										X		X																				X	
	Goodenia triodiophila																										X																						
	Scaevola amblyanthera var. *centralis*																																																	
	Scaevola parvifolia subsp. *pilbarae*														X			X					X																											
	Scaevola spinescens																							X																		X								
Gyrostemonaceae	*Codonocarpus cotinifolius*																								X																									
Haloragaceae	*Gonocarpus ephemerus*																																																		X
	Haloragis gossei var. gossei																																																		
	Haloragis trigonocarpa																																																		
Lamiaceae	*Clerodendrum floribundum*																																																		
	Dicrastylis cordifolia												X																																						
Lauraceae	*Cassytha capillaris*																																																	X	X
Loranthaceae	*Amyema fitzgeraldii*																																																	
Lythraceae	*Ammannia baccifera*																																																	
	Ammannia multiflora																																																	X
Malvaceae	*Abutilon ?lepidum*																																																	
	Abutilon cunninghamii																																																	
	Abutilon fraseri subsp. *fraseri*					X			X		X																			X		X		X									X						
	Abutilon lepidum			X	X	X					X		X	X		X					X			X						X		X		X			X					X	X		X	X	X	X		
	Abutilon macrum			X		X																					X									X								X						
	Abutilon malvifolium																																																	
	Abutilon otocarpum								X					X		X		X		X																			X				X		X		X	X	
	Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)																																		X															
	Abutilon sp.																							X																										
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)								X																																									
	Abutilon sp. Pilbara (W.R. Barker 2025)																																																	
	Androcalva luteiflora																																																	X
	Corchorus aff. *tectus*												X		X	X		X	X				X																				X							
	Corchorus crozophorifolius																																			X														
	Corchorus incanus subsp. *incanus*																																																	
	Corchorus lasiocarpus				X																				X	X	X	X	X																	X		X	X
	Corchorus sidoides subsp. *sidoides*								X		X						X																																
	Corchorus sp.																				X																													
	Corchorus tectus																			X																														
	Corchorus tridens																																																	
	Corchorus walcottii																																																	
	Gossypium australe																				X		X					X					X															X	
	Gossypium robinsonii																														X																		
	Hibiscus brachychlaenus														X			X	X																															
	Hibiscus brachysiphonius																																																	
	Hibiscus burtonii				X				X												X																									X	X		X	X	X		X	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Hibiscus coatesii				X																								X																					X	
	Hibiscus leptocladus																																																			
	Hibiscus sp. Gardneri (A.L. Payne PRP 1435)																																																			
	Hibiscus sp. Mt Robinson (G. Byrne 3537)																																																			
	Hibiscus sturtii																																																			
	Hibiscus sturtii var. *campylochlamys*			X																									X	X											X					X			X	
	Hibiscus sturtii var. *grandiflorus*					X																																							X			X				
	Hibiscus sturtii var. *platychlamys*				X				X		X		X			X					X		X																			X				X			X		
	Hibiscus sturtii var. *truncatus*																																									X										
	Hibiscus verdcourtii																																								X											
	Lawrencia ?densiflora																																																			
	Lawrencia densiflora																																																			
	Lawrencia glomerata																																																			
	Lawrencia helmsii																																																			
	Malvaceae sp.																																																			
	Malvastrum americanum	*				X																		X					X		X	X	X		X	X					X		X		X		X				
	Melhania oblongifolia																							X																												
	Seringia exastia		T																																																	
	Seringia nephrosperma																												X																							X	
	Sida arenicola												X																X																							
	Sida arsiniata																																																			X	
	Sida cardiophylla												X		X			X	X				X																													
	Sida clementii																																																			
	Sida echinocarpa				X																								X																						X	
	Sida ectogama																													X																			X	X		
	Sida fibulifera					X																								X	X	X		X								X	X			X			X		
	Sida platycalyx																X					X																											X			
	Sida sp.																													X																						
	Sida sp. Articulation below (A.A. Mitchell PRP 1605)																																																			
	Sida sp. dark green fruits (S. van Leeuwen 2260)																														X																					
	Sida sp. Excedentifolia (J.L. Egan 1925)																																																			
	Sida sp. L (A.M. Ashby 4202)					X					X				X		X								X																				X	X					X	
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)																												X																					X			
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)								X																																										X	X
	Sida sp. Supplejack Station (T.S. Henshall 2345)								X																																											
	Sida spinosa																															X								X											
	Triumfetta chaetocarpa																																																			X
	Triumfetta clementii																																																			
	Triumfetta leptacantha																																																			
	Triumfetta maconochieana																																																			
	Waltheria indica																																			X															X
Marsileaceae	*Marsilea exarata*																																									X										
	Marsilea hirsuta																																															X				X
Molluginaceae	*Trigastrotheca molluginea*																							X																											X
Moraceae	*Ficus brachypoda*																																																			
Myrtaceae	*Calytrix carinata*																																																			
	Corymbia candida																																								X										
	Corymbia deserticola subsp. *deserticola*				X				X			X	X																X																						
	Corymbia ferriticola																																																			
	Corymbia hamersleyana										X			X					X		X		X																													
	Eucalyptus camaldulensis subsp. *refulgens*																																																		
	Eucalyptus gamophylla												X					X							X	X		X																							
	Eucalyptus leucophloia subsp. *leucophloia*																																																		
	Eucalyptus sp.																																																		
	Eucalyptus victrix																																		X	X															X
	Eucalyptus xerothermica																																																		
	Melaleuca glomerata																																																		X

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Melaleuca linophylla																																																		
	Melaleuca sp.																																																	
Nyctaginaceae	*Boerhavia burbidgeana*					X																																											
	Boerhavia coccinea			X	X		X		X	X	X					X								X	X			X							X							X								
	Boerhavia gardneri																																																	
	Boerhavia paludosa																																																	
	Boerhavia repleta																																																	
	Boerhavia schomburgkiana																																						X												
Oleaceae	*Jasminum didymum* subsp. *lineare*																																																	
Orobanchaceae	*Striga curviflora*					X																																												
Papaveraceae	*Argemone ochroleuca*	*																																																
Phrymaceae	*Mimulus gracilis*																																									X								
	Uvedalia linearis																																																	
Phyllanthaceae	*Flueggea virosa* subsp. *melanthesoides*																																																	
	Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)																															X																		X
	Phyllanthus erwinii																																																	
	Phyllanthus exilis																																																	X
	Phyllanthus maderaspatensis																													X	X				X					X										X
Plantaginaceae	*Stemodia grossa*																																																	
	Stemodia kingii																																								X								
	Stemodia sp.																																																	
	Stemodia viscosa																																																	X
Plumbaginaceae	*Muellerolimon salicorniaceum*																																			X														
Poaceae	*Amphipogon sericeus*																																																	
	Aristida contorta			X	X	X					X		X				X				X			X			X			X	X	X		X					X		X	X	X	X	X	X		X	
	Aristida holathera var. *holathera*										X		X					X	X	X			X		X			X							X												X		X	
	Aristida inaequiglumis								X	X	X		X	X			X																	X														X		
	Aristida latifolia				X																									X		X							X	X		X				X		X	
	Aristida obscura																													X	X																		
	Bothriochloa ewartiana			X																											X																		
	Cenchrus ciliaris	*				X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X				X			X	X			X							X	X			X				
	Cenchrus setiger	*					X													X	X	X	X												X								X							
	Chloris pectinata																																																	
	Chloris pumilio																																																	
	Chloris virgata	*																																																
	Chrysopogon fallax			X		X			X	X	X	X		X			X	X							X										X							X			X			X	
	Cymbopogon ambiguus																																	X													X			
	Cymbopogon obtectus																										X																						
	Cynodon convergens																																												X					
	Cynodon prostratus																																												X	X	X			X	
	Dactyloctenium radulans			X			X																																						X	X					
	Dichanthium sericeum subsp. *humilius*					X																		X						X											X		X		X	X	X			
	Digitaria brownii								X					X																X																X					X
	Digitaria ctenantha								X																																									
	Diplachne fusca subsp. *fusca*																																																	
	Echinochloa colona	*																																								X								
	Elytrophorus spicatus																																																	X
	Enneapogon caerulescens																														X										X	X	X				X		X	
	Enneapogon lindleyanus				X																																													
	Enneapogon polyphyllus			X	X				X	X	X		X	X		X	X							X		X	X	X		X	X	X	X	X	X						X	X	X	X	X	X	X		X	
	Enneapogon robustissimus				X																										X																X			
	Enteropogon ramosus																																																	
	Eragrostis cumingii																																			X														X
	Eragrostis dielsii																																				X	X												
	Eragrostis eriopoda													X	X		X	X	X			X																												
	Eragrostis leptocarpa																																													X	X				
	Eragrostis pergracilis																																						X											
	Eragrostis setifolia																																								X							X			
	Eragrostis sp.																																																	
	Eragrostis sp. Erect spikelets (P.K. Latz 2122)		3																																															
	Eragrostis tenellula																																									X								X
	Eragrostis xerophila																										X				X		X								X								

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
	Eriachne aristidea								X			X	X						X				X		X															X										
	Eriachne benthamii					X																																		X										
	Eriachne ciliata																																																	
	Eriachne gardneri														X								X																											
	Eriachne helmsii			X							X													X						X	X											X			X	X			X	X
	Eriachne lanata																																																	
	Eriachne mucronata									X		X					X																																	
	Eriachne pulchella subsp. *dominii*			X					X																		X		X		X	X		X								X			X	X			X
	Eriachne pulchella subsp. *pulchella*				X																					X																								
	Eriachne tenuiculmis																																																	
	Eulalia aurea								X		X			X		X																														X				X
	Iseilema eremaeum																																																	
	Iseilema macratherum																																																	
	Iseilema membranaceum			X					X															X						X											X			X	X				
	Iseilema vaginiflorum					X																																													
	Panicum decompositum																		X																						X										
	Panicum laevinode																																																		
	Paractaenum refractum																																																	
	Paraneurachne muelleri								X				X												X																						X		X		
	Paspalidium basicladum																																																	
	Paspalidium clementii				X				X		X					X																													X	X				
	Paspalidium jubiflorum																																														X				
	Paspalidium rarum												X																																					X
	Paspalidium tabulatum																																																	
	Perotis rara			X																												X		X									X	X				
	Poaceae sp.				X																																						X						
	Schizachyrium fragile																													X																			
	Setaria dielsii																																	X															
	Setaria verticillata	*				X																									X											X	X				
	Sorghum plumosum var. *plumosum*																																																
	Sporobolus australasicus			X	X	X	X		X		X						X							X	X						X	X	X	X		X	X	X		X	X	X	X	X		X	X	X
	Sporobolus mitchellii																																																
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)																																																
	Themeda triandra																													X	X																		X
	Tragus australianus			X																				X																			X			X				
	Triodia ?basedowii																																																	
	Triodia ?brizoides																																																	
	Triodia ?longiceps																																																	
	Triodia angusta																																																	
	Triodia basedowii									X	X	X	X	X	X	X	X	X	X	X	X								X		X																			
	Triodia brizoides			X	X						X														X	X																		X						
	Triodia epactia								X																		X		X		X																X		X	X
	Triodia epactia/pungens																																																	
	Triodia longiceps																																															X		X
	Triodia pungens																																																	
	Triodia schinzii														X			X	X	X			X																											
	Triodia sp.																																																	
	Triodia vanleeuwenii																																																	
	Triodia wiseana																																																	
	Triraphis mollis																																																	
	Urochloa occidentalis var. *ciliata*																														X													X		X				
	Urochloa occidentalis var. *occidentalis*					X																										X		X										X	X				
	Xerochloa barbata						X																																											
	Yakirra australiensis var. *australiensis*														X			X					X																											
Polygalaceae	*Polygala glaucifolia*																														X																X	X			
	Polygala isingii																										X																							
Polygonaceae	*Duma florulenta*																																																	
	Rumex vesicarius	*																																																
Portulacaceae	*Calandrinia ptychosperma*																																																	
	Portulaca ?cyclophylla																																																	
	Portulaca oleracea				X		X				X						X							X																										
	Portulaca pilosa	*		X																																														
Potamogetonaceae	*Potamogeton tepperi*																																																	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	C100	C101	C102	C103	C104	C105	C106	C108	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	D1	D11	D2	D3	D4	D5	D6	D7	D9	FV17072	MAT1	MAT2	MAT3	MAT4	NT2101	NT2102	NT2103	NT2104	NT2105	NT2106	NT2107	NT2108	NT2109	NT2110	NT2111
Proteaceae	*Grevillea berryana*								X																		X																								
	Grevillea pyramidalis subsp. *leucadendron*																																																		
	Grevillea stenobotrya																																		X																
	Grevillea wickhamii																										X		X		X																		X	X
	Grevillea wickhamii subsp. *hispidula*																																																		
	Hakea chordophylla																								X																										
	Hakea lorea subsp. *lorea*			X												X		X		X		X		X							X																X			
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*			X					X								X							X										X									X	X		X	X	X			X
Rubiaceae	*Dolichocarpa crouchiana*																																																		
	Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)		3																																																
	Psydrax latifolia			X		X			X	X				X			X							X					X	X	X			X	X							X	X		X	X	X	X		X	
	Psydrax suaveolens			X																				X																						X	X				
	Scleromitrion galioides																																																		
	Spermacoce brachystema																																X	X	X																
	Synaptantha tillaeacea var. *tillaeacea*																																								X										
Santalaceae	*Anthobolus leptomerioides*								X		X	X		X																X																			X	
	Santalum lanceolatum																																																		X
	Santalum sp.																																																		
Sapindaceae	*Atalaya hemiglauca*													X						X			X													X															
	Dodonaea coriacea												X																																						
	Dodonaea lanceolata var. *lanceolata*																																																		X
	Dodonaea petiolaris			X	X				X	X	X	X	X	X		X	X							X			X		X	X	X			X											X	X		X	
Scrophulariaceae	*Eremophila ?longifolia*																					X																												
	Eremophila cuneifolia			X			X	X																X																				X		X	X			X	
	Eremophila forrestii			X	X					X	X	X		X			X							X						X	X												X						
	Eremophila forrestii subsp. *forrestii*					X			X							X											X	X	X					X									X		X	X	X	X	X	X
	Eremophila glabra																																																		
	Eremophila jucunda subsp. *pulcherrima*																																																	
	Eremophila lanceolata					X																																													
	Eremophila latrobei																																		X																
	Eremophila latrobei subsp. *filiformis*								X			X		X		X												X	X														X		X	X			X	
	Eremophila latrobei subsp. *glabra*																																																	
	Eremophila longifolia					X					X					X																											X					X		X	
	Eremophila sp.																																										X							
	Eremophila spongiocarpa		3																																							X	X							
	Eremophila youngii subsp. *lepidota*		4																																															
Solanaceae	*Nicotiana benthamiana*																																																		
	Nicotiana heterantha																																											X	X	X					
	Nicotiana occidentalis																																											X	X				X		
	Nicotiana occidentalis subsp. *obliqua*																																			X														
	Nicotiana occidentalis subsp. *occidentalis*																																																		
	Solanum cleistogamum																																																		
	Solanum diversiflorum																																																		
	Solanum elatius																																																		
	Solanum lasiophyllum			X		X				X	X	X				X	X	X			X		X		X			X			X												X		X			X	X		X	
	Solanum morrisonii								X																																											
	Solanum nigrum	*																																																	
	Solanum phlomoides																																																		
	Solanum sp.																																																		
Surianaceae	*Stylobasium spathulatum*																																																		
Typhaceae	*Typha domingensis*																																																		
Violaceae	*Afrohybanthus aurantiacus*								X																		X																					X		X	X
Zygophyllaceae	*Roepera compressa*																																																		
	Roepera eichleri																																																		
	Tribulopis angustifolia																			X																																
	Tribulus astrocarpus										X																																								
	Tribulus hirsutus																																																		
	Tribulus macrocarpus																																																	
	Tribulus occidentalis																																																	
	Tribulus sp.																								X																										
	Tribulus suberosus										X															X																										

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
Acanthaceae	*Dicladanthera forrestii*							X	X			X																														
	Rostellularia adscendens var. *clementii*									X		X																														X
Aizoaceae	*Trianthema glossostigmum*						X							X																												X
	Trianthema oxycalyptrum var. *oxycalyptrum*																																										
	Trianthema pilosum																															X										
	Trianthema triquetrum																																									
	Trianthema turgidifolium																																									X
Amaranthaceae	*Aerva javanica*	*										X														X	X															X
	Alternanthera nana							X									X	X																								
	Alternanthera nodiflora																																									
	Amaranthus cuspidifolius									X																																
	Amaranthus undulatus																										X					X			X							
	Gomphrena affinis subsp. *pilbarensis*																							X	X																	
	Gomphrena canescens subsp. *canescens*																																									
	Gomphrena cunninghamii									X																	X					X							X			
	Gomphrena kanisii														X																											
	Ptilotus aervoides																																									
	Ptilotus astrolasius												X	X								X	X		X											X			X	X	X	X
	Ptilotus auriculifolius																																									
	Ptilotus axillaris																																									X
	Ptilotus calostachyus			X	X		X		X		X		X	X					X		X	X	X			X					X				X	X	X		X	X		X
	Ptilotus carinatus																																									
	Ptilotus clementii																		X																							X
	Ptilotus exaltatus				X	X		X	X	X	X	X	X		X		X	X	X			X		X			X					X	X		X	X		X	X	X	X
	Ptilotus fusiformis																X		X			X																			X
	Ptilotus gaudichaudii																	X																								
	Ptilotus gomphrenoides																																									
	Ptilotus helipteroides									X																																
	Ptilotus latifolius																																									
	Ptilotus obovatus								X			X	X		X		X	X	X					X				X						X			X				X	
	Ptilotus polystachyus																																									
	Ptilotus schwartzii					X									X					X																						
	Ptilotus xerophilus																																									
Apocynaceae	*Cynanchum floribundum*																																									X
	Cynanchum viminale																																									
	Vincetoxicum lineare																																									
Araliaceae	*Trachymene oleracea* subsp. *oleracea*																																									
Asteraceae	*Angianthus cyathifer*																																									X
	Asteraceae sp.																																					X				
	Bidens subalternans	*						X	X	X		X						X						X																	X
	Blumea tenella																																									
	Calotis multicaulis																																									
	Centipeda minima subsp. *macrocephala*																																									
	Chrysocephalum gilesii																																									
	Flaveria trinervia	*										X																														X
	Pentalepis trichodesmoides subsp. *trichodesmoides*																																									X
	Peripleura virgata																																									
	Pluchea dentex																X																									
	Pluchea dunlopii																																									X
	Pluchea ferdinandi-muelleri																																									X
	Pluchea rubelliflora																																		X							
	Pluchea tetranthera																																									
	Pseudognaphalium luteoalbum							X																																		
	Pterocaulon serrulatum																																									
	Pterocaulon sp.																																									
	Pterocaulon sphacelatum							X	X								X																									
	Pterocaulon sphaeranthoides																																									
	Rutidosis helichrysoides																																									
	Sonchus oleraceus	*																																								X
	Streptoglossa ?odora																																									
	Streptoglossa adscendens																																									
	Streptoglossa bubakii																																									

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Streptoglossa decurrens																																		X								
	Streptoglossa odora																																										X
	Streptoglossa tenuiflora																																										X
	Tridax procumbens	*																																	X								
Boraginaceae	*Ehretia saligna* var. *saligna*																																										
	Heliotropium chrysocarpum																						X																				
	Heliotropium cunninghamii																										X																
	Heliotropium heteranthum																																										
	Heliotropium inexplicitum																																										
	Heliotropium ovalifolium																																										X
	Heliotropium tanythrix																																										
	Heliotropium tenuifolium																																						X			X	
	Trichodesma zeylanicum																																										
	Trichodesma zeylanicum var. *grandiflorum*																																										
	Trichodesma zeylanicum var. *zeylanicum*							X	X									X											X			X									X		
Brassicaceae	*Lepidium catapycnon*		4																																								X
	Lepidium pedicellosum																																										X
	Lepidium phlebopetalum																																										
	Lepidium platypetalum																																										X
	Stenopetalum nutans																																										
Campanulaceae	*Lobelia arnhemiaca*																																										X
	Wahlenbergia tumidifructa																																										
Capparaceae	*Capparis lasiantha*																																										X
	Capparis spinosa subsp. *nummularia*																																										X
	Capparis umbonata														X			X																									X
Caryophyllaceae	*Polycarpaea corymbosa* var. *corymbosa*																																										
	Polycarpaea holtzei																									X					X					X							
	Polycarpaea longiflora							X										X														X										X
Celastraceae	*Stackhousia clementii*		3																																							X
	Stackhousia intermedia																						X																			
Chenopodiaceae	*Atriplex ?amnicola*																																										
	Atriplex ?bunburyana																																										
	Atriplex amnicola																																										
	Atriplex bunburyana																																										
	Atriplex codonocarpa																																										
	Atriplex flabelliformis		3																																								X
	Dysphania kalpari																																										
	Dysphania rhadinostachya																																										
	Dysphania rhadinostachya subsp. *inflata*																																										
	Dysphania rhadinostachya subsp. *rhadinostachya*																																										
	Dysphania sp.																																										
	Dysphania sphaerosperma																																										X
	Einadia nutans subsp. *eremaea*																																										
	Enchylaena tomentosa											X																															
	Eremophea spinosa																																										
	Maireana carnosa																																										X
	Maireana georgei																				X																						
	Maireana luehmannii																																										
	Maireana planifolia								X															X																			
	Maireana planifolia x villosa											X																															
	Maireana platycarpa																																										X
	Maireana pyramidata																																										
	Maireana sp.																																										
	Maireana tomentosa subsp. *tomentosa*																																										
	Maireana triptera														X																												
	Maireana villosa								X															X																			
	Rhagodia eremaea								X			X						X						X					X				X						X				
	Salsola australis											X									X			X																			
	Sclerolaena ?deserticola																																										
	Sclerolaena cornishiana												X		X									X																			
	Sclerolaena costata											X																															
	Sclerolaena cuneata																																										

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Sclerolaena densiflora																																										
	Sclerolaena deserticola																																										
	Sclerolaena diacantha																																										
	Sclerolaena lanicuspis																																										
	Tecticornia ?indica																																										
	Tecticornia auriculata																																										
	Tecticornia indica subsp. *bidens*																																										
	Tecticornia indica subsp. *leiostachya*																																										
	Tecticornia sp.																																										
	Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		1																																								X
	Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)																																										
Cleomaceae	*Arivela viscosa*							X	X								X							X				X			X		X		X		X		X			
	Cleome oxalidea																																										
Commelinaceae	*Commelina ensifolia*					X				X																																	
Convolvulaceae	*Bonamia erecta*				X												X	X										X				X				X	X		X	X		
	Bonamia pannosa																																										
	Bonamia pilbarensis													X					X		X	X																					X
	Convolvulus angustissimus subsp. *angustissimus*																																										
	Convolvulus clementii																																										X
	Duperreya commixta					X		X	X			X	X		X		X	X																							X	
	Evolvulus alsinoides																																										
	Evolvulus alsinoides var. *decumbens*																										X																
	Evolvulus alsinoides var. *villosicalyx*					X		X	X	X		X	X				X	X				X		X																X		
	Ipomoea calobra									X																																
	Ipomoea coptica																																										
	Ipomoea muelleri																																										
	Ipomoea polymorpha																																										
	Ipomoea sp.																																										
	Operculina aequisepala																																										X
	Polymeria ambigua																X	X														X										X
	Polymeria longifolia																X	X														X										X
Cucurbitaceae	*Austrobryonia pilbarensis*																																										
	Citrullus amarus	*																									X															X
	Citrullus colocynthis	*																																									
	Cucumis melo																																										X
	Cucumis variabilis					X		X	X									X						X			X					X										
Cyperaceae	*Bulbostylis barbata*																																				X						
	Bulbostylis turbinata																																										
	Cyperus cunninghamii subsp. *cunninghamii*																																										X
	Cyperus difformis																																										X
	Cyperus pulchellus																																										X
	Cyperus squarrosus																																										
	Cyperus vaginatus																																		X								
	Fimbristylis depauperata																																										
	Fimbristylis dichotoma															X										X																
	Fimbristylis microcarya																X																									X
	Fimbristylis simulans				X			X						X		X			X							X					X										
Elatinaceae	*Bergia pedicellaris*																																										
	Bergia perennis subsp. *obtusifolia*																																										X
Euphorbiaceae	*Euphorbia ?australis*																																										
	Euphorbia ?biconvexa																																										
	Euphorbia australis					X																																					
	Euphorbia australis var. *hispidula*							X	X																		X											X		X			
	Euphorbia australis var. *subtomentosa*																								X					X												X
	Euphorbia biconvexa																															X										
	Euphorbia boophthona																																										
	Euphorbia careyi																																										
	Euphorbia coghlanii																X	X							X		X		X				X									
	Euphorbia inappendiculata var. *queenslandica*		2																																								X

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Euphorbia schultzii																																										
	Euphorbia sp.																							X																				
	Euphorbia tannensis subsp. *eremophila*																																										
Fabaceae	*Acacia ?aneura*																																										
	Acacia ?aptaneura			X																																							
	Acacia ?paraneura																																										
	Acacia ?rhodophloia																																										
	Acacia ?sericophylla																																										
	Acacia ?synchronicia																																										
	Acacia acradenia												X																														
	Acacia adoxa var. *adoxa*												X						X							X			X								X		X			X
	Acacia adsurgens																																										
	Acacia ancistrocarpa				X		X						X				X	X	X		X									X	X					X	X		X	X		X
	Acacia aneura					X							X											X																			
	Acacia aptaneura			X	X	X	X	X	X	X		X	X		X			X						X																			X
	Acacia arida							X					X	X				X	X		X	X																				
	Acacia arrecta																																										
	Acacia atkinsiana						X				X		X	X						X																						
	Acacia ayersiana					X				X																																
	Acacia ayersiana x																																										
	Acacia bivenosa				X		X				X		X					X				X	X			X			X	X							X		X			X
	Acacia catenulata subsp. *occidentalis*																																										
	Acacia citrinoviridis							X																			X	X						X				X	X			X	
	Acacia colei																																										
	Acacia coriacea subsp. *pendens*							X					X																														
	Acacia cowleana																			X																							
	Acacia dictyophleba																												X											X			X
	Acacia elachantha			X																																	X			X			
	Acacia eriopoda						X										X					X												X								
	Acacia exigua																		X																								
	Acacia hilliana																									X											X						X
	Acacia inaequilatera																						X			X			X								X			X		X
	Acacia incurvaneura																																										
	Acacia ligulata																																										
	Acacia maitlandii				X		X				X		X				X	X	X	X		X																				X
	Acacia marramamba												X			X				X																						X
	Acacia monticola			X							X			X							X																X					X
	Acacia orthocarpa																															X											
	Acacia pachyacra																							X					X	X	X		X				X	X		X	X		
	Acacia paraneura																																										
	Acacia pruinocarpa			X	X	X	X	X		X	X		X	X					X	X				X		X	X	X	X	X	X		X	X		X	X	X		X		X	X
	Acacia pteraneura																																										
	Acacia ptychophylla																		X																								
	Acacia pyrifolia var. *pyrifolia*							X					X	X			X	X	X								X	X			X			X				X				
	Acacia rhodophloia												X																														
	Acacia sclerosperma subsp. *sclerosperma*																																									X	
	Acacia sericophylla																																										
	Acacia sibirica																																										
	Acacia sp.																																							X			
	Acacia spondylophylla																																				X						X
	Acacia stellaticeps																																										X
	Acacia stenophylla																																										X
	Acacia synchronicia											X												X																			X
	Acacia tenuissima			X																																							
	Acacia tetragonophylla				X			X		X		X			X		X			X																	X						
	Acacia trachycarpa																																										
	Acacia trachycarpa x ?																																										
	Acacia tumida var. *pilbarensis*										X		X				X	X									X					X								X	X		X
	Acacia victoriae																																										
	Acacia wanyu																																										
	Acacia xiphophylla											X			X																												
	Aeschynomene indica																																										
	Alysicarpus muelleri																																										

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Crotalaria cunninghamii																																										
	Crotalaria dissitiflora subsp. *benthamiana*																																										
	Crotalaria medicaginea var. *neglecta*							X									X															X			X								X
	Crotalaria novae-hollandiae subsp. *novae-hollandiae*																																										
	Cullen ?leucochaites																																										
	Cullen cinereum																																										
	Cullen graveolens																																										
	Cullen leucanthum																																										
	Cullen leucochaites												X																														X
	Fabaceae sp.																																										
	Glycine canescens							X										X						X																			
	Gompholobium oreophilum										X		X	X		X				X	X																						X
	Indigofera colutea																								X								X										
	Indigofera linifolia																																										
	Indigofera linnaei																																										
	Indigofera monophylla			X	X		X	X			X		X	X			X	X	X		X	X			X		X					X					X	X	X	X	X		X
	Indigofera rugosa																																										
	Indigofera sp.																																										
	Indigofera trita																																										
	Isotropis atropurpurea																																										
	Isotropis iophyta																																										
	Lotus australis																																										
	Lotus cruentus																																										X
	Neptunia dimorphantha											X																															
	Petalostylis cassioides																																							X			
	Petalostylis labicheoides							X										X																							X		X
	Rhynchosia minima											X																				X								X		X	
	Senna ?sp. Meekatharra (E. Bailey 1-26)																																										
	Senna artemisioides																																										
	Senna artemisioides subsp. *helmsii*								X	X		X			X								X		X	X			X				X	X			X			X		X	
	Senna artemisioides subsp. *oligophylla*				X			X				X			X		X								X	X					X	X			X	X		X	X		
	Senna artemisioides subsp. *oligophylla x helmsii*								X	X														X																		
	Senna glaucifolia																																										
	Senna glutinosa																																										
	Senna glutinosa subsp. *chatelainiana*														X																												
	Senna glutinosa subsp. *glutinosa*						X						X	X					X	X	X	X				X					X	X				X						X
	Senna glutinosa subsp. *pruinosa*																					X				X					X												X
	Senna glutinosa subsp. *x luerssenii*				X	X	X	X	X				X	X	X						X					X							X					X				
	Senna notabilis																										X						X	X						X			
	Senna sericea																																										
	Senna sp.																																										
	Senna sp. Meekatharra (E. Bailey 1-26)											X			X																												
	Senna stricta																																										
	Senna symonii																		X																								X
	Senna venusta																																										X
	Sesbania cannabina																																		X				X				X
	Swainsona formosa																																											X
	Swainsona kingii																																											
	Swainsona stenodonta																																										
	Swainsona thompsoniana		3																																								X
	Tephrosia densa																															X											
	Tephrosia remotiflora																																										
	Tephrosia rosea var. *clementii*																					X																					
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)				X			X							X		X	X								X																	
	Tephrosia sp.																																										
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																																										
	Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)																																										
	Tephrosia sp. Newman (A.A. Mitchell PRP 29)																																X										

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)									X									X																							
	Tephrosia supina																																										
	Vachellia farnesiana	*																																									X
	Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)																																										
Frankeniaceae	*Frankenia ambita*																																										X
	Frankenia setosa																																										X
Gentianaceae	*Schenkia clementii*																																										
Goodeniaceae	*Dampiera candicans*													X					X			X																					X
	Goodenia collaris																																										X
	Goodenia cusackiana																																										
	Goodenia forrestii																																										
	Goodenia lamprosperma																X																		X								
	Goodenia microptera																																										
	Goodenia muelleriana											X																															
	Goodenia nuda		4														X																										X
	Goodenia pascua																																										
	Goodenia prostrata																																										X
	Goodenia scaevolina																																										
	Goodenia sp.																																										
	Goodenia stobbsiana			X	X		X				X		X	X		X			X	X	X		X			X																
	Goodenia triodiophila				X									X																						X							
	Scaevola amblyanthera var. *centralis*																																										
	Scaevola parvifolia subsp. *pilbarae*																																										
	Scaevola spinescens																												X								X						
Gyrostemonaceae	*Codonocarpus cotinifolius*			X	X																																						
Haloragaceae	*Gonocarpus ephemerus*																																										
	Haloragis gossei var. gossei																																										
	Haloragis trigonocarpa																																										X
Lamiaceae	*Clerodendrum floribundum*																																								X		X
	Dicrastylis cordifolia																												X								X	X		X	X		
Lauraceae	*Cassytha capillaris*												X																														
Loranthaceae	*Amyema fitzgeraldii*																																										
Lythraceae	*Ammannia baccifera*																																										
	Ammannia multiflora																																										
Malvaceae	*Abutilon ?lepidum*																																										
	Abutilon cunninghamii																		X																								
	Abutilon fraseri subsp. *fraseri*									X		X							X							X									X								
	Abutilon lepidum							X	X	X								X				X		X						X				X		X						
	Abutilon macrum																							X																		
	Abutilon malvifolium																																										
	Abutilon otocarpum							X																X																		
	Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)																																										
	Abutilon sp.																																										
	Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)																																										X
	Abutilon sp. Pilbara (W.R. Barker 2025)																																										
	Androcalva luteiflora				X												X	X																								X
	Corchorus aff. *tectus*																																										
	Corchorus crozophorifolius																		X																X				X			X	
	Corchorus incanus subsp. *incanus*																																										
	Corchorus lasiocarpus			X	X		X	X	X		X		X	X			X	X	X		X	X				X					X				X		X					
	Corchorus sidoides subsp. *sidoides*																							X																X			
	Corchorus sp.																																										
	Corchorus tectus																																										
	Corchorus tridens											X																															
	Corchorus walcottii																																										
	Gossypium australe														X		X	X																X			X					X
	Gossypium robinsonii							X			X		X				X	X				X									X	X				X	X			X		X
	Hibiscus brachychlaenus																																										
	Hibiscus brachysiphonius																																										X
	Hibiscus burtonii					X			X	X														X	X																	

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Hibiscus coatesii					X							X							X		X																			
	Hibiscus leptocladus																																										X
	Hibiscus sp. Gardneri (A.L. Payne PRP 1435)														X																											
	Hibiscus sp. Mt Robinson (G. Byrne 3537)																																										X
	Hibiscus sturtii																																										
	Hibiscus sturtii var. *campylochlamys*				X								X	X					X		X	X																					
	Hibiscus sturtii var. *grandiflorus*							X																																			
	Hibiscus sturtii var. *platychlamys*					X			X	X	X								X					X	X					X		X				X			X	X		
	Hibiscus sturtii var. *truncatus*																																										
	Hibiscus verdcourtii																																										
	Lawrencia ?densiflora																																										
	Lawrencia densiflora																																										X
	Lawrencia glomerata																																										X
	Lawrencia helmsii																																										X
	Malvaceae sp.				X	X									X																											
	Malvastrum americanum	*						X				X					X	X																								X
	Melhania oblongifolia																X																									
	Seringia exastia		T																	X		X																			X
	Seringia nephrosperma			X	X		X						X	X					X		X																				
	Sida arenicola			X			X				X		X	X					X																							X
	Sida arsiniata																X																									X
	Sida cardiophylla																																									
	Sida clementii																																									
	Sida echinocarpa																																				X	X				
	Sida ectogama					X			X	X																																
	Sida fibulifera					X		X				X						X		X																						
	Sida platycalyx																							X																		
	Sida sp.																																									
	Sida sp. Articulation below (A.A. Mitchell PRP 1605)																																									X
	Sida sp. dark green fruits (S. van Leeuwen 2260)												X																													
	Sida sp. Excedentifolia (J.L. Egan 1925)													X		X																										X
	Sida sp. L (A.M. Ashby 4202)																							X																		
	Sida sp. Pilbara (A.A. Mitchell PRP 1543)			X	X		X						X	X					X			X																			X
	Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)				X		X	X										X	X		X	X									X										
	Sida sp. Supplejack Station (T.S. Henshall 2345)																																									
	Sida spinosa																																									
	Triumfetta chaetocarpa							X																																		
	Triumfetta clementii																																									
	Triumfetta leptacantha																																									X
	Triumfetta maconochieana												X																													X
	Waltheria indica							X									X									X													X			
Marsileaceae	*Marsilea exarata*																																									
	Marsilea hirsuta																X																									
Molluginaceae	*Trigastrotheca molluginea*				X																										X								X		
Moraceae	*Ficus brachypoda*																																									X
Myrtaceae	*Calytrix carinata*																																									
	Corymbia candida																	X																								
	Corymbia deserticola subsp. *deserticola*																		X																							
	Corymbia ferriticola																																									X
	Corymbia hamersleyana								X		X						X	X	X											X			X				X		X	X		X
	Eucalyptus camaldulensis subsp. *refulgens*																				X																					
	Eucalyptus gamophylla				X																									X							X					X
	Eucalyptus leucophloia subsp. *leucophloia*				X		X				X			X					X		X	X			X					X						X						X
	Eucalyptus sp.																																										X
	Eucalyptus victrix							X									X	X																		X			X			
	Eucalyptus xerothermica																	X																								
	Melaleuca glomerata																																									

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Melaleuca linophylla																																										
	Melaleuca sp.																																										
Nyctaginaceae	*Boerhavia burbidgeana*																																										
	Boerhavia coccinea									X														X	X		X	X					X	X	X								
	Boerhavia gardneri																																										
	Boerhavia paludosa																																										
	Boerhavia repleta																																										
	Boerhavia schomburgkiana																																										
Oleaceae	*Jasminum didymum* subsp. *lineare*														X		X	X																						X			
Orobanchaceae	*Striga curviflora*																																										
Papaveraceae	*Argemone ochroleuca*	*																																				X				X
Phrymaceae	*Mimulus gracilis*																																									
	Uvedalia linearis																																									X
Phyllanthaceae	*Flueggea virosa* subsp. *melanthesoides*							X																																		
	Notoleptopus decaisnei var. Orbicularis (A.B. Craig 428)																X										X							X				X			X	
	Phyllanthus erwinii																																									X
	Phyllanthus exilis																X	X																									
	Phyllanthus maderaspatensis							X				X					X	X									X					X			X				X				
Plantaginaceae	*Stemodia grossa*																																										
	Stemodia kingii																																										
	Stemodia sp.																																										
	Stemodia viscosa							X																																		
Plumbaginaceae	*Muellerolimon salicorniaceum*																																									
Poaceae	*Amphipogon sericeus*			X		X	X							X																												
	Aristida contorta					X			X			X			X					X				X																X		
	Aristida holathera var. *holathera*																										X													X			
	Aristida inaequiglumis																							X					X													
	Aristida latifolia																																										
	Aristida obscura					X																																				X
	Bothriochloa ewartiana																X	X																									
	Cenchrus ciliaris	*						X				X													X		X	X	X	X		X	X	X			X		X	X	X	X	
	Cenchrus setiger	*						X				X													X		X	X					X	X			X				X	X	
	Chloris pectinata																																										
	Chloris pumilio																																										
	Chloris virgata	*																																									
	Chrysopogon fallax				X			X		X							X							X																			
	Cymbopogon ambiguus							X									X	X				X					X					X			X				X				
	Cymbopogon obtectus																																										
	Cynodon convergens												X																														X
	Cynodon prostratus																																										
	Dactyloctenium radulans																																										
	Dichanthium sericeum subsp. *humilius*									X		X																															
	Digitaria brownii							X																															X				
	Digitaria ctenantha																															X											
	Diplachne fusca subsp. *fusca*																																										
	Echinochloa colona	*						X																											X								X
	Elytrophorus spicatus																																										X
	Enneapogon caerulescens								X	X		X	X		X																												
	Enneapogon lindleyanus																										X					X											X
	Enneapogon polyphyllus					X		X	X	X		X	X		X									X								X										X	
	Enneapogon robustissimus																	X																									
	Enteropogon ramosus							X																																			
	Eragrostis cumingii																X																											
	Eragrostis dielsii																					X																					
	Eragrostis eriopoda											X													X				X							X			X				
	Eragrostis leptocarpa																																										X
	Eragrostis pergracilis																																										
	Eragrostis setifolia																																										
	Eragrostis sp.																																										
	Eragrostis sp. Erect spikelets (P.K. Latz 2122)		3														X																										
	Eragrostis tenellula																X																										
	Eragrostis xerophila											X										X																					

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
	Eriachne aristidea																								X				X	X												
	Eriachne benthamii																																										
	Eriachne ciliata																																										
	Eriachne gardneri																																										
	Eriachne helmsii				X	X			X	X		X	X		X																												
	Eriachne lanata			X			X				X		X						X																								X
	Eriachne mucronata																																										X
	Eriachne pulchella subsp. *dominii*				X	X		X					X		X					X						X	X					X				X			X		X	
	Eriachne pulchella subsp. *pulchella*																																										
	Eriachne tenuiculmis																X	X									X															
	Eulalia aurea							X									X							X																		
	Iseilema eremaeum																																										
	Iseilema macratherum							X																																			
	Iseilema membranaceum																																										
	Iseilema vaginiflorum																																										X
	Panicum decompositum							X																																			X
	Panicum laevinode																																										
	Paractaenum refractum																																										
	Paraneurachne muelleri																	X	X							X														X			
	Paspalidium basicladum																																										
	Paspalidium clementii					X				X										X																			X			X	
	Paspalidium jubiflorum																																										
	Paspalidium rarum																																										
	Paspalidium tabulatum																																										X
	Perotis rara									X																																	
	Poaceae sp.																																										
	Schizachyrium fragile																X																										
	Setaria dielsii																																										
	Setaria verticillata	*						X										X						X																		
	Sorghum plumosum var. *plumosum*																																										
	Sporobolus australasicus							X		X		X					X					X		X									X									
	Sporobolus mitchellii																																										X
	Themeda sp. Mt Barricade (M.E. Trudgen 2471)																																										X
	Themeda triandra				X			X									X	X	X																X							X
	Tragus australianus																																										
	Triodia ?basedowii																																										
	Triodia ?brizoides																																										
	Triodia ?longiceps																																										
	Triodia angusta																																										
	Triodia basedowii																							X	X					X							X	X		X		
	Triodia brizoides												X		X																												
	Triodia epactia			X	X	X	X		X	X	X		X		X		X	X		X		X					X													X		X
	Triodia epactia/pungens							X								X						X											X	X		X	X				
	Triodia longiceps				X			X				X			X																											
	Triodia pungens																								X				X			X										
	Triodia schinzii																												X													X
	Triodia sp.																																										
	Triodia vanleeuwenii													X					X		X					X					X					X		X				
	Triodia wiseana																						X				X					X										
	Triraphis mollis																																										
	Urochloa occidentalis var. *ciliata*																	X																								
	Urochloa occidentalis var. *occidentalis*																																	X								
	Xerochloa barbata																																										
	Yakirra australiensis var. *australiensis*																												X											X		
Polygalaceae	*Polygala glaucifolia*			X		X																																				
	Polygala isingii																																										
Polygonaceae	*Duma florulenta*																																										
	Rumex vesicarius	*																																									X
Portulacaceae	*Calandrinia ptychosperma*																																										
	Portulaca ?cyclophylla																																										
	Portulaca oleracea																							X																			
	Portulaca pilosa	*																																									
Potamogetonaceae	*Potamogeton tepperi*																																										X

Table 19: Flora inventory (site x species matrix)

Family	Species	Intro.	Cons. Code	NT2112	NT2113	NT2114	NT2115	NT2116	NT2117	NT2118	NT2119	NT2120	NT2121	NT2122	NT2123	NT2124	NT2125	NT2126	NT2127	NT2128	NT2129	NT2130	NT2131	NT2132	NY2101	NY2102	NY2103	NY2104	NY2105	NY2106	NY2107	NY2108	NY2109	NY2110	NY2111	NY2112	NY2113	NY2114	NY2115	NY2116	NY2117	NY2118	Opp.
Proteaceae	*Grevillea berryana*						X																																			
	Grevillea pyramidalis subsp. *leucadendron*																																										
	Grevillea stenobotrya																																										
	Grevillea wickhamii			X	X		X	X			X		X						X						X					X				X	X			X	X		X
	Grevillea wickhamii subsp. *hispidula*																X									X					X							X				
	Hakea chordophylla			X			X							X					X		X				X											X			X			X
	Hakea lorea subsp. *lorea*				X			X			X							X						X				X		X			X			X	X				X
Pteridaceae	*Cheilanthes sieberi* subsp. *sieberi*							X																X																		
Rubiaceae	*Dolichocarpa crouchiana*																														X											
	Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)		3																																							X
	Psydrax latifolia				X	X		X	X	X			X											X																		
	Psydrax suaveolens					X				X																																X
	Scleromitrion galioides																																									X
	Spermacoce brachystema																																									
	Synaptantha tillaeacea var. *tillaeacea*																																									
Santalaceae	*Anthobolus leptomerioides*					X				X																			X												X
	Santalum lanceolatum																	X																						X		X
	Santalum sp.																																									
Sapindaceae	*Atalaya hemiglauca*							X										X									X	X										X			
	Dodonaea coriacea										X		X			X			X												X										
	Dodonaea lanceolata var. *lanceolata*																																									
	Dodonaea petiolaris					X		X	X	X			X											X																		X
Scrophulariaceae	*Eremophila ?longifolia*																																									
	Eremophila cuneifolia														X																											
	Eremophila forrestii											X												X																		
	Eremophila forrestii subsp. *forrestii*					X		X	X	X			X																													
	Eremophila glabra																																									
	Eremophila jucunda subsp. *pulcherrima*																																									X
	Eremophila lanceolata																							X																		X
	Eremophila latrobei																																									
	Eremophila latrobei subsp. *filiformis*						X						X								X			X																		
	Eremophila latrobei subsp. *glabra*																																									
	Eremophila longifolia																																X									
	Eremophila sp.																																									
	Eremophila spongiocarpa		3																																							X
	Eremophila youngii subsp. *lepidota*		4																																							X
Solanaceae	*Nicotiana benthamiana*																																									
	Nicotiana heterantha																																									
	Nicotiana occidentalis																																									
	Nicotiana occidentalis subsp. *obliqua*																																									
	Nicotiana occidentalis subsp. *occidentalis*																																									
	Solanum cleistogamum																																									X
	Solanum diversiflorum																																									
	Solanum elatius																																									
	Solanum lasiophyllum				X	X					X		X				X				X	X						X	X				X				X				
	Solanum morrisonii																																									
	Solanum nigrum	*																																								X
	Solanum phlomoides												X	X																												X
	Solanum sp.																																									
Surianaceae	*Stylobasium spathulatum*																																									
Typhaceae	*Typha domingensis*																																									X
Violaceae	*Afrohybanthus aurantiacus*				X			X					X	X			X	X	X		X	X					X		X							X	X	X	X	X		X
Zygophyllaceae	*Roepera compressa*																																									X
	Roepera eichleri											X																														X
	Tribulopis angustifolia																																									
	Tribulus astrocarpus																							X																		
	Tribulus hirsutus																																	X								
	Tribulus macrocarpus																																									
	Tribulus occidentalis																																									
	Tribulus sp.																																									
	Tribulus suberosus														X																												X

APPENDIX FIVE FLORISTIC QUADRAT DATA

A017

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 736849 **mE** 7497669 **mN** **Lat.** -22.6114 **Long.** 119.3042

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; <5 cm in depth

Bare ground 50 % cover **Weeds** 30 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\bi;M ^*Acacia sclerosperma* subsp. *sclerosperma*\^shrub\3\bi;G+ ^*Cenchrus ciliaris*\^tussock grass\1\i

Veg. Condition Poor

Disturbance Weeds, cattle

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.1	<1	
Acacia citrinoviridis		3	<1	
Acacia pruinocarpa		3	1	
Acacia sclerosperma subsp. *sclerosperma*		2	1	
Acacia synchronicia		1.8	<1	

Acacia tetragonophylla	2	<1
Alysicarpus muelleri	0.2	<1
Boerhavia coccinea	0.1	<1
**Cenchrus ciliaris*	0.2	25
**Cenchrus setiger*	0.2	<1
Corymbia hamersleyana	4.5	1
Enneapogon polyphyllus	0.1	<1
Euphorbia australis var. *hispidula*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Poaceae sp.	0.1	<1
Portulaca oleracea	0.05	<1
Rhynchosia minima	0.1	<1
Sclerolaena cornishiana	0.2	<1
Senna notabilis	0.1	<1
Sida platycalyx	0.4	<1
Sporobolus australasicus	0.15	<1
Tribulus sp.	0.05	<1

A034

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 743171 **mE** 7495222 **mN** **Lat.** -22.6326 **Long.** 119.3660

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; 1 cm in depth

Bare ground 30 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia pachyacra*\^shrub\3\bi;G+ ^*Triodia epactia*,^*Chrysopogon fallax*\^hummock grass, tussock grass\1\c

Veg. Condition Good

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon sp. Pilbara (W.R. Barker 2025)		.2	<1	
Acacia dictyophleba		.3	<1	
Acacia pachyacra		1	1	
Acacia sclerosperma subsp. *sclerosperma*		1	<1	
Acacia synchronicia		.2	<1	

Aristida contorta	.15	<1
Chrysopogon fallax	1	1
Corchorus sp.	.3	<1
Enneapogon polyphyllus	.3	<1
Eriachne aristidea	.2	<1
Euphorbia coghlanii	.4	<1
Gossypium australe	.2	<1
Hakea lorea subsp. *lorea*	2.5	<1
Hibiscus sturtii var. *platychlamys*	.2	<1
Indigofera linifolia	.3	<1
Ipomoea sp.	.08	<1
Rhynchosia minima	.3	<1
Senna artemisioides subsp. *oligophylla*	.4	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.2	<1
Triodia epactia	.8	70

A038

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 743434 **mE** 7496499 **mN** **Lat.** -22.6210 **Long.** 119.3684

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Brown clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; 1 cm in depth

Bare ground 2 % cover **Weeds** 3 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\7\c;M ^*Psydrax latifolia*,^*Abutilon lepidum*\^shrub\4\r;G ^^*Digitaria ctenantha*,*Urochloa occidentalis* var. *ciliata*,*Chrysopogon fallax*\^tussock grass\1\d

Veg. Condition Good

Disturbance

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		1	2	
Abutilon lepidum		.2	<1	
Abutilon macrum		1	<1	
Acacia aptaneura		11	50	
Alternanthera nodiflora		.3	<1	

Arivela viscosa	.5	<1
**Bidens subalternans*	.4	<1
Boerhavia coccinea	.1	<1
Bothriochloa ewartiana	.4	<1
**Cenchrus ciliaris*	.4	2
**Cenchrus setiger*	.4	1
Cheilanthes sieberi subsp. *sieberi*	.1	<1
**Chloris virgata*	.4	<1
Chrysopogon fallax	1	10
Cucumis variabilis	.3	<1
Digitaria ctenantha	.3	50
Enneapogon polyphyllus	.2	10
Eremophila forrestii	.4	<1
Eremophila lanceolata	.4	<1
Eriachne aristidea	.2	<1
Euphorbia coghlanii	.4	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Glycine canescens	.3	<1
Gomphrena affinis subsp. *pilbarensis*	.4	<1
Hibiscus sturtii var. *campylochlamys*	.2	<1
Indigofera colutea	.4	<1
Iseilema membranaceum	.2	<1
Maireana planifolia	.15	<1
Portulaca oleracea	.05	<1
Psydrax latifolia	1	2
Ptilotus gaudichaudii	.3	<1
Ptilotus helipteroides	.2	<1
Ptilotus helipteroides	.3	<1
Ptilotus xerophilus	.3	<1
Ptilotus xerophilus	.3	<1
Rhynchosia minima	.3	<1
Sclerolaena cornishiana	.3	<1
Senna notabilis	.4	<1
Sida fibulifera	.1	<1
Sida sp.	.1	<1
Streptoglossa bubakii	.2	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.3	<1
Trichodesma zeylanicum var. *zeylanicum*	.5	<1

Urochloa occidentalis var. *ciliata*	.3	20

A039

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 743890 **mE** 7495954 **mN** **Lat.** -22.6259 **Long.** 119.3729

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; 1 cm in depth

Bare ground 30 % cover **Weeds** 15 % cover

Vegetation M ^^*Acacia dictyophleba*,*Acacia pyrifolia* var. *pyrifolia*,*Acacia sclerosperma* subsp. *sclerosperma*\^shrub\3\r;G+ ^^*Triodia epactia*,*Cenchrus ciliaris*,*Cenchrus setiger*\^hummock grass,tussock grass\1\i

Veg. Condition Good

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia aptaneura		.4	<1	
Acacia dictyophleba		1.3	4	
Acacia pruinocarpa		.3	<1	

Acacia pyrifolia var. *pyrifolia*	.3	1
Acacia sclerosperma subsp. *sclerosperma*	.6	<1
Arivela viscosa	.4	<1
Atalaya hemiglauca	1.3	<1
Boerhavia coccinea	.1	1
Capparis umbonata	1.8	<1
**Cenchrus ciliaris*	.4	10
**Cenchrus setiger*	.5	4
Corymbia hamersleyana	2	<1
Enneapogon caerulescens	.2	<1
Enneapogon polyphyllus	.3	<1
Euphorbia australis	.1	<1
Euphorbia boophthona	.3	<1
Euphorbia coghlanii	.4	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Gomphrena affinis subsp. *pilbarensis*	.4	<1
Hibiscus sturtii var. *platychlamys*	.2	<1
Hibiscus sturtii var. *platychlamys*	.3	<1
Indigofera colutea	.2	<1
Indigofera linifolia	.3	<1
Indigofera monophylla	.5	<1
Portulaca oleracea	.1	<1
Ptilotus axillaris	.1	<1
Ptilotus exaltatus	.3	<1
Ptilotus helipteroides	.3	<1
Rhynchosia minima	.3	<1
Salsola australis	.2	<1
Sclerolaena cornishiana	.3	<1
Sclerolaena densiflora	.2	<1
Senna artemisioides subsp. *helmsii*	.5	<1
Senna artemisioides subsp. *oligophylla*	.4	<1
Senna notabilis	.3	<1
Sida fibulifera	.1	<1
Solanum lasiophyllum	.4	<1
Sporobolus australasicus	.3	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.1	<1
Trianthema pilosum	.2	<1
Tribulus macrocarpus	.15	<1

Tribulus sp.	.2	<1
Trichodesma zeylanicum var. *zeylanicum*	.5	<1
Triodia epactia	.5	15

A040

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 724077 **mE** 7506290 **mN** **Lat.** -22.5353 **Long.** 119.1787

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 3 % cover ; 0-1 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus gamophylla*\^tree mallee\6\r;M+ ^*Acacia sclerosperma* subsp. *sclerosperma*, ^*Stylobasium spathulatum*\^shrub\4\r;G ^*Triodia basedowii*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance Minimal

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia sclerosperma subsp. *sclerosperma*		2.5	3	
Aristida holathera var. *holathera*		0.4	<1	
Bonamia erecta		0.3	<1	
Dicrastylis cordifolia		0.6	<1	
Eragrostis eriopoda		0.4	<1	

Eriachne aristidea	0.3	<1
Eucalyptus gamophylla	4	2
Hibiscus brachychlaenus	1	<1
Indigofera monophylla	0.5	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Sida cardiophylla	0.5	<1
Solanum lasiophyllum	0.5	<1
Stylobasium spathulatum	2	1
Triodia basedowii	0.5	60

A041

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725231 **mE** 7505844 **mN** **Lat.** -22.5392 **Long.** 119.1900

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red loamy sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus gamophylla*\^tree mallee\6\r;M+ ^*Acacia sclerosperma* subsp. *sclerosperma*\^shrub\4\r;G ^*Triodia basedowii*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance Minimal

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia inaequilatera		1.5	<1	
Acacia sclerosperma subsp. *sclerosperma*		2.5	4	
Acacia tetragonophylla		1.5	<1	
Aristida holathera var. *holathera*		0.4	<1	
Bonamia erecta		0.3	<1	

Dicrastylis cordifolia	0.4	<1
Eragrostis eriopoda	0.4	<1
Eragrostis eriopoda	0.3	<1
Eucalyptus gamophylla	4	2
Hakea lorea subsp. *lorea*	3	<1
Indigofera monophylla	0.5	<1
Ptilotus astrolasius	0.4	<1
Ptilotus obovatus	0.4	<1
Scaevola parvifolia subsp. *pilbarae*	0.4	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Solanum lasiophyllum	0.5	<1
Stylobasium spathulatum	1	<1
Triodia basedowii	0.6	60
Yakirra australiensis var. *australiensis*	0.3	<1

A042

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725997 **mE** 7505511 **mN** **Lat.** -22.5421 **Long.** 119.1975

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** 20 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\r;M ^^*Acacia synchronicia*,*Scaevola spinescens*,*Eremophila forrestii* subsp. *forrestii*\^shrub\3\r;G ^*Cenchrus ciliaris*,^*Chrysopogon fallax*\^tussock grass\1\i

Veg. Condition Poor

Disturbance Grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Abutilon macrum		0.4	<1	
Abutilon otocarpum		0.4	<1	
Acacia aneura		1.8	<1	
Acacia aptaneura		6	15	

Acacia synchronicia	2	5
Acacia tetragonophylla	3	<1
Arivela viscosa	0.4	<1
Boerhavia coccinea	0.2	<1
**Cenchrus ciliaris*	0.5	15
Chrysopogon fallax	1	10
Cynodon prostratus	0.1	<1
Dactyloctenium radulans	0.3	<1
Duperreya commixta	0.8	<1
Eragrostis xerophila	0.4	<1
Eremophila forrestii subsp. *forrestii*	1.5	<1
Eremophila latrobei subsp. *filiformis*	1.2	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hakea lorea subsp. *lorea*	4	1
Maireana planifolia	0.4	<1
**Malvastrum americanum*	0.4	<1
Perotis rara	0.1	<1
Phyllanthus maderaspatensis	0.4	<1
Portulaca oleracea	0.1	<1
Psydrax latifolia	1	<1
Ptilotus obovatus	0.3	<1
Scaevola spinescens	1.7	2
Sclerolaena cornishiana	0.3	<1
Sclerolaena costata	0.2	<1
Solanum lasiophyllum	0.3	<1
Sporobolus australasicus	0.2	<1
Trianthema triquetrum	0.1	<1
Triodia basedowii	0.4	<1
Urochloa occidentalis var. *ciliata*	0.3	<1

A082

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741192 **mE** 7495782 **mN** **Lat.** -22.6278 **Long.** 119.3467

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange red clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; 1 cm in depth

Bare ground 40 % cover **Weeds** 25 % cover

Vegetation U+ ^^*Acacia citrinoviridis*,*Corymbia hamersleyana*,*Acacia paraneura*\^tree\6\i;M ^*Acacia synchronicia*\^shrub\3\r;G ^^*Cenchrus ciliaris*,*Triodia epactia*,*Enneapogon polyphyllus*\^tussock grass,hummock grass\1\i

Veg. Condition Good

Disturbance Cattle tracks, weeds, dam

Fire Age >5 years

Notes Two vegetation types, quadrat not ideally located.

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.8	<1	
Abutilon macrum		.4	<1	
Abutilon macrum		.3	<1	
Abutilon otocarpum		.2	<1	

Acacia citrinoviridis	3	8
Acacia paraneura	3	2
Acacia pruinocarpa	1.5	<1
Acacia synchronicia	2	3
Acacia tetragonophylla	1.5	<1
**Aerva javanica*	.5	<1
Alternanthera nodiflora	.2	<1
Aristida contorta	.2	<1
Aristida inaequiglumis	.5	<1
Arivela viscosa	.5	<1
Boerhavia coccinea	.1	<1
**Cenchrus ciliaris*	.4	25
Corchorus sidoides subsp. *sidoides*	.4	<1
Corchorus sidoides subsp. *sidoides*	.3	<1
Corymbia hamersleyana	10	5
Enneapogon caerulescens	.3	<1
Enneapogon polyphyllus	.2	1
Eragrostis eriopoda	.4	<1
Eragrostis xerophila	.3	<1
Eremophila forrestii	.3	<1
Eremophila longifolia	2	<1
Eulalia aurea	.4	<1
Euphorbia australis	.1	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Hakea lorea subsp. *lorea*	4	1
Heliotropium cunninghamii	.3	<1
Hibiscus sturtii var. *platychlamys*	.3	<1
Indigofera linifolia	.3	<1
Indigofera linnaei	.3	<1
Ptilotus exaltatus	.5	<1
Ptilotus helipteroides	.2	<1
Ptilotus obovatus	.5	<1
Rhynchosia minima	.2	<1
Salsola australis	.4	<1
Sclerolaena cornishiana	.15	<1
Senna artemisioides subsp. *helmsii*	.8	<1
Senna artemisioides subsp. *oligophylla*	.5	<1

Sida fibulifera	.3	<1
Sida platycalyx	.4	<1
Sida platycalyx	.3	<1
Sporobolus australasicus	.1	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.3	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.1	<1
Tribulus macrocarpus	.15	<1
Triodia epactia	.6	2
Waltheria indica	.4	<1

A090

Staff KCP **Date** 14/05/2021 **Season** E

Revisit

Type Q 200 m x 12.5 m

Location

MGA Zone 50 729946 **mE** 7552289 **mN** **Lat.** -22.1192 **Long.** 119.2292

Habitat Creek

Aspect N/A **Slope** Gentle

Soil Type Brown rocky sand

Rock Type Shale

Loose Rock 20-50 % cover; 60-200 mm in size **Litter** 4 % cover ; 2 cm in depth

Bare ground 35 % cover **Weeds** <1 % cover

Vegetation M ^^*Acacia arida*,*Petalostylis labicheoides*,*Acacia pyrifolia* var. *pyrifolia*\^shrub\4\i;G+ ^^*Triodia epactia/pungens*,*Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186),*Indigofera monophylla*\^hummock grass,shrub\2\c

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.4	<1	
Acacia ancistrocarpa		2	2	
Acacia arida		4	4	
Acacia elachantha		2	1	

Acacia pyrifolia var. *pyrifolia*	1.5	2.5
Acacia trachycarpa	2	2
Afrohybanthus aurantiacus	.3	<1
Boerhavia coccinea	.2	<1
Bonamia erecta	.4	1
**Cenchrus ciliaris*	.4	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	.5	<1
Corymbia hamersleyana	8	<1
Cucumis variabilis	1	<1
Cymbopogon ambiguus	1	<1
Cymbopogon obtectus	1	<1
Eriachne helmsii	.4	1
Euphorbia coghlanii	.5	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Goodenia stobbsiana	.4	<1
Gossypium australe	1	<1
Gossypium robinsonii	3	1
Grevillea pyramidalis subsp. *leucadendron*	1	<1
Hibiscus coatesii	.6	<1
Hibiscus sturtii var. *platychlamys*	.4	<1
Indigofera monophylla	.5	5
Isotropis atropurpurea	.4	<1
Jasminum didymum subsp. *lineare*	1	<1
Melhania oblongifolia	.3	<1
Paraneurachne muelleri	.3	<1
Petalostylis labicheoides	3	3
Phyllanthus maderaspatensis	.3	<1
Polymeria ambigua	.2	<1
Rhynchosia minima	.3	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna notabilis	.5	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.2	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.6	15
Themeda triandra	.7	<1
Trichodesma zeylanicum var. *zeylanicum*	.4	<1
Trigastrotheca molluginea	.1	<1

Triodia epactia/pungens	.5	35

A093

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 730872 **mE** 7550674 **mN** **Lat.** -22.1337 **Long.** 119.2384

Habitat Low undulating landscape

Aspect S **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Basalt, quartz

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia inaequilatera*\^shrub\4\bi;G+ ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance Minimal

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia inaequilatera		2.5	<1	
Aristida contorta		0.3	<1	
Eriachne pulchella subsp. *dominii*		0.1	<1	
Heliotropium heteranthum		0.1	<1	
Senna glutinosa subsp. x *luerssenii*		2	<1	
Sporobolus australasicus		0.3	<1	

Triodia epactia	0.5	25

A094

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 730803 **mE** 7550095 **mN** **Lat.** -22.1389 **Long.** 119.2378

Habitat Upper-Slope

Aspect N **Slope** Gentle

Soil Type Brown loam

Rock Type Basalt?

Loose Rock 50-90 % cover; 60-200 mm in size **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia inaequilatera*\^shrub\4\r;G ^*Triodia epactia*,^*Indigofera rugosa*\^hummock grass, shrub\1\c

Veg. Condition Excellent

Disturbance Minimal

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia inaequilatera		2.6	2	
Boerhavia gardneri		0.2	<1	
Euphorbia careyi		0.3	<1	
Grevillea pyramidalis subsp. *leucadendron*		2.5	1	
Indigofera rugosa		0.8	<1	

Pentalepis trichodesmoides subsp. *trichodesmoides*	0.5	<1	3
Ptilotus astrolasius	0.4	<1	
Tephrosia rosea var. *clementii*	0.6	<1	
Triodia epactia	0.5	40	
Triodia wiseana	0.5	5	

A105

Staff SOK **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 715817 **mE** 7546582 **mN** **Lat.** -22.1726 **Long.** 119.0930

Habitat Crest

Aspect N/A **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation G+ ^^*Triodia vanleeuwenii*,*Amphipogon sericeus*,*Goodenia stobbsiana*\^hummock grass,tussock grass,shrub\1\i

Veg. Condition Excellent

Disturbance Minimal

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia arida		0.7	<1	
Amphipogon sericeus		0.3	5	
Bonamia pilbarensis		0.1	<1	
Dampiera candicans		0.3	<1	
Dodonaea coriacea		0.3	<1	

Eriachne lanata	0.4	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Fimbristylis simulans	0.2	<1
Gompholobium oreophilum	0.5	2
Goodenia stobbsiana	0.2	5
Hakea chordophylla	0.5	<1
Polycarpaea corymbosa var. *corymbosa*	0.1	<1
Ptilotus calostachyus	0.4	<1
Sida sp. Excedentifolia (J.L. Egan 1925)	0.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.5	<1
Trianthema glossostigmum	0.1	<1
Triodia vanleeuwenii	0.3	15

A108

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 713928 **mE** 7544431 **mN** **Lat.** -22.1922 **Long.** 119.0750

Habitat Lower-Slope

Aspect NW **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock >90 % cover; 6-20 mm in size **Litter** <1 % cover ; <5 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\r;M ^*Senna glutinosa* subsp. *pruinosa*\^shrub\3\bi;G+ ^*Triodia vanleeuwenii*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None obvious

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		0.7	<1	
Acacia monticola		1.5	<1	
Afrohybanthus aurantiacus		0.4	<1	
Corchorus lasiocarpus		0.3	<1	
Dampiera candicans		0.3	<1	

Eriachne pulchella subsp. *dominii*	0.05	<1
Eucalyptus leucophloia subsp. *leucophloia*	8	5
Eucalyptus leucophloia subsp. *leucophloia*	7	1
Ptilotus calostachyus	0.3	<1
Ptilotus obovatus	0.9	<1
Senna glutinosa subsp. *glutinosa*	0.8	<1
Senna glutinosa subsp. *pruinosa*	0.7	<1
Senna sericea	0.2	<1
Sida echinocarpa	0.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.3	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.2	<1
Triodia epactia/pungens	0.3	<1
Triodia vanleeuwenii	0.3	30

A109

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 714721 **mE** 7544837 **mN** **Lat.** -22.1885 **Long.** 119.0826

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 5 % cover ; <20 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation M+ ^*Petalostylis labicheoides*\^shrub\3\i;G ^*Seringia exastia*\^shrub\2\r

Veg. Condition Excellent

Disturbance None obvious

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aneura		1	<1	
Acacia aneura		1.5	<1	
Acacia elachantha		2	<1	
Acacia inaequilatera		0.3	<1	
Acacia marramamba		1	<1	
Afrohybanthus aurantiacus		0.3	<1	

Aristida holathera var. *holathera*		0.15	<1
Aristida inaequiglumis		0.5	<1
Corchorus lasiocarpus		0.4	<1
Dodonaea petiolaris		0.3	<1
Enneapogon polyphyllus		0.15	<1
Eragrostis eriopoda		0.2	<1
Eragrostis xerophila		0.3	<1
Eremophila forrestii		0.6	<1
Eriachne pulchella subsp. *dominii*		0.2	<1
Eriachne pulchella subsp. *dominii*		0.05	<1
Evolvulus alsinoides var. *villosicalyx*		0.1	<1
Hibiscus burtonii		0.3	<1
Hibiscus coatesii		0.3	<1
Perotis rara		0.1	<1
Petalostylis labicheoides		1.5	25
Psydrax suaveolens		2	<1
Ptilotus exaltatus		1	<1
Ptilotus fusiformis		0.25	<1
Senna notabilis		0.2	<1
Seringia exastia	T	0.6	8
Sida fibulifera		0.4	<1
Solanum lasiophyllum		0.4	<1
Streptoglossa decurrens		0.1	<1
Trianthema glossostigmum		0.05	<1
Triodia epactia/pungens		0.3	1

A110

Staff LC **Date** 8/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 710518 **mE** 7540977 **mN** **Lat.** -22.2238 **Long.** 119.0424

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Rocky sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 3 % cover ; <10 cm in depth

Bare ground 45 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia aneura*,^*Acacia ayersiana*\^tree\6\i;M ^*Dodonaea petiolaris*,^*Eremophila forrestii* subsp. *forrestii*\^shrub\3\i;G ^*Triodia epactia/pungens*,^*Triodia vanleeuwenii*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance Non visible

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aneura		2.5	8	
Acacia aptaneura		3.5	<1	
Acacia ayersiana		2	5	
Acacia inaequilatera		1.2	<1	
Acacia pruinocarpa		5	<1	

Acacia tenuissima	3	<1
Afrohybanthus aurantiacus	0.2	<1
Aristida contorta	0.2	<1
Aristida inaequiglumis	0.4	<1
Aristida inaequiglumis	0.4	<1
Dodonaea petiolaris	1	5
Enneapogon polyphyllus	0.2	<1
Eremophila forrestii subsp. *forrestii*	0.6	2
Eriachne mucronata	0.15	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Eucalyptus gamophylla	5	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Goodenia stobbsiana	0.15	<1
Hibiscus coatesii	0.3	<1
Indigofera monophylla	0.3	<1
Iseilema macratherum	0.15	<1
Paraneurachne muelleri	0.3	<1
Psydrax latifolia	0.5	<1
Ptilotus calostachyus	0.3	<1
Ptilotus exaltatus	0.3	<1
Senna artemisioides subsp. *oligophylla*	0.8	<1
Senna glutinosa subsp. *glutinosa*	1.2	<1
Sida ectogama	0.35	<1
Sida fibulifera	0.2	<1
Solanum lasiophyllum	0.3	<1
Triodia epactia/pungens	0.4	4
Triodia vanleeuwenii	0.4	2

A112

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 710090 **mE** 7541303 **mN** **Lat.** -22.2209 **Long.** 119.0382

Habitat Lower-Slope

Aspect S **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation M+ ^^*Acacia atkinsiana*,*Acacia marramamba*,*Acacia arida*\^shrub\4\i;G ^*Triodia epactia*,^*Triodia vanleeuwenii*\^hummock grass\2\i

Veg. Condition Very Good

Disturbance Minimal

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.4	<1	
Acacia ancistrocarpa		2	<1	
Acacia aptaneura		3	<1	
Acacia arida		1.5	1	
Acacia atkinsiana		2.5	5	

Acacia maitlandii	2	<1
Acacia marramamba	2.5	1
Acacia monticola	3	<1
Acacia pruinocarpa	3	2
Acacia tumida var. *pilbarensis*	1	<1
Afrohybanthus aurantiacus	0.4	<1
Aristida contorta	0.3	<1
Aristida holathera var. *holathera*		<1
Aristida inaequiglumis	1	<1
Corchorus lasiocarpus	0.5	<1
Cymbopogon ambiguus	0.6	<1
Digitaria brownii	0.5	<1
Dodonaea petiolaris	0.8	<1
Duperreya commixta	0.8	<1
Enneapogon polyphyllus	0.3	<1
Eremophila forrestii subsp. *forrestii*	0.5	<1
Eriachne helmsii	0.4	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Eucalyptus gamophylla	3	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Goodenia stobbsiana	0.4	<1
Grevillea wickhamii	0.5	<1
Hibiscus sturtii var. *campylochlamys*	0.3	<1
Indigofera monophylla	0.5	<1
Paraneurachne muelleri	0.5	<1
Psydrax latifolia	2	<1
Ptilotus astrolasius	0.4	<1
Ptilotus calostachyus	0.5	<1
Ptilotus exaltatus	0.3	<1
Ptilotus schwartzii	0.4	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1.5	<1
Senna glutinosa subsp. *glutinosa*	1.8	<1
Seringia nephrosperma	0.7	<1
Sida arenicola	0.5	<1
Sida echinocarpa	0.4	<1
Themeda triandra		<1
Trianthema glossostigmum	0.5	<1
Tribulus suberosus	0.4	<1

Triodia epactia	0.5	15
Triodia vanleeuwenii	0.4	3

A114

Staff LC **Date** 8/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708861 **mE** 7535622 **mN** **Lat.** -22.2724 **Long.** 119.0270

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Rocky red clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 2 % cover ; <1 cm in depth

Bare ground 55 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia xiphophylla*\^tree\6\i;M ^*Senna* sp. Meekatharra (E. Bailey 1-26)\^shrub\3\r;G ^*Enneapogon caerulescens*,^*Aristida contorta*\^tussock grass\1\r

Veg. Condition Good

Disturbance Cattle trampling and grazing, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.2	<1	
Abutilon malvifolium		0.05	<1	
Acacia maitlandii		1.8	<1	
Acacia tetragonophylla		2	<1	
Acacia xiphophylla		7	8	

Aristida contorta	0.2	2
Aristida latifolia	0.6	<1
Boerhavia coccinea	0.05	<1
**Cenchrus ciliaris*	0.15	<1
Corchorus tridens	0.15	<1
Crotalaria dissitiflora subsp. *benthamiana*	0.4	<1
Dichanthium sericeum subsp. *humilius*	0.15	<1
Dodonaea petiolaris	1.2	<1
Duperreya commixta	0.1	<1
Enchylaena tomentosa	0.1	<1
Enneapogon caerulescens	0.1	2
Enneapogon polyphyllus	0.2	<1
Eragrostis eriopoda	0.2	<1
Eragrostis xerophila	0.1	<1
Eremophila forrestii	0.6	<1
Eremophila longifolia	0.7	<1
Eremophila longifolia	2	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Heliotropium heteranthum	0.05	<1
Hibiscus verdcourtii	0.4	<1
**Malvastrum americanum*	0.2	<1
Neptunia dimorphantha	0.05	<1
Panicum decompositum	0.4	<1
Phyllanthus maderaspatensis	0.2	<1
Ptilotus exaltatus	10 Cm	<1
Rhagodia eremaea	0.5	<1
Salsola australis	0.4	<1
Sclerolaena cornishiana	0.1	<1
Senna artemisioides subsp. *oligophylla*	1.2	<1
Senna sp. Meekatharra (E. Bailey 1-26)	1.2	5
Sida fibulifera	0.3	<1
Sida spinosa	0.2	<1
Sporobolus australasicus	20 Cm	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.2	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	<1

A116

Staff KCP **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706899 **mE** 7529663 **mN** **Lat.** -22.3264 **Long.** 119.0088

Habitat Flat

Aspect N **Slope** Very Gentle

Soil Type Orange brown sandy loam

Rock Type Ironstone

Loose Rock 2-10 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 30 % cover **Weeds** 0 % cover

Vegetation M ^*Eucalyptus gamophylla*\^mallee shrub\3\r;G+ ^^*Triodia ?brizoides*,*Bonamia erecta*, *Trigastrotheca molluginea*\^hummock grass,shrub,forb\1\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		.8	<1	
Acacia bivenosa		.8	<1	
Acacia maitlandii		.3	<1	
Acacia monticola		.5	<1	
Acacia tenuissima		.5	<1	

Afrohybanthus aurantiacus	.3	<1
Aristida holathera var. *holathera*	.3	<1
Arivela viscosa	.5	<1
Boerhavia coccinea	.1	<1
Bonamia erecta	.4	10
Corchorus lasiocarpus	.4	<1
Dicrastylis cordifolia	.3	<1
Eragrostis eriopoda	.3	<1
Eremophila forrestii	.5	<1
Eucalyptus gamophylla	2	5
Euphorbia boophthona	.3	<1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Goodenia microptera	.3	<1
Goodenia stobbsiana	.4	<1
Hibiscus leptocladus	.2	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Indigofera monophylla	.5	<1
Paraneurachne muelleri	.4	<1
Polycarpaea corymbosa var. *corymbosa*	.2	<1
Ptilotus astrolasius	.3	<1
Ptilotus calostachyus	.8	<1
Ptilotus exaltatus	.4	<1
Ptilotus obovatus	.3	<1
Scaevola parvifolia subsp. *pilbarae*	.3	<1
Senna artemisioides subsp. *helmsii*	.4	<1
Senna artemisioides subsp. *oligophylla*	.4	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Senna notabilis	.1	<1
Sida cardiophylla	.3	<1
Sida fibulifera	.3	<1
Solanum lasiophyllum	.5	<1
Solanum phlomoides	.3	<1
Sporobolus australasicus	.15	<1
Tribulus sp.	.1	<1
Trigastrotheca molluginea	.2	1
Triodia ?brizoides	.5	25
Vincetoxicum lineare	.5	<1

A118

Staff SOK **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 705175 **mE** 7524750 **mN** **Lat.** -22.3710 **Long.** 118.9927

Habitat Upper-Slope

Aspect E **Slope** Gentle

Soil Type Red brown loam

Rock Type Granite

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*,^*Corymbia deserticola* subsp. *deserticola*\^tree\6\bi; + G ^,^*Triodia vanleeuwenii*\^,hummock grass\1\i

Veg. Condition Very Good

Disturbance Fire

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia maitlandii		0.4	<1	
Acacia monticola		1	<1	
Afrohybanthus aurantiacus		0.4	<1	
Amphipogon sericeus		0.3	<1	
Aristida holathera var. *holathera*		0.4	<1	

Calytrix carinata	0.4	<1
Codonocarpus cotinifolius	0.8	<1
Corchorus lasiocarpus	0.4	<1
Corymbia deserticola subsp. *deserticola*	1.5	<1
Eriachne aristidea	0.3	<1
Eucalyptus leucophloia subsp. *leucophloia*	1.5	<1
Fimbristylis simulans	0.2	10
Gompholobium oreophilum	0.5	<1
Indigofera monophylla	0.4	<1
Ptilotus calostachyus	0.5	<1
Ptilotus clementii	0.2	<1
Ptilotus exaltatus	0.4	<1
Schizachyrium fragile	0.2	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Senna notabilis	0.4	<1
Trigastrotheca molluginea	0.2	<1
Triodia vanleeuwenii	0.2	3

A119

Staff SOK **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 705235 **mE** 7523880 **mN** **Lat.** -22.3788 **Long.** 118.9934

Habitat Mid-Slope

Aspect E **Slope** Gentle

Soil Type Red brown loam

Rock Type Granite

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation + 6rM ^*Corchorus lasiocarpus* subsp. *lasiocarpus*\^shrub\3\r;G ^^*Eriachne pulchella* subsp. *dominii*,*Aristida contorta*,*Triodia wiseana*\^other grass,hummock grass\1\c

Veg. Condition Good

Disturbance Fire

Fire Age 2-5 years

Notes Very altered due to fire

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.5	<1	
Abutilon macrum		0.5	<1	
Acacia pruinocarpa		1	<1	
Afrohybanthus aurantiacus		0.5	<1	
Aristida contorta		0.3	10	

Aristida holathera var. *holathera*	0.4	<1
Aristida inaequiglumis	0.7	<1
Arivela viscosa	0.3	<1
Boerhavia coccinea	0.1	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	1	2
Cymbopogon ambiguus	0.4	<1
Cynanchum viminale	0.5	<1
Enneapogon polyphyllus	0.3	<1
Eremophila latrobei subsp. *filiformis*	0.8	<1
Eriachne aristidea	0.3	<1
Eriachne pulchella subsp. *dominii*	0.3	25
Eulalia aurea	0.4	<1
Fimbristylis dichotoma	0.3	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Gomphrena cunninghamii	0.1	<1
Goodenia microptera	0.3	<1
Heliotropium inexplicitum	0.2	<1
Hibiscus burtonii	0.4	<1
Hibiscus sturtii var. *truncatus*	0.4	<1
Indigofera monophylla	0.5	<1
Paspalidium clementii	0.3	<1
Portulaca oleracea	0.1	<1
Ptilotus calostachyus	0.4	<1
Ptilotus exaltatus	0.4	<1
Ptilotus helipteroides	0.3	<1
Ptilotus polystachyus	0.5	<1
Senna artemisioides subsp. *helmsii*	0.3	<1
Senna glaucifolia	0.4	<1
Senna glutinosa subsp. *glutinosa*	0.5	<1
Senna notabilis	0.4	<1
Sida sp. L (A.M. Ashby 4202)	0.2	<1
Solanum lasiophyllum	0.4	<1
Sporobolus australasicus	0.3	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.1	<1
Tribulus hirsutus	0.2	<1
Tribulus suberosus	0.5	<1
Trichodesma zeylanicum var. *zeylanicum*	0.3	<1
Trigastrotheca molluginea	0.2	<1

Triodia vanleeuwenii	0.4	<1
Triodia wiseana	0.2	1

A129

Staff LC **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 733995 **mE** 7499874 **mN** **Lat.** -22.5919 **Long.** 119.2761

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; <1 cm in depth

Bare ground 20 % cover **Weeds** 15 % cover

Vegetation U ^*Acacia citrinoviridis*,^*Acacia aptaneura*\^tree\6\i;M+ ^*Acacia synchronicia*,^*Senna artemisioides* subsp. *oligophylla*\^shrub\3\i;G ^*Chrysopogon fallax*,^*Cenchrus ciliaris*\^tussock grass\1\i

Veg. Condition Good

Disturbance Grazing and trampling, weeds

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*			<1	
Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)		0.2	<1	
Acacia aptaneura		7	5	
Acacia citrinoviridis		6	8	

Acacia pruinocarpa	5	<1
Acacia sp.	1	<1
Acacia synchronicia	1.2	4
Acacia tetragonophylla	1.5	<1
Aristida contorta	0.3	<1
Boerhavia burbidgeana	0.1	<1
Boerhavia coccinea	0.2	<1
Boerhavia coccinea	0.15	<1
**Cenchrus ciliaris*	0.3	10
**Cenchrus setiger*	0.2	5
Chrysopogon fallax	0.8	20
Corchorus sp.	0.3	<1
Corchorus sp.	0.2	<1
Corchorus tridens	0.15	<1
Cucumis variabilis	1	<1
Dactyloctenium radulans	0.1	<1
Duperreya commixta	3	<1
Enneapogon polyphyllus	0.2	<1
Eragrostis xerophila	0.1	<1
Eremophila lanceolata		<1
Eulalia aurea	0.4	<1
Euphorbia biconvexa	0.2	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Indigofera colutea	0.2	<1
Indigofera linifolia	0.2	<1
Indigofera linnaei		<1
Ipomoea muelleri	0.1	<1
Perotis rara	0.1	<1
Poaceae sp.	0.15	<1
Pterocaulon sphacelatum	0.2	<1
Ptilotus obovatus	0.2	<1
Rhynchosia minima	0.1	<1
Salsola australis	0,3	<1
Sclerolaena cornishiana	0.05	<1
Senna artemisioides subsp. *oligophylla*	0.4	7
Sida sp. L (A.M. Ashby 4202)	0.3	<1
Sporobolus australasicus	0.1	<1

Streptoglossa decurrens	0.2	<1
**Vachellia farnesiana*	0.7	<1

A132

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 737675 **mE** 7497748 **mN** **Lat.** -22.6105 **Long.** 119.3122

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; 1 cm in depth

Bare ground 30 % cover **Weeds** 50 % cover

Vegetation M ^*Acacia synchronicia*,^*Acacia sclerosperma* subsp. *sclerosperma*\^shrub\3\r;G+ ^^*Cenchrus ciliaris*,*Rhynchosia minima*,*Indigofera linnaei*\^tussock grass,vine,shrub\1\c

Veg. Condition Good

Disturbance

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		.1	<1	
Acacia pruinocarpa		1	<1	
Acacia sclerosperma subsp. *sclerosperma*		1.5	1	
Acacia synchronicia		1.5	2	
Arivela viscosa		.4	2	

Boerhavia coccinea	.2	<1
**Cenchrus ciliaris*	.4	50
**Cenchrus setiger*	.4	<1
Chrysopogon fallax	1	<1
Corchorus sidoides subsp. *sidoides*	.3	<1
Corchorus sp.	.3	<1
Cullen leucochaites	.3	<1
Dactyloctenium radulans	.1	<1
Enneapogon polyphyllus	.2	<1
Eragrostis eriopoda	.4	<1
Eulalia aurea	.3	<1
Euphorbia boophthona	.3	<1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Indigofera linifolia	.2	<1
Indigofera linnaei	.3	2
Portulaca oleracea	.05	<1
Pterocaulon sphacelatum	.4	<1
Rhagodia eremaea	1	<1
Rhynchosia minima	.2	3
Salsola australis	.4	<1
Sclerolaena cornishiana	.3	<1
Sporobolus australasicus	.3	1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.3	1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.3	<1
Tribulus hirsutus	.2	<1

A133

Staff LC **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 731981 **mE** 7501607 **mN** **Lat.** -22.5765 **Long.** 119.2562

Habitat River

Aspect N/A **Slope** N/A

Soil Type Reddish grey sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; <1 cm in depth

Bare ground 50 % cover **Weeds**

Vegetation U+ ^*Eucalyptus victrix*,^*Atalaya hemiglauca*\^tree\7\i;G ^*Cenchrus setiger*,^*Cenchrus ciliaris*\^tussock grass\1\c

Veg. Condition Good

Disturbance Cattle, erosion

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.1	<1	
Acacia citrinoviridis		4	2	
Acacia sp.		2	<1	
Acacia synchronicia		3	<1	
Atalaya hemiglauca		5	4	

Boerhavia burbidgeana	0.5	<1
Boerhavia coccinea	0.1	<1
Boerhavia repleta	0.1	<1
**Cenchrus ciliaris*	0.3	6
**Cenchrus setiger*	0.3	<1
**Cenchrus setiger*	0.4	4
Corchorus tridens	0.2	<1
Eucalyptus victrix	15	7
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Hakea chordophylla	6	<1
Ptilotus exaltatus	0.05	<1

B020

Staff KCP **Date** 5/05/2021 **Season** E

Revisit

Type Q 100 m x 25 m

Location

MGA Zone 50 735676 **mE** 7498124 **mN** **Lat.** -22.6074 **Long.** 119.2927

Habitat Creek

Aspect W **Slope** Gentle

Soil Type Red brown clay

Rock Type Ironstone

Loose Rock 2-10 % cover; 2-6 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** 22 % cover

Vegetation U+ ^^*Acacia citrinoviridis*,*Corymbia hamersleyana*,*Eucalyptus victrix*\^tree\6\i;M ^*Corchorus crozophorifolius*,^*Waltheria indica*\^shrub\3\bi;G ^*Cenchrus ciliaris*,^*Cenchrus setiger*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon sp.		.1	<1	
Acacia citrinoviridis		5	25	
Acacia pyrifolia var. *pyrifolia*		1.5	<1	
Aristida contorta		.2	<1	

Arivela viscosa	.4	<1
Atalaya hemiglauca	1	<1
Boerhavia coccinea	.2	<1
**Cenchrus ciliaris*	.5	20
**Cenchrus setiger*	.4	2
Corchorus crozophorifolius	1	<1
Corchorus tridens	.3	<1
Corymbia hamersleyana	8	1
Ehretia saligna var. *saligna*	.8	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Eucalyptus victrix	10	1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Heliotropium cunninghamii	.3	<1
Indigofera colutea	.2	<1
Ipomoea muelleri	.2	<1
Polycarpaea longiflora	.3	<1
Pterocaulon sphacelatum	.3	<1
Ptilotus exaltatus	.15	<1
Ptilotus fusiformis	.3	<1
Ptilotus obovatus	.3	<1
Rhynchosia minima	.2	<1
Sporobolus australasicus	.3	<1
Tribulus occidentalis	.1	<1
Waltheria indica	.4	<1

B041

Staff KCP **Date** 4/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740147 **mE** 7495801 **mN** **Lat.** -22.6278 **Long.** 119.3365

Habitat Flat

Aspect SW **Slope** Very Gentle

Soil Type Orange brown clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; 1 cm in depth

Bare ground 10 % cover **Weeds** 80 % cover

Vegetation U ^*Acacia citrinoviridis*,^*Acacia pruinocarpa*\^tree\6\r;G+ ^^*Cenchrus ciliaris*,*Arivela viscosa*, *Boerhavia coccinea*\^tussock grass,forb\1\c

Veg. Condition Good

Disturbance Cow tracks

Fire Age 1-2 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Abutilon otocarpum		.3	<1	
Acacia citrinoviridis		4	3	
Acacia inaequilatera		.2	<1	
Acacia pruinocarpa		5	2	

Acacia pruinocarpa	.8	<1
Acacia pteraneura	3	<1
Arivela viscosa	.4	3
Atalaya hemiglauca	1	<1
Boerhavia coccinea	.1	2
**Cenchrus ciliaris*	.4	80
**Cenchrus setiger*	.4	<1
Corchorus sidoides subsp. *sidoides*	.3	<1
Corchorus sp.	.2	<1
Corchorus tridens	.2	<1
Cucumis variabilis	1	<1
Cullen leucochaites	.2	<1
Enneapogon polyphyllus	.2	<1
Eragrostis cumingii	.15	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Goodenia microptera	.3	<1
Hakea lorea subsp. *lorea*	1.5	<1
Indigofera colutea	.3	<1
Indigofera linifolia	.2	1
**Malvastrum americanum*	.3	<1
Portulaca oleracea	.1	<1
Rhynchosia minima	.1	<1
Scaevola spinescens	.5	1
Senna notabilis	.4	1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.2	<1
Solanum lasiophyllum	.3	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.3	<1
Trianthema pilosum	.1	<1
Tribulus sp.	.1	<1
Trichodesma zeylanicum var. *zeylanicum*	.5	1
Triodia epactia	.8	1

B042

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 738896 **mE** 7496393 **mN** **Lat.** -22.6226 **Long.** 119.3242

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; <1 cm in depth

Bare ground 40 % cover **Weeds**

Vegetation U+ ^*Acacia aneura*,^\^tree\6\r;G ^*Cenchrus ciliaris*\^tussock grass\1\c

Veg. Condition Good

Disturbance Cattle trampling

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Acacia aneura		3	1	
Acacia aptaneura		5	7	
Acacia inaequilatera		1	<1	
Acacia pruinocarpa		4	<1	
Aristida contorta		0.2	<1	

Arivela viscosa	0.4	<1
Boerhavia coccinea	0.05	<1
Boerhavia coccinea	0.15	<1
**Cenchrus ciliaris*	0.3	30
**Cenchrus setiger*		<1
Chrysopogon fallax	0.4	<1
Corchorus sp.	0.2	<1
Corchorus sp.	0.3	<1
Eremophila forrestii subsp. *forrestii*	0.7	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Goodenia prostrata	0.05	<1
Portulaca oleracea		<1
Salsola australis	0.15	<1
Sclerolaena cornishiana	0.1	<1
Senna artemisioides subsp. *helmsii*		<1
Sida platycalyx	0.2	<1
Sporobolus australasicus		<1
Tribulus astrocarpus	0.02	<1
Triodia epactia	0.3	<1

B043

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 737937 **mE** 7496942 **mN** **Lat.** -22.6178 **Long.** 119.3148

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; <1 cm in depth

Bare ground 75 % cover **Weeds** 11 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\bi;M ^*Acacia synchronicia*\^shrub\3\bi;G+ ^*Cenchrus setiger*\^tussock grass\1\r

Veg. Condition Poor

Disturbance Cattle trampling and poo, dust, haul road adjacent

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia pruinocarpa		2.5	1.5	
Acacia synchronicia		1.2	1	
Acacia tetragonophylla		2	<1	
Aristida holathera var. *holathera*		0.2	<1	
Arivela viscosa		0.3	<1	

Boerhavia coccinea	0.05	<1
Boerhavia coccinea	0.3	<1
**Cenchrus ciliaris*	0.3	1
**Cenchrus setiger*	0.3	10
Eragrostis dielsii	0.2	<1
Euphorbia australis var. *hispidula*	0.1	<1
Euphorbia boophthona	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.4	<1
Portulaca oleracea	0.05	<1
Ptilotus aervoides	0.05	<1
Salsola australis	0.3	<1
Sclerolaena cornishiana	0.2	<1
Senna artemisioides subsp. *oligophylla*	0.7	<1
Senna notabilis	0.2	<1
Solanum lasiophyllum	0.4	<1
Sporobolus australasicus	0.1	<1
Tragus australianus	0.15	<1
Tribulus astrocarpus	0.05	<1
Tribulus sp.	0.05	<1

B045

Staff LC **Date** 4/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 734424 **mE** 7499157 **mN** **Lat.** -22.5983 **Long.** 119.2804

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; <1 cm in depth

Bare ground 30 % cover **Weeds** 65 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia citrinoviridis*\^tree\6\i;M ^*Senna artemisioides* subsp. *oligophylla*\^shrub\3\r;G ^*Cenchrus setiger*\^tussock grass\1\c

Veg. Condition Good

Disturbance Trampling, tracks nearby, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.2	<1	
Acacia aptaneura		10	30	
Acacia citrinoviridis		4	5	
Acacia citrinoviridis		4	<1	
Acacia pruinocarpa		3	<1	

Acacia synchronicia	1	<1
Aristida holathera var. *holathera*	0.2	<1
Atalaya hemiglauca	1	<1
Boerhavia coccinea	0.1	<1
Boerhavia repleta	0.05	<1
**Cenchrus setiger*	0.2	65
Chrysopogon fallax	0.4	<1
Corchorus sp.	0.2	<1
Corchorus sp.	0.05	<1
Corchorus tridens	0.3	<1
Crotalaria medicaginea var. *neglecta*	0.3	<1
Cucumis variabilis	1.5	<1
Eragrostis dielsii	0.5	<1
Euphorbia australis var. *subtomentosa*	0.15	<1
Euphorbia biconvexa	0.3	<1
Euphorbia tannensis subsp. *eremophila*	0.2	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Goodenia prostrata	0.1	<1
Indigofera colutea	0.1	<1
Perotis rara	0.1	<1
Ptilotus exaltatus	0.1	<1
Rhynchosia minima	0.3	<1
Salsola australis	0.3	<1
Sclerolaena cornishiana	0.2	<1
Senna artemisioides subsp. *oligophylla*	0.7	2
Senna notabilis	0.3	1
Sporobolus australasicus	0.1	<1
Tribulus sp.	0.2	<1

B050

Staff LC **Date** 6/05/2021 **Season** E

Revisit

Type Q 100 m x 25 m

Location

MGA Zone 50 727466 **mE** 7503489 **mN** **Lat.** -22.5601 **Long.** 119.2121

Habitat Drainage line

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 2-6 mm in size **Litter** 20 % cover ; <1 cm in depth

Bare ground 30 % cover **Weeds** 45 % cover

Vegetation M+ ^*Acacia tumida* var. *pilbarensis*\^shrub\3\c;G ^*Cenchrus ciliaris*,^*Chrysopogon fallax*\^tussock grass\1\c

Veg. Condition Very Good

Disturbance Minor trampling, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia dictyophleba			<1	
Acacia pyrifolia var. *pyrifolia*			<1	
Acacia tumida var. *pilbarensis*		2.2	40	
Afrohybanthus aurantiacus		0.3	<1	
Arivela viscosa			<1	

**Cenchrus ciliaris*	0.4	30
**Cenchrus setiger*		<1
Chrysopogon fallax	0.4	10
Corchorus lasiocarpus		<1
Corchorus lasiocarpus		<1
Corchorus lasiocarpus		<1
Dampiera candicans		<1
Euphorbia biconvexa	0.1	<1
Goodenia microptera		<1
Gossypium robinsonii	2 M	<1
Grevillea wickhamii	1.5 M	<1
Heliotropium cunninghamii	0.3	<1
Indigofera monophylla	0.2	<1
Ptilotus exaltatus		<1
Ptilotus obovatus	0.15	<1
Stylobasium spathulatum	1.5	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	60 Cm	<1
Themeda triandra	50 Cm	<1
Trichodesma zeylanicum var. *zeylanicum*		<1
Trigastrotheca molluginea		<1
Waltheria indica	0.2	<1

B053

Staff SOK **Date** 4/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725838 **mE** 7504771 **mN** **Lat.** -22.5488 **Long.** 119.1961

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 50 % cover **Weeds** 1 % cover

Vegetation M+ ^*Acacia inaequilatera*,^*Hakea lorea* subsp. *lorea*\^shrub\4\r;G ^*Triodia basedowii*,^*Aristida holathera* var. *holathera*\^hummock grass,tussock grass\1\c

Veg. Condition Very Good

Disturbance Vehicle tracks, grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adsurgens		2	<1	
Acacia ancistrocarpa		1.5	2	
Acacia dictyophleba		1	<1	
Acacia inaequilatera		3	3	
Acacia pachyacra		2.5	<1	

Acacia sclerosperma subsp. *sclerosperma*	3	<1
Aristida holathera var. *holathera*	0.4	3
Aristida inaequiglumis	0.5	<1
Arivela viscosa	0.3	<1
Boerhavia coccinea	0.2	<1
**Cenchrus ciliaris*	0.5	1
Corchorus aff. *tectus*	0.5	<1
Corchorus sidoides subsp. *sidoides*	0.3	<1
Cucumis variabilis	1	<1
Cullen leucochaites	0.1	<1
Cymbopogon obtectus	0.5	<1
Duperreya commixta	1.5	<1
Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.3	<1
Eulalia aurea	0.8	<1
Euphorbia australis var. *subtomentosa*	0.2	<1
Euphorbia coghlanii	0.3	<1
Euphorbia tannensis subsp. *eremophila*	0.3	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Goodenia microptera	0.3	<1
Gossypium australe	0.7	<1
Hakea lorea subsp. *lorea*	4	2
Haloragis gossei var. *gossei*	0.3	<1
Hibiscus brachychlaenus	0.8	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Indigofera monophylla	1	<1
Ptilotus exaltatus	0.1	<1
Ptilotus polystachyus	0.4	<1
Rhagodia eremaea	1.5	<1
Rhynchosia minima	0.3	<1
Senna notabilis	0.2	<1
Sida cardiophylla	0.5	<1
Trianthema pilosum	0.2	<1
Tribulopis angustifolia	0.3	<1
Trichodesma zeylanicum var. *zeylanicum*	0.4	<1
Triodia basedowii	0.5	40
Yakirra australiensis var. *australiensis*	0.2	<1

B083

Staff LC **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 731662 **mE** 7500822 **mN** **Lat.** -22.5836 **Long.** 119.2533

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; <1 cm in depth

Bare ground 50 % cover **Weeds** 50 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\bi;M+ ^\^\3\r;G ^*Cenchrus setiger*,^*Cenchrus ciliaris*\^tussock grass\1\c

Veg. Condition Poor

Disturbance Cattle tracks, close to road

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon sp.		0.3	<1	
Acacia inaequilatera			<1	
Acacia pruinocarpa		5	<1	
Acacia synchronicia		1	5	
Arivela viscosa		0.2	<1	

Boerhavia burbidgeana		<1
Boerhavia coccinea	0.1	<1
Boerhavia repleta	0.05	<1
**Cenchrus ciliaris*	0.2	5
**Cenchrus setiger*	0.2	30
Corchorus sp.	0.1	<1
Cullen leucochaites	0.8	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Hakea lorea subsp. *lorea*	120	<1
Indigofera linifolia		<1
Indigofera linnaei	0.15	<1
Portulaca oleracea	0.5	<1
Pterocaulon sphacelatum	0.3	<1
Ptilotus aervoides	0.1	<1
Rhynchosia minima	0.5	<1
Salsola australis	0.5	<1
Sclerolaena cornishiana	0.2	<1
Senna artemisioides subsp. *oligophylla*	0.2	<1
Sesbania cannabina		<1
Solanum lasiophyllum	0.6	<1
Sporobolus australasicus	0.1	1
Trianthema triquetrum	0.05	<1
Tribulus sp.	0.1	<1
**Vachellia farnesiana*	0.1	<1

B129

Staff KCP **Date** 14/05/2021 **Season** E

Revisit

Type Q 200 m x 12.5 m

Location

MGA Zone 50 728072 **mE** 7555734 **mN** **Lat.** -22.0884 **Long.** 119.2105

Habitat Crest

Aspect N/A **Slope** Gentle

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 60-200 mm in size **Litter** 1 % cover ; 5 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\r;M ^*Ptilotus calostachyus*,^*Sida arenicola*\^shrub\3\bi;G+ ^^*Eriachne lanata*,*Triodia vanleeuweni*i\^tussock grass,hummock grass\1\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1	<1	
Acacia monticola		.4	<1	
Acacia pruinocarpa		2	5	
Acacia pyrifolia var. *pyrifolia*		1	<1	
Afrohybanthus aurantiacus		.3	<1	

Amphipogon sericeus	.3	<1
Bonamia pilbarensis	.05	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	.5	<1
Corymbia hamersleyana	1.5	<1
Eremophila latrobei subsp. *glabra*	.8	<1
Eriachne lanata	.4	30
Goodenia cusackiana	.05	1
Goodenia stobbsiana	.3	<1
Grevillea wickhamii	.5	<1
Hakea lorea subsp. *lorea*	1.5	<1
Indigofera monophylla	.4	2
Ptilotus astrolasius	.3	<1
Ptilotus axillaris	.03	<1
Ptilotus calostachyus	1	1.5
Ptilotus exaltatus	.3	<1
Senna glutinosa subsp. *glutinosa*	.5	<1
Senna glutinosa subsp. *pruinosa*	1	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Senna notabilis	.2	<1
Sida arenicola	1	1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Trigastrotheca molluginea	.15	<1
Triodia epactia/pungens	.3	<1
Triodia vanleeuwenii	.3	20

B131

Staff KCP **Date** 15/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 728859 **mE** 7554612 **mN** **Lat.** -22.0984 **Long.** 119.2183

Habitat Drainage

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Various

Loose Rock <2 % cover; 20-60 mm in size **Litter** 2 % cover ; 1 cm in depth

Bare ground 15 % cover **Weeds** <1 % cover

Vegetation M ^*Acacia ancistrocarpa*,^*Senna artemisioides* subsp. *oligophylla*\^shrub\3\r;G+ ^^*Triodia epactia/pungens*,*Aristida latifolia*,*Bonamia erecta*\^hummock grass,tussock grass,shrub\2\c

Veg. Condition Very Good

Disturbance Weeds

Fire Age >10 years

Notes Recent fire scar nearby

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia ancistrocarpa		3	15	
Acacia inaequilatera		3.5	<1	
Acacia pyrifolia var. *pyrifolia*		2	<1	
Alternanthera nana		.2	<1	

Aristida holathera var. *holathera*	.3	<1
Aristida latifolia	1	5
Boerhavia coccinea	.1	<1
Bonamia erecta	.3	1
**Cenchrus ciliaris*	.4	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	.6	<1
Crotalaria medicaginea var. *neglecta*	.4	<1
Cucumis variabilis	2.0	<1
Cymbopogon ambiguus	.5	<1
Digitaria ctenantha	.4	<1
Enneapogon lindleyanus	.1	<1
Enneapogon polyphyllus	.3	1
Euphorbia coghlanii	.2	<1
Evolvulus alsinoides var. *villosicalyx*	.25	<1
Goodenia microptera	.2	<1
Gossypium australe	.5	<1
Hibiscus sturtii var. *platychlamys*	.2	<1
Indigofera monophylla	.5	<1
Paraneurachne muelleri	.3	<1
Perotis rara	.1	<1
Pterocaulon sphacelatum	.4	<1
Ptilotus astrolasius	.4	<1
Senna artemisioides subsp. *helmsii*	1.3	<1
Senna artemisioides subsp. *oligophylla*	1.5	2
Senna notabilis	.4	<1
Sida cardiophylla	.3	<1
Sida fibulifera	.1	<1
Sida sp.	.4	<1
Streptoglossa decurrens	.3	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.4	<1
Tribulus hirsutus	.05	<1
Trigastrotheca molluginea	.1	<1
Triodia epactia/pungens	.5	40
Triodia vanleeuwenii	.2	1
Yakirra australiensis var. *australiensis*	.1	<1

B132

Staff KCP **Date** 15/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 729392 **mE** 7555000 **mN** **Lat.** -22.0949 **Long.** 119.2234

Habitat Low rise

Aspect N/A **Slope** N/A

Soil Type Brown sandy loam

Rock Type Quartz

Loose Rock 20-50 % cover; 20-60 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 30 % cover **Weeds** 0 % cover

Vegetation M ^^*Acacia bivenosa*,*Acacia inaequilatera*,*Acacia ancistrocarpa*\^shrub\4\r;G+ ^*Triodia wiseana*, ^*Triodia vanleeuweni*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia ancistrocarpa		3	2	
Acacia bivenosa		1.8	1	
Acacia inaequilatera		3	2	
Bonamia pilbarensis		.1	<1	

Corchorus incanus subsp. *incanus*	.4	<1
Cucumis variabilis	1.0	<1
Goodenia microptera	.2	<1
Goodenia stobbsiana	.4	<1
Grevillea wickhamii	2.0	<1
Heliotropium chrysocarpum	.15	<1
Heliotropium chrysocarpum	.1	<1
Hibiscus coatesii	.3	<1
Polygala glaucifolia	.05	<1
Senna artemisioides subsp. *oligophylla*	1.0	<1
Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna symonii	1.0	<1
Sida echinocarpa	.2	<1
Solanum phlomoides	.4	<1
Stackhousia intermedia	.05	<1
Triodia vanleeuwenii	.4	2
Triodia wiseana	.4	60

B133

Staff KCP **Date** 15/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 729801 **mE** 7554436 **mN** **Lat.** -22.0999 **Long.** 119.2275

Habitat Lower-Slope

Aspect SE **Slope** Very Gentle

Soil Type Brown sandy loam

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 2 % cover ; 1 cm in depth

Bare ground 15 % cover **Weeds** <1 % cover

Vegetation M+ ^^*Acacia bivenosa*,*Acacia ancistrocarpa*,*Acacia trachycarpa*\^shrub\4\i;G ^^*Triodia epactia/pungens*,*Triodia longiceps*,*Themeda triandra*\^hummock grass,tussock grass\2\i

Veg. Condition Very Good

Disturbance Trampling, grazing, weeds

Fire Age >10 years

Notes Watering point within 200 m - cattle

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Abutilon macrum		.3	<1	
Abutilon macrum		.2	<1	
Acacia ancistrocarpa		2.2	2	
Acacia ancistrocarpa		1.5	<1	

Acacia bivenosa	2.3	10
Acacia inaequilatera	1	<1
Acacia pyrifolia var. *pyrifolia*	2	<1
Acacia synchronicia	2.1	<1
Acacia trachycarpa	2.3	1
**Aerva javanica*	.3	<1
Aristida latifolia	1	<1
Atalaya hemiglauca	2.5	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	.3	<1
Duperreya commixta	.5	<1
Enneapogon caerulescens	.3	<1
Euphorbia australis var. *subtomentosa*	.1	<1
Euphorbia coghlanii	.1	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Goodenia forrestii	.1	<1
Goodenia forrestii	.2	<1
Gossypium australe	.4	<1
Gossypium robinsonii	2.0	<1
Hibiscus coatesii	.4	<1
Hibiscus sturtii var. *campylochlamys*	.1	<1
Hibiscus sturtii var. *platychlamys*	.3	<1
Indigofera monophylla	.5	<1
Malvaceae sp.	.1	<1
**Malvastrum americanum*	.3	<1
Melhania oblongifolia	.2	<1
Phyllanthus maderaspatensis	.3	<1
Ptilotus obovatus	.3	<1
Rhynchosia minima	.3	<1
Scaevola spinescens	.4	<1
Senna artemisioides subsp. *oligophylla*	1.2	<1
Senna artemisioides subsp. *oligophylla*	1.0	<1
Senna glutinosa subsp. x *luerssenii*	1.4	<1
Senna notabilis	.2	<1
Themeda triandra	.8	1
Triodia epactia/pungens	.4	8
Triodia longiceps	.5	5
Triodia vanleeuwenii	.3	<1
Triodia wiseana	.3	<1

B144

Staff SOK **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 716702 **mE** 7544260 **mN** **Lat.** -22.1934 **Long.** 119.1019

Habitat Lower-Slope

Aspect NW **Slope** Gentle

Soil Type Red brown loam

Rock Type Mixed

Loose Rock 20-50 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 0 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia tetragonophylla*,^*Acacia ancistrocarpa*\^shrub\3\r;G ^*Triodia epactia*,^*Triodia vanleeuwenii*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Minimal

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1.5	2	
Acacia arida		1	<1	
Acacia bivenosa		1	<1	
Acacia inaequilatera		2	<1	
Acacia synchronicia		2	<1	

Acacia tetragonophylla	1.5	2
Afrohybanthus aurantiacus	0.4	<1
Anthobolus leptomerioides	2	<1
Bonamia erecta	0.4	<1
Corchorus lasiocarpus	0.4	<1
Corymbia hamersleyana	3	<1
Duperreya commixta	0.4	<1
Enneapogon caerulescens	0.2	<1
Eremophila forrestii subsp. *forrestii*	0.9	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Euphorbia australis var. *subtomentosa*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.4	<1
Fimbristylis simulans	0.3	<1
Gossypium australe	0.7	<1
Heliotropium tenuifolium	0.3	<1
Indigofera monophylla	0.4	<1
Paraneurachne muelleri	0.5	<1
Polygala glaucifolia	0.1	<1
Polymeria ambigua	0.1	<1
Ptilotus astrolasius	0.4	<1
Ptilotus calostachyus	0.3	<1
Ptilotus clementii	0.3	<1
Ptilotus exaltatus	0.4	<1
Ptilotus obovatus	0.6	<1
Senna artemisioides subsp. *oligophylla*	0.7	<1
Senna glutinosa subsp. *glutinosa*	2	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Senna notabilis	0.2	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	<1
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)	0.3	<1
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	0.2	<1
Themeda triandra	0.8	<1
Trigastrotheca molluginea	0.1	<1
Triodia epactia	0.4	15
Triodia vanleeuwenii	0.4	10
Triodia wiseana	0.4	<1

B146

Staff KCP **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 714845 **mE** 7543177 **mN** **Lat.** -22.2035 **Long.** 119.0841

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Pale orange clay

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 20 % cover ; 1 cm in depth

Bare ground 35 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia ayersiana*,^*Acacia pruinocarpa*\^tree\6\c;M ^*Petalostylis labicheoides*\^shrub\3\r;G ^*Triodia epactia*\^hummock grass\1\bi

Veg. Condition Excellent

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia aneura		3	1	
Acacia ayersiana		8	65	
Acacia pruinocarpa		6	3	
Acacia tetragonophylla		1.2	<1	

Aristida contorta	.2	<1
Aristida obscura	.3	<1
Cheilanthes sieberi subsp. *sieberi*	.3	<1
Dodonaea petiolaris	1	<1
Duperreya commixta	.2	<1
Enneapogon polyphyllus	.2	<1
Eriachne helmsii	.3	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Eucalyptus leucophloia subsp. *leucophloia*	8	1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Grevillea berryana	.4	<1
Hibiscus burtonii	.2	<1
Maireana tomentosa subsp. *tomentosa*	.3	<1
Paspalidium clementii	.1	<1
Petalostylis labicheoides	1.5	2
Polygala glaucifolia	.02	<1
Psydrax latifolia	.4	<1
Psydrax suaveolens	1.5	<1
Triodia epactia	.3	<1
Triodia epactia	0.4	<1
Triodia longiceps	.3	<1

B149

Staff KCP **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 713172 **mE** 7542335 **mN** **Lat.** -22.2113 **Long.** 119.0680

Habitat Mid-Slope

Aspect SW **Slope** Gentle

Soil Type Orange loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia arida*\^shrub\3\i;G+ ^,^*Corchorus lasiocarpus* subsp. *lasiocarpus*,*Triodia vanleeuwenii*\^,shrub,hummock grass\1\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		.3	<1	
Acacia arida		0.5	35	
Acacia maitlandii		.4	<1	
Acacia marramamba		.8	<1	
Afrohybanthus aurantiacus		.4	<1	

Corchorus lasiocarpus subsp. *lasiocarpus*	.45	15
Eriachne pulchella subsp. *dominii*	.1	<1
Fimbristylis simulans	.1	<1
Goodenia triodiophila	.2	<1
Grevillea wickhamii	1	<1
Hakea chordophylla	.5	<1
Hibiscus sturtii var. *campylochlamys*	.1	<1
Indigofera monophylla	.35	1
Ptilotus calostachyus	.6	<1
Ptilotus fusiformis	.25	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna glutinosa subsp. *pruinosa*	1	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.3	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	<1
Solanum lasiophyllum	.3	<1
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)	.2	<1
Triodia epactia	.3	<1
Triodia vanleeuwenii	.3	10

B153

Staff LC **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708751 **mE** 7533319 **mN** **Lat.** -22.2932 **Long.** 119.0263

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** <1 % cover ; <10 cm in depth

Bare ground 60 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;G ^*Enneapogon polyphyllus*,^*Enneapogon caerulescens*\^tussock grass\2\i

Veg. Condition Very Good

Disturbance Light trampling, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.1	<1	
Abutilon lepidum		0.2	<1	
Acacia aptaneura		8	20	
Acacia tetragonophylla		2	<1	
Aristida contorta		0.2	<1	

**Bidens subalternans*	0.2	<1
Boerhavia repleta	0.05	<1
Chloris pectinata	0.2	<1
Chrysopogon fallax	0.5	<1
Chrysopogon fallax	0.4	<1
Convolvulus clementii	0.1	<1
Dichanthium sericeum subsp. *humilius*	0.1	<1
Enneapogon caerulescens	0.15	5
Enneapogon polyphyllus	0.2	5
Eriachne pulchella subsp. *dominii*	0.05	<1
Euphorbia australis var. *hispidula*	0.1	<1
Euphorbia biconvexa	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.1	<1
Goodenia muelleriana	0.1	<1
Hibiscus sturtii var. *grandiflorus*	0.2	<1
Ipomoea muelleri	0.05	<1
**Malvastrum americanum*	0.2	<1
Perotis rara	0.1	<1
Phyllanthus maderaspatensis	0.15	<1
Psydrax latifolia	0.7	<1
Ptilotus exaltatus	0.1	<1
Sporobolus australasicus	0.1	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	<1
Urochloa occidentalis var. *occidentalis*	0.2	<1

B154

Staff LC **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 709261 **mE** 7532682 **mN** **Lat.** -22.2989 **Long.** 119.0313

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Rocky red clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 2 % cover ; <10 cm in depth

Bare ground 50 % cover **Weeds** 1.5 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\7\r;M ^*Eremophila forrestii* subsp. *forrestii*,^*Senna* sp.\^shrub\3\r;G ^*Enneapogon caerulescens*,^*Aristida contorta*\^tussock grass\1\r

Veg. Condition Very Good

Disturbance Cattle

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum			<1	
Abutilon lepidum			<1	
Abutilon otocarpum		0.3	<1	
Acacia aptaneura		10	8	
Acacia synchronicia			<1	

Alysicarpus muelleri		<1
Aristida contorta	0.3	1.5
**Bidens subalternans*		<1
Boerhavia coccinea	0.05	<1
Chrysopogon fallax		<1
Convolvulus clementii	0.05	<1
Dichanthium sericeum subsp. *humilius*		<1
Enneapogon caerulescens	0.4	1
Enneapogon polyphyllus	0.2	<1
Eragrostis eriopoda	0.2	<1
Eremophila forrestii subsp. *forrestii*		<1
Eremophila forrestii subsp. *forrestii*	1	2
Eremophila longifolia		<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Euphorbia australis var. *subtomentosa*		<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.1	<1
Goodenia muelleriana		<1
Goodenia prostrata	0.05	<1
Heliotropium cunninghamii		<1
Iseilema macratherum		<1
**Malvastrum americanum*		<1
**Malvastrum americanum*		<1
Perotis rara	0.1	<1
Phyllanthus maderaspatensis	0.15	<1
Psydrax latifolia	1	<1
Ptilotus exaltatus	0.1	<1
Ptilotus obovatus	0.2	<1
Rhynchosia minima	0.05	<1
Sclerolaena cornishiana		<1
Senna artemisioides subsp. *helmsii*		<1
Senna artemisioides subsp. *oligophylla*	0.7	<1
Senna sp.	0.7	2
Sida spinosa		<1
Sporobolus australasicus	20	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)		<1
Tragus australianus		<1
Triodia brizoides		<1

Urochloa occidentalis var. *occidentalis*	<1

B155

Staff LC **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708385 **mE** 7531492 **mN** **Lat.** -22.3097 **Long.** 119.0230

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay sand

Rock Type Ironstone

Loose Rock 20-50 % cover; 2-6 mm in size **Litter** 5 % cover ; <10 cm in depth

Bare ground 40 % cover **Weeds** 1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Corymbia deserticola* subsp. *deserticola*\^tree\7\c;G ^*Urochloa occidentalis* var. *occidentalis*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance Minor trampling, weeds

Fire Age >5 years

Notes Sinkholes present

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Acacia aptaneura		11	30	
Amaranthus cuspidifolius		0.25	<1	
Aristida holathera var. *holathera*		0.2	<1	
**Bidens subalternans*		0.3	<1	

**Cenchrus ciliaris*	0.5	<1
**Cenchrus ciliaris*	0.3	<1
Chloris pectinata	0.3	<1
Chrysopogon fallax	0.6	<1
Commelina ensifolia	0.3	<1
Corymbia deserticola subsp. *deserticola*	15	3
Crotalaria medicaginea var. *neglecta*	0.1	<1
Cucumis variabilis	0.8	<1
Eremophila latrobei subsp. *filiformis*	0.5	<1
Euphorbia biconvexa	0.2	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
**Malvastrum americanum*	0.3	<1
Marsilea exarata	0.1	<1
Perotis rara	0.1	<1
Portulaca oleracea	0.05	<1
Psydrax latifolia	0.6	<1
Ptilotus obovatus	0.4	<1
Rhagodia eremaea	0.7	<1
Rostellularia adscendens var. *clementii*	0.4	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1.2	<1
Sesbania cannabina	0.1	<1
**Setaria verticillata*	0.2	<1
Sporobolus australasicus	0.15	<1
Urochloa occidentalis var. *occidentalis*	0.15	4

B157

Staff LC **Date** 7/05/2021 **Season**

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707707 **mE** 7529065 **mN** **Lat.** -22.3317 **Long.** 119.0167

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Rocky red clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 1 % cover ; <1 cm in depth

Bare ground 35 % cover **Weeds** 5 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;M ^*Eremophila cuneifolia*,^*Senna artemisioides* subsp. *oligophylla* x *helmsii*\^shrub\3\i;G ^*Enneapogon polyphyllus*,^*Triodia brizoides*\^tussock grass,hummock grass\1\c

Veg. Condition Very Good

Disturbance Minor trampling, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Abutilon lepidum		0.5	<1	
Abutilon oxycarpum subsp. Prostrate (A.A. Mitchell PRP 1266)		0.4	<1	
Acacia aptaneura		3.5	30	

Acacia bivenosa	0.4	<1
Acacia sp.	3	2
Acacia tetragonophylla	2	<1
Acacia xiphophylla	2	<1
Boerhavia coccinea	0.05	<1
**Cenchrus ciliaris*	0.3	5
Cheilanthes sieberi subsp. *sieberi*	0.3	<1
Dactyloctenium radulans	0.1	<1
Enneapogon polyphyllus	0.2	30
Enneapogon polyphyllus	0.2	<1
Enneapogon robustissimus	0.2	<1
Eremophila cuneifolia	1	5
Eremophila forrestii subsp. *forrestii*	1.4	<1
Euphorbia australis var. *hispidula*	0.05	<1
Euphorbia biconvexa	0.05	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Glycine canescens	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Goodenia prostrata	0.05	<1
Gossypium australe	0.5	<1
Hakea lorea subsp. *lorea*	2	<1
Hibiscus sturtii var. *platychlamys*	0.3	<1
Maireana planifolia	0.05	<1
Maireana triptera	0.1	<1
Portulaca oleracea	0.05	<1
Ptilotus exaltatus	0.3	<1
Ptilotus helipteroides	0.05	<1
Ptilotus obovatus	0.3	<1
Rhagodia eremaea	0.5	<1
Scaevola spinescens	0.3	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1	5
Senna glutinosa subsp. *pruinosa*	0.7	<1
Senna notabilis	0.2	<1
Solanum lasiophyllum	0.4	<1
Sporobolus australasicus	0.1	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.15	<1
Tragus australianus	0.15	<1
Triodia brizoides	0.2	5

B159

Staff SOK **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707650 **mE** 7527101 **mN** **Lat.** -22.3495 **Long.** 119.0164

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 30 % cover **Weeds** 0 % cover

Vegetation M ^*Tecticornia auriculata*\^samphire shrub \3\r;G+ ^*Tecticornia indica* subsp. *leiostachya*, ^*Eragrostis pergracilis*\^samphire shrub,tussock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Aeschynomene indica		0.5	<1	
Alternanthera nodiflora		0.3	<1	
Cullen cinereum		30	<1	
Eragrostis pergracilis		0.3	40	
Eremophila spongiocarpa	P 3	0.2	<1	1

Frankenia ambita	0.4	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Marsilea hirsuta	0.1	<1
Nicotiana heterantha	0.2	<1
Swainsona kingii	0.1	<1
Tecticornia auriculata	<0.5	10
Tecticornia indica subsp. *leiostachya*	0.5	25

B160

Staff SOK **Date** 20/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707354 **mE** 7526729 **mN** **Lat.** -22.3529 **Long.** 119.0136

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red clay loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** <1 % cover

Vegetation G+ ^*Tecticornia indica* subsp. *leiostachya*,^*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)\^samphire shrub\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Arivela viscosa		0.4	<1	
Enneapogon caerulescens		0.3	<1	
Eragrostis pergracilis		0.2	5	
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P 3	0.3	<1	
**Flaveria trinervia*		0.3	<1	

Lawrencia densiflora	0.4	<1	
Nicotiana heterantha	0.3	<1	
Ptilotus exaltatus	0.4	<1	
Sclerolaena cuneata	0.2	<1	
Swainsona kingii	0.3	<1	
Tecticornia auriculata	0.6	<1	
Tecticornia indica subsp. *leiostachya*	0.5	15	
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1963)	0.5	<1	5
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	0.4	10	

B161

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707134 **mE** 7526302 **mN** **Lat.** -22.3567 **Long.** 119.0115

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 3 % cover ; 0-1 cm in depth

Bare ground 50 % cover **Weeds** <1 % cover

Vegetation G+ ^^*Tecticornia indica* subsp. *leiostachya*,*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552),*Eragrostis pergracilis*\^samphire shrub,tussock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
**Cenchrus ciliaris*		0.3	<1	
**Cenchrus setiger*		0.4	<1	
Cullen cinereum		0.2	<1	
Dactyloctenium radulans		0.2	<1	
Eragrostis pergracilis		0.3	10	

**Flaveria trinervia*	0.3	<1
Lawrencia densiflora	0.3	<1
Maireana luehmannii	0.3	<1
Nicotiana heterantha	0.3	<1
Sida fibulifera	0.3	<1
Swainsona kingii		<1
Tecticornia auriculata	0.8	<1
Tecticornia indica subsp. *leiostachya*	0.5	15
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1963)	0.5	<1
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	0.5	10

B162

Staff KCP **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location Near fridge of marsh

MGA Zone 50 706869 **mE** 7528002 **mN** **Lat.** -22.3414 **Long.** 119.0087

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 15 % cover ; 1 cm in depth

Bare ground 20 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia stenophylla*\^shrub\3\c;G ^^*Tecticornia indica* subsp. *leiostachya*,*Eragrostis pergracilis*,*Frankenia ambita*\^samphire shrub ,tussock grass,shrub\1\c

Veg. Condition Very Good

Disturbance Old vehicle track, cow tracks

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia stenophylla		2	35	
Aeschynomene indica		.5	<1	
Atriplex bunburyana		.6	<1	
Diplachne fusca subsp. *fusca*		.3	<1	
**Echinochloa colona*		.1	<1	

Eragrostis pergracilis	.2	20
Eragrostis setifolia	.4	<1
Frankenia ambita	.5	1
Ipomoea coptica	.2	<1
Marsilea hirsuta	.02	<1
Neptunia dimorphantha	.1	<1
Paspalidium jubiflorum	0.5	12
Scaevola spinescens	.5	<1
Sida fibulifera	.1	<1
Sporobolus australasicus	.1	<1
Tecticornia auriculata	0.9	1
Tecticornia indica subsp. *leiostachya*	.5	10

B163

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707517 **mE** 7525838 **mN** **Lat.** -22.3609 **Long.** 119.0153

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 90 % cover **Weeds** 0 % cover

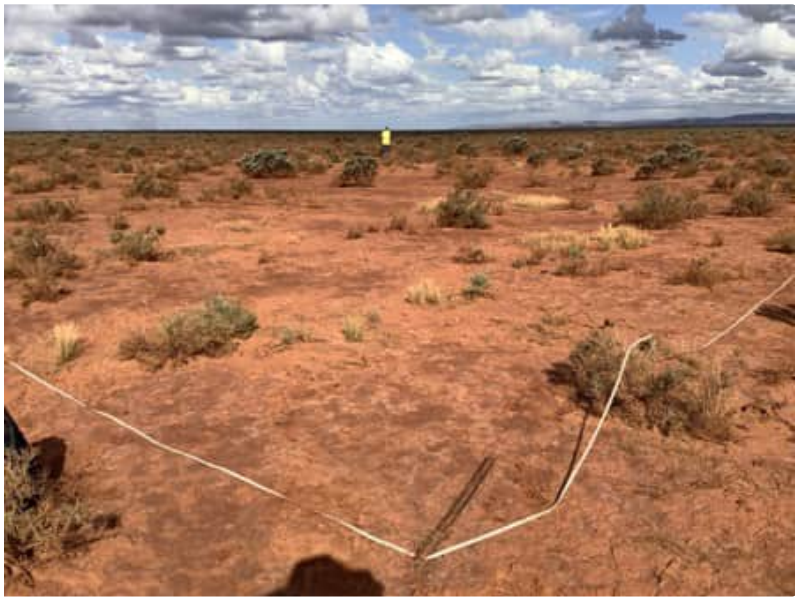
Vegetation G+ ^*Tecticornia indica* subsp. *leiostachya*,^*Tecticornia auriculata*\^samphire shrub\2\r

Veg. Condition Excellent

Disturbance Grazing

Fire Age >10 years

Notes



Species	WA Cons.	Height (m)	Cover (%)	Count
Eragrostis pergracilis		0.3	1	
Eragrostis pergracilis		0.2	<1	
Maireana luehmannii		0.3	<1	
Salsola australis		0.3	<1	
Swainsona kingii		0.1	<1	
Tecticornia auriculata		0.6	2	

Tecticornia indica subsp. *leiostachya*	0.5	6

B164

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706695 **mE** 7525801 **mN** **Lat.** -22.3613 **Long.** 119.0073

Habitat Flat

Aspect E **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Quartz

Loose Rock 2-10 % cover; 20-60 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 65 % cover **Weeds** 0 % cover

Vegetation M ^*Melaleuca glomerata*\^shrub\3\bi;G+ ^*Triodia longiceps*,^*Paraneurachne muelleri*\^hummock grass,tussock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia bivenosa		0.5	<1	
Acacia sclerosperma subsp. *sclerosperma*		0.6	<1	
Afrohybanthus aurantiacus		0.4	<1	
Aristida inaequiglumis		0.6	<1	
Arivela viscosa		0.4	<1	

Corchorus sidoides subsp. *sidoides*	0.5	<1
Eragrostis eriopoda	0.4	<1
Eulalia aurea	0.5	<1
Goodenia microptera	0.4	<1
Hakea lorea subsp. *lorea*	1	<1
Hibiscus sturtii var. *grandiflorus*	0.3	<1
Hibiscus sturtii var. *platychlamys*	0.5	<1
Indigofera monophylla	0.3	<1
Melaleuca glomerata	1.5	1
Paraneurachne muelleri	0.5	5
Pluchea ferdinandi-muelleri	0.5	<1
Pluchea tetranthera	0.5	<1
Portulaca oleracea	0.1	<1
Ptilotus astrolasius	0.4	<1
Ptilotus exaltatus	0.3	<1
Senna artemisioides subsp. *oligophylla*	0.6	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Sida arsiniata	0.5	<1
Sida echinocarpa	0.9	<1
Solanum lasiophyllum	0.4	<1
Sporobolus australasicus	0.3	<1
Streptoglossa decurrens	0.5	<1
Trianthema triquetrum	0.1	<1
Trianthema turgidifolium	0.2	<1
Triodia longiceps	0.5	25

B165

Staff SOK **Date** 20/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location Fortescue Marsh

MGA Zone 50 706914 **mE** 7525485 **mN** **Lat.** -22.3642 **Long.** 119.0095

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 60 % cover **Weeds** <1 % cover

Vegetation G+ ^*Tecticornia indica* subsp. *leiostachya*,^*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)\^samphire shrub\1\c

Veg. Condition Excellent

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Angianthus cyathifer		0.3	<1	
Dactyloctenium radulans		0.3	<1	
Dysphania sphaerosperma		0.2	<1	
Eragrostis pergracilis		0.3	<1	
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P 3	0.3	<1	

Eremophea spinosa		0.3	<1	
Eremophila spongiocarpa	P 3	1	<1	10
**Flaveria trinervia*		0.3	<1	
Lawrencia densiflora		0.4	<1	
Lawrencia helmsii		0.4	<1	
Maireana luehmannii		0.4	4	
Nicotiana heterantha		0.4	<1	
Ptilotus exaltatus		0.4	<1	
Swainsona kingii		0.3	<1	
Swainsona thompsoniana	P 3	0.1	<1	
Tecticornia auriculata		0.8	<1	
Tecticornia indica subsp. *leiostachya*		0.4	20	
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)		0.4	20	

B166

Staff SOK **Date** 21/07/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706383 **mE** 7524480 **mN** **Lat.** -22.3733 **Long.** 119.0044

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Calcrete

Loose Rock <2 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 60 % cover **Weeds** <1 % cover

Vegetation G+ ^*Eragrostis falcata*\^tussock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
**Cenchrus ciliaris*		0.3	<1	
Cullen cinereum		0.2	<1	
Dactyloctenium radulans		0.3	<1	
Enneapogon caerulescens		0.1	<1	
Enneapogon polyphyllus		0.3	<1	
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P 3	0.3	40	

Eremophila spongiocarpa	P 3	0.3	<1	1
**Flaveria trinervia*		0.3	<1	
Lawrencia densiflora		0.4	<1	
Maireana luehmannii		0.3	<1	
Ptilotus exaltatus		0.2	<1	
Salsola australis		0.3	<1	
Senna artemisioides subsp. *oligophylla* x *helmsii*		0.4	<1	
Sida fibulifera		0.3	<1	
Solanum elatius		0.5	<1	
Streptoglossa decurrens		0.5	<1	
Triodia longiceps		0.4	<1	

B167

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706272 **mE** 7523536 **mN** **Lat.** -22.3818 **Long.** 119.0035

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Light red brown loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 50 % cover **Weeds** <1 % cover

Vegetation G+ ^^*Eragrostis pergracilis*,*Frankenia ambita*,*Tecticornia indica* subsp. *leiostachya*\^tussock grass,shrub,samphire shrub\1\c

Veg. Condition Very Good

Disturbance Minimal

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Alysicarpus muelleri		0.3	<1	
Atriplex flabelliformis	P 3	0.3	<1	15
**Cenchrus ciliaris*		0.4	<1	
Chloris pumilio		0.3	<1	

Cullen cinereum		0.3	<1	
Dactyloctenium radulans		0.3	<1	
Duma florulenta		0.5	<1	
Einadia nutans subsp. *eremaea*		0.5	<1	
Eragrostis pergracilis		0.3	40	
Eremophila spongiocarpa	P 3	0.6	<1	1
**Flaveria trinervia*		0.4	<1	
Frankenia ambita		0.4	<1	
Gomphrena affinis subsp. *pilbarensis*		0.2	<1	
Indigofera linifolia		0.2	<1	
Nicotiana heterantha		0.3	<1	
Paspalidium jubiflorum		0.3	<1	
Pterocaulon sphacelatum		0.3	<1	
Ptilotus exaltatus		0.3	<1	
Ptilotus gomphrenoides		0.2	<1	
Salsola australis		0.4	<1	
Sida fibulifera		0.3	<1	
Streptoglossa decurrens		0.4	<1	
Tecticornia indica subsp. *leiostachya*		0.5	1	
Tephrosia supina		0.2	<1	
Trianthema triquetrum		0.1	<1	

B168

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 705640 **mE** 7523402 **mN** **Lat.** -22.3831 **Long.** 118.9974

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Quartz

Loose Rock 10-20 % cover; 20-60 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 65 % cover **Weeds** 0 % cover

Vegetation M+ ^*Melaleuca glomerata*,^*Stylobasium spathulatum*\^shrub\3\r;G ^*Triodia longiceps*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.4	<1	
Arivela viscosa		0.3	<1	
Boerhavia coccinea		0.1	<1	
Corchorus sidoides subsp. *sidoides*		0.4	<1	
Cynodon prostratus		0.1	<1	

Enneapogon polyphyllus	0.3	<1
Enneapogon polyphyllus	0.3	<1
Eragrostis dielsii	0.1	<1
Eragrostis eriopoda	0.4	<1
Melaleuca glomerata	0.8	2
Portulaca oleracea	0.1	<1
Ptilotus astrolasius	0.4	<1
Sida fibulifera	0.4	<1
Sporobolus australasicus	0.3	<1
Stylobasium spathulatum	0.6	1
Tephrosia supina	0.3	<1
Trianthema triquetrum	0.1	<1
Triodia longiceps	0.4	35

B174

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 718483 **mE** 7508903 **mN** **Lat.** -22.5124 **Long.** 119.1240

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 2-10 % cover; 6-20 mm in size **Litter** 10 % cover ; 0-2 cm in depth

Bare ground 75 % cover **Weeds** 5 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia aneura*\^tree\6\i;M ^^,*Senna artemisioides* subsp. *helmsii*, *Dodonaea petiolaris*\^,shrub\3\r;G ^*Cenchrus ciliaris*,^*Triodia basedowii*\^tussock grass,hummock grass\1\i

Veg. Condition Poor

Disturbance Weeds, grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Abutilon lepidum		0.5	<1	
Acacia ancistrocarpa		2.5	<1	
Acacia aneura		5	5	

Acacia aptaneura	5	15
Acacia pruinocarpa	2	<1
Acacia tenuissima	2	<1
Aristida contorta	0.3	<1
Aristida inaequiglumis	0.8	<1
Arivela viscosa	0.5	<1
Boerhavia coccinea	0.1	<1
**Cenchrus ciliaris*	0.5	10
Corchorus sidoides subsp. *sidoides*	0.4	<1
Corymbia deserticola subsp. *deserticola*	5	<1
Digitaria brownii	0.5	<1
Dodonaea petiolaris	1	<1
Duperreya commixta	0.8	<1
Enneapogon polyphyllus	0.3	2
Eremophila forrestii subsp. *forrestii*	1.2	1
Eriachne helmsii	0.5	<1
Eulalia aurea	0.5	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Glycine canescens	0.5	<1
Hibiscus burtonii	0.5	<1
Hibiscus sturtii var. *platychlamys*	0.5	<1
Indigofera monophylla	0.5	<1
Maireana planifolia	0.5	<1
Maireana villosa	0.5	<1
Portulaca oleracea	0.1	<1
Psydrax latifolia	1	<1
Ptilotus obovatus	0.5	<1
Senna artemisioides subsp. *helmsii*	0.8	<1
Senna artemisioides subsp. *oligophylla*	2	<1
Senna glaucifolia	1.8	<1
Senna glutinosa subsp. x *luerssenii*	2	<1
Sida sp. L (A.M. Ashby 4202)	0.2	<1
Solanum lasiophyllum	0.4	<1
Trichodesma zeylanicum var. *zeylanicum*	0.5	<1
Triodia basedowii	0.5	7

B176

Staff SOK **Date** 4/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 719435 **mE** 7508392 **mN** **Lat.** -22.5169 **Long.** 119.1333

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 40 % cover **Weeds** 60 % cover

Vegetation M+ ^*Acacia aneura*,^*Acacia ancistrocarpa*\^shrub\4\r;G ^*Cenchrus ciliaris*,^*Triodia basedowii*\^tussock grass,hummock grass\2\c

Veg. Condition Degraded

Disturbance Weeds, grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.3	<1	
Acacia adsurgens		1.5	<1	
Acacia ancistrocarpa		2	1	
Acacia aneura		4	1	
Acacia aptaneura		2	<1	

Acacia pachyacra	2.5	<1
Acacia pruinocarpa	2	<1
Acacia synchronicia	0.6	<1
Acacia tenuissima	1.5	<1
Acacia tumida var. *pilbarensis*	1.8	<1
Aristida holathera var. *holathera*	0.4	<1
Aristida inaequiglumis	0.7	<1
Boerhavia coccinea	0.3	<1
**Cenchrus ciliaris*	0.6	60
Corchorus sidoides subsp. *sidoides*	0.3	<1
Cullen leucochaites	1.6	<1
Eremophila forrestii	0.6	<1
Eremophila longifolia	1.5	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Gossypium australe	0.5	<1
Gossypium robinsonii	1	1
Hakea lorea subsp. *lorea*	3	1
Hibiscus sturtii var. *platychlamys*	0.5	<1
Ptilotus obovatus	0.5	<1
Senna artemisioides subsp. *helmsii*	0.7	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Sida sp. L (A.M. Ashby 4202)	0.4	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.9	<1
Solanum lasiophyllum	0.3	<1
Trichodesma zeylanicum var. *zeylanicum*	0.8	<1
Triodia basedowii	0.5	10

B180

Staff SOK **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 716206 **mE** 7545055 **mN** **Lat.** -22.1863 **Long.** 119.0970

Habitat Lower-Slope

Aspect SE **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\r;M+ ^^*Acacia ancistrocarpa*,*Acacia aptaneura*,*Acacia bivenosa*\^shrub\3\i;G ^*Triodia epactia*,^*Triodia vanleeuwenii*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Partly burnt quadrat

Fire Age <1 year

Notes Quadrat is variable, mixture of vegetation

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		2.5	2	
Acacia aptaneura		2.5	2	
Acacia arida		1	<1	
Acacia bivenosa		2	2	

Acacia tetragonophylla	2.5	<1
Acacia xiphophylla	4	<1
Bonamia erecta	0.4	<1
Corchorus lasiocarpus	0.9	<1
Cynodon prostratus	0.1	<1
Eremophila cuneifolia	0.5	<1
Eremophila forrestii subsp. *forrestii*	1.5	<1
Eriachne mucronata	0.4	<1
Eriachne mucronata	0.4	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Eucalyptus leucophloia subsp. *leucophloia*	7	2
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Maireana planifolia	0.4	<1
Paraneurachne muelleri	0.5	<1
Pluchea dentex	0.4	<1
Ptilotus exaltatus	0.4	<1
Ptilotus obovatus	0.5	<1
Sclerolaena cornishiana	0.3	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla*	0.9	<1
Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Senna notabilis	0.1	<1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.5	<1
Triodia epactia	0.5	5
Triodia vanleeuwenii	0.5	3

B185

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 722080 **mE** 7507351 **mN** **Lat.** -22.5260 **Long.** 119.1592

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 2-6 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

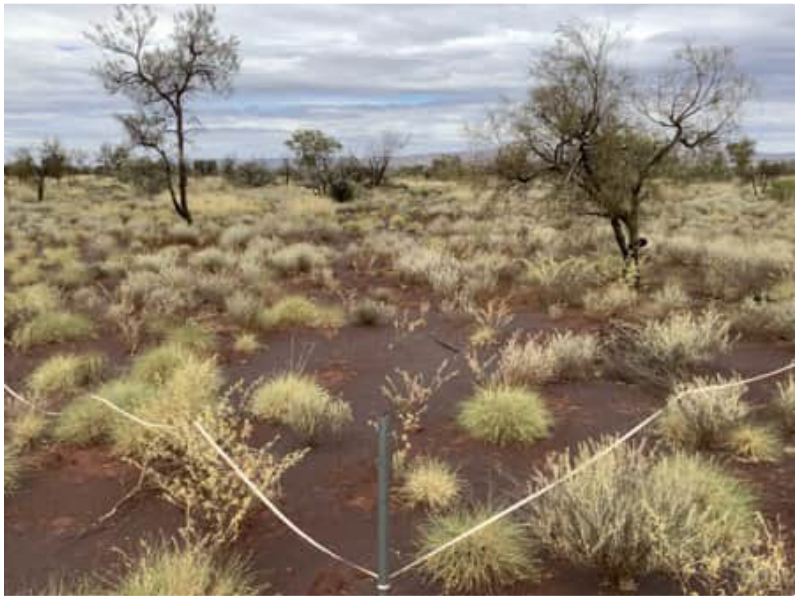
Vegetation U ^*Corymbia hamersleyana*,^*Eucalyptus gamophylla*\^tree,tree mallee\6\r;M+ ^^*Acacia sericophylla*,*Acacia inaequilatera*,*Acacia ancistrocarpa*\^shrub\3\bi;G ^*Triodia basedowii*, ^*Bonamia erecta*\^hummock grass,shrub\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age 2-5 years

Notes



Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adsurgens		1.5	<1	
Acacia ancistrocarpa		1.5	<1	
Acacia inaequilatera		2	<1	
Acacia sericophylla		2.5	1	

Anthobolus leptomerioides	0.9	<1
Aristida holathera var. *holathera*	0.4	<1
Aristida inaequiglumis	0.8	<1
Bonamia erecta	0.5	10
Codonocarpus cotinifolius	1	<1
Corchorus sidoides subsp. *sidoides*	0.4	<1
Corymbia hamersleyana	5	2
Cullen leucochaites	1	<1
Dodonaea coriacea	0.5	<1
Eucalyptus gamophylla	4	2
Hakea lorea subsp. *lorea*	3	<1
Hibiscus brachychlaenus	1	<1
Indigofera monophylla	0.5	<1
Ptilotus exaltatus	0.3	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Sida cardiophylla	0.5	<1
Triodia basedowii	0.5	10

C009

Staff LC **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 730247 **mE** 7501776 **mN** **Lat.** -22.5752 **Long.** 119.2394

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; <1 cm in depth

Bare ground 15 % cover **Weeds**

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;M ^*Acacia synchronicia*\^shrub\3\r;G ^^*Cenchrus ciliaris*,*Cenchrus setiger*,*Aristida contorta*\^tussock grass\1\c

Veg. Condition Good

Disturbance Cattle

Fire Age 2-5 years

Notes A lot of dead acacia

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.2	<1	
Acacia aptaneura		3	12	
Acacia synchronicia		2	3	
Aristida contorta		0.4	5	
Atalaya hemiglauca		0.5	<1	

Boerhavia burbidgeana		0.1	<1
Boerhavia repleta		0.1	<1
**Cenchrus ciliaris*		0.2	20
**Cenchrus setiger*		0.3	20
Corchorus sp.		0.3	<1
Corchorus sp.		0.3	<1
Cucumis variabilis		0.1	<1
Cullen leucanthum		0.3	<1
Cullen leucochaites		0.3	<1
Eulalia aurea		0.5	<1
Euphorbia inappendiculata var. *queenslandica*	P 2	0.2	<1
Gomphrena affinis subsp. *pilbarensis*		0.2	<1
Gossypium australe		1	<1
Ipomoea muelleri		0.1	<1
**Malvastrum americanum*		0.3	<1
Ptilotus exaltatus		0.1	<1
Rhynchosia minima		0.1	<1
Salsola australis		0.3	<1
Sclerolaena cornishiana		0.3	<1
Senna artemisioides subsp. *oligophylla*		0.3	<1
Senna notabilis		0.3	<1
Solanum cleistogamum		0.2	<1
Streptoglossa decurrens		0.5	<1
**Vachellia farnesiana*		0.5	<1

C013

Staff LC **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 733458 **mE** 7499503 **mN** **Lat.** -22.5953 **Long.** 119.2709

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; <1 cm in depth

Bare ground 15 % cover **Weeds** 50 % cover

Vegetation U+ ^,^*Acacia aptaneura*,*Acacia citrinoviridis*\^,tree\6\c;M ^*Acacia synchronicia*\^shrub\3\bi;G ^*Cenchrus setiger*,^*Cenchrus ciliaris*\^tussock grass\1\c

Veg. Condition Good

Disturbance Cow tracks, track close by

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.6	<1	
Acacia aptaneura		8	40	
Acacia citrinoviridis		8	2	
Acacia synchronicia		10	1	
Alysicarpus muelleri		0.3	<1	

Alysicarpus muelleri	0.4	<1
Blumea tenella	0.15	<1
**Cenchrus ciliaris*	0.3	15
**Cenchrus setiger*	0.3	35
Chrysopogon fallax	0.5	<1
Corchorus sp.	0.3	<1
Corchorus tridens	0.2	<1
Cucumis variabilis	0.1	<1
Cullen leucochaites	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Goodenia prostrata	0.2	<1
Hibiscus sturtii var. *campylochlamys*	0.15	<1
Ipomoea muelleri	0.1	<1
**Malvastrum americanum*	0.2	<1
Phyllanthus maderaspatensis	0.4	<1
Pterocaulon sphacelatum	0.2	<1
Senna artemisioides	0.6	<1
Senna notabilis	0.4	<1
Solanum lasiophyllum	0.3	<1
Streptoglossa decurrens	0.2	<1
**Vachellia farnesiana*	0.2	<1

C014

Staff SOK **Date** 22/07/2021 **Season** A

Revisit

Type Q 80 m x 30 m

Location

MGA Zone 50 726793 **mE** 7505843 **mN** **Lat.** -22.5390 **Long.** 119.2052

Habitat Dunes

Aspect S **Slope** Very Gentle

Soil Type Red sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; 0-2 cm in depth

Bare ground 65 % cover **Weeds** 2 % cover

Vegetation M ^*Acacia dictyophleba*\^shrub\4\r;G+ ^*Triodia schinzii*,^*Triodia basedowii*\^hummock grass\2\c

Veg. Condition Good

Disturbance Grazing, weeds

Fire Age

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia dictyophleba		2.5	5	
Aristida holathera var. *holathera*		0.4	<1	
Bonamia erecta		0.3	<1	
**Cenchrus ciliaris*		0.3	2	
Corchorus aff. *tectus*		0.5	<1	
Crotalaria cunninghamii		1	1	

Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.4	<1
Eriachne gardneri	0.5	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hakea lorea subsp. *lorea*	3	<1
Hibiscus brachychlaenus	1	<1
Indigofera monophylla	0.4	<1
Ptilotus obovatus	0.5	<1
Ptilotus polystachyus	0.5	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Senna artemisioides subsp. *helmsii*	0.8	<1
Senna notabilis	0.4	<1
Sida cardiophylla	0.5	<1
Stylobasium spathulatum	0.9	<1
Trianthema pilosum	0.1	<1
Tribulus macrocarpus	0.2	<1
Trichodesma zeylanicum var. *grandiflorum*	1.5	<1
Triodia basedowii	0.5	5
Triodia schinzii	0.5	<1
Yakirra australiensis var. *australiensis*	0.2	<1

C072

Staff SOK **Date** 22/07/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725954 **mE** 7506402 **mN** **Lat.** -22.5340 **Long.** 119.1970

Habitat Dunes

Aspect N **Slope** Gentle

Soil Type Red brown sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 65 % cover **Weeds** 1 % cover

Vegetation M ^*Acacia dictyophleba*,^*Stylobasium spathulatum*\^shrub\3\r;G+ ^*Triodia schinzii*\^hummock grass\2\c

Veg. Condition Good

Disturbance Grazing, weeds

Fire Age >5 years

Notes Fortescue Valley Sand Dunes PEC

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia dictyophleba		3	2	
Acacia sclerosperma subsp. *sclerosperma*		2	<1	
Aristida holathera var. *holathera*		0.4	<1	
Bonamia erecta		0.3	<1	
**Cenchrus ciliaris*		0.4	1	

Corchorus aff. *tectus*	0.5	<1
Crotalaria cunninghamii	1.5	1
Duperreya commixta	1	<1
Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.4	<1
Eriachne gardneri	0.5	<1
Hakea lorea subsp. *lorea*	3	<1
Hibiscus brachychlaenus	1	<1
Indigofera monophylla	0.4	<1
Paraneurachne muelleri	0.4	<1
Ptilotus polystachyus	0.4	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Senna notabilis	0.4	<1
Sida cardiophylla	0.5	<1
Stylobasium spathulatum	0.8	2
Trianthema pilosum	0.1	<1
Trichodesma zeylanicum var. *grandiflorum*	1.5	<1
Triodia basedowii	0.5	1
Triodia schinzii	0.6	35
Yakirra australiensis var. *australiensis*	0.1	<1

C073

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725713 **mE** 7506295 **mN** **Lat.** -22.5350 **Long.** 119.1946

Habitat Dunes

Aspect N/A **Slope** Gentle

Soil Type Red sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 65 % cover **Weeds** 1 % cover

Vegetation M+ ^*Acacia dictyophleba*,^*Stylobasium spathulatum*\^shrub\4\r;G ^*Triodia basedowii*\^hummock grass\2\i

Veg. Condition Very Good

Disturbance Grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia dictyophleba		4	7	
Acacia sclerosperma subsp. *sclerosperma*		1.5	<1	
Aristida holathera var. *holathera*		0.4	<1	
Bonamia erecta		0.3	<1	
**Cenchrus ciliaris*		0.4	1	

Corchorus aff. *tectus*	0.5	2
Crotalaria cunninghamii	1.5	<1
Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.3	<1
Eriachne gardneri	0.4	<1
Hakea lorea subsp. *lorea*	4	1
Hibiscus brachychlaenus	1	<1
Indigofera monophylla	0.5	<1
Petalostylis cassioides	0.3	<1
Scaevola parvifolia subsp. *pilbarae*	0.4	<1
Senna notabilis	0.3	<1
Sida cardiophylla	0.4	<1
Stylobasium spathulatum	2	2
Trianthema pilosum	0.2	<1
Trichodesma zeylanicum var. *grandiflorum*	1	<1
Triodia basedowii	0.5	25
Triodia schinzii	1	<1
Yakirra australiensis var. *australiensis*	0.3	<1

C075

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 726024 **mE** 7506211 **mN** **Lat.** -22.5357 **Long.** 119.1977

Habitat Dune swale

Aspect N/A **Slope** N/A

Soil Type Red sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 40 % cover **Weeds** 5 % cover

Vegetation M+ ^*Acacia sclerosperma* subsp. *sclerosperma*,^*Acacia synchronicia*\^shrub\4\i;G ^*Triodia basedowii*,^*Cenchrus ciliaris*\^hummock grass,tussock grass\1\c

Veg. Condition Good

Disturbance Weeds, grazing

Fire Age >10 years

Notes Quadrat appears to be a bit of an intergrade

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Acacia aptaneura		2.5	2	
Acacia inaequilatera		2.5	1	
Acacia pachyacra		2.5	<1	
Acacia sclerosperma subsp. *sclerosperma*		2.5	6	

Acacia synchronicia	1.5	3
Aristida holathera var. *holathera*	0.4	<1
Arivela viscosa	0.4	<1
Atalaya hemiglauca	4	<1
Boerhavia coccinea	0.1	<1
Bonamia erecta	0.3	<1
**Cenchrus ciliaris*	0.5	10
Chrysopogon fallax	1	<1
Corchorus aff. *tectus*	0.4	<1
Corymbia hamersleyana	8	1
Enchylaena tomentosa	0.3	<1
Eragrostis eriopoda	0.4	<1
Eremophila forrestii	0.8	<1
Eremophila lanceolata	0.5	<1
Eulalia aurea	0.6	<1
Hibiscus sturtii var. *platychlamys*	0.5	<1
Ptilotus obovatus	0.4	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Sida sp. L (A.M. Ashby 4202)	0.3	<1
Solanum lasiophyllum	0.3	<1
Stylobasium spathulatum	1.5	<1
Trianthema pilosum	0.2	<1
Tribulus macrocarpus	0.1	<1
Triodia basedowii	0.5	20

C081

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 730416 **mE** 7549011 **mN** **Lat.** -22.1488 **Long.** 119.2342

Habitat Hillside

Aspect SE **Slope** Gentle

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 0 % cover ; 0 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia inaequilatera*\^tree\6\bi;G+ ^*Triodia epactia/pungens*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None obvious

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia inaequilatera		3	1	
Grevillea pyramidalis subsp. *leucadendron*		0.3	<1	
Indigofera rugosa		0.4	<1	
Poaceae sp.		0.05	<1	
Tephrosia rosea var. *clementii*		0.2	<1	
Trigastrotheca molluginea		0.1	<1	

Triodia epactia	0.3	1
Triodia epactia/pungens	0.3	35

C083

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 728971 **mE** 7548629 **mN** **Lat.** -22.1524 **Long.** 119.2202

Habitat Flat, perched

Aspect N **Slope** Very Gentle

Soil Type Red brown clay

Rock Type Ironstone

Loose Rock 20-50 % cover; 60-200 mm in size **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia synchronicia*\^shrub\3\r;G ^^*Eriachne mucronata*,*Neptunia dimorphantha*,*Sida* sp. L (A.M. Ashby 4202)\^tussock grass,shrub\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon malvifolium		0.1	<1	
Acacia synchronicia		2	2	
Aristida latifolia		0.5	3	
Boerhavia paludosa		0.4	<1	
Corchorus tridens		0.1	<1	

Crotalaria dissitiflora subsp. *benthamiana*		0.3	<1	
Crotalaria medicaginea var. *neglecta*		0.4	<1	
Cucumis melo		0.1	<1	
Cullen cinereum		0.3	<1	
Cynodon convergens		0.4	<1	
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P 3	0.1	<1	50
Eragrostis xerophila		0.3	<1	
Eriachne mucronata		0.3	3	
Goodenia muelleriana		0.3	<1	
Heliotropium tanythrix		0.1	2	
Hibiscus brachysiphonius		0.1	3	
Neptunia dimorphantha		0.1	5	
Operculina aequisepala		0.1	<1	
Phyllanthus maderaspatensis		0.3	<1	
Ptilotus carinatus		0.2	<1	
Ptilotus exaltatus		0.4	<1	
Senna artemisioides subsp. *helmsii*		1	<1	
Senna artemisioides subsp. *oligophylla*		1	<1	
Senna artemisioides subsp. *oligophylla* x *helmsii*		0.8	<1	
Sida sp. L (A.M. Ashby 4202)		0.2	3	
Sida spinosa		0.3	<1	
Sporobolus australasicus		0.3	<1	
Streptoglossa bubakii		0.2	<1	
Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)		0.1	1	

C084

Staff KCP **Date** 14/05/2021 **Season** E

Revisit

Type Q 200 m x 12.5 m

Location

MGA Zone 50 728229 **mE** 7548228 **mN** **Lat.** -22.1561 **Long.** 119.2131

Habitat Mid-Slope

Aspect W **Slope** Moderate

Soil Type Orange brown clay loam

Rock Type Ironstone

Loose Rock >90 % cover; 200 mm in size **Litter** 5 % cover ; 30 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Atalaya hemiglauca*\^tree\6\i;M ^*Senna artemisioides* subsp. *oligophylla*, ^*Acacia tetragonophylla*\^shrub\3\r;G ^^*Eriachne helmsii*,*Sida fibulifera*,*Rhynchosia minima*\^tussock grass,shrub,vine\1\c

Veg. Condition Excellent

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia aptaneura		6	5	
Acacia bivenosa		1.5	1	
Acacia coriacea subsp. *pendens*		3	<1	

Acacia maitlandii	1	<1
Acacia pyrifolia var. *pyrifolia*	1	<1
Acacia synchronicia	2	<1
Acacia tetragonophylla	3	2
Aristida latifolia	.5	1
Arivela viscosa	.3	<1
Atalaya hemiglauca	8	3
Bothriochloa ewartiana	.4	2
**Cenchrus ciliaris*	.4	<1
Cymbopogon obtectus	1	<1
Enchylaena tomentosa	.35	<1
Eremophila longifolia	1.5	<1
Eriachne helmsii	.4	40
Goodenia muelleriana	.3	<1
Gossypium robinsonii	1	<1
Hakea lorea subsp. *lorea*	5	<1
Heliotropium tanythrix	.25	<1
Neptunia dimorphantha	.05	<1
Phyllanthus maderaspatensis	.3	<1
Polycarpaea longiflora	.1	<1
Pterocaulon sphaeranthoides	.3	<1
Ptilotus exaltatus	.2	<1
Ptilotus gomphrenoides	.3	<1
Rhynchosia minima	.3	2
Santalum lanceolatum	1.5	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla*	1	3
Senna glutinosa subsp. *glutinosa*	2	<1
Senna glutinosa subsp. x *luerssenii*	2	<1
Senna symonii	1.5	<1
Sida fibulifera	.1	3
Sida sp. L (A.M. Ashby 4202)	.2	<1
Sorghum plumosum var. *plumosum*	1	<1
Streptoglossa bubakii	.5	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.4	<1
Triodia angusta	.3	<1
Triodia epactia/pungens	.3	1

C085

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 727225 **mE** 7548313 **mN** **Lat.** -22.1555 **Long.** 119.2034

Habitat Upper-Slope

Aspect NW **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia inaequilatera*\^shrub\3\bi;G+ ^*Triodia vanleeuweni*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None obvious

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia inaequilatera		2	1.5	
Acacia tenuissima		3	<1	
Afrohybanthus aurantiacus		0.3	<1	
Corymbia hamersleyana		7	<1	
Crotalaria novae-hollandiae subsp. *novae-hollandiae*		0.3	<1	
Cymbopogon ambiguus		0.6	<1	

Hakea lorea subsp. *lorea*	2.5	<1
Polymeria ambigua	0.3	<1
Senna glutinosa subsp. *glutinosa*	1.2	<1
Senna glutinosa subsp. *pruinosa*	1	<1
Triodia epactia	0.3	1.5
Triodia vanleeuwenii	0.4	35
Vincetoxicum lineare	0.4	<1

C086

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 725251 **mE** 7547600 **mN** **Lat.** -22.1622 **Long.** 119.1843

Habitat Flat, perched

Aspect N/A **Slope** N/A

Soil Type Red brown clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 80 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia tetragonophylla*\^shrub\3\bi;G+ ^^*Neptunia dimorphantha*,*Eriachne mucronata*,*Aristida latifolia*\^shrub,tussock grass\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes Wona PEC

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia tetragonophylla		2	<1	
Aristida latifolia		0.5	2	
Austrobryonia pilbarensis		0.1	<1	
Corchorus tridens		0.1	<1	
Crotalaria medicaginea var. *neglecta*		0.3	<1	

Cucumis melo		0.1	<1	
Cynodon convergens		0.4	<1	
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P 3	0.1	<1	200
Eriachne mucronata		0.3	2	
Euphorbia biconvexa		0.1	<1	
Goodenia muelleriana		0.1	<1	
Heliotropium tanythrix		0.1	<1	
Indigofera trita		0.1	2	
Neptunia dimorphantha		0.1	4	
Operculina aequisepala		0.1	<1	
Phyllanthus maderaspatensis		0.2	<1	
Polygala isingii		0.1	<1	
Ptilotus gomphrenoides		0.2	<1	
Senna artemisioides subsp. *oligophylla*		0.7	<1	
Sida sp. L (A.M. Ashby 4202)		0.2	<1	
Streptoglossa bubakii		0.3	<1	
Tephrosia sp. clay soils (S. van Leeuwen et al. PBS 0273)		0.1	5	
Vigna sp. Hamersley Clay (A.A. Mitchell PRP 113)		0.1	<1	

C087

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 100 m x 25 m

Location

MGA Zone 50 724194 **mE** 7547211 **mN** **Lat.** -22.1658 **Long.** 119.1741

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Red brown rocky sand

Rock Type Variable

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; <5 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus victrix*\^tree\6\r;M+ ^^*Melaleuca linophylla,Acacia monticola,Acacia pyrifolia* var. *pyrifolia*\^shrub\3\r;G ^*Cymbopogon ambiguus*,^*Chrysopogon fallax*\^tussock grass,shrub\1\r

Veg. Condition Very Good

Disturbance None obvious

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Acacia coriacea subsp. *pendens*		2	<1	
Acacia maitlandii		1.8	<1	
Acacia monticola		2	2	
Acacia pyrifolia var. *pyrifolia*		2	1	

Acacia tetragonophylla	0.4	<1
Acacia tumida var. *pilbarensis*	2	<1
Afrohybanthus aurantiacus	0.4	<1
Atalaya hemiglauca	2.5	<1
Chrysopogon fallax	0.6	5
Corchorus lasiocarpus	0.4	<1
Cucumis variabilis	0.1	<1
Cymbopogon ambiguus	0.7	3
Cyperus vaginatus	0.5	<1
Ehretia saligna var. *saligna*	0.3	<1
Enneapogon lindleyanus	0.2	<1
Eragrostis xerophila	0.3	<1
Eucalyptus victrix	7	7
Euphorbia tannensis subsp. *eremophila*	0.05	<1
Flueggea virosa subsp. *melanthesoides*	0.2	<1
Flueggea virosa subsp. *melanthesoides*	0.4	<1
Indigofera colutea	0.4	<1
Indigofera monophylla	0.3	<1
Indigofera monophylla	0.4	<1
Indigofera trita	0.3	<1
Jasminum didymum subsp. *lineare*	0.6	<1
Melaleuca linophylla	2	3
Phyllanthus maderaspatensis	0.3	<1
Pluchea dentex	0.1	<1
Ptilotus obovatus	0.2	<1
Rhagodia eremaea	0.4	<1
Rhynchosia minima	0.05	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.2	<1
Themeda triandra	0.5	<1
Triodia epactia	0.3	<1

C089

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 721008 **mE** 7546549 **mN** **Lat.** -22.1722 **Long.** 119.1434

Habitat Gentle hills

Aspect SE **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Various

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 0 % cover ; 0 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation G+ ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance None obvious

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		0.3	<1	
Acacia arida		0.4	<1	
Bulbostylis barbata		0.1	<1	
Corchorus lasiocarpus		0.3	<1	
Eriachne pulchella subsp. *dominii*		0.1	<1	
Goodenia microptera		0.25	<1	

Goodenia microptera	0.2	<1
Gossypium australe	0.3	<1
Ptilotus aervoides	0.05	<1
Ptilotus astrolasius	0.2	<1
Ptilotus calostachyus	0.5	<1
Ptilotus exaltatus	0.1	<1
Ptilotus fusiformis	0.3	<1
Sclerolaena cornishiana	0.1	<1
Senna glutinosa subsp. *pruinosa*	0.6	<1
Senna stricta	0.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.2	<1
Tribulus hirsutus	0.05	<1
Trigastrotheca molluginea	0.1	<1
Triodia epactia	0.3	20
Triodia vanleeuwenii	0.3	<1

C091

Staff SOK **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 718349 **mE** 7546076 **mN** **Lat.** -22.1768 **Long.** 119.1176

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-3 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\r;M ^*Acacia* ? *rhodophloia*,^*Eremophila forrestii* subsp. *forrestii*\^shrub\4\i;G ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Minimal

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.4	<1	
Acacia ?rhodophloia		3	3	
Acacia aptaneura		6	5	
Acacia atkinsiana		2	<1	

Acacia bivenosa	2	<1
Acacia pruinocarpa	3	<1
Acacia tetragonophylla	3	<1
Aristida holathera var. *holathera*	0.4	<1
Cheilanthes sieberi subsp. *sieberi*	0.2	<1
Enneapogon polyphyllus	0.3	<1
Eremophila forrestii subsp. *forrestii*	1	3
Eriachne helmsii	0.4	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Eucalyptus leucophloia subsp. *leucophloia*	6	1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Hibiscus burtonii	0.5	<1
Indigofera monophylla	0.5	<1
Melhania oblongifolia	0.4	<1
Paspalidium clementii	0.2	<1
Perotis rara	0.1	<1
Senna glutinosa subsp. x *luerssenii*	2	<1
Senna notabilis	0.3	<1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.4	<1
Sida sp. L (A.M. Ashby 4202)	0.2	<1
Sporobolus australasicus	0.1	<1
Triodia epactia	0.5	10

C093

Staff SOK **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 716797 **mE** 7545765 **mN** **Lat.** -22.1798 **Long.** 119.1026

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Mixed alluvial

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 10 % cover ; 0-50 cm in depth

Bare ground 60 % cover **Weeds** 2 % cover

Vegetation U+ ^*Eucalyptus victrix*,^*Acacia coriacea* subsp. *pendens*\^tree\6\i;M ^*Acacia pyrifolia* var. *pyrifolia*, ^\^shrub\3\r;G ^^*Triodia epactia*,*Eulalia aurea*,*Cyperus vaginatus*\^hummock grass,tussock grass, sedge\2\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia bivenosa		1.5	<1	
Acacia coriacea subsp. *pendens*		8	5	
Acacia pyrifolia var. *pyrifolia*		1.5	4	
Acacia trachycarpa		2	2	

Afrohybanthus aurantiacus	0.4	<1
Amaranthus undulatus	0.4	<1
Arivela viscosa	0.3	<1
Atalaya hemiglauca	3	<1
Boerhavia coccinea	0.1	<1
Bonamia erecta	0.3	<1
**Cenchrus ciliaris*	0.5	2
Chrysopogon fallax	0.8	<1
Crotalaria medicaginea var. *neglecta*	0.3	<1
Cyperus vaginatus	1	4
Duperreya commixta	2	<1
**Echinochloa colona*	0.2	<1
Enneapogon lindleyanus	0.4	<1
Eragrostis cumingii	0.1	<1
Eragrostis tenellula	0.3	<1
Eriachne tenuiculmis	0.4	<1
Eucalyptus victrix	10	10
Eulalia aurea	0.5	10
Euphorbia australis var. *subtomentosa*	0.1	<1
Euphorbia biconvexa	0.3	<1
Evolvulus alsinoides var. *decumbens*	0.3	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Glycine canescens	0.5	<1
Gomphrena cunninghamii	0.1	<1
Goodenia forrestii	0.4	<1
Goodenia lamprosperma	0.3	<1
Gossypium australe	0.5	<1
Indigofera trita	0.4	<1
Ipomoea muelleri	0.1	<1
Marsilea hirsuta	0.1	<1
Melaleuca glomerata	1.6	<1
Melaleuca linophylla	1.5	<1
Melhania oblongifolia	0.3	<1
Panicum decompositum	0.6	<1
Phyllanthus maderaspatensis	0.5	<1
Phyllanthus maderaspatensis	0.3	<1
Pluchea dentex	0.2	<1
Polymeria ambigua	0.1	<1

Polymeria ambigua	0.2	<1
Ptilotus exaltatus	0.3	<1
Rhynchosia minima	0.4	<1
Stemodia grossa	0.4	<1
Stemodia viscosa	0.4	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	1	<1
Themeda triandra	0.5	3
Triodia epactia	0.5	10
**Vachellia farnesiana*	1.5	<1

C094

Staff LC **Date** 8/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708985 **mE** 7540547 **mN** **Lat.** -22.2279 **Long.** 119.0276

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Rocky red sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 15 % cover ; <5 cm in depth

Bare ground 30 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\7\i;M ^*Acacia tetragonophylla*,^*Eremophila forrestii* subsp. *forrestii*\^shrub\3\r;G ^^*Aristida contorta*,*Enneapogon polyphyllus*,*Cenchrus ciliaris*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance Cattle trampling

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ?aptaneura		2	<1	
Acacia aptaneura		7	12	
Acacia pruinocarpa		5	<1	
Acacia tetragonophylla		1.8	2	

Aristida contorta	0.15	3
Aristida holathera var. *holathera*	0.2	<1
**Bidens subalternans*	0.4	<1
**Bidens subalternans*	0.2	<1
Boerhavia repleta	0.05	<1
**Cenchrus ciliaris*	0.4	2
Cheilanthes sieberi subsp. *sieberi*	0.2	<1
Chrysopogon fallax	0.5	<1
Commelina ensifolia	0.4	<1
Cucumis variabilis	0.1	<1
Dichanthium sericeum subsp. *humilius*	0.3	<1
Dodonaea petiolaris	0.5	<1
Enneapogon polyphyllus	0.2	2
Eremophila forrestii subsp. *forrestii*	.7	1
Eremophila latrobei subsp. *filiformis*	1.2	<1
Eriachne mucronata	0.1	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Hakea lorea subsp. *lorea*	2.5	<1
Iseilema macratherum	0.2	<1
**Malvastrum americanum*	0.4	<1
Psydrax latifolia	0.4	<1
Psydrax suaveolens	0.4	<1
Sida fibulifera	0.2	<1
Sporobolus australasicus	0.1	<1
Urochloa occidentalis var. *occidentalis*	0.1	<1
Vincetoxicum lineare	0.3	<1

C096

Staff LC **Date** 8/05/2021 **Season** E

Revisit

Type Q

Location

MGA Zone 50 708989 **mE** 7538987 **mN** **Lat.** -22.2420 **Long.** 119.0278

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clayey sand

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 2 % cover ; <1 cm in depth

Bare ground 35 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;G ^*Enneapogon polyphyllus*,^*Aristida contorta*\^tussock grass\2\i

Veg. Condition Very Good

Disturbance Light trampling

Fire Age >5 years

Notes Sinkholes present

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Abutilon otocarpum		0.2	<1	
Acacia aptaneura		7	14	
Acacia tetragonophylla		1.2	<1	
Acacia xiphophylla		2	<1	
Aristida contorta		0.2	8	

Aristida inaequiglumis	0.5	<1
Blumea tenella	0.15	<1
Boerhavia repleta	0.1	<1
Cheilanthes sieberi subsp. *sieberi*	0.25	<1
Chrysopogon fallax	0.7	<1
Dichanthium sericeum subsp. *humilius*	0.2	<1
Dicladanthera forrestii	0.15	<1
Dodonaea petiolaris	0.5	<1
Enchylaena tomentosa	0.2	<1
Enneapogon caerulescens	0.15	<1
Enneapogon polyphyllus	0.2	3
Eremophila forrestii subsp. *forrestii*	0.5	<1
Eremophila latrobei subsp. *filiformis*	0.5	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Hibiscus sturtii var. *campylochlamys*	0.2	<1
Iseilema macratherum	0.2	<1
**Malvastrum americanum*	0.2	<1
Portulaca oleracea	0.05	<1
Ptilotus exaltatus	0.2	<1
Rhynchosia minima	0.05	<1
Sclerolaena cornishiana	0.2	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla*	0.7	<1
Senna artemisioides subsp. *oligophylla*	1	<1
Senna glutinosa subsp. *pruinosa*	0.6	<1
Sida fibulifera	0.3	<1
Sporobolus australasicus	0.15	<1
Tragus australianus	0.15	<1
Urochloa occidentalis var. *occidentalis*	0.1	<1

C097

Staff KCP **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708202 **mE** 7537116 **mN** **Lat.** -22.2590 **Long.** 119.0204

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red orange clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 2 cm in depth

Bare ground 45 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\c;M ^*Acacia tetragonophylla*,^*Eremophila forrestii*\^shrub\4\r;G ^^*Enneapogon polyphyllus*,*Aristida latifolia*,*Enneapogon robustissimus*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.2	<1	
Abutilon macrum		.3	<1	
Acacia aptaneura		6	35	
Acacia aptaneura		3	1	
Acacia synchronicia		2	<1	

Acacia tetragonophylla	1.5	3
Aristida contorta	.2	2
Aristida latifolia	.4	3
**Bidens subalternans*	.15	<1
Bulbostylis turbinata	.06	<1
**Cenchrus ciliaris*	.3	<1
Cheilanthes sieberi subsp. *sieberi*	.3	<1
Chrysopogon fallax	1	<1
Crotalaria dissitiflora subsp. *benthamiana*	.3	<1
Cucumis variabilis	.4	<1
Dichanthium sericeum subsp. *humilius*	.2	<1
Dichanthium sericeum subsp. *humilius*	.3	<1
Enneapogon polyphyllus	.3	10
Enneapogon robustissimus	.35	2
Enteropogon ramosus	.3	<1
Eragrostis xerophila	.3	<1
Eremophila forrestii	1	1
Eremophila lanceolata	.2	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Iseilema membranaceum	.3	<1
**Malvastrum americanum*	.4	<1
Perotis rara	.1	<1
Psydrax latifolia	1.5	<1
Psydrax suaveolens	1	<1
Ptilotus exaltatus	.2	<1
Rhynchosia minima	.3	<1
Senna artemisioides subsp. *helmsii*	.6	<1
Senna artemisioides subsp. *oligophylla*	1	<1
Senna sp. Meekatharra (E. Bailey 1-26)	1	<1
Sida fibulifera	.2	<1
Solanum lasiophyllum	.3	<1
Sporobolus australasicus	.3	<1
Urochloa occidentalis var. *ciliata*	.2	2

C098

Staff KCP **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 708051 **mE** 7534505 **mN** **Lat.** -22.2826 **Long.** 119.0193

Habitat Crest

Aspect E **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type

Loose Rock >90 % cover; 60-200 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation U ^*Corymbia deserticola* subsp. *deserticola*\^tree\6\bi;M ^,*Acacia monticola*\^,shrub\3\bi;G+ ^*Triodia brizoides*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes Small Triodia hummocks

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		.2	<1	
Acacia bivenosa		.3	<1	
Acacia hilliana		.3	<1	
Acacia maitlandii		.2	<1	
Acacia monticola		.4	<1	

Acacia pruinocarpa	.5	<1
Acacia pyrifolia var. *pyrifolia*	.9	<1
Afrohybanthus aurantiacus	.2	<1
Bonamia erecta	0.3	2
Corchorus lasiocarpus	0.3	3
Corymbia deserticola subsp. *deserticola*	5.0	1.5
Enneapogon polyphyllus	.1	<1
Eriachne mucronata	.2	<1
Euphorbia boophthona	.2	<1
Evolvulus alsinoides var. *villosicalyx*	.1	<1
Fimbristylis simulans	.1	<1
Hakea chordophylla	1.5	<1
Isotropis atropurpurea	.4	2
Isotropis atropurpurea	.2	<1
Paspalidium clementii	.1	<1
Ptilotus calostachyus	.5	<1
Ptilotus exaltatus	.4	<1
Ptilotus fusiformis	.2	<1
Schizachyrium fragile	.1	<1
Senna glutinosa subsp. *glutinosa*	.6	<1
Senna glutinosa subsp. *pruinosa*	.6	<1
Senna glutinosa subsp. x *luerssenii*		<1
Senna notabilis	.2	<1
Sida sp. Excedentifolia (J.L. Egan 1925)	.3	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.4	<1
Solanum lasiophyllum	.3	<1
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	.1	<1
Trichodesma zeylanicum var. *zeylanicum*	.4	<1
Triodia brizoides		25

C100

Staff KCP **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707599 **mE** 7531626 **mN** **Lat.** -22.3086 **Long.** 119.0153

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 55 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;M ^*Eremophila forrestii*,^*Senna artemisioides* subsp. *helmsii*\^shrub\3\bi;G *Triodia brizoides*,*Enneapogon polyphyllus*,*Aristida contorta*\^hummock grass,tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Abutilon lepidum		.2	<1	
Abutilon macrum		.3	<1	
Acacia aptaneura		2	<1	

Acacia aptaneura	5	20
Acacia synchronicia	3	1
Acacia tetragonophylla	2	<1
Acacia xiphophylla	2.5	1.5
Alysicarpus muelleri	.2	<1
Aristida contorta	.2	3
**Bidens subalternans*	.1	<1
Boerhavia coccinea	.05	<1
Bothriochloa ewartiana	.4	<1
Cheilanthes sieberi subsp. *sieberi*	.15	<1
Chrysopogon fallax	.4	<1
Cucumis variabilis	.3	<1
Dactyloctenium radulans	.1	<1
Dodonaea petiolaris	1	<1
Enneapogon polyphyllus	.2	12
Enneapogon polyphyllus	.15	<1
Eremophila cuneifolia	1	<1
Eremophila forrestii	1	1
Eriachne helmsii	.2	1
Eriachne pulchella subsp. *dominii*	.1	<1
Euphorbia coghlanii	.2	<1
Evolvulus alsinoides var. *villosicalyx*	.1	<1
Gomphrena affinis subsp. *pilbarensis*	.3	<1
Hakea lorea subsp. *lorea*	.4	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Indigofera colutea	.15	<1
Iseilema membranaceum	.1	<1
Perotis rara	.1	<1
**Portulaca pilosa*	.1	<1
Psydrax latifolia	1	<1
Psydrax suaveolens	.5	<1
Ptilotus exaltatus	.1	<1
Ptilotus gaudichaudii	.2	<1
Ptilotus obovatus	.4	<1
Rhagodia eremaea	.4	<1
Rhynchosia minima	.1	<1
Rostellularia adscendens var. *clementii*	.1	<1
Senna artemisioides subsp. *helmsii*	1.2	.5

Senna glutinosa subsp. x *luerssenii*	.8	<1
Senna notabilis	.2	<1
Solanum lasiophyllum	.2	<1
Sporobolus australasicus	.15	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	.3	<1
Tragus australianus	.1	<1
Triodia brizoides	.5	15
**Vachellia farnesiana*	.4	<1
Vincetoxicum lineare	.3	<1

C102

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706349 **mE** 7521753 **mN** **Lat.** -22.3979 **Long.** 119.0045

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 20 % cover ; 0-2 cm in depth

Bare ground 15 % cover **Weeds** 1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia catenulata* subsp. *occidentalis*\^tree\6\i;G ^^*Chrysopogon fallax*, *Dichanthium sericeum* subsp. *humilius*,*Iseilema vaginiflorum*\^tussock grass,shrub\2\d

Veg. Condition Very Good

Disturbance Grazing, weeds

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Abutilon lepidum		1	<1	
Abutilon macrum		0.6	<1	
Acacia aptaneura		7	10	
Acacia catenulata subsp. *occidentalis*		7	1	

Acacia synchronicia		2.5	<1
Acacia tetragonophylla		4	1
Alysicarpus muelleri		0.4	<1
Aristida contorta		0.3	<1
Arivela viscosa		0.4	<1
**Bidens subalternans*		0.4	<1
Boerhavia burbidgeana		0.2	<1
**Cenchrus ciliaris*		0.5	<1
Chrysopogon fallax		1	20
Convolvulus clementii		0.3	<1
Crotalaria medicaginea var. *neglecta*		0.3	<1
Cucumis melo		0.3	<1
Cucumis variabilis		0.3	<1
Dichanthium sericeum subsp. *humilius*		0.4	10
Enchylaena tomentosa			<1
Eremophila forrestii subsp. *forrestii*		1	<1
Eremophila lanceolata		0.5	<1
Eremophila longifolia		1	<1
Eriachne benthamii		0.5	<1
Evolvulus alsinoides var. *villosicalyx*		0.1	<1
Glycine canescens			<1
Gomphrena affinis subsp. *pilbarensis*		0.3	<1
Goodenia muelleriana		0.3	<1
Goodenia nuda	P 4	0.4	<1
Goodenia prostrata		0.1	<1
Hibiscus sturtii var. *grandiflorus*		0.3	<1
Indigofera colutea		0.2	<1
Iseilema vaginiflorum		0.4	10
**Malvastrum americanum*		0.4	<1
Psydrax latifolia		2	<1
Pterocaulon sphacelatum		1	<1
Ptilotus gaudichaudii		0.4	<1
Ptilotus gomphrenoides		0.3	<1
Ptilotus obovatus		0.4	<1
Ptilotus xerophilus		0.4	<1
Rhagodia eremaea		1.5	<1
Rhynchosia minima		0.4	<1
Senna notabilis		0.2	<1

**Setaria verticillata*	0.5	3
Sida fibulifera	0.2	<1
Sida sp. L (A.M. Ashby 4202)	0.2	<1
Solanum lasiophyllum	0.4	<1
Sporobolus australasicus	0.3	<1
Streptoglossa bubakii	0.4	<1
Streptoglossa decurrens	0.8	<1
Striga curviflora	0.2	<1
Tephrosia remotiflora	0.4	<1
Urochloa occidentalis var. *occidentalis*	0.3	2

C103

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706420 **mE** 7521000 **mN** **Lat.** -22.4047 **Long.** 119.0052

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Ironstone, quartz

Loose Rock 10-20 % cover; 6-20 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 80 % cover **Weeds** <1 % cover

Vegetation M+ ^*Acacia xiphophylla*,^*Acacia synchronicia*\^shrub\4\r;G ^^*Eremophila cuneifolia*,*Maireana pyramidata*,*Atriplex bunburyana*\^shrub,chenopod shrub\2\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia synchronicia		2	2	
Acacia xiphophylla		3	3	
Atriplex bunburyana		1	2	
Boerhavia coccinea		0.2	<1	
**Cenchrus ciliaris*		0.4	<1	

**Cenchrus setiger*	0.5	<1
Dactyloctenium radulans	0.2	<1
Enchylaena tomentosa	0.5	<1
Eremophila cuneifolia	1	3
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Maireana carnosa	0.3	<1
Maireana georgei	0.4	<1
Maireana platycarpa	0.4	2
Maireana pyramidata	1	2
Maireana triptera	0.4	1
Portulaca oleracea	0.1	<1
Ptilotus exaltatus	0.4	<1
Ptilotus obovatus	0.4	<1
Sclerolaena cuneata	0.3	<1
Sclerolaena diacantha	0.2	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Sporobolus australasicus	0.3	<1
Trianthema oxycalyptrum var. *oxycalyptrum*	0.1	<1
Trianthema triquetrum	0.1	<1
Xerochloa barbata	0.3	<1

C105

Staff SOK **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707716 **mE** 7517781 **mN** **Lat.** -22.4336 **Long.** 119.0182

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 20 % cover ; 0-3 cm in depth

Bare ground 70 % cover **Weeds** <1 % cover

Vegetation U ^*Acacia aptaneura*,^*Grevillea berryana*\^tree\6\r;M+ ^*Acacia wanyu*,^*Acacia trachycarpa*\^shrub\4\i;G ^*Triodia epactia*,^*Aristida inaequiglumis*\^hummock grass,tussock grass\1\i

Veg. Condition Good

Disturbance Grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.5	<1	
Abutilon otocarpum		0.4	<1	
Abutilon sp. Dioicum (A.A. Mitchell PRP 1618)		1	<1	
Acacia ancistrocarpa		2	<1	

Acacia aptaneura	5	2
Acacia ayersiana	1.5	<1
Acacia pruinocarpa	3	<1
Acacia trachycarpa	1.5	2
Acacia tumida var. *pilbarensis*	2	<1
Acacia wanyu	2.5	20
Afrohybanthus aurantiacus	0.3	<1
Anthobolus leptomerioides	1	<1
Aristida inaequiglumis	1	3
Arivela viscosa		<1
**Bidens subalternans*		<1
Boerhavia coccinea	0.1	<1
**Cenchrus ciliaris*	0.5	<1
Cheilanthes sieberi subsp. *sieberi*	0.1	<1
Chrysopogon fallax	0.4	<1
Corchorus sidoides subsp. *sidoides*	0.4	<1
Corymbia deserticola subsp. *deserticola*	5	1
Digitaria brownii	0.5	<1
Digitaria ctenantha	0.4	<1
Dodonaea petiolaris	0.8	<1
Duperreya commixta	2	<1
Enneapogon polyphyllus	0.3	<1
Eremophila forrestii subsp. *forrestii*	1	<1
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eriachne aristidea	0.3	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Eulalia aurea	0.5	<1
Euphorbia australis var. *subtomentosa*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Grevillea berryana	4	1
Hibiscus burtonii	0.4	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Indigofera monophylla	0.5	<1
Iseilema membranaceum	0.2	<1
Maireana planifolia	0.4	<1
Maireana villosa	0.3	2
Paraneurachne muelleri	0.4	<1
Paspalidium clementii	0.3	<1

Psydrax latifolia	2	<1
Ptilotus exaltatus	0.5	<1
Ptilotus obovatus	0.5	<1
Salsola australis	0.4	<1
Senna artemisioides subsp. *helmsii*	1.5	<1
Senna artemisioides subsp. *oligophylla*	1	<1
Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna notabilis	0.1	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	<1
Sida sp. Supplejack Station (T.S. Henshall 2345)	0.2	<1
Solanum morrisonii	0.3	<1
Sporobolus australasicus	0.3	<1
Trichodesma zeylanicum var. *zeylanicum*	0.5	<1
Triodia epactia	0.5	10

C108

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 710751 **mE** 7514652 **mN** **Lat.** -22.4615 **Long.** 119.0481

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay loam

Rock Type Ironstone

Loose Rock 10-20 % cover; 6-20 mm in size **Litter** 4 % cover ; 0-2 cm in depth

Bare ground 85 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia pruinocarpa*,^*Acacia aptaneura*\^tree\6\r;M ^*Eremophila forrestii*,^*Dodonaea petiolaris*\^shrub\3\r;G ^*Aristida inaequiglumis*\^tussock grass\2\i

Veg. Condition Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Abutilon lepidum		0.4	<1	
Acacia aneura		4	<1	
Acacia aptaneura		5	2	
Acacia pruinocarpa		5	4	

Anthobolus leptomerioides	0.7	<1
Aristida contorta	0.3	<1
Aristida holathera var. *holathera*	0.4	<1
Aristida inaequiglumis	0.8	7
Arivela viscosa	0.3	<1
Boerhavia coccinea	0.2	<1
Boerhavia coccinea	0.1	<1
Chrysopogon fallax	0.7	<1
Corchorus sidoides subsp. *sidoides*	0.4	<1
Corymbia hamersleyana	2	<1
Cucumis variabilis	1	<1
Dodonaea petiolaris	1.2	1
Duperreya commixta	2	<1
Enneapogon polyphyllus	0.3	2
Eremophila forrestii	1.5	1
Eremophila longifolia	0.1	<1
Eriachne helmsii	0.4	<1
Eulalia aurea	0.5	<1
Euphorbia australis var. *subtomentosa*	0.1	<1
Euphorbia tannensis subsp. *eremophila*	0.4	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Glycine canescens	0.8	<1
Goodenia microptera	0.2	<1
Goodenia prostrata	0.1	<1
Hibiscus sturtii var. *platychlamys*	0.5	<1
Maireana villosa	0.3	<1
Paspalidium clementii	0.4	<1
Portulaca oleracea	0.1	<1
Ptilotus aervoides	0.1	<1
Ptilotus exaltatus	0.4	<1
Ptilotus helipteroides	0.3	<1
Ptilotus obovatus	0.4	<1
Salsola australis	0.4	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Sida sp. L (A.M. Ashby 4202)	0.3	<1
Solanum lasiophyllum	0.5	<1
Sporobolus australasicus	0.3	<1
Tribulus astrocarpus	0.1	<1

Tribulus suberosus	0.8	<1
Trichodesma zeylanicum var. *zeylanicum*	0.3	<1
Triodia basedowii	0.3	<1
Triodia brizoides	0.3	<1

C112

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 715800 **mE** 7511078 **mN** **Lat.** -22.4931 **Long.** 119.0977

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red sandy loam

Rock Type Ironstone

Loose Rock 2-10 % cover; 20-60 mm in size **Litter** 3 % cover ; 0-1 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia ancistrocarpa*\^shrub\3\r;G ^*Triodia basedowii*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.5	<1	
Acacia adsurgens		1.8	<1	
Acacia ancistrocarpa		2	<1	
Acacia ayersiana		4	<1	
Acacia inaequilatera		2.5	<1	
Aristida contorta		0.3	<1	

Aristida holathera var. *holathera*	0.4	<1
Aristida inaequiglumis	1	<1
Bonamia erecta	0.4	<1
Corchorus aff. *tectus*	0.4	<1
Corymbia deserticola subsp. *deserticola*	1.5	<1
Dicrastylis cordifolia	0.4	<1
Dodonaea coriacea	0.3	<1
Dodonaea petiolaris	0.5	<1
Enneapogon polyphyllus	0.4	<1
Eriachne aristidea	0.3	<1
Eucalyptus gamophylla	4	<1
Euphorbia australis var. *subtomentosa*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Goodenia microptera	0.4	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Indigofera monophylla	0.5	4
Paraneurachne muelleri	0.5	<1
Paspalidium rarum	0.3	<1
Senna notabilis	0.3	<1
Sida arenicola	1	<1
Sida cardiophylla	0.5	<1
Trichodesma zeylanicum var. *zeylanicum*	0.5	<1
Triodia basedowii	0.5	35

C113

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 717581 **mE** 7509814 **mN** **Lat.** -22.5043 **Long.** 119.1151

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 10 % cover ; 0-4 cm in depth

Bare ground 50 % cover **Weeds**

Vegetation U+ ^*Acacia aptaneura*,^*Acacia pruinocarpa*\^tree\6\i;M ^*Eremophila forrestii*\^shrub\3\r;G ^^*Chrysopogon fallax*,*Cenchrus ciliaris*,*Enneapogon polyphyllus*\^tussock grass\1\c

Veg. Condition Poor

Disturbance Grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Abutilon otocarpum		0.4	<1	
Acacia ancistrocarpa		1.5	<1	
Acacia aneura		2.5	<1	
Acacia aptaneura		6	15	

Acacia pruinocarpa	6	2
Anthobolus leptomerioides	1	<1
Aristida inaequiglumis	0.8	<1
Arivela viscosa	0.4	<1
Atalaya hemiglauca	5	1
**Cenchrus ciliaris*	0.5	15
Chrysopogon fallax	1	15
Corymbia hamersleyana	7	1
Digitaria brownii	0.5	<1
Dodonaea petiolaris	1	<1
Duperreya commixta	0.8	<1
Enchylaena tomentosa	0.5	<1
Enneapogon polyphyllus	0.5	5
Eremophila forrestii	1.5	3
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eulalia aurea	0.5	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Maireana planifolia	0.8	<1
Psydrax latifolia	2	<1
Pterocaulon sphaeranthoides	0.5	<1
Ptilotus exaltatus	0.4	<1
Ptilotus obovatus	0.5	<1
Salsola australis	0.5	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna glutinosa subsp. *glutinosa*	1.8	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Sida sp. L (A.M. Ashby 4202)	0.3	<1
Trichodesma zeylanicum var. *zeylanicum*	1	<1
Triodia basedowii	0.5	<1

C114

Staff SOK **Date** 22/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 727473 **mE** 7504938 **mN** **Lat.** -22.5470 **Long.** 119.2119

Habitat Dunes

Aspect N **Slope** Very Gentle

Soil Type Red brown sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; 0-2 cm in depth

Bare ground 65 % cover **Weeds** 5 % cover

Vegetation M+ ^*Acacia dictyophleba*\^shrub\4\r;G ^*Triodia schinzii*,^*Cenchrus ciliaris*\^hummock grass, tussock grass\2\c

Veg. Condition Good

Disturbance Weeds, grazing

Fire Age >10 years

Notes Fortescue Valley Sand Dunes PEC

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia dictyophleba		3	5	
Bonamia erecta		0.4	<1	
**Cenchrus ciliaris*		0.6	5	
Corchorus aff. *tectus*		0.5	<1	
Crotalaria cunninghamii		1	<1	

Eragrostis eriopoda	0.4	<1
Eriachne gardneri	0.5	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hibiscus brachychlaenus	1.5	<1
Indigofera monophylla	0.5	<1
Petalostylis cassioides	1	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Senna artemisioides subsp. *helmsii*	1	<1
Sida cardiophylla	0.5	<1
Trianthema pilosum	0.2	<1
Trichodesma zeylanicum var. *grandiflorum*	1	<1
Triodia basedowii	0.5	<1
Triodia schinzii	0.6	20
Yakirra australiensis var. *australiensis*	0.2	<1

C115

Staff SOK **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 719800 **mE** 7508518 **mN** **Lat.** -22.5157 **Long.** 119.1369

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 10 % cover ; 0-2 cm in depth

Bare ground 40 % cover **Weeds** 25 % cover

Vegetation U ^*Acacia aptaneura*,^*Acacia pruinocarpa*\^tree\6\r;M+ ^*Acacia sclerosperma* subsp. *sclerosperma*,^*Acacia synchronicia*\^shrub\4\r;G ^*Triodia basedowii*,^*Cenchrus ciliaris*\^hummock grass,tussock grass\1\c

Veg. Condition Poor

Disturbance Weeds, grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Abutilon otocarpum		0.3	<1	
Acacia adsurgens		3	<1	
Acacia aptaneura		5	2	

Acacia pruinocarpa	5	1
Acacia sclerosperma subsp. *sclerosperma*	2.8	4
Acacia synchronicia	2.5	2
Arivela viscosa	0.4	<1
Boerhavia coccinea	0.2	<1
**Cenchrus ciliaris*	0.5	25
Corchorus aff. *tectus*	0.5	<1
Cucumis variabilis	0.5	<1
Dodonaea petiolaris	0.6	<1
Enneapogon polyphyllus	0.3	<1
Eragrostis eriopoda	0.4	<1
Eremophila forrestii subsp. *forrestii*	1.3	<1
Eremophila latrobei subsp. *filiformis*	1.8	<1
Eremophila longifolia	1.4	<1
Eulalia aurea	0.4	<1
Euphorbia tannensis subsp. *eremophila*	0.4	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hakea lorea subsp. *lorea*	4	1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Maireana planifolia	0.5	<1
Paspalidium clementii	0.3	<1
Ptilotus obovatus	0.6	<1
Rhagodia eremaea	1.2	<1
Rhynchosia minima	0.2	<1
Senna artemisioides subsp. *helmsii*	0.5	<1
Senna artemisioides subsp. *oligophylla*	1.4	<1
Sida sp. L (A.M. Ashby 4202)	0.2	<1
Solanum lasiophyllum	0.6	<1
Trianthema pilosum	0.2	<1
Triodia basedowii	0.5	25

C117

Staff LC **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 727986 **mE** 7504415 **mN** **Lat.** -22.5517 **Long.** 119.2170

Habitat Dunes

Aspect NW **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; <1 cm in depth

Bare ground **Weeds**

Vegetation U ^*Hakea lorea* subsp. *lorea*\^tree\6\r;M+ ^*Acacia dictyophleba*\^shrub\3\r;G ^*Triodia basedowii*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.2	<1	
Abutilon otocarpum		0.4	<1	
Acacia dictyophleba		2	2	
Acacia inaequilatera		1	<1	
Acacia pachyacra		2	<1	

Acacia sclerosperma subsp. *sclerosperma*	2.5	<1
Aristida holathera var. *holathera*	0.2	<1
Bonamia erecta	0.2	<1
**Cenchrus ciliaris*	0.3	<1
Chrysopogon fallax	0.4	<1
Corchorus aff. *tectus*	0.2	<1
Duperreya commixta	1.2	<1
Eragrostis eriopoda	0.3	<1
Eucalyptus gamophylla	3	<1
Euphorbia biconvexa	0.2	<1
Hakea lorea subsp. *lorea*	3.5	1
Hibiscus brachychlaenus	0.3	<1
Ptilotus exaltatus	0.5	<1
Scaevola parvifolia subsp. *pilbarae*	0.2	<1
Senna notabilis	0.2	<1
Sida cardiophylla	0.2	<1
Solanum lasiophyllum	0.3	<1
Trianthema pilosum	0.05	<1
Triodia basedowii	0.3	35
Triodia schinzii	0.3	<1
Yakirra australiensis var. *australiensis*	0.1	<1

C119

Staff LC **Date** 5/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 729482 **mE** 7503223 **mN** **Lat.** -22.5622 **Long.** 119.2317

Habitat Dunes

Aspect N/A **Slope** Very Gentle

Soil Type Red brown sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; <1 cm in depth

Bare ground 30 % cover **Weeds** 60 % cover

Vegetation U ^*Acacia aptaneura*,^*Acacia dictyophleba*\^tree\6\r;+ G ^^*Cenchrus ciliaris*,*Cenchrus setiger*, *Triodia schinzii*\^tussock grass,hummock grass\1\c

Veg. Condition Good

Disturbance Cattle

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.4	<1	
Acacia aptaneura		5	5	
Acacia dictyophleba		3	5	
Acacia sclerosperma subsp. *sclerosperma*		1.2	<1	
Acacia synchronicia		2	<1	

Aristida holathera var. *holathera*	0.3	<1
Atalaya hemiglauca	2.5	<1
**Cenchrus ciliaris*	0.3	50
**Cenchrus setiger*	0.3	5
Corchorus tectus	0.3	<1
Crotalaria cunninghamii	0.4	<1
Eragrostis eriopoda	0.2	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Hakea lorea subsp. *lorea*	2	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Senna notabilis	0.2	<1
Tribulopis angustifolia	0.1	<1
Triodia basedowii	0.6	<1
Triodia schinzii	0.4	5

C120

Staff LC **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 728843 **mE** 7503959 **mN** **Lat.** -22.5557 **Long.** 119.2254

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; <5 cm in depth

Bare ground 15 % cover **Weeds** 12 % cover

Vegetation U ^*Corymbia hamersleyana*\^tree\7\bi;M+ ^*Acacia ancistrocarpa*,^*Senna artemisioides* subsp. *oligophylla*\^shrub\3\r;G ^*Triodia basedowii*,^*Cenchrus ciliaris*\^hummock grass,tussock grass\1\c

Veg. Condition Very Good

Disturbance Weeds, light trampling

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Acacia ancistrocarpa		2	7	
Acacia aptaneura		3	<1	
Acacia citrinoviridis		1.5	<1	
Acacia dictyophleba		1.5	<1	

Acacia inaequilatera	1.2	<1
Acacia sclerosperma subsp. *sclerosperma*	1.5	<1
Aristida contorta	0.4	<1
Bonamia erecta	0.2	<1
**Cenchrus ciliaris*	0.3	30
**Cenchrus setiger*	0.3	5
Corchorus sp.	0.4	<1
Corchorus sp.	0.3	<1
Corymbia hamersleyana	10	1
Euphorbia australis var. *subtomentosa*	0.1	<1
Euphorbia biconvexa	0.1	<1
Euphorbia boophthona	0.3	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Gossypium australe	0.3	<1
Hibiscus burtonii	0.2	<1
Hibiscus sturtii var. *platychlamys*	0.2	<1
Ptilotus exaltatus	0.1	<1
Ptilotus obovatus	0.3	<1
Rhagodia eremaea	0.7	<1
Senna artemisioides subsp. *oligophylla*	1	2
Senna glutinosa subsp. *glutinosa*	1	<1
Solanum lasiophyllum	0.3	<1
Triodia basedowii	0.2	40

C122

Staff SOK **Date** 22/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 729918 **mE** 7502485 **mN** **Lat.** -22.5688 **Long.** 119.2361

Habitat Dunes

Aspect N/A **Slope** N/A

Soil Type Red brown sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 4 % cover ; 0-2 cm in depth

Bare ground 75 % cover **Weeds** 25 % cover

Vegetation M+ ^*Acacia dictyophleba*\^shrub\4\i;G ^*Cenchrus ciliaris*,^*Triodia schinzii*\^tussock grass, hummock grass\1\c

Veg. Condition Degraded

Disturbance Weeds, grazing

Fire Age >10 years

Notes Fortescue Valley Sand Dunes PEC

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		3	<1	
Acacia dictyophleba		3	<1	
Acacia pruinocarpa		1	<1	
Aristida holathera var. *holathera*		0.4	<1	
Arivela viscosa		0.3	<1	

Atalaya hemiglauca	4	<1
Bonamia erecta	0.3	<1
**Cenchrus ciliaris*	0.5	25
**Cenchrus setiger*	0.4	<1
Corchorus aff. *tectus*	0.5	<1
Corymbia hamersleyana	4	<1
Crotalaria cunninghamii	0.5	<1
Cucumis variabilis	0.3	<1
Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.4	<1
Eriachne gardneri	0.4	<1
Euphorbia australis var. *hispidula*	0.2	<1
Gossypium australe	1	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Scaevola parvifolia subsp. *pilbarae*	0.3	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Senna notabilis	0.1	<1
Sida cardiophylla	0.5	<1
Solanum lasiophyllum	0.4	<1
Trianthema pilosum	0.2	<1
Triodia schinzii	0.5	5
Yakirra australiensis var. *australiensis*	0.2	<1

C123

Staff KCP **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707499 **mE** 7530204 **mN** **Lat.** -22.3215 **Long.** 119.0145

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clayey loam

Rock Type Ironstone

Loose Rock 10-20 % cover; 2-6 mm in size **Litter** 5 % cover ; 1 cm in depth

Bare ground 20 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia xiphophylla*\^tree\6\i;M ^^*Scaevola spinescens*,*Senna artemisioides* subsp. *helmsii*,*Eremophila forrestii*\^shrub\3\r;G ^^*Aristida contorta*,*Enneapogon polyphyllus*,*Eriachne helmsii*\^tussock grass\1\c

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.4	<1	
Abutilon lepidum		.2	<1	
Abutilon lepidum		.6	<1	
Abutilon sp.		.2	<1	

Acacia aneura	3.5	<1	
Acacia aptaneura	6	20	
Acacia aptaneura	3	1	
Acacia sclerosperma subsp. *sclerosperma*	3.0	<1	
Acacia synchronicia	4	1	
Acacia tetragonophylla	3	2	
Acacia xiphophylla	3.5	2	
Alternanthera nodiflora	.1	<1	
Alysicarpus muelleri	.2	<1	
Aristida contorta	.3	20	
**Bidens subalternans*	.4	<1	
Boerhavia coccinea	.1	<1	
**Cenchrus ciliaris*	.4	<1	
Cheilanthes sieberi subsp. *sieberi*	.15	<1	
Chrysopogon fallax	.5	<1	
Dichanthium sericeum subsp. *humilius*	.3	<1	
Dodonaea petiolaris	1.2	<1	
Enneapogon polyphyllus	.2	15	
Eremophila cuneifolia	.6	<1	
Eremophila forrestii	.8	1	
Eriachne helmsii	.4	5	
Euphorbia australis	.1	<1	
Euphorbia coghlanii	.2	<1	
Evolvulus alsinoides var. *villosicalyx*	.1	<1	
Gomphrena affinis subsp. *pilbarensis*	.15	<1	
Goodenia prostrata	.05	<1	
Hakea lorea subsp. *lorea*	1.5	<1	
Indigofera colutea	.1	<1	
Iseilema membranaceum	.15	<1	
Melhania oblongifolia	.15	<1	
Portulaca oleracea	.03	<1	
Psydrax latifolia	1.5	<1	
Psydrax suaveolens	1.4	<1	
Ptilotus exaltatus	.3	<1	
Ptilotus obovatus	.6	<1	
Rhagodia eremaea	1.2	<1	
Rhagodia eremaea	1.3	<1	3
Scaevola spinescens	2.0	2	

Sclerolaena cornishiana	.1	<1
Senna artemisioides subsp. *helmsii*	.8	1.5
Senna glutinosa subsp. x *luerssenii*	1.3	<1
Sida sp. L (A.M. Ashby 4202)	.2	<1
Sporobolus australasicus	.15	<1
Tragus australianus	.2	<1

C124

Staff KCP **Date** 6/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 706949 **mE** 7528719 **mN** **Lat.** -22.3350 **Long.** 119.0094

Habitat Mid-Slope

Aspect S **Slope** Gentle

Soil Type Red brown sandy loam

Rock Type Various

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 60 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus gamophylla*\^mallee shrub\6\r;M+ ^*Acacia ancistrocarpa*\^shrub\3\r;G ^^*Triodia brizoides*,*Indigofera monophylla*,*Bonamia erecta*\^hummock grass,shrub\1\i

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes Also small Triodia hummocks and fire ephemerals

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1.0	1	
Acacia bivenosa		.3	<1	
Acacia maitlandii		.2	<1	
Aristida holathera var. *holathera*		.2	<1	
Boerhavia coccinea		.02	<1	

Bonamia erecta	.2	1
Codonocarpus cotinifolius	2.0	<1
Corchorus lasiocarpus	.3	<1
Eriachne aristidea	.1	<1
Eucalyptus gamophylla	2	2
Fimbristylis simulans	.1	1
Goodenia microptera	.1	<1
Hakea chordophylla	1.0	<1
Indigofera monophylla	.4	2
Paraneurachne muelleri	.4	<1
Ptilotus calostachyus	.9	<1
Ptilotus clementii	.3	<1
Ptilotus exaltatus	.1	<1
Ptilotus helipteroides	.1	<1
Ptilotus obovatus	.2	<1
Senna artemisioides subsp. *helmsii*	.5	<1
Senna glutinosa subsp. *glutinosa*	.9	<1
Senna glutinosa subsp. *pruinosa*	.8	<1
Senna glutinosa subsp. x *luerssenii*	.9	<1
Senna notabilis	.05	<1
Solanum lasiophyllum	.2	<1
Sporobolus australasicus	.2	<1
Tribulus sp.	.05	<1
Trigastrotheca molluginea	.1	<1
Triodia brizoides	.2	15

D1

Staff LC **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 712724 **mE** 7540633 **mN** **Lat.** -22.2267 **Long.** 119.0638

Habitat Mid-Slope

Aspect SW **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Various

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 60 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree mallee\6\r;M+ ^^*Acacia arida*,*Acacia atkinsiana*,*Acacia marramamba*\^shrub\3\i;G ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance None obvious

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia arida		0.4	5	
Acacia atkinsiana		2	5	
Acacia inaequilatera		2	<1	
Acacia maitlandii		1.5	<1	
Acacia marramamba		2	2	

Acacia pruinocarpa	4.5	3
Acacia tetragonophylla	0.4	<1
Aristida contorta	0.15	<1
Corchorus lasiocarpus	0.3	<1
Dodonaea petiolaris	0.5	<1
Enneapogon polyphyllus	0.5	<1
Eragrostis xerophila	0.2	<1
Eremophila forrestii subsp. *forrestii*	0.8	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Euphorbia australis var. *subtomentosa*	0.05	<1
Gompholobium oreophilum	0.5	<1
Goodenia stobbsiana	0.1	<1
Goodenia triodiophila	0.3	<1
Grevillea berryana	2	<1
Grevillea wickhamii	2	<1
Indigofera monophylla	0.4	<1
Panicum decompositum	0.5	<1
Ptilotus calostachyus	0.2	<1
Ptilotus exaltatus	0.1	<1
Ptilotus obovatus	0.2	<1
Senna glutinosa subsp. *pruinosa*	0.7	<1
Trianthema glossostigmum	0.05	<1
Triodia epactia	0.3	7

D2

Staff LC **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 713595 **mE** 7540506 **mN** **Lat.** -22.2277 **Long.** 119.0723

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 60 % cover **Weeds** <1 % cover

Vegetation M+ ^*Acacia monticola*\^shrub\3\r;G ^*Corchorus lasiocarpus*,^*Indigofera monophylla*\^shrub\2\r

Veg. Condition Very Good

Disturbance None obvious

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aneura		0.3	<1	
Acacia aptaneura		0.5	<1	
Acacia arida		0.6	<1	
Acacia ayersiana		0.3	<1	
Acacia dictyophleba		0.4	<1	
Acacia maitlandii		0.4	<1	

Acacia marramamba	0.3	<1
Acacia monticola	2	3
Acacia pruinocarpa	0.4	<1
Acacia tenuissima	0.5	<1
Aristida holathera var. *holathera*	0.3	<1
Bonamia erecta	0.3	<1
Corchorus lasiocarpus	0.7	5
Cucumis variabilis	0.6	<1
Dodonaea petiolaris	0.7	<1
Eremophila forrestii subsp. *forrestii*	0.2	<1
Eremophila latrobei subsp. *filiformis*	0.6	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Eucalyptus gamophylla	1.8	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gompholobium oreophilum	0.3	<1
Goodenia stobbsiana	0.1	<1
Grevillea wickhamii	0.7	<1
Hibiscus coatesii	0.5	<1
Hibiscus sturtii var. *campylochlamys*	0.3	<1
Indigofera monophylla	0.3	3
**Malvastrum americanum*	0.3	<1
Psydrax latifolia	0.5	<1
Ptilotus calostachyus	0.6	<1
Ptilotus exaltatus	0.05	<1
Senna artemisioides subsp. *helmsii*	0.5	<1
Senna glutinosa subsp. *glutinosa*	0.3	<1
Senna glutinosa subsp. *glutinosa*	0.8	<1
Senna notabilis	0.2	<1
Seringia nephrosperma	0.3	<1
Sida arenicola	0.4	<1
Sida echinocarpa	0.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.3	<1
Triodia epactia	0.3	<1
Vincetoxicum lineare	0.1	<1

D3

Staff KCP **Date** 12/05/2021 **Season** E

Revisit 12/05/2021

Type Q

Location

MGA Zone 50 713470 **mE** 7539459 **mN** **Lat.** -22.2372 **Long.** 119.0712

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 3 % cover ; 1 cm in depth

Bare ground 75 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia ayersiana*,^*Acacia aptaneura*\^tree\6\r;M ^*Dodonaea petiolaris*\^shrub\3\bi;G ^^*Aristida contorta*,*Enneapogon polyphyllus*,*Triodia basedowii*\^tussock grass,hummock grass\1\r

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Mature mulga vegetation

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		.3	<1	
Abutilon lepidum		.5	<1	
Acacia aptaneura		4.0	2.5	
Acacia ayersiana		4	3	
Acacia maitlandii		3	<1	

Acacia pruinocarpa	3.0	<1
Acacia pyrifolia var. *pyrifolia*	1.0	<1
Acacia tumida var. *pilbarensis*	1	<1
Aristida contorta	.3	3
Aristida latifolia	1.0	<1
Aristida obscura	.3	<1
Dicladanthera forrestii	.1	<1
Digitaria brownii	.7	<1
Dodonaea petiolaris	1	1
Duperreya commixta	1.0	<1
Enneapogon polyphyllus	.2	2
Eremophila forrestii	1	<1
Eriachne helmsii		<1
Evolvulus alsinoides var. *villosicalyx*	.1	<1
Glycine canescens	.8	<1
Hibiscus sturtii var. *campylochlamys*	.4	<1
Maireana villosa	.3	<1
Psydrax latifolia	1.5	<1
Ptilotus exaltatus	.3	<1
Ptilotus obovatus	.4	<1
Rhynchosia minima	.2	<1
Schizachyrium fragile	.4	<1
Senna artemisioides subsp. *helmsii*	1.0	<1
Sida ectogama	1.0	<1
Sida fibulifera	.1	<1
Sida sp.	1.0	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.2	<1
Themeda triandra	.8	<1
Triodia basedowii	.6	1

D4

Staff KCP **Date** 12/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 711577 **mE** 7539579 **mN** **Lat.** -22.2363 **Long.** 119.0529

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 1 cm in depth

Bare ground 80 % cover **Weeds** <1 % cover

Vegetation U+ ^^*Acacia aptaneura*,*Acacia citrinoviridis*,*Acacia pruinocarpa*\^tree\6\i;M ^*Grevillea wickhamii*, *Acacia tetragonophylla*\^shrub\4\r;G ^*Enneapogon polyphyllus*,^*Aristida contorta*\^tussock grass, shrub\1\r

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Partial drainage feature (creek) within mulga quadrat

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aneura		4	<1	
Acacia aptaneura		5	15	
Acacia aptaneura		2	<1	
Acacia ayersiana		4	<1	

Acacia citrinoviridis	6	3
Acacia pruinocarpa	5	3
Acacia pyrifolia var. *pyrifolia*	2	<1
Acacia tetragonophylla	2	1
Acacia tumida var. *pilbarensis*	1	<1
**Aerva javanica*	.4	<1
Anthobolus leptomerioides	1.7	<1
Aristida contorta	.3	1
Aristida obscura	.3	<1
**Bidens subalternans*	.3	<1
Bothriochloa ewartiana	.4	<1
**Cenchrus ciliaris*	.4	<1
Commelina ensifolia	.3	<1
Corchorus tridens	.1	<1
Dicladanthera forrestii	.3	<1
Dodonaea petiolaris	1	<1
Enneapogon polyphyllus	.3	3
Eremophila forrestii	1	<1
Eriachne helmsii	.4	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Euphorbia australis var. *subtomentosa*	.03	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Glycine canescens	.5	<1
Gossypium robinsonii	2	<1
Grevillea wickhamii	3	3
Hakea lorea subsp. *lorea*	.5	<1
Indigofera monophylla	.4	<1
Iseilema membranaceum	.1	<1
**Malvastrum americanum*	.3	<1
Phyllanthus maderaspatensis	.4	<1
Polygala glaucifolia	02	<1
Psydrax latifolia	1	<1
Pterocaulon sphacelatum	.3	<1
Ptilotus exaltatus	.3	<1
Ptilotus obovatus	.5	<1
Rhynchosia minima	.3	<1
Senna artemisioides subsp. *helmsii*	.5	<1
Senna artemisioides subsp. *oligophylla*	1.3	<1

Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
**Setaria verticillata*	.3	<1
Sida fibulifera	.1	<1
Sida sp. dark green fruits (S. van Leeuwen 2260)	.2	<1
Solanum lasiophyllum	.4	<1
Themeda triandra		<1
Triodia epactia	.4	<1
Urochloa occidentalis var. *ciliata*	.2	<1

D5

Staff LC **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 711096 **mE** 7534566 **mN** **Lat.** -22.2817 **Long.** 119.0488

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 10 % cover ; <5 cm in depth

Bare ground 40 % cover **Weeds** 3 % cover

Vegetation U+ ^*Acacia xiphophylla*,^*Acacia aptaneura*\^tree\6\i;M ^*Senna artemisioides* subsp. *oligophylla* x *helmsii*,^*Acacia tetragonophylla*\^shrub\3\r;G ^*Aristida contorta*,^*Dichanthium sericeum* subsp. *humilius*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance Cattle trampling, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Abutilon lepidum		0.3	<1	
Acacia aptaneura		4	3	
Acacia synchronicia		3	<1	

Acacia tetragonophylla	1	2
Acacia tetragonophylla	0.4	<1
Acacia xiphophylla	7	10
Aristida contorta	0.2	4
Aristida latifolia	0.4	<1
Austrobryonia pilbarensis	0.2	<1
**Bidens subalternans*	0.1	<1
**Cenchrus ciliaris*	0.4	<1
Commelina ensifolia	0.3	<1
Corchorus tridens	0.2	<1
Crotalaria medicaginea var. *neglecta*	0.2	<1
Dichanthium sericeum subsp. *humilius*	0.2	4
Enneapogon caerulescens	0.1	<1
Enneapogon polyphyllus	0.2	<1
Enneapogon robustissimus	0.2	<1
Eragrostis xerophila	0.2	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Euphorbia australis var. *subtomentosa*	0.05	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Goodenia muelleriana	0.2	<1
Heliotropium cunninghamii	0.2	<1
**Malvastrum americanum*	0.3	3
Neptunia dimorphantha	0.1	<1
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*	0.2	<1
Phyllanthus maderaspatensis	0.2	<1
Polycarpaea longiflora	0.2	1
Ptilotus exaltatus	0.1	<1
Rhynchosia minima	0.05	<1
Senna artemisioides subsp. *helmsii*	0.7	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1	5
Senna glutinosa subsp. *pruinosa*	1.2	<1
Sida fibulifera	0.3	2
Sida spinosa	0.4	<1
Sporobolus australasicus	0.1	<1
Tephrosia sp.	0.3	<1
Urochloa occidentalis var. *occidentalis*	0.2	2

D7

Staff LC **Date** 10/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 712344 **mE** 7538184 **mN** **Lat.** -22.2488 **Long.** 119.0605

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 2-6 mm in size **Litter** 1 % cover ; <5 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia aneura*\^tree\6\r;+ G ^*Aristida contorta*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance None obvious

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Acacia aneura		4	5	
Acacia pruinocarpa		2	<1	
Acacia synchronicia		2	<1	
Acacia tetragonophylla		2	<1	
Alysicarpus muelleri		0.25	<1	

Aristida contorta	0.15	7
Aristida inaequiglumis	0.4	<1
**Bidens subalternans*	0.1	<1
Cheilanthes sieberi subsp. *sieberi*	0.1	<1
Commelina ensifolia	0.2	<1
Commelina ensifolia	0.1	<1
Cucumis variabilis	0.2	<1
Cymbopogon ambiguus	0.5	<1
Dodonaea petiolaris	0.5	<1
Enneapogon polyphyllus	0.3	<1
Eragrostis xerophila	0.3	<1
Eremophila forrestii subsp. *forrestii*	0.8	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Euphorbia australis var. *subtomentosa*	0.05	<1
Evolvulus alsinoides var. *villosicalyx*	0.1	<1
Gomphrena affinis subsp. *pilbarensis*	0.1	<1
Indigofera monophylla	0.3	<1
Psydrax latifolia	0.5	<1
Senna artemisioides subsp. *helmsii*	0.7	<1
Sida fibulifera	0.2	<1
Spermacoce brachystema	0.15	<1
Sporobolus australasicus	0.1	<1
Urochloa occidentalis var. *occidentalis*	0.15	<1

MAT3

Staff SOK **Date** 9/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 707420 **mE** 7527124 **mN** **Lat.** -22.3493 **Long.** 119.0142

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Nil

Loose Rock 0 % cover **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 85 % cover **Weeds** <1 % cover

Vegetation G+ ^*Tecticornia indica* subsp. *leiostachya*,^*Tecticornia* sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)\^samphire shrub\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Eragrostis pergracilis		0.3	<1	
Eragrostis pergracilis		0.3	<1	
**Flaveria trinervia*		0.4	<1	
Maireana luehmannii		0.3	<1	
Nicotiana heterantha		0.4	<1	

Swainsona kingii	0.1	<1
Tecticornia auriculata	0.5	<1
Tecticornia indica subsp. *leiostachya*	0.4	15
Tecticornia sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	0.5	3

NT2101

Staff KCP **Date** 7/05/2021 **Season** E

Revisit 20/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 707360 **mE** 7532187 **mN** **Lat.** -22.3036 **Long.** 119.0129

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay

Rock Type Nil

Loose Rock 0 % cover **Litter** <1 % cover ; <1 cm in depth

Bare ground 15 % cover **Weeds** <1 % cover

Vegetation G+ *Eriachne benthamii*,*Eragrostis xerophila*,*Aristida latifolia*\^tussock grass\1\c

Veg. Condition Very Good

Disturbance Cattle tracks

Fire Age >10 years

Notes Few weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		0.5	<1	
Acacia synchronicia		0.6	<1	
Aeschynomene indica		.3	<1	
Aristida latifolia		.3	1	
Aristida latifolia		0.5	1	
Blumea tenella		.1	<1	

Centipeda minima subsp. *macrocephala*		.06	<1
Cullen cinereum		0.1	<1
Cullen graveolens		0.2	<1
Dichanthium sericeum subsp. *humilius*		.1	5
**Echinochloa colona*		.3	<1
Enneapogon caerulescens		0.2	<1
Eragrostis setifolia		.2	<1
Eragrostis tenellula		0.3	<1
Eragrostis xerophila		0.3	10
Eriachne benthamii		.3	60
Fabaceae sp.		.03	<1
Gomphrena affinis subsp. *pilbarensis*		0.2	<1
Goodenia pascua		0.1	<1
Hibiscus verdcourtii		.2	<1
**Malvastrum americanum*		.3	<1
**Malvastrum americanum*		.3	<1
Marsilea exarata		.05	<1
Mimulus gracilis		.1	<1
Neptunia dimorphantha		.1	<1
Panicum decompositum		.4	<1
Phyllanthus maderaspatensis		.1	<1
Ptilotus gomphrenoides		.1	<1
Rhynchosia minima		.2	<1
Senna sp. Meekatharra (E. Bailey 1-26)		0.5	<1
Sida fibulifera		.1	<1
Sporobolus australasicus		.1	<1
Stemodia kingii		.3	<1
Swainsona thompsoniana	P 3	0.1	<1
Synaptantha tillaeacea var. *tillaeacea*		0.1	<1
**Vachellia farnesiana*		.5	<1

NT2102

Staff SOK **Date** 9/05/2021 **Season** E

Revisit 18/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 713695 **mE** 7532003 **mN** **Lat.** -22.3045 **Long.** 119.0744

Habitat Flat

Aspect S **Slope** Very Gentle

Soil Type Red brown loam

Rock Type Quartz

Loose Rock 20-50 % cover; 20-60 mm in size **Litter** 0-2 % cover ; 3 cm in depth

Bare ground 65 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia sibirica*\^tree\6\i;M ^*Eremophila forrestii* subsp. *forrestii*\^shrub\3\bi;G ^*Triodia brizoides*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.5	<1	
Abutilon otocarpum		0.5	<1	
Acacia aptaneura		4	10	
Acacia pruinocarpa		2.5	<1	
Acacia sibirica		3.5	5	

Acacia synchronicia	1.4	<1	
Acacia tetragonophylla	3	<1	
Afrohybanthus aurantiacus	0.3	<1	
Aristida contorta	.3	<1	
**Bidens subalternans*	0.2	<1	
Cheilanthes sieberi subsp. *sieberi*	0.4	<1	
Commelina ensifolia	0.3	<1	
Cucumis variabilis		<1	
Enneapogon caerulescens	0.3	3	
Enneapogon polyphyllus	0.3	2	
Eremophila forrestii subsp. *forrestii*	1	<1	
Eremophila longifolia	2	<1	
Eriachne aristidea	.2	<1	
Euphorbia boophthona	0.3	<1	
Euphorbia tannensis subsp. *eremophila*	0.5	<1	
Evolvulus alsinoides var. *villosicalyx*		<1	
Gomphrena affinis subsp. *pilbarensis*	.2	<1	
Goodenia microptera	0.3	<1	
Hibiscus burtonii	0.4	<1	
Hibiscus sturtii var. *campylochlamys*	.35	<1	
Hibiscus sturtii var. *platychlamys*	0.4	<1	
Hibiscus sturtii var. *truncatus*	0.4	<1	
Indigofera monophylla	0.4	<1	
Iseilema membranaceum	0.2	<1	
Maireana planifolia	0.2	<1	
Paspalidium clementii	0.3	1	
Psydrax latifolia	1	<1	
Pterocaulon sphacelatum	.3	<1	1
Ptilotus calostachyus	.4	<1	
Ptilotus exaltatus	.2	<1	
Ptilotus obovatus	0.8	<1	
Scaevola spinescens	1.5	<1	
Sclerolaena cornishiana	.2	<1	
Senna artemisioides subsp. *helmsii*	1	<1	
Senna glutinosa subsp. x *luerssenii*	2	<1	
Sida fibulifera	.15	<1	
Sida sp. L (A.M. Ashby 4202)	0.3	<1	
Solanum lasiophyllum	0.05	<1	

Sporobolus australasicus	0.3	<1
Triodia brizoides	0.5	20
Vincetoxicum lineare	0.8	<1

NT2103

Staff KCP **Date** 8/05/2021 **Season** E

Revisit 18/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 712075 **mE** 7532921 **mN** **Lat.** -22.2964 **Long.** 119.0586

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 25 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia xiphophylla*\^tree\6\i;M ^*Acacia synchronicia*,^*Senna glutinosa* subsp. x *luerssenii*\^shrub\3\bi;G ^*Aristida contorta*,^*Eriachne pulchella* subsp. *dominii*\^tussock grass\1\c

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		.3	<1	
Abutilon lepidum		.4	<1	
Acacia aptaneura		3	20	
Acacia synchronicia		1.5	3	

Acacia tetragonophylla	2.5	<1
Acacia xiphophylla	4	1
Aristida contorta	.25	70
Aristida latifolia	.7	<1
**Bidens subalternans*	.1	<1
Boerhavia coccinea	.1	<1
Cheilanthes sieberi subsp. *sieberi*	.3	<1
Chrysopogon fallax	.5	<1
Corchorus tridens	.3	<1
Dichanthium sericeum subsp. *humilius*	.1	<1
Enneapogon caerulescens	.15	<1
Enneapogon polyphyllus	.2	<1
Eremophila cuneifolia	1	<1
Eremophila forrestii	1	<1
Eremophila latrobei	.8	<1
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eriachne helmsii	.4	<1
Eriachne pulchella subsp. *dominii*	.1	1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Hibiscus burtonii	.2	<1
**Malvastrum americanum*	.3	<1
Psydrax latifolia	.5	<1
Ptilotus obovatus	.2	<1
Ptilotus schwartzii	.4	<1
Rhagodia eremaea	.3	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1	<1
Senna glutinosa subsp. x *luerssenii*	1.3	1
Senna sp. Meekatharra (E. Bailey 1-26)	1	<1
Sida sp. L (A.M. Ashby 4202)	.15	<1
Sporobolus australasicus	.2	<1
Tragus australianus	.1	<1
Triodia sp.	.2	<1
Urochloa occidentalis var. *ciliata*	.2	<1

NT2104

Staff KCP **Date** 8/05/2021 **Season** E

Revisit 18/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 715549 **mE** 7533015 **mN** **Lat.** -22.2951 **Long.** 119.0923

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown clay loam

Rock Type Ironstone

Loose Rock >90 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 95 % cover **Weeds** <1 % cover

Vegetation U ^*Acacia xiphophylla*\^tree\6\r;+ G ^*Sclerolaena cuneata*\^chenopod shrub\1\bi

Veg. Condition Very Good

Disturbance Cattle grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		2	<1	
Acacia synchronicia		2	<1	
Acacia xiphophylla		3	2	
Aristida contorta		.2	<1	
**Cenchrus ciliaris*		.3	<1	
Cynodon convergens		.3	<1	

Cynodon prostratus	.08	<1
Dactyloctenium radulans	.1	<1
Enchylaena tomentosa	0.3	<1
Enneapogon polyphyllus	.3	<1
Enteropogon ramosus	.4	<1
Eremophila sp.	.3	<1
Evolvulus alsinoides var. *villosicalyx*	.15	<1
Gomphrena affinis subsp. *pilbarensis*	0.2	<1
Maireana pyramidata	.2	<1
Ptilotus exaltatus	.1	<1
Salsola australis	0.25	<1
Sclerolaena costata	0.3	<1
Sclerolaena cuneata	.2	1
Sclerolaena lanicuspis	.3	<1
Senna sp. Meekatharra (E. Bailey 1-26)	.6	<1
Solanum lasiophyllum	.4	<1
Sporobolus australasicus	.1	<1

NT2105

Staff KCP **Date** 8/05/2021 **Season** E

Revisit 18/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 716286 **mE** 7533037 **mN** **Lat.** -22.2948 **Long.** 119.0994

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown clay

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 2 % cover ; 1 cm in depth

Bare ground 15 % cover **Weeds** 2 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\c;M ^*Ptilotus obovatus*,^*Acacia synchronicia*\^shrub\4\r;G ^^*Enneapogon polyphyllus*,*Malvastrum americanum*,*Urochloa occidentalis* var. *ciliata*\^tussock grass,forb\1\c

Veg. Condition Good

Disturbance Grazing, trampling, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Abutilon macrum		.3	<1	
Acacia aptaneura		10	60	
Acacia synchronicia		4	2	

Acacia tetragonophylla	2	<1
Acacia xiphophylla	1.5	<1
**Aerva javanica*	.3	<1
Alysicarpus muelleri	.2	<1
Aristida contorta	.2	<1
Arivela viscosa	.2	<1
**Bidens subalternans*	.3	<1
**Cenchrus ciliaris*	.3	<1
**Cenchrus setiger*	.3	1
Centipeda minima subsp. *macrocephala*	.05	<1
Cheilanthes sieberi subsp. *sieberi*	.15	<1
Cynodon prostratus	.01	<1
Dactyloctenium radulans	.06	<1
Dichanthium sericeum subsp. *humilius*	.1	<1
Digitaria brownii	.15	<1
Enchylaena tomentosa	.35	<1
Enneapogon polyphyllus	.3	30
Enteropogon ramosus	.3	<1
Eragrostis leptocarpa		<1
Eremophila cuneifolia	1	<1
Eremophila forrestii subsp. *forrestii*	1	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Gomphrena affinis subsp. *pilbarensis*	.15	<1
Goodenia prostrata	.1	<1
Hibiscus sturtii var. *grandiflorus*	.3	<1
Iseilema membranaceum	.1	2
Maireana pyramidata	.3	<1
Maireana triptera	.3	<1
**Malvastrum americanum*	.4	10
Marsilea hirsuta	.1	<1
Paspalidium jubiflorum	.4	<1
Perotis rara	.1	<1
Poaceae sp.	.15	<1
Psydrax latifolia	1	<1
Pterocaulon sphacelatum	.3	<1
Ptilotus gomphrenoides	.2	<1
Ptilotus obovatus	.5	1
Ptilotus obovatus	.5	1

Rhagodia eremaea	.8	<1
Salsola australis	.15	<1
Sclerolaena costata	.3	<1
Sclerolaena cuneata	.3	<1
Senna artemisioides subsp. *oligophylla*	.3	<1
**Setaria verticillata*	.3	<1
Sida fibulifera	.2	<1
Sida fibulifera	.35	<1
Sporobolus australasicus	.2	<1
Urochloa occidentalis var. *ciliata*	.2	3

NT2106

Staff SOK **Date** 9/05/2021 **Season** E

Revisit 19/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 721100 **mE** 7533844 **mN** **Lat.** -22.2869 **Long.** 119.1460

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 80 % cover **Weeds** 0 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;M ^^*Acacia xiphophylla*,*Eremophila forrestii* subsp. *forrestii*, *Rhagodia eremaea*\^shrub,chenopod shrub\3\bi;G ^*Enneapogon polyphyllus*\^other grass\1\i

Veg. Condition Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.5	<1	
Abutilon otocarpum		0.4	<1	
Acacia aptaneura		6	15	
Acacia synchronicia		3	<1	
Acacia tetragonophylla		2.5	<1	

Acacia xiphophylla	2	1
Aristida contorta	0.3	<1
Arivela viscosa	0.4	<1
Cheilanthes sieberi subsp. *sieberi*	0.4	<1
Cynodon prostratus	.02	<1
Dichanthium sericeum subsp. *humilius*	0.3	<1
Enneapogon polyphyllus	0.3	5
Eragrostis leptocarpa	0.4	<1
Eremophila cuneifolia	1	<1
Eremophila forrestii subsp. *forrestii*	1.5	<1
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eriachne helmsii	.35	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
Gomphrena affinis subsp. *pilbarensis*	.1	<1
Hibiscus burtonii	.35	<1
Hibiscus sturtii var. *platychlamys*	.15	<1
Iseilema membranaceum	0.2	<1
Maireana villosa	0.3	<1
Nicotiana occidentalis	.15	<1
Paspalidium clementii	0.2	<1
Perotis rara	0.1	2
Polygala glaucifolia	.02	<1
Psydrax latifolia	1.5	<1
Ptilotus obovatus	.4	<1
Rhagodia eremaea	1	<1
Senna sp. Meekatharra (E. Bailey 1-26)	1.5	<1
**Setaria verticillata*	.3	<1
Sporobolus australasicus	0.3	<1
Urochloa occidentalis var. *occidentalis*	0.3	<1

NT2107

Staff SOK **Date** 9/05/2021 **Season** E

Revisit 19/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 721843 **mE** 7535160 **mN** **Lat.** -22.2749 **Long.** 119.1530

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 85 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\i;M ^^*Sida ectogama*,*Eremophila forrestii* subsp. *forrestii*, *Eremophila latrobei* subsp. *filiformis*\^shrub\3\r;G ^*Chrysopogon fallax*,^*Enneapogon polyphyllus*\^tussock grass,other grass\1\c

Veg. Condition Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Acacia ?aptaneura			<1	
Acacia aptaneura		6	15	
Acacia pruinocarpa		3	<1	

Acacia tetragonophylla	1.5	<1
Aristida contorta	0.3	<1
Aristida contorta	0.3	<1
Aristida latifolia	0.5	<1
Arivela viscosa	0.1	<1
**Bidens subalternans*	0.2	<1
Cheilanthes sieberi subsp. *sieberi*	0.2	<1
Chrysopogon fallax	0.5	3
Commelina ensifolia	0.2	<1
Dichanthium sericeum subsp. *humilius*	0.4	<1
Dodonaea petiolaris	0.7	<1
Duperreya commixta	0.5	<1
Enneapogon polyphyllus	0.3	2
Eremophila forrestii subsp. *forrestii*	1	<1
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eriachne helmsii	0.4	<1
Eriachne pulchella subsp. *dominii*	0.1	<1
Eulalia aurea	0.5	<1
Euphorbia australis var. *hispidula*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Hibiscus burtonii	0.4	<1
Hibiscus sturtii var. *campylochlamys*	0.4	<1
Ipomoea muelleri	0.1	<1
**Malvastrum americanum*	0.4	<1
Paspalidium clementii	0.3	<1
Polygala glaucifolia	0.1	<1
Psydrax latifolia	0.5	<1
Psydrax suaveolens	2.5	<1
Ptilotus obovatus	0.4	<1
Rhagodia eremaea	1.5	<1
Sclerolaena cornishiana	0.15	<1
Senna artemisioides subsp. *helmsii*	1.5	<1
Senna artemisioides subsp. *oligophylla*	1	<1
Senna sp. Meekatharra (E. Bailey 1-26)	0.2	<1
Sida ectogama	1	<1
Solanum lasiophyllum	0.05	<1
Sporobolus australasicus	0.3	<1
Tragus australianus	0.3	<1

Urochloa occidentalis var. *occidentalis*	0.3	<1

NT2108

Staff KCP **Date** 10/05/2021 **Season** E

Revisit 19/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 723666 **mE** 7536931 **mN** **Lat.** -22.2587 **Long.** 119.1705

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 2 cm in depth

Bare ground 40 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia pruinocarpa*\^tree\6\i;M ^*Senna glutinosa* subsp. x *luerssenii*, ^*Sida ectogama*\^shrub\3\r;G ^^*Triodia epactia*,*Enneapogon polyphyllus*,*Paraneurachne muelleri*\^hummock grass,tussock grass\1\r

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Abutilon otocarpum		.3	<1	
Acacia aptaneura		10	15	
Acacia pruinocarpa		4	1	

Acacia tetragonophylla	.4	<1
Afrohybanthus aurantiacus	.4	<1
Aristida contorta	.2	<1
Aristida holathera var. *holathera*	.3	<1
Aristida holathera var. *holathera*	.5	<1
**Bidens subalternans*	.15	<1
**Cenchrus ciliaris*	.3	<1
Corchorus lasiocarpus	1	<1
Cucumis variabilis	1	<1
Cymbopogon ambiguus	.7	<1
Dodonaea petiolaris	.7	<1
Dysphania kalpari	.08	<1
Enneapogon caerulescens	.2	<1
Enneapogon polyphyllus	.3	2
Enneapogon robustissimus	.5	<1
Eremophila forrestii subsp. *forrestii*	.5	<1
Eremophila longifolia	2	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Hakea lorea subsp. *lorea*	1.5	<1
Hibiscus burtonii	.3	<1
Hibiscus sturtii var. *grandiflorus*	.3	<1
Maireana villosa	.5	<1
Paraneurachne muelleri	.3	1
Psydrax latifolia	1.5	<1
Psydrax suaveolens	1	<1
Pterocaulon sphacelatum	.5	<1
Ptilotus exaltatus	.3	<1
Ptilotus obovatus	1.2	<1
Salsola australis	.8	<1
Sclerolaena cornishiana	.3	<1
Senna glutinosa subsp. x *luerssenii*	1.5	1.5
Senna notabilis	.2	<1
Sida echinocarpa	.4	<1
Sida ectogama	1	1
Sida fibulifera	.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Solanum lasiophyllum	.5	<1
Solanum phlomoides	.3	<1

Triodia epactia	.5	8
Vincetoxicum lineare	1	<1

NT2109

Staff SOK **Date** 9/05/2021 **Season** E

Revisit E

Type Q 50 m x 50 m

Location

MGA Zone 50 720316 **mE** 7532936 **mN** **Lat.** -22.2952 **Long.** 119.1385

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 95 % cover **Weeds** 0 % cover

Vegetation + M ^*Acacia xiphophylla*,^*Acacia synchronicia*\^shrub\4\r;G ^*Triodia longiceps*,^*Maireana triptera*\^hummock grass,chenopod shrub\1\r

Veg. Condition Good

Disturbance Grazing

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.4	<1	
Acacia aptaneura		1	<1	
Acacia synchronicia		3	2	
Acacia tetragonophylla		1	<1	
Acacia xiphophylla		3	10	

Aristida latifolia	0.5	<1
Cynodon prostratus	0.1	<1
Duperreya commixta	0.8	<1
Enchylaena tomentosa	0.5	<1
Enteropogon ramosus	0.5	<1
Eragrostis setifolia	0.3	<1
Eremophila cuneifolia	1	<1
Eremophila forrestii subsp. *forrestii*	1.5	<1
Maireana georgei	0.5	<1
Maireana triptera	0.4	1
Ptilotus obovatus	0.4	<1
Rhagodia eremaea	1	<1
Sclerolaena cuneata	0.3	<1
Sclerolaena lanicuspis	0.3	<1
Senna sp. Meekatharra (E. Bailey 1-26)	0.5	<1
Sporobolus australasicus	0.3	<1
Triodia longiceps	0.5	2

NT2110

Staff SOK **Date** 11/05/2021 **Season** E

Revisit 20/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 726608 **mE** 7536936 **mN** **Lat.** -22.2583 **Long.** 119.1990

Habitat Slightly undulating flats

Aspect SE **Slope** Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 3 % cover ; 0-1 cm in depth

Bare ground 60 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia aptaneura*,^*Acacia pruinocarpa*\^tree\6\r;M+ ^*Acacia bivenosa*,^*Acacia maitlandii*\^shrub\3\r;G ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.2	<1	
Acacia ancistrocarpa		1	<1	
Acacia aneura		3	<1	
Acacia aptaneura		4	2	
Acacia ayersiana		1.5	<1	

Acacia bivenosa		2.5	2
Acacia maitlandii		2	1
Acacia pruinocarpa		3	3
Acacia pyrifolia var. *pyrifolia*		2	<1
Acacia tenuissima		2	<1
Afrohybanthus aurantiacus		0.4	<1
Anthobolus leptomerioides		0.5	<1
Aristida contorta		0.3	<1
Aristida holathera var. *holathera*		0.3	<1
Bonamia erecta		0.2	<1
Cassytha capillaris		0.3	<1
Chrysopogon fallax		0.5	<1
Corchorus lasiocarpus		0.1	<1
Dampiera candicans		0.2	<1
Dodonaea petiolaris		0.4	<1
Duperreya commixta		1.5	<1
Enneapogon caerulescens		0.3	<1
Enneapogon polyphyllus		0.3	<1
Eremophila forrestii subsp. *forrestii*		0.4	<1
Eremophila latrobei subsp. *filiformis*		1.5	<1
Eremophila longifolia		1	<1
Eriachne helmsii		0.4	<1
Euphorbia australis var. *hispidula*			<1
Evolvulus alsinoides var. *villosicalyx*		0.3	<1
Gomphrena cunninghamii		0.2	<1
Goodenia nuda	P 4	0.4	<1
Goodenia stobbsiana		0.4	<1
Gossypium australe		0.5	<1
Grevillea wickhamii		2	<1
Hibiscus burtonii		0.3	<1
Hibiscus coatesii		0.3	<1
Hibiscus sturtii var. *campylochlamys*		0.3	<1
Hibiscus sturtii var. *platychlamys*		0.4	<1
Indigofera monophylla		0.5	<1
Paraneurachne muelleri		0.4	<1
Petalostylis labicheoides		1	<1
Psydrax latifolia		0.4	<1
Ptilotus calostachyus		0.3	<1

Ptilotus exaltatus		0.4	<1
Ptilotus schwartzii		0.3	<1
Sclerolaena cornishiana		0.2	<1
Senna artemisioides subsp. *helmsii*		0.5	<1
Senna glaucifolia			<1
Senna glutinosa subsp. *glutinosa*		0.7	<1
Senna glutinosa subsp. x *luerssenii*		0.3	<1
Senna notabilis		0.3	<1
Senna sp. Meekatharra (E. Bailey 1-26)		0.7	<1
Seringia exastia	T	0.7	<1
Seringia nephrosperma		0.5	<1
Sida arsiniata		0.5	<1
Sida arsiniata		0.3	<1
Sida echinocarpa		1	<1
Sida sp. L (A.M. Ashby 4202)			<1
Sida sp. L (A.M. Ashby 4202)		0.5	<1
Sida sp. L (A.M. Ashby 4202)		0.2	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)		1	<1
Solanum lasiophyllum		0.4	<1
Sporobolus australasicus		0.2	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)		0.4	<1
Triodia epactia		0.5	40

NT2111

Staff SOK **Date** 11/05/2021 **Season** E

Revisit 20/07/2021 E

Type Q 100 m x 25 m

Location

MGA Zone 50 727075 **mE** 7537260 **mN** **Lat.** -22.2553 **Long.** 119.2035

Habitat Creek

Aspect S **Slope** Very Gentle

Soil Type Red brown sandy loam

Rock Type Mixed alluvial

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 3 % cover ; 0-10 cm in depth

Bare ground 80 % cover **Weeds** 0 % cover

Vegetation U+ ^*Eucalyptus victrix*\^tree\6\r;M ^^*Melaleuca glomerata*,*Acacia eriopoda*,*Acacia pyrifolia* var. *pyrifolia*\^shrub\4\r;G ^*Triodia epactia*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon otocarpum		0.4	<1	
Acacia aptaneura		0.8	<1	
Acacia citrinoviridis		4	<1	
Acacia eriopoda		3	3	
Acacia maitlandii		2	<1	

Acacia pyrifolia var. *pyrifolia*	2	2
Acacia tumida var. *pilbarensis*	2	<1
Afrohybanthus aurantiacus	0.4	<1
Alternanthera nodiflora	0.2	<1
Ammannia multiflora	0.3	<1
Ammannia multiflora	0.2	<1
Androcalva luteiflora	1	<1
Arivela viscosa	0.4	<1
Bergia pedicellaris	0.1	<1
Bergia pedicellaris	0.05	<1
**Bidens subalternans*	0.3	<1
Bonamia erecta	0.3	<1
Cassytha capillaris	Climber	<1
Cheilanthes sieberi subsp. *sieberi*	0.2	<1
Corchorus lasiocarpus	0.6	<1
Crotalaria medicaginea var. *neglecta*	0.4	<1
Cucumis variabilis	0.4	<1
Cyperus pulchellus	0.1	<1
Dicladanthera forrestii	0.3	<1
Digitaria brownii	0.5	<1
Dodonaea lanceolata var. *lanceolata*	1.5	<1
Duperreya commixta	Climber	<1
Elytrophorus spicatus	0.2	<1
Elytrophorus spicatus	0.05	<1
Eragrostis cumingii	0.1	<1
Eragrostis tenellula	0.4	<1
Eriachne helmsii	0.4	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Eucalyptus victrix	6	4
Eulalia aurea	0.4	<1
Euphorbia australis var. *hispidula*	0.1	<1
Euphorbia biconvexa	0.3	<1
Euphorbia boophthona	0.2	<1
Evolvulus alsinoides var. *decumbens*	0.2	<1
Fimbristylis depauperata	0.2	<1
Glycine canescens	1	<1
Gomphrena cunninghamii	0.2	<1
Gonocarpus ephemerus	0.3	<1

Gonocarpus ephemerus		0.1	<1	
Gonocarpus ephemerus		0.2	<1	
Goodenia lamprosperma		0.3	<1	
Goodenia nuda	P 4	0.4	<1	5
Grevillea wickhamii		2.5	<1	
Indigofera monophylla		0.4	<1	
Isotropis iophyta		0.5	<1	
Marsilea hirsuta		0.1	<1	
Melaleuca glomerata		2.5	4	
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*		0.15	<1	
Paspalidium rarum		0.3	<1	
Petalostylis labicheoides		2.5	<1	
Phyllanthus exilis		0.3	<1	
Phyllanthus exilis		0.2	<1	
Phyllanthus maderaspatensis		0.5	<1	
Pluchea dentex		0.2	<1	
Polycarpaea holtzei		0.05	<1	
Polycarpaea longiflora		0.3	<1	
Polymeria ambigua		0.1	<1	
Ptilotus exaltatus		0.4	<1	
Ptilotus fusiformis		0.3	<1	
Rutidosis helichrysoides		0.4	<1	
Santalum lanceolatum		2	<1	
Senna notabilis		0.2	<1	
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)		1	<1	
Sporobolus australasicus		0.1	<1	
Stemodia viscosa		0.3	<1	
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)		0.5	<1	
Themeda triandra		0.5	<1	
Trichodesma zeylanicum var. *zeylanicum*		0.5	<1	
Trigastrotheca molluginea		0.2	<1	
Triodia epactia		0.5	10	
Triodia longiceps		0.4	<1	
Triumfetta chaetocarpa		0.3	<1	
Vincetoxicum lineare		0.7	<1	
Waltheria indica		0.4	<1	
Waltheria indica		0.4	<1	

NT2112

Staff KCP **Date** 14/05/2021 **Season** E

Revisit 20/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 731037 **mE** 7536862 **mN** **Lat.** -22.2584 **Long.** 119.2420

Habitat Crest

Aspect S **Slope** Very Gentle

Soil Type Brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\bi;G+ ^*Triodia epactia*,^*Fimbristylis simulans*\^hummock grass, other grass\1\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes Acacia pruinocarpa resprouting

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ?aptaneura		.4	<1	
Acacia aptaneura		0.1	<1	
Acacia elachantha		1.5	<1	
Acacia monticola		0.4	<1	
Acacia pruinocarpa		1	1	

Acacia tenuissima	.7	<1
Amphipogon sericeus	.3	<1
Codonocarpus cotinifolius	.5	<1
Codonocarpus cotinifolius	0.5	<1
Corchorus lasiocarpus	0.4	<1
Eriachne lanata	.3	<1
Fimbristylis simulans	.1	2
Goodenia stobbsiana	.3	<1
Grevillea wickhamii	.35	<1
Hakea chordophylla	1	<1
Indigofera monophylla	.4	<1
Polygala glaucifolia	.01	<1
Ptilotus calostachyus	.7	<1
Seringia nephrosperma	.4	<1
Sida arenicola	1.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Triodia epactia	.4	55

NT2113

Staff KCP **Date** 13/05/2021 **Season** E

Revisit 21/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 728877 **mE** 7537652 **mN** **Lat.** -22.2515 **Long.** 119.2209

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Brown loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 20 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus gamophylla*,^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree mallee,tree\6\r;M+ *Acacia ancistrocarpa*,*Acacia maitlandii*,*Acacia pruinocarpa*\^shrub\3\i;G ^*Triodia longiceps*, ^*Indigofera monophylla*\^hummock grass,shrub\1\c

Veg. Condition Excellent

Disturbance Regrowth from fire

Fire Age 2-5 years

Notes Adjacent area burnt. Minor flow lines within quadrat.

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1.5	15	
Acacia ancistrocarpa		1.5	15	
Acacia aptaneura		.5	<1	
Acacia bivenosa		1	1	

Acacia maitlandii	1	2
Acacia pruinocarpa	1	1.5
Acacia tetragonophylla	.6	<1
Afrohybanthus aurantiacus	.3	<1
Androcalva luteiflora	2	<1
Bonamia erecta	.3	<1
Chrysopogon fallax	.5	<1
Codonocarpus cotinifolius	3	<1
Corchorus lasiocarpus	.4	<1
Eriachne helmsii	.3	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Eucalyptus gamophylla	2.5	3
Eucalyptus leucophloia subsp. *leucophloia*	3	1
Goodenia stobbsiana	.3	<1
Goodenia triodiophila	.3	<1
Goodenia triodiophila	.35	<1
Grevillea wickhamii	1	<1
Hakea lorea subsp. *lorea*	1	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Indigofera monophylla	.3	2
Malvaceae sp.	.3	<1
Psydrax latifolia	.3	<1
Ptilotus calostachyus	.5	<1
Ptilotus exaltatus	.4	<1
Senna artemisioides subsp. *oligophylla*	.45	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Seringia nephrosperma	.5	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.5	<1
Solanum lasiophyllum	.4	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.4	<1
Themeda triandra	1	<1
Trigastrotheca molluginea	.2	<1
Triodia epactia	.3	<1
Triodia longiceps	.3	55

NT2114

Staff KCP **Date** 14/05/2021 **Season** E

Revisit 21/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 729658 **mE** 7535994 **mN** **Lat.** -22.2664 **Long.** 119.2287

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red orange clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 5 % cover ; 2 cm in depth

Bare ground 45 % cover **Weeds** 0 % cover

Vegetation U+ ^^*Acacia ayersiana*,*Acacia aneura*,*Acacia aptaneura*\^tree\6\c;M ^*Eremophila forrestii* subsp. *forrestii*\^shrub\3\bi;G ^*Eriachne helmsii*,^*Aristida obscura*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aneura		7	8	
Acacia aptaneura		6	3	
Acacia ayersiana		5	25	
Acacia pruinocarpa		7	<1	
Amphipogon sericeus		0.4	<1	

Anthobolus leptomerioides	2	<1
Aristida contorta	.2	<1
Aristida obscura	.4	1
Commelina ensifolia	.3	<1
Cucumis variabilis	.5	<1
Dodonaea petiolaris	1	<1
Duperreya commixta	0.2	<1
Enneapogon polyphyllus	.15	<1
Eremophila forrestii subsp. *forrestii*	1	1.5
Eriachne helmsii	.5	15
Eriachne pulchella subsp. *dominii*	0.1	<1
Euphorbia australis	.02	<1
Evolvulus alsinoides var. *villosicalyx*	.2	<1
Hibiscus burtonii	.35	<1
Hibiscus coatesii	.3	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Malvaceae sp.	.35	<1
Paspalidium clementii	0.1	<1
Polygala glaucifolia	.01	<1
Psydrax latifolia	1.5	<1
Psydrax suaveolens	1.5	<1
Psydrax suaveolens	0.4	<1
Ptilotus exaltatus	.3	<1
Ptilotus schwartzii	.3	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Sida ectogama	.2	<1
Sida ectogama	.4	<1
Sida fibulifera	0.2	<1
Solanum lasiophyllum	0.4	<1
Triodia epactia	.4	<1

NT2115

Staff KCP **Date** 12/05/2021 **Season** E

Revisit 21/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 727707 **mE** 7536120 **mN** **Lat.** -22.2655 **Long.** 119.2098

Habitat Mid-Slope

Aspect S **Slope** Gentle

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation M+ ^^*Acacia atkinsiana*,*Grevillea wickhamii*,*Acacia ancistrocarpa*\^shrub\3\r;G ^^*Triodia epactia*, *Eriachne lanata*,*Fimbristylis simulans*\^hummock grass,tussock grass,other grass\1\c

Veg. Condition Excellent

Disturbance Fire

Fire Age 2-5 years

Notes Large shrubs dead from fire

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		.7	2	
Acacia aptaneura		.8	<1	
Acacia atkinsiana		1	5	
Acacia bivenosa		.5	<1	
Acacia eriopoda		1	<1	

Acacia maitlandii	.4	<1
Acacia pruinocarpa	1	<1
Amphipogon sericeus	.3	<1
Corchorus lasiocarpus	.3	<1
Eremophila latrobei subsp. *filiformis*	.7	<1
Eriachne lanata	.3	3
Eucalyptus leucophloia subsp. *leucophloia*	2.5	<1
Fimbristylis simulans	.2	1
Goodenia stobbsiana	.3	<1
Grevillea berryana	2	<1
Grevillea wickhamii	1	2
Hakea chordophylla	2	<1
Indigofera monophylla	.3	<1
Ptilotus calostachyus	.5	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Seringia nephrosperma	.6	<1
Sida arenicola	.7	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	1	<1
Trianthema glossostigmum	.03	<1
Triodia epactia	.5	30

NT2116

Staff KCP **Date** 10/05/2021 **Season** E

Revisit 19/07/2021 A

Type Q 100 m x 25 m

Location

MGA Zone 50 721526 **mE** 7536558 **mN** **Lat.** -22.2624 **Long.** 119.1498

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Orange brown sandy loam

Rock Type Mixed

Loose Rock >90 % cover; 20-60 mm in size **Litter** 1 % cover ; 10 cm in depth

Bare ground 80 % cover **Weeds** 1.5 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Eucalyptus victrix*\^tree\6\i;M ^^*Acacia tetragonophylla*,*Acacia pyrifolia* var. *pyrifolia*,*Grevillea wickhamii*\^shrub\4\r;G ^^*Themeda triandra*,*Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186),*Afrohybanthus aurantiacus*\^tussock grass,shrub\2\r

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds on the bank

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Abutilon otocarpum		.35	<1	
Acacia aptaneura		6	8	
Acacia arida		1.3	<1	

Acacia citrinoviridis	9	1
Acacia coriacea subsp. *pendens*	6	2
Acacia pruinocarpa	4	<1
Acacia pyrifolia var. *pyrifolia*	2	2
Acacia tetragonophylla	3	2.5
Afrohybanthus aurantiacus	.5	1
Alternanthera nana	.3	<1
Arivela viscosa	.3	<1
Atalaya hemiglauca	2	<1
**Bidens subalternans*	.2	<1
**Cenchrus ciliaris*	.4	1
**Cenchrus setiger*	.3	<1
Cheilanthes sieberi subsp. *sieberi*	.2	<1
Chrysopogon fallax	1	<1
Corchorus lasiocarpus	.3	1
Crotalaria medicaginea var. *neglecta*	.4	<1
Cucumis variabilis	.5	<1
Cymbopogon ambiguus	0.6	<1
Dicladanthera forrestii	0.2	<1
Digitaria brownii	0.4	<1
Dodonaea petiolaris	.6	<1
Duperreya commixta	.5	<1
**Echinochloa colona*	.3	<1
Enneapogon polyphyllus	.3	<1
Enteropogon ramosus	0.2	<1
Eremophila forrestii subsp. *forrestii*	1	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Eucalyptus victrix	10	2
Eulalia aurea	0.4	<1
Euphorbia australis var. *hispidula*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Flueggea virosa subsp. *melanthesoides*	2	<1
Glycine canescens	.5	<1
Gossypium robinsonii	1.3	<1
Grevillea wickhamii	2	2
Hakea lorea subsp. *lorea*	2	<1
Hibiscus sturtii var. *grandiflorus*	.2	<1
Indigofera monophylla	.7	<1

Iseilema macratherum	0.1	<1
**Malvastrum americanum*	.3	<1
Panicum decompositum	0.5	<1
Petalostylis labicheoides	2	<1
Phyllanthus maderaspatensis	.3	<1
Polycarpaea longiflora	.4	<1
Pseudognaphalium luteoalbum	0.3	<1
Psydrax latifolia	.7	<1
Pterocaulon sphacelatum	.3	<1
Ptilotus exaltatus	.2	<1
Senna artemisioides subsp. *oligophylla*	.4	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
**Setaria verticillata*	.4	<1
Sida fibulifera	.2	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.6	<1
Sporobolus australasicus	0.2	<1
Stemodia viscosa	.3	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.6	2
Themeda triandra	1	5
Trichodesma zeylanicum var. *zeylanicum*	1	<1
Triodia epactia/pungens	.3	1
Triodia longiceps	.4	<1
Triumfetta chaetocarpa	0.5	<1
Waltheria indica	.3	<1

NT2117

Staff KCP **Date** 10/05/2021 **Season** E

Revisit 19/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 724313 **mE** 7536333 **mN** **Lat.** -22.2640 **Long.** 119.1768

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 20-60 mm in size **Litter** 3 % cover ; 2 cm in depth

Bare ground 25 % cover **Weeds** <1 % cover

Vegetation U+ ^*Acacia aptaneura*\^tree\6\c;M ^^*Dodonaea petiolaris*,*Sida ectogama*,*Eremophila forrestii* subsp. *forrestii*\^shrub\3\r;G ^*Enneapogon polyphyllus*,^*Aristida contorta*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Some weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia aptaneura		6.0	45	
Aristida contorta		.2	3	
Arivela viscosa		.4	<1	
**Bidens subalternans*		.1	<1	

Corchorus lasiocarpus	.7	<1
Corymbia hamersleyana	6.0	<1
Cucumis variabilis	.5	<1
Dicladanthera forrestii	.1	<1
Dodonaea petiolaris	1	3
Duperreya commixta	Climber	<1
Enneapogon caerulescens	0.2	<1
Enneapogon polyphyllus	.4	20
Eremophila forrestii subsp. *forrestii*	1.0	1
Eriachne helmsii	.4	<1
Euphorbia australis var. *hispidula*	0.1	<1
Evolvulus alsinoides var. *villosicalyx*	.1	<1
Hibiscus burtonii	0.4	<1
Hibiscus sturtii var. *platychlamys*	0.1	<1
Maireana planifolia	.4	<1
Maireana villosa	.2	<1
Psydrax latifolia	1.0	<1
Pterocaulon sphacelatum	.3	<1
Ptilotus calostachyus	0.4	<1
Ptilotus exaltatus	.2	<1
Ptilotus obovatus	.4	<1
Rhagodia eremaea	1.2	<1
Senna artemisioides subsp. *helmsii*	.7	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	.7	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Sida ectogama	1	2
Trichodesma zeylanicum var. *zeylanicum*	.6	<1
Triodia epactia	.4	1

NT2118

Staff KCP **Date** 14/05/2021 **Season** E

Revisit 20/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 731125 **mE** 7536018 **mN** **Lat.** -22.2660 **Long.** 119.2429

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown clay loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 5 % cover ; 2 cm in depth

Bare ground 75 % cover **Weeds** <1 % cover

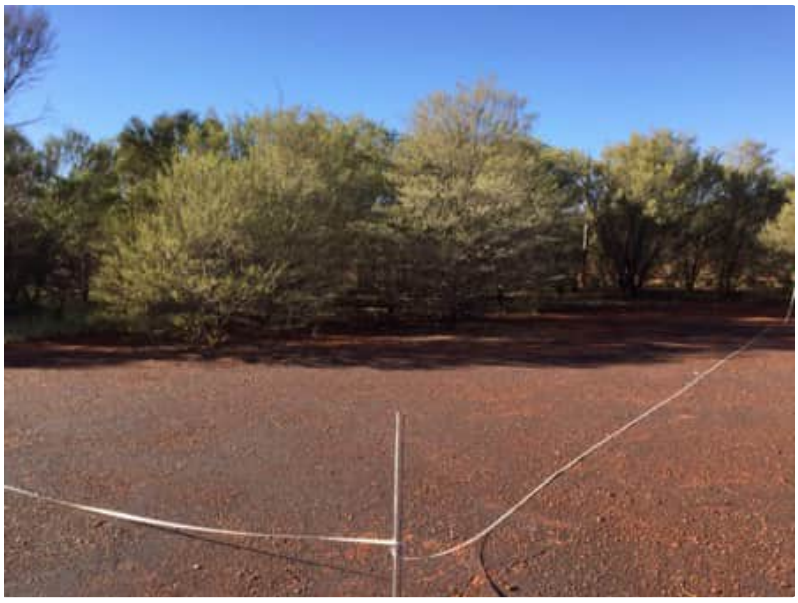
Vegetation U+ ^*Acacia aptaneura*,^*Acacia pruinocarpa*\^tree\6\i;M ^*Sida ectogama*\^shrub\3\r;G ^*Enneapogon polyphyllus*,^*Chrysopogon fallax*\^tussock grass\1\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Minimal weeds



Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		.3	<1	
Abutilon lepidum		.5	<1	
Acacia aptaneura		4.5	20	
Acacia ayersiana		3	<1	
Acacia ayersiana		3	<1	

Acacia pruinocarpa	5	2
Acacia tetragonophylla	1	<1
Amaranthus cuspidifolius	.4	<1
Anthobolus leptomerioides	1.5	<1
**Bidens subalternans*	.2	<1
Boerhavia coccinea	.05	<1
Chrysopogon fallax	.4	3
Commelina ensifolia	.3	<1
Dichanthium sericeum subsp. *humilius*	.2	<1
Dodonaea petiolaris	1	<1
Enneapogon caerulescens	.15	<1
Enneapogon polyphyllus	.3	15
Eremophila forrestii subsp. *forrestii*	1	<1
Eriachne helmsii	.3	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Gomphrena cunninghamii	3	<1
Hibiscus burtonii	.3	<1
Hibiscus sturtii var. *platychlamys*	.4	<1
Ipomoea calobra	1	<1
Paspalidium clementii	.1	<1
Perotis rara	.1	<1
Psydrax latifolia	1.8	<1
Psydrax suaveolens	1.5	<1
Ptilotus exaltatus	.1	<1
Ptilotus helipteroides	.1	<1
Rostellularia adscendens var. *clementii*	.3	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	1	<1
Sida ectogama	1	5
Sida ectogama	.4	<1
Sida ectogama	.15	<1
Sporobolus australasicus	.3	<1
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	.1	<1
Triodia epactia	.4	<1

NT2119

Staff KCP **Date** 10/05/2021 **Season** E

Revisit 19/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 725368 **mE** 7536868 **mN** **Lat.** -22.2591 **Long.** 119.1870

Habitat Mid-Slope

Aspect S **Slope** Moderate

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 60-200 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 20 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\bi;M ^^*Acacia atkinsiana*,*Acacia monticola*, *Acacia maitlandii*\^shrub\3\i;G+ ^^*Triodia epactia*,*Gompholobium oreophilum*,*Indigofera monophylla*\^hummock grass,shrub\1\i

Veg. Condition Very Good

Disturbance

Fire Age 2-5 years

Notes Large shrubs dead from previous fire

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia atkinsiana		1	8	
Acacia bivenosa		.4	<1	
Acacia maitlandii		1	2	
Acacia monticola		1	5	

Acacia pruinocarpa	.1	<1
Acacia tumida var. *pilbarensis*	.8	<1
Corchorus lasiocarpus	.4	<1
Corymbia hamersleyana	2	<1
Dodonaea coriacea	.4	<1
Eriachne lanata	.3	<1
Eucalyptus leucophloia subsp. *leucophloia*	3.5	1
Gompholobium oreophilum	.4	4
Goodenia stobbsiana	.3	<1
Gossypium robinsonii	2	<1
Grevillea wickhamii	.45	<1
Hakea lorea subsp. *lorea*	2	<1
Hibiscus sturtii var. *platychlamys*	.3	<1
Indigofera monophylla	.3	2
Ptilotus calostachyus	.5	2
Ptilotus exaltatus	.4	<1
Sida arenicola	.6	<1
Solanum lasiophyllum	.3	<1
Solanum lasiophyllum	.4	<1
Triodia epactia	.5	8

NT2120

Staff KCP **Date** 8/05/2021 **Season** E

Revisit 18/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 713946 **mE** 7533199 **mN** **Lat.** -22.2936 **Long.** 119.0767

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy clay

Rock Type Ironstone

Loose Rock 10-20 % cover; 6-20 mm in size **Litter** 10 % cover ; 1 cm in depth

Bare ground 80 % cover **Weeds** 2 % cover

Vegetation U+ ^*Acacia xiphophylla*,^*Acacia aptaneura*\^tree\6\i;M ^*Senna artemisioides* subsp. *oligophylla*, ^*Senna artemisioides* subsp. *helmsii*\^shrub\3\bi;G ^*Malvastrum americanum*\^forb\1\r

Veg. Condition Good

Disturbance Cattle, weeds

Fire Age >10 years

Notes Cracking clay in parts. Lots of weeds, grazing and trampling.

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		.2	<1	
Acacia aptaneura		3	1	
Acacia synchronicia		2.0	<1	
Acacia tetragonophylla		2	<1	
Acacia xiphophylla		3.0	25	

**Aerva javanica*	.2	<1
Aristida contorta	.15	<1
**Bidens subalternans*	.2	<1
**Cenchrus ciliaris*	.2	<1
**Cenchrus ciliaris*	0.2	<1
**Cenchrus setiger*	.1	<1
Corchorus tridens	.02	<1
Dichanthium sericeum subsp. *humilius*	.2	<1
Dicladanthera forrestii	0.15	<1
Duperreya commixta	.2	<1
Enchylaena tomentosa	.1	<1
Enneapogon caerulescens	0.2	<1
Enneapogon polyphyllus	.1	<1
Eragrostis eriopoda	0.2	<1
Eragrostis xerophila	.1	<1
Eremophila forrestii	.4	<1
Eriachne helmsii	0.3	<1
Evolvulus alsinoides var. *villosicalyx*	0.2	<1
**Flaveria trinervia*	0.1	<1
Goodenia muelleriana	0.05	<1
Maireana planifolia x *villosa*	0.1	<1
**Malvastrum americanum*	.3	2
Neptunia dimorphantha	.1	<1
Phyllanthus maderaspatensis	.2	<1
Ptilotus exaltatus	.2	<1
Ptilotus obovatus	.3	<1
Rhagodia eremaea	.08	<1
Rhynchosia minima	.1	<1
Roepera eichleri	0.15	<1
Rostellularia adscendens var. *clementii*	.1	<1
Rostellularia adscendens var. *clementii*	0.1	<1
Salsola australis	.2	<1
Sclerolaena costata	0.1	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla*	1.0	1
Senna sp. Meekatharra (E. Bailey 1-26)	.6	<1
Sida fibulifera	.15	<1
Sporobolus australasicus	.1	<1

Triodia longiceps	.4	<1

NT2121

Staff SOK **Date** 10/05/2021 **Season** E

Revisit 22/07/2021 A

Type Q 50 m x 50 m

Location

MGA Zone 50 708922 **mE** 7541947 **mN** **Lat.** -22.2153 **Long.** 119.0268

Habitat Upper-Slope

Aspect N **Slope** Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation U ^*Acacia aneura*\^tree\6\bi;M+ ^*Acacia marramamba*,^*Grevillea wickhamii*\^shrub\3\r;G ^*Triodia epactia*,^*Triodia brizoides*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Fire

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia acradenia		2	<1	
Acacia adoxa var. *adoxa*		0.4	<1	
Acacia aneura		4	1	
Acacia aptaneura		3	<1	
Acacia arida			<1	

Acacia atkinsiana	1.5	<1
Acacia bivenosa	.4	<1
Acacia coriacea subsp. *pendens*	1	<1
Acacia maitlandii	1	<1
Acacia marramamba	1.5	2
Acacia pruinocarpa	2	<1
Acacia pyrifolia var. *pyrifolia*	.5	<1
Acacia rhodophloia	4	<1
Acacia tumida var. *pilbarensis*	1.5	<1
Afrohybanthus aurantiacus	0.4	<1
Cassytha capillaris	.2	<1
Corchorus lasiocarpus	0.5	<1
Cullen leucochaites	2	<1
Cynodon convergens	.2	<1
Dodonaea coriacea	1.5	<1
Dodonaea petiolaris	1	<1
Duperreya commixta	0.6	<1
Enneapogon caerulescens	.2	<1
Enneapogon polyphyllus	0.4	<1
Eremophila forrestii subsp. *forrestii*	1	<1
Eremophila latrobei subsp. *filiformis*	0.3	<1
Eriachne helmsii	0.4	<1
Eriachne lanata	0.4	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Gompholobium oreophilum	0.4	<1
Goodenia stobbsiana	0.4	<1
Gossypium robinsonii	2.5	<1
Grevillea wickhamii	1.5	1
Hibiscus coatesii	0.5	<1
Hibiscus sturtii var. *campylochlamys*	0.3	<1
Indigofera monophylla	0.4	<1
Psydrax latifolia	2.5	<1
Ptilotus astrolasius	0.4	<1
Ptilotus calostachyus	0.5	<1
Ptilotus calostachyus	0.4	<1
Ptilotus exaltatus	.4	<1
Ptilotus obovatus	.5	<1

Sclerolaena cornishiana	0.3	<1
Senna glutinosa subsp. *glutinosa*	1.4	<1
Senna glutinosa subsp. x *luerssenii*	1.5	<1
Seringia nephrosperma	0.7	<1
Sida arenicola	1.8	<1
Sida sp. dark green fruits (S. van Leeuwen 2260)	0.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	0.5	<1
Solanum lasiophyllum	0.4	<1
Solanum phlomoides	1	<1
Triodia brizoides	0.5	2
Triodia epactia	0.5	10
Triumfetta maconochieana	.45	<1

NT2122

Staff KCP **Date** 13/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 709236 **mE** 7543552 **mN** **Lat.** -22.2007 **Long.** 119.0296

Habitat Crest

Aspect S **Slope** Very Gentle

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 35 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\bi;G+ ^^*Triodia vanleeuwenii,Acacia arida*, *Gompholobium oreophilum*\^hummock grass,shrub\1\d

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		.4	<1	
Acacia arida		.4	20	
Acacia atkinsiana		.5	<1	
Acacia monticola		.8	<1	
Acacia pruinocarpa		1.2	<1	

Acacia pyrifolia var. *pyrifolia*	1	<1
Afrohybanthus aurantiacus	.3	<1
Amphipogon sericeus	.4	<1
Bonamia pilbarensis	.03	<1
Corchorus lasiocarpus subsp. *lasiocarpus*	.4	<1
Dampiera candicans	.4	<1
Eucalyptus leucophloia subsp. *leucophloia*	2.5	<1
Fimbristylis simulans	.2	<1
Gompholobium oreophilum	.4	2
Goodenia stobbsiana	.3	<1
Goodenia triodiophila	.3	<1
Hakea chordophylla	1.2	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Indigofera monophylla	.3	<1
Ptilotus astrolasius	.3	<1
Ptilotus calostachyus	.4	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Seringia nephrosperma	.5	<1
Sida arenicola	1	1
Sida sp. Excedentifolia (J.L. Egan 1925)	.4	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Solanum phlomoides	.4	<1
Trianthema glossostigmum	.02	<1
Triodia vanleeuwenii	.3	50

NT2123

Staff KCP **Date** 13/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 709495 **mE** 7546088 **mN** **Lat.** -22.1778 **Long.** 119.0318

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 2 % cover ; 1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation M+ ^*Acacia xiphophylla*\^shrub\4\i;G ^*Triodia epactia*\^tussock grass\1\r

Veg. Condition Very Good

Disturbance

Fire Age 2-5 years

Notes Dead Acacias from previous fire

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia aptaneura		3	<1	
Acacia tetragonophylla		1.5	<1	
Acacia xiphophylla		2.5	25	
Aristida contorta		.15	<1	
Capparis umbonata		3.5	<1	
Duperreya commixta		.5	<1	

Enneapogon caerulescens	.2	<1
Enneapogon polyphyllus	.2	<1
Eremophila cuneifolia	.7	<1
Eriachne helmsii	.35	<1
Eriachne pulchella subsp. *dominii*	.1	<1
Gomphrena kanisii	.2	<1
Gossypium australe	.8	<1
Hibiscus sp. Gardneri (A.L. Payne PRP 1435)	.5	<1
Jasminum didymum subsp. *lineare*	1.5	<1
Maireana triptera	.3	<1
Malvaceae sp.	.2	<1
Ptilotus exaltatus	.1	<1
Ptilotus obovatus	.5	<1
Ptilotus schwartzii	.4	<1
Sclerolaena cornishiana	.3	<1
Senna artemisioides subsp. *helmsii*	1	<1
Senna artemisioides subsp. *oligophylla*	1	<1
Senna glutinosa subsp. *chatelainiana*	.7	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Senna sp. Meekatharra (E. Bailey 1-26)	1	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.4	<1
Tribulus suberosus	.4	<1
Triodia brizoides	.2	<1
Triodia epactia	.4	2
Triodia longiceps	.3	<1

NT2124

Staff KCP **Date** 13/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 710024 **mE** 7545974 **mN** **Lat.** -22.1788 **Long.** 119.0370

Habitat Crest

Aspect S **Slope** Steep

Soil Type Brown loam

Rock Type Shale

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; <1 cm in depth

Bare ground 65 % cover **Weeds** 0 % cover

Vegetation M ^*Gompholobium oreophilum*\^shrub\3\bi;G+ ^*Triodia epactia/pungens*\^shrub\2\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia marramamba		.7	<1	
Dodonaea coriacea		.4	<1	
Fimbristylis dichotoma		.1	<1	
Fimbristylis simulans		.1	<1	
Gompholobium oreophilum		1	1	
Goodenia stobbsiana		.2	<1	

Sida sp. Excedentifolia (J.L. Egan 1925)	.3	<1
Triodia epactia/pungens	.5	45

NT2125

Staff KCP **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 711557 **mE** 7542616 **mN** **Lat.** -22.2089 **Long.** 119.0523

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Brown clay

Rock Type Mixed alluvial

Loose Rock >90 % cover; 60-200 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 80 % cover **Weeds** <1 % cover

Vegetation U ^*Eucalyptus victrix*\^tree\7\r;M ^*Acacia ancistrocarpa*,^*Gossypium robinsonii*\^shrub\4\r;G+ ^^*Triodia epactia*,*Bothriochloa ewartiana*,*Eriachne tenuiculmis*\^hummock grass,tussock grass\2\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		2.5	5	
Acacia eriopoda			1	
Acacia maitlandii		.4	<1	
Acacia pyrifolia var. *pyrifolia*		1.2	<1	
Acacia tetragonophylla		1	<1	

Acacia tumida var. *pilbarensis*		1.1	<1
Afrohybanthus aurantiacus		.3	<1
Alternanthera nana		.2	<1
Androcalva luteiflora		.3	<1
Arivela viscosa		.3	<1
Bonamia erecta		.45	<1
Bothriochloa ewartiana		.5	5
Chrysopogon fallax		.4	<1
Corchorus lasiocarpus subsp. *lasiocarpus*		1	<1
Corymbia hamersleyana		5	<1
Crotalaria medicaginea var. *neglecta*		.3	<1
Cymbopogon ambiguus		.5	<1
Duperreya commixta		.3	<1
Eragrostis cumingii		.2	<1
Eragrostis tenellula		.35	1
Eriachne tenuiculmis		.5	2
Eucalyptus victrix		13	3
Eulalia aurea		.4	2
Euphorbia coghlanii		.3	<1
Evolvulus alsinoides var. *villosicalyx*		.3	<1
Fimbristylis microcarya		.2	<1
Goodenia lamprosperma		.35	<1
Goodenia nuda	P 4	.3	<1
Gossypium australe		.4	<1
Gossypium robinsonii		2	2
Grevillea wickhamii subsp. *hispidula*		1.5	<1
Indigofera monophylla		.3	<1
Jasminum didymum subsp. *lineare*		.5	<1
**Malvastrum americanum*		.3	<1
Marsilea hirsuta		.1	<1
Melhania oblongifolia		3	<1
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*		.2	<1
Phyllanthus exilis		.3	<1
Phyllanthus maderaspatensis		.4	<1
Pluchea dentex		.2	<1
Polymeria ambigua		.2	<1
Pterocaulon sphacelatum		.3	<1
Ptilotus exaltatus		.4	<1

Ptilotus fusiformis	.3	<1
Ptilotus obovatus	.4	<1
Schizachyrium fragile	.4	<1
Senna artemisioides subsp. *oligophylla*	.2	<1
Sida arsiniata	.3	<1
Solanum lasiophyllum	.7	<1
Sporobolus australasicus	.1	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.5	1
Themeda triandra	.5	1
Triodia epactia	1	10
Waltheria indica	.3	<1

NT2126

Staff KCP **Date** 13/05/2021 **Season** E

Revisit

Type Q 200 m x 12.5 m

Location

MGA Zone 50 712287 **mE** 7546001 **mN** **Lat.** -22.1783 **Long.** 119.0589

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Brown sand

Rock Type Mixed alluvial

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; .5 cm in depth

Bare ground 75 % cover **Weeds** <1 % cover

Vegetation U ^^*Eucalyptus victrix*,*Corymbia hamersleyana*,*Eucalyptus xerothermica*\^tree\7\r;M+ ^^*Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186),*Petalostylis labicheoides*,*Acacia pyrifolia* var. *pyrifolia*\^shrub\3\c;G ^*Themeda triandra*,^*Triodia epactia*\^hummock grass\2\i

Veg. Condition Very Good

Disturbance

Fire Age >10 years

Notes Few weeds

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		.3	<1	
Acacia ancistrocarpa		1	<1	
Acacia aptaneura		3.5	<1	
Acacia arida		1	<1	

Acacia bivenosa	1.5	<1
Acacia maitlandii	.5	<1
Acacia pyrifolia var. *pyrifolia*	2	2
Acacia tumida var. *pilbarensis*	1.5	<1
Afrohybanthus aurantiacus	.4	<1
Alternanthera nana	.3	<1
Androcalva luteiflora	1.2	<1
Atalaya hemiglauca	5	<1
Atalaya hemiglauca	2	<1
**Bidens subalternans*	.3	<1
Bonamia erecta	.4	<1
Bothriochloa ewartiana	1	1
Capparis umbonata	1.5	<1
Corchorus lasiocarpus	.4	<1
Corymbia candida	5	<1
Corymbia hamersleyana	10	3
Cucumis variabilis	.3	<1
Cymbopogon ambiguus	1	<1
Duperreya commixta	1	<1
Enneapogon robustissimus	.4	<1
Eriachne tenuiculmis	.3	<1
Eucalyptus victrix	15	6
Eucalyptus xerothermica	10	2
Euphorbia coghlanii	.3	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Glycine canescens	.5	<1
Gossypium australe	1	<1
Gossypium robinsonii	2	1
Hakea lorea subsp. *lorea*	3.5	<1
Indigofera monophylla	.3	<1
Jasminum didymum subsp. *lineare*	1	<1
**Malvastrum americanum*	.3	<1
Paraneurachne muelleri	.4	<1
Petalostylis labicheoides	2	6
Phyllanthus exilis	.3	<1
Phyllanthus maderaspatensis	.4	<1
Polycarpaea longiflora	.3	<1
Polymeria ambigua	.4	<1

Ptilotus exaltatus	.4	<1
Ptilotus gaudichaudii	.4	<1
Ptilotus obovatus	.4	<1
Rhagodia eremaea	.4	<1
Santalum lanceolatum	2	<1
**Setaria verticillata*	.4	<1
Sida fibulifera	.2	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.3	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	1	25
Themeda triandra	.6	25
Trichodesma zeylanicum var. *zeylanicum*	.4	<1
Triodia epactia	.5	2
Urochloa occidentalis var. *ciliata*	.2	<1

NT2127

Staff KCP **Date** 8/05/2021 **Season** E

Revisit 21/07/2021 E

Type Q 50 m x 50 m

Location

MGA Zone 50 708886 **mE** 7543052 **mN** **Lat.** -22.2053 **Long.** 119.0263

Habitat Crest

Aspect N/A **Slope** N/A

Soil Type Orange loam

Rock Type Ironstone

Loose Rock >90 % cover; 60-200 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*,^*Corymbia deserticola* subsp. *deserticola*\^tree\6\bi; G+ ^^*Acacia ptychophylla*,*Triodia vanleeuwenii*,*Dampiera candicans*\^shrub,hummock grass\1\c

Veg. Condition Excellent

Disturbance

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.4	<1	
Acacia ancistrocarpa		0.4	<1	
Acacia arida		.3	<1	
Acacia exigua		0.4	<1	

Acacia maitlandii	.3	<1
Acacia pruinocarpa	.3	<1
Acacia ptychophylla	.4	40
Acacia pyrifolia var. *pyrifolia*	1.2	<1
Afrohybanthus aurantiacus	.1	<1
Bonamia pilbarensis	.1	<1
Corchorus lasiocarpus	.4	<1
Corymbia deserticola subsp. *deserticola*	2.5	<1
Corymbia hamersleyana	3	<1
Dampiera candicans	.4	2
Dodonaea coriacea	0.5	<1
Eriachne lanata	.3	<1
Eucalyptus leucophloia subsp. *leucophloia*	2	1
Fimbristylis simulans	.1	<1
Goodenia stobbsiana	.3	<1
Grevillea wickhamii	1	<1
Hakea chordophylla	2.5	<1
Hibiscus sturtii var. *campylochlamys*	0.3	<1
Hibiscus sturtii var. *platychlamys*	0.2	<1
Indigofera monophylla	.4	1.5
Paraneurachne muelleri	.3	<1
Ptilotus calostachyus	.5	<1
Ptilotus clementii	0.3	<1
Ptilotus exaltatus	.1	<1
Ptilotus fusiformis	.3	<1
Ptilotus obovatus	0.1	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna symonii	.6	<1
Seringia nephrosperma	.4	<1
Sida arenicola	0.3	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)	.4	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.3	<1
Tephrosia sp. NW Eremaean (S. van Leeuwen et al. PBS 0356)	.1	<1
Themeda triandra	.6	<1
Triodia vanleeuwenii	.3	25

NT2128

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 711688 **mE** 7545563 **mN** **Lat.** -22.1823 **Long.** 119.0531

Habitat Lower-Slope

Aspect NW **Slope** Gentle

Soil Type Red brown sandy loam

Rock Type Chert

Loose Rock >90 % cover; 6-20 mm in size **Litter** <1 % cover ; <5 cm in depth

Bare ground 60 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia marramamba*\^shrub\3\bi;G+ ^*Triodia epactia*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None obvious

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia atkinsiana		3	<1	
Acacia cowleana		1.5	<1	
Acacia maitlandii		1.5	<1	
Acacia marramamba		0.6	1	
Acacia pruinocarpa		4	<1	
Acacia tetragonophylla		0.3	<1	

Aristida contorta		0.15	<1
Eriachne pulchella subsp. *dominii*		0.05	<1
Gompholobium oreophilum		0.3	<1
Goodenia stobbsiana		0.1	<1
Hibiscus coatesii		0.3	<1
Maireana georgei		0.1	<1
Paspalidium clementii		0.1	<1
Ptilotus schwartzii		0.25	<1
Salsola australis		0.3	<1
Senna glutinosa subsp. *glutinosa*		0.6	<1
Seringia exastia	T	0.4	<1
Sida fibulifera		0.3	<1
Solanum lasiophyllum		0.3	<1
Triodia epactia		0.4	30

NT2129

Staff KCP **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 712119 **mE** 7544448 **mN** **Lat.** -22.1923 **Long.** 119.0575

Habitat Crest

Aspect W **Slope** Very Gentle

Soil Type Orange brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** <1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

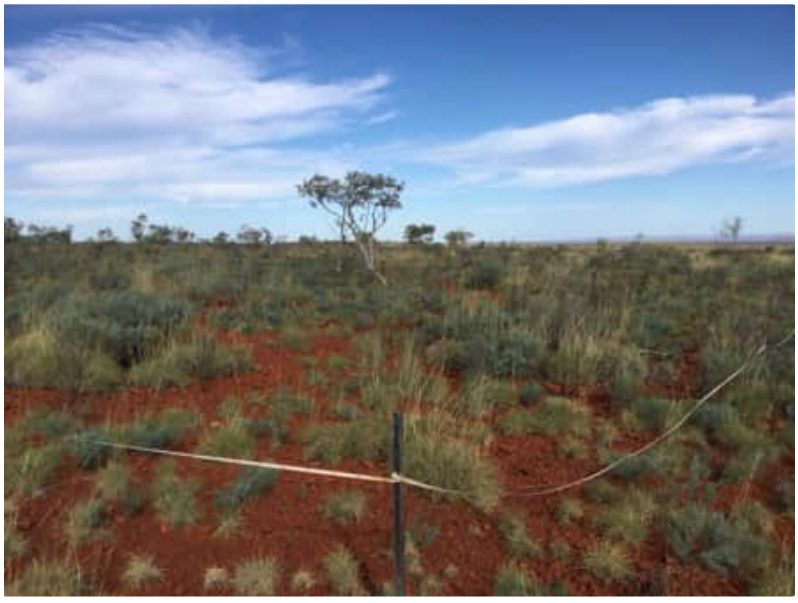
Vegetation M ^*Acacia arida*\^shrub\3\c;G+ ^*Triodia vanleeuwenii*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance

Fire Age <5 years

Notes



Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		.4	<1	
Acacia arida		1	35	
Acacia monticola		.6	<1	
Afrohybanthus aurantiacus		.3	<1	
Bonamia pilbarensis		.06	<1	
Corchorus lasiocarpus subsp. *lasiocarpus*		.5	<1	

Eremophila latrobei subsp. *filiformis*	.5	<1
Eucalyptus leucophloia subsp. *leucophloia*	2.5	<1
Gompholobium oreophilum	1	<1
Goodenia stobbsiana	.2	<1
Hakea chordophylla	1.5	<1
Hibiscus sturtii var. *campylochlamys*	.3	<1
Indigofera monophylla	.3	<1
Ptilotus calostachyus	.4	<1
Senna glutinosa subsp. *glutinosa*	1	<1
Senna glutinosa subsp. x *luerssenii*	.4	<1
Seringia nephrosperma	.4	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	.6	<1
Solanum lasiophyllum	.3	<1
Triodia vanleeuwenii	.3	45

NT2130

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 712852 **mE** 7544047 **mN** **Lat.** -22.1958 **Long.** 119.0646

Habitat Riparian

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Mixed

Loose Rock 20-50 % cover; 6-20 mm in size **Litter** <1 % cover ; <5 cm in depth

Bare ground 40 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\bi;M ^*Acacia eriopoda*\^shrub\3\bi;G+ ^*Triodia epactia/pungens*\^hummock grass\1\r

Veg. Condition Very Good

Disturbance None obvious

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.3	<1	
Acacia arida		0.6	<1	
Acacia bivenosa		0.7	<1	
Acacia eriopoda		1	<1	
Acacia maitlandii		1	<1	

Afrohybanthus aurantiacus		0.3	<1
Afrohybanthus aurantiacus		0.3	<1
Bonamia pilbarensis		0.05	<1
Corchorus lasiocarpus		0.4	<1
Cymbopogon ambiguus		0.5	<1
Dampiera candicans		0.4	<1
Eragrostis dielsii		0.05	<1
Eragrostis xerophila		0.2	<1
Eucalyptus leucophloia subsp. *leucophloia*		5	1
Evolvulus alsinoides var. *villosicalyx*		0.1	<1
Gossypium robinsonii		1.2	<1
Hibiscus coatesii		0.3	<1
Hibiscus sturtii var. *campylochlamys*		0.2	<1
Indigofera monophylla		0.4	<1
Ptilotus astrolasius		0.15	<1
Ptilotus calostachyus		0.3	<1
Ptilotus exaltatus		0.2	<1
Ptilotus fusiformis		0.3	<1
Senna glutinosa subsp. *glutinosa*		0.7	<1
Senna glutinosa subsp. *pruinosa*		0.7	<1
Seringia exastia	T	0.6	<1
Sida sp. Pilbara (A.A. Mitchell PRP 1543)		0.5	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)		0.8	<1
Sporobolus australasicus		0.15	<1
Tephrosia rosea var. *clementii*		0.3	<1
Triodia epactia		0.5	1
Triodia epactia/pungens		0.4	10

NT2131

Staff KCP **Date** 15/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 731120 **mE** 7551642 **mN** **Lat.** -22.1249 **Long.** 119.2406

Habitat Crest

Aspect S **Slope** Very Gentle

Soil Type Brown sandy loam

Rock Type Quartz

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 0 % cover ; 0 cm in depth

Bare ground 55 % cover **Weeds** 0 % cover

Vegetation M ^*Acacia inaequilatera*\^tree\4\bi;G+ ^*Triodia wiseana*\^hummock grass\1\c

Veg. Condition Excellent

Disturbance None

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia bivenosa		.4	<1	
Acacia inaequilatera		3	<1	
Goodenia stobbsiana		.4	<1	
Heliotropium chrysocarpum		.2	<1	
Ptilotus astrolasius		.3	<1	
Ptilotus calostachyus		.4	<1	

Senna artemisioides subsp. *helmsii*	.4	<1
Stackhousia intermedia	.05	<1
Triodia wiseana	.4	40

NT2132

Staff SOK **Date** 21/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 714526 **mE** 7513908 **mN** **Lat.** -22.4677 **Long.** 119.0849

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 10-20 % cover; 6-20 mm in size **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 80 % cover **Weeds** 1 % cover

Vegetation U+ ^*Acacia aptaneura*,^*Acacia aneura*\^tree\6\r;M ^*Eremophila latrobei* subsp. *filiformis*, ^*Eremophila forrestii*\^shrub\3\bi;G ^*Enneapogon polyphyllus*,^*Eulalia aurea*\^other grass,tussock grass\1\i

Veg. Condition Good

Disturbance Grazing, weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.5	<1	
Abutilon macrum		0.4	<1	
Abutilon otocarpum		0.4	<1	
Acacia aneura		5	2	

Acacia aptaneura	5	5
Acacia pruinocarpa	5	1
Acacia synchronicia	1.5	<1
Aristida contorta	0.1	<1
Aristida inaequiglumis	0.7	<1
Arivela viscosa	0.4	<1
**Bidens subalternans*	0.3	<1
Boerhavia coccinea	0.3	<1
Cheilanthes sieberi subsp. *sieberi*	0.4	<1
Chrysopogon fallax	0.6	<1
Corchorus sidoides subsp. *sidoides*	0.4	<1
Cucumis variabilis	0.4	<1
Dodonaea petiolaris	0.8	<1
Enneapogon polyphyllus	0.3	6
Eremophila forrestii	1.5	<1
Eremophila lanceolata	0.4	<1
Eremophila latrobei subsp. *filiformis*	1.5	<1
Eulalia aurea	0.6	2
Euphorbia sp.	0.2	<1
Evolvulus alsinoides var. *villosicalyx*	0.3	<1
Glycine canescens	0.2	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hakea lorea subsp. *lorea*	0.5	<1
Hibiscus burtonii	0.5	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Maireana planifolia	0.6	<1
Maireana villosa	0.4	<1
Portulaca oleracea	0.1	<1
Psydrax latifolia	2	<1
Ptilotus exaltatus	0.4	<1
Ptilotus obovatus	0.5	<1
Rhagodia eremaea	1	<1
Salsola australis	0.5	<1
Sclerolaena cornishiana	0.3	<1
Senna artemisioides subsp. *oligophylla* x *helmsii*	0.8	<1
**Setaria verticillata*	0.4	<1
Sida platycalyx	0.3	<1
Sida sp. L (A.M. Ashby 4202)	0.3	<1

Sporobolus australasicus	0.3	<1
Tribulus astrocarpus	0.1	<1
Triodia basedowii	0.5	<1

NY2101

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 742248 **mE** 7484330 **mN** **Lat.** -22.7310 **Long.** 119.3587

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown loamy sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 2 % cover ; 0-1 cm in depth

Bare ground 65 % cover **Weeds** <1 % cover

Vegetation M ^*Acacia pachyacra*\^shrub\3\r;G+ ^*Triodia pungens*,^*Triodia basedowii*\^hummock grass\1\c

Veg. Condition Good

Disturbance Grazing, weeds, drilling

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia pachyacra		1.5	2	
Boerhavia coccinea		0.1	<1	
**Cenchrus ciliaris*		0.4	<1	
**Cenchrus setiger*		0.4	<1	
Eragrostis eriopoda		0.4	<1	
Eriachne aristidea		0.3	<1	

Euphorbia australis var. *subtomentosa*	0.2	<1
Euphorbia coghlanii	0.4	<1
Gomphrena affinis subsp. *pilbarensis*	0.3	<1
Hibiscus burtonii	0.5	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Indigofera colutea	0.2	<1
Indigofera monophylla	0.4	<1
Ptilotus astrolasius	0.4	<1
Senna artemisioides subsp. *helmsii*	0.4	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Triodia basedowii	0.5	5
Triodia pungens	0.5	30

NY2102

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740386 **mE** 7484446 **mN** **Lat.** -22.7302 **Long.** 119.3406

Habitat Upper-Slope

Aspect NW **Slope** Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 75 % cover **Weeds** 0 % cover

Vegetation U+ ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\bi;M ^^*Grevillea wickhamii*,*Acacia inaequilatera*,*Senna glutinosa* subsp. *glutinosa*\^shrub\3\r;G ^*Triodia vanleeuwenii*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance Minimal

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.5	<1	
Acacia bivenosa		0.8	<1	
Acacia hilliana		0.5	<1	
Acacia inaequilatera		1.5	<1	

Acacia pruinocarpa	0.5	<1
Corchorus lasiocarpus	0.4	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Eucalyptus leucophloia subsp. *leucophloia*	5	1
Fimbristylis dichotoma	0.3	<1
Fimbristylis simulans	0.2	<1
Goodenia stobbsiana	0.2	<1
Grevillea wickhamii	1.5	<1
Hakea chordophylla	4	<1
Paraneurachne muelleri	0.4	<1
Polycarpaea holtzei	0.1	<1
Ptilotus calostachyus	0.5	<1
Senna artemisioides subsp. *helmsii*	0.5	<1
Senna artemisioides subsp. *oligophylla*	0.5	<1
Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna glutinosa subsp. *pruinosa*	1.5	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Triodia vanleeuwenii	0.4	25

NY2103

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740309 **mE** 7485722 **mN** **Lat.** -22.7187 **Long.** 119.3396

Habitat River

Aspect N/A **Slope** N/A

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 10-20 % cover; 20-60 mm in size **Litter** 10 % cover ; 0-10 cm in depth

Bare ground 80 % cover **Weeds** 15 % cover

Vegetation U+ ^*Eucalyptus victrix*\^tree\7\r;M ^*Acacia citrinoviridis*,^*Acacia pyrifolia* var. *pyrifolia*\^shrub\4\r;G ^*Corchorus crozophorifolius*,^*Cenchrus ciliaris*\^shrub,tussock grass\2\i

Veg. Condition Good

Disturbance Grazing, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon cunninghamii		1.5	<1	
Abutilon fraseri subsp. *fraseri*		0.3	<1	
Acacia citrinoviridis		5	5	
Acacia pruinocarpa		3	<1	
Acacia pyrifolia var. *pyrifolia*		2	3	

Acacia tumida var. *pilbarensis*	3	2
**Aerva javanica*	0.4	<1
Afrohybanthus aurantiacus	0.3	<1
Amaranthus undulatus	0.5	<1
Aristida holathera var. *holathera*	0.4	<1
Atalaya hemiglauca	1	<1
Boerhavia coccinea	0.2	<1
**Cenchrus ciliaris*	0.5	10
**Cenchrus setiger*	0.5	5
**Citrullus amarus*	0.1	<1
Corchorus crozophorifolius	1	7
Cucumis variabilis	0.3	<1
Cymbopogon ambiguus	0.7	<1
Enneapogon lindleyanus	0.4	<1
Eriachne pulchella subsp. *dominii*	0.2	<1
Eriachne tenuiculmis	0.4	<1
Eucalyptus victrix	12	8
Euphorbia australis var. *hispidula*	0.1	<1
Euphorbia coghlanii	0.3	<1
Evolvulus alsinoides var. *decumbens*		<1
Gomphrena cunninghamii	0.1	<1
Grevillea wickhamii subsp. *hispidula*	2	<1
Heliotropium cunninghamii	0.1	<1
Indigofera monophylla	0.3	<1
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*	0.3	<1
Phyllanthus maderaspatensis	0.4	<1
Ptilotus exaltatus	0.4	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.5	<1
Triodia epactia	0.5	<1
Triodia wiseana	0.5	<1
Waltheria indica	0.4	<1

NY2104

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740546 **mE** 7485461 **mN** **Lat.** -22.7210 **Long.** 119.3420

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Brown loam

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-2 cm in depth

Bare ground 50 % cover **Weeds** 50 % cover

Vegetation U+ ^^*Acacia citrinoviridis*,*Acacia pruinocarpa*,*Atalaya hemiglauca*\^tree\6\r;G ^*Cenchrus ciliaris*, ^*Cenchrus setiger*\^tussock grass\1\c

Veg. Condition Degraded

Disturbance Weeds, grazing

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia citrinoviridis		5	2	
Acacia pruinocarpa		5	1	
Acacia pyrifolia var. *pyrifolia*		0.2	<1	
**Aerva javanica*		0.5	<1	
Atalaya hemiglauca		5	1	

Boerhavia coccinea	0.1	<1
**Cenchrus ciliaris*	0.4	30
**Cenchrus setiger*	0.4	10
Eucalyptus camaldulensis subsp. *refulgens*	20	<1
Hakea lorea subsp. *lorea*	3	<1
Ptilotus obovatus		<1
Senna notabilis	0.3	<1
Solanum lasiophyllum	0.4	<1

NY2105

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741858 **mE** 7485018 **mN** **Lat.** -22.7249 **Long.** 119.3548

Habitat Footslope

Aspect E **Slope** Very Gentle

Soil Type Red sand

Rock Type Nil

Loose Rock 0 % cover **Litter** 5 % cover ; 0-1 cm in depth

Bare ground 65 % cover **Weeds** <1 % cover

Vegetation U+ ^*Corymbia hamersleyana*\^tree\6\bi;M ^*Eucalyptus gamophylla*,^*Acacia inaequilatera*\^shrub\4\i;G ^*Triodia schinzii*,^*Triodia pungens*\^hummock grass\1\c

Veg. Condition Very Good

Disturbance Grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.4	<1	
Acacia bivenosa		1.5	<1	
Acacia dictyophleba		0.4	<1	
Acacia inaequilatera		3	4	
Acacia pachyacra		2	<1	

Acacia pruinocarpa	3	<1
Afrohybanthus aurantiacus	0.3	<1
Anthobolus leptomerioides	1.5	<1
Aristida inaequiglumis	0.7	<1
Arivela viscosa	0.3	<1
Bonamia erecta	0.4	<1
**Cenchrus ciliaris*	0,5	<1
Corymbia hamersleyana	6	1
Dicrastylis cordifolia	0.4	<1
Eragrostis eriopoda	0.4	<1
Eriachne aristidea	0.3	<1
Eucalyptus gamophylla	3	5
Euphorbia coghlanii	0.4	<1
Rhagodia eremaea	1.5	<1
Scaevola spinescens	1	<1
Solanum lasiophyllum	0.4	<1
Trichodesma zeylanicum var. *zeylanicum*	0.4	<1
Triodia pungens	0.5	4
Triodia schinzii	0.5	35

NY2106

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740934 **mE** 7482406 **mN** **Lat.** -22.7486 **Long.** 119.3462

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock <2 % cover; 20-60 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 70 % cover **Weeds** <1 % cover

Vegetation M ^*Acacia pachyacra*,^*Acacia ancistrocarpa*\^shrub\3\r;G+ ^*Triodia basedowii*\^hummock grass\1\i

Veg. Condition Very Good

Disturbance Grazing, weeds

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1.5	<1	
Acacia bivenosa		1.5	<1	
Acacia pachyacra		1.5	1	
Acacia pruinocarpa		0.8	<1	
**Cenchrus ciliaris*		0.4	<1	

Eriachne aristidea	0.3	<1
Euphorbia australis var. *subtomentosa*	0.2	<1
Hakea lorea subsp. *lorea*	2	<1
Hibiscus sturtii var. *platychlamys*	0.3	<1
Senna artemisioides subsp. *helmsii*	0.5	<1
Triodia basedowii	0.5	30
Yakirra australiensis var. *australiensis*	0.1	<1

NY2107

Staff SOK **Date** 7/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 742052 **mE** 7482705 **mN** **Lat.** -22.7457 **Long.** 119.3570

Habitat Mid-Slope

Aspect NW **Slope** Gentle

Soil Type Red brown loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 20-60 mm in size **Litter** 1 % cover ; 0-1 cm in depth

Bare ground 70 % cover **Weeds** 0 % cover

Vegetation U+ ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\r;M ^*Acacia orthocarpa*,^*Grevillea wickhamii*\^shrub\3\r;G ^*Triodia vanleeuwenii*\^hummock grass\1\i

Veg. Condition Excellent

Disturbance Minimal

Fire Age 2-5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		1	<1	
Acacia orthocarpa		1.2	3	
Acacia pachyacra		1	<1	
Acacia pruinocarpa		1	<1	
Corchorus lasiocarpus			<1	

Dodonaea coriacea	0.5	<1
Dolichocarpa crouchiana	0.1	<1
Eucalyptus leucophloia subsp. *leucophloia*	6	2
Fimbristylis simulans		<1
Gossypium robinsonii	2	<1
Grevillea wickhamii	1.5	1
Polycarpaea holtzei	0.1	<1
Ptilotus calostachyus	0.3	<1
Senna glutinosa subsp. *glutinosa*	1.5	<1
Senna glutinosa subsp. *pruinosa*	1.5	<1
Trigastrotheca molluginea	0.1	<1
Triodia vanleeuwenii	0.4	25
Triodia wiseana	0.5	<1

NY2108

Staff SOK **Date** 8/05/2021 **Season** E

Revisit

Type Q 100 m x 25 m

Location

MGA Zone 50 742321 **mE** 7482460 **mN** **Lat.** -22.7479 **Long.** 119.3597

Habitat Creek

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 20-60 mm in size **Litter** 15 % cover ; 0-2 cm in depth

Bare ground 35 % cover **Weeds** 5 % cover

Vegetation M+ ^^*Grevillea wickhamii* subsp. *hispidula*,*Acacia tumida* var. *pilbarensis*,*Acacia pyrifolia* var. *pyrifolia*\^shrub\3\i;G ^*Triodia pungens*,^*Tephrosia densa*\^hummock grass,shrub\1\c

Veg. Condition Very Good

Disturbance Weeds, grazing

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon lepidum		0.4	<1	
Acacia pyrifolia var. *pyrifolia*		2	2	
Acacia tumida var. *pilbarensis*		2	3	
Amaranthus undulatus		0.5	<1	
Arivela viscosa		0.4	<1	

**Cenchrus ciliaris*	0.5	2
Crotalaria medicaginea var. *neglecta*	0.4	<1
Cucumis variabilis	0.7	<1
Cymbopogon ambiguus	0.5	<1
Digitaria ctenantha	0.5	<1
Enneapogon lindleyanus	0.4	<1
Enneapogon polyphyllus	0.3	<1
Eriachne pulchella subsp. *dominii*	0.3	<1
Euphorbia biconvexa	0.4	<1
Gomphrena cunninghamii	0.3	<1
Gossypium robinsonii	2	<1
Grevillea wickhamii subsp. *hispidula*	2	5
Hibiscus sturtii var. *platychlamys*	0.5	<1
Indigofera monophylla	0.4	<1
Phyllanthus maderaspatensis	0.5	<1
Polycarpaea longiflora	0.4	<1
Polymeria ambigua	0.1	<1
Ptilotus exaltatus	0.4	<1
Rhynchosia minima	0.3	<1
Senna artemisioides subsp. *oligophylla*	1.5	3
Senna glutinosa subsp. *glutinosa*	1.5	<1
Sida sp. spiciform panicles (E. Leyland s.n. 14/8/90)	0.5	<1
Tephrosia densa	0.5	10
Trianthema pilosum	0.1	<1
Trichodesma zeylanicum var. *zeylanicum*	1	2
Triodia pungens	0.5	50

NY2109

Staff LC **Date** 11/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741861 **mE** 7483914 **mN** **Lat.** -22.7348 **Long.** 119.3550

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy

Rock Type Ironstone

Loose Rock 10-20 % cover; 6-20 mm in size **Litter** 2 % cover ; <5 cm in depth

Bare ground 30 % cover **Weeds** 10 % cover

Vegetation U ^*Acacia pruinocarpa*\^tree\6\r;G+ ^*Triodia epactia/pungens*,^*Cenchrus ciliaris*\^hummock grass, tussock grass\1\c

Veg. Condition Good

Disturbance Drilling activity, weeds, minor cattle evidence

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia pachyacra		1.5	<1	
Acacia pruinocarpa		4	2	
Boerhavia coccinea		0.05	<1	
Bonamia erecta		0.15	<1	
**Cenchrus ciliaris*		0.3	8	

**Cenchrus setiger*	0.3	<1
Corymbia hamersleyana	5	<1
Eremophila longifolia	0.4	<1
Euphorbia australis var. *hispidula*	0.1	<1
Euphorbia coghlanii	0.3	<1
Gossypium australe	0.4	<1
Hakea lorea subsp. *lorea*	3	<1
Indigofera colutea	0.4	<1
Ptilotus exaltatus	0.1	<1
Rhagodia eremaea	0.4	<1
Senna artemisioides subsp. *helmsii*	0.7	<1
Senna artemisioides subsp. *oligophylla*	0.7	<1
Senna artemisioides subsp. *oligophylla*	1.2	<1
Senna glutinosa subsp. x *luerssenii*	0.7	<1
Senna notabilis	0.2	<1
Sporobolus australasicus	0.1	<1
Tephrosia sp. Newman (A.A. Mitchell PRP 29)	0.2	<1
Triodia epactia/pungens	0.3	30
Urochloa occidentalis var. *occidentalis*	0.1	<1

NY2110

Staff LC **Date** 12/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741004 **mE** 7486177 **mN** **Lat.** -22.7145 **Long.** 119.3463

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** 2 % cover ; <5 cm in depth

Bare ground 50 % cover **Weeds** 40 % cover

Vegetation U ^*Acacia citrinoviridis*,^*Acacia pruinocarpa*\^tree\6\r;G+ ^*Cenchrus ciliaris*\^tussock grass\1\c

Veg. Condition Degraded

Disturbance Cattle, weeds, drilling activity

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Abutilon fraseri subsp. *fraseri*		0.3	<1	
Abutilon lepidum		0.3	<1	
Acacia citrinoviridis		4	2	
Acacia pruinocarpa		5	1	
Arivela viscosa		0.4	<1	
Boerhavia coccinea		0.05	<1	

**Cenchrus ciliaris*	0.3	35
**Cenchrus setiger*	0.3	5
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*	0.2	<1
Ptilotus obovatus	0.4	<1
Senna artemisioides subsp. *helmsii*	0.05	<1
Senna notabilis	0.2	<1
Solanum lasiophyllum	0.4	<1
Tribulus hirsutus	0.05	<1
Triodia epactia/pungens	0.4	<1

NY2111

Staff LC **Date** 12/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 740120 **mE** 7484359 **mN** **Lat.** -22.7311 **Long.** 119.3380

Habitat River

Aspect N/A **Slope** N/A

Soil Type Red brown sand

Rock Type Ironstone

Loose Rock >90 % cover; 6-20 mm in size **Litter** 1 % cover ; <5 cm in depth

Bare ground 60 % cover **Weeds** <1 % cover

Vegetation U ^*Eucalyptus victrix*\^tree\7\r;G+ ^*Corchorus crozophorifolius*,^*Tephrosia rosea* var. Fortescue creeks (M.I.H. Brooker 2186)\^shrub\1\i

Veg. Condition Good

Disturbance Weed, minor cattle trampling

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia eriopoda		0.8	<1	
Acacia pyrifolia var. *pyrifolia*		0.8	<1	
Amaranthus undulatus		0.1	<1	
Arivela viscosa		0.2	<1	
Boerhavia coccinea		0.1	<1	

**Cenchrus ciliaris*	0.3	<1
Corchorus crozophorifolius	0.5	10
Crotalaria medicaginea var. *neglecta*	0.15	<1
Cymbopogon ambiguus	0.4	<1
Cyperus vaginatus	0.4	<1
**Echinochloa colona*	0.2	<1
Eucalyptus victrix	14	5
Goodenia lamprosperma	0.2	<1
Grevillea wickhamii	1.5	<1
Phyllanthus maderaspatensis	0.15	<1
Pluchea rubelliflora	0.15	<1
Ptilotus exaltatus	0.05	<1
Sesbania cannabina	0.4	<1
Streptoglossa decurrens	0.1	<1
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	0.3	3
Themeda triandra	0.5	<1
**Tridax procumbens*	0.2	<1

NY2112

Staff LC **Date** 12/05/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741219 **mE** 7485068 **mN** **Lat.** -22.7245 **Long.** 119.3486

Habitat Mid-Slope

Aspect NW **Slope** Gentle

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 50-90 % cover; 6-20 mm in size **Litter** <1 % cover ; <5 cm in depth

Bare ground 50 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus leucophloia* subsp. *leucophloia*\^tree\6\r;G+ ^^*Triodia vanleeuwenii*,*Acacia hilliana*, *Acacia spondylophylla*\^hummock grass,shrub\1\c

Veg. Condition Excellent

Disturbance Minor track, abandoned fauna trapping equipment

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia hilliana			5	
Acacia monticola			<1	
Acacia pruinocarpa			<1	
Acacia spondylophylla			1.5	
Acacia tetragonophylla			<1	

Bulbostylis barbata		<1
Corchorus lasiocarpus		<1
Eriachne pulchella subsp. *dominii*		<1
Eucalyptus leucophloia subsp. *leucophloia*	5	3
Goodenia triodiophila		<1
Grevillea wickhamii		<1
Polycarpaea holtzei		<1
Ptilotus calostachyus		<1
Ptilotus exaltatus		<1
Senna glutinosa subsp. *glutinosa*		<1
Triodia epactia/pungens		<1
Triodia vanleeuwenii		30

NY2113

Staff LC **Date** 16/07/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741758 **mE** 7483071 **mN** **Lat.** -22.7424 **Long.** 119.3541

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sand

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** 2 % cover ; 5-10 cm in depth

Bare ground 60 % cover **Weeds** 5 % cover

Vegetation M+ ^*Acacia inaequilatera*,^*Acacia ancistrocarpa*\^shrub\4\r;G ^*Triodia basedowii*,^*Cenchrus ciliaris*\^hummock grass,tussock grass\2\i

Veg. Condition Good

Disturbance Weeds, cattle, drilling activity nearby

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		2	3	
Acacia elachantha		1.7	<1	
Acacia inaequilatera		2.5	3	
Acacia pachyacra		0.7	<1	
Acacia pruinocarpa		2	<1	

Afrohybanthus aurantiacus	0.2	<1
Arivela viscosa	0.3	<1
Bonamia erecta	0.3	1
**Cenchrus ciliaris*	0.6	4
**Cenchrus setiger*	0.6	1
Dicrastylis cordifolia	0.3	<1
Eragrostis eriopoda	0.2	<1
Euphorbia australis var. *hispidula*	0.2	<1
Gossypium australe	0.2	<1
Gossypium robinsonii	2	<1
Hakea chordophylla	2.5	<1
Hakea lorea subsp. *lorea*	0.5	<1
Hibiscus sturtii var. *platychlamys*	0.2	<1
Indigofera monophylla	0.3	<1
Ptilotus astrolasius	0.3	<1
Ptilotus calostachyus	0.7	<1
Ptilotus obovatus	0.3	<1
Rhagodia eremaea	0.6	<1
Scaevola spinescens	0.3	<1
Senna artemisioides subsp. *helmsii*	0.3	<1
Senna artemisioides subsp. *oligophylla*	1.5	<1
Sida echinocarpa	0.3	<1
Triodia basedowii	0.5	25
Triodia epactia/pungens	0.5	<1

NY2114

Staff LC **Date** 16/07/2021 **Season** E

Revisit

Type Q

Location

MGA Zone 50 742043 **mE** 7483195 **mN** **Lat.** -22.7413 **Long.** 119.3569

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 20-50 % cover; 6-20 mm in size **Litter** <1 % cover ; 1-5 cm in depth

Bare ground 60 % cover **Weeds** 0 % cover

Vegetation U ^*Eucalyptus gamophylla*,^*Corymbia hamersleyana*\^mallee shrub,tree\6\bi;M+ ^*Acacia bivenosa*\^shrub\4\bi;G ^^*Triodia basedowii*,*Triodia vanleeuwenii*,*Acacia adoxa* var. *adoxa*\^hummock grass,shrub\2\i

Veg. Condition Very Good

Disturbance None obvious

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.5	1	
Acacia ancistrocarpa		1.5	<1	
Acacia bivenosa		2	<1	
Acacia citrinoviridis		2	<1	

Acacia pachyacra	0.4	<1
Acacia pruinocarpa	3	<1
Afrohybanthus aurantiacus	0.3	<1
Bonamia erecta	0.3	<1
Corchorus lasiocarpus	0.4	<1
Corymbia hamersleyana	3	<1
Dicrastylis cordifolia	0.3	<1
Eucalyptus gamophylla	3	8
Gossypium robinsonii	1	<1
Hakea lorea subsp. *lorea*	0.7	<1
Indigofera monophylla	0.3	<1
Ptilotus calostachyus	0.5	<1
Ptilotus exaltatus	0.2	<1
Senna artemisioides subsp. *oligophylla*	0.8	<1
Senna glutinosa subsp. x *luerssenii*	1	<1
Sida echinocarpa	0.4	<1
Solanum lasiophyllum	0.2	<1
Triodia basedowii	0.5	20
Triodia basedowii	0.4	<1
Triodia vanleeuwenii	0.5	5

NY2115

Staff KCP **Date** 17/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location Nyidi

MGA Zone 50 739855 **mE** 7483692 **mN** **Lat.** -22.7371 **Long.** 119.3355

Habitat River

Aspect W **Slope** Gentle

Soil Type Rocky brown loam

Rock Type Ironstone

Loose Rock >90 % cover; 60-200 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 50 % cover **Weeds** <1 % cover

Vegetation U+ ^*Eucalyptus victrix*\^tree\7\i;M ^^*Acacia pyrifolia* var. *pyrifolia*,*Grevillea wickhamii* subsp. *hispidula*,*Acacia citrinoviridis*\^shrub\4\r;G ^*Corchorus crozophorifolius*\^shrub\2\c

Veg. Condition Good

Disturbance

Fire Age >10 years

Notes Track in river bed

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia citrinoviridis		2.5	<1	
Acacia pyrifolia var. *pyrifolia*		2	2	
Afrohybanthus aurantiacus		.3	<1	
**Argemone ochroleuca*		.05	<1	
Arivela viscosa		.2	<1	

Asteraceae sp.	.03	<1	
Atalaya hemiglauca	2.5	<1	
**Cenchrus ciliaris*	.15	<1	
Corchorus crozophorifolius	1	35	
Cymbopogon ambiguus	1	<1	
Digitaria brownii	.2	<1	
Eriachne pulchella subsp. *dominii*	.8	<1	
Eucalyptus victrix	20	20	
Euphorbia australis var. *hispidula*	.15	<1	
Gomphrena cunninghamii	.1	<1	
Grevillea wickhamii subsp. *hispidula*	2.5	1	
Heliotropium tenuifolium	.1	<1	
Indigofera monophylla	1	<1	30
Indigofera monophylla	.5	<1	
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*	.15	<1	
Paspalidium clementii	.1	<1	
Phyllanthus maderaspatensis	.3	<1	
Ptilotus exaltatus	.1	<1	
Rhynchosia minima	.3	<1	
Sesbania cannabina	.1	<1	
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)	.5	<1	
Waltheria indica	.5	<1	

NY2116

Staff LC **Date** 17/07/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 739399 **mE** 7484031 **mN** **Lat.** -22.7341 **Long.** 119.3310

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock 0 % cover; 6-20 mm in size **Litter** 3 % cover ; 1-5 cm in depth

Bare ground 70 % cover **Weeds** 1 % cover

Vegetation U ^*Corymbia hamersleyana*\^tree\6\bi;M+ ^^*Acacia ancistrocarpa*,*Acacia bivenosa*,*Petalostylis cassioides*\^shrub\3\r;G ^*Triodia basedowii*\^hummock grass\2\i

Veg. Condition Good

Disturbance Cattle

Fire Age <5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia adoxa var. *adoxa*		0.4	<1	
Acacia ancistrocarpa		1	4	
Acacia bivenosa		2	1	
Acacia dictyophleba		1.5	<1	
Acacia elachantha		1.7	<1	

Acacia pachyacra	0.5	<1
Acacia pruinocarpa	0.4	<1
Acacia sp.	0.5	<1
Acacia tumida var. *pilbarensis*	1.5	<1
Afrohybanthus aurantiacus	0.3	<1
Aristida holathera var. *holathera*	0.3	<1
Bonamia erecta	0.3	<1
**Cenchrus ciliaris*	0.3	1
Corymbia hamersleyana	5	1
Dicrastylis cordifolia	0.4	<1
Eragrostis eriopoda	0.3	<1
Grevillea wickhamii	2	<1
Hakea chordophylla	1	<1
Hibiscus sturtii var. *platychlamys*	0.4	<1
Indigofera monophylla	0.4	<1
Paraneurachne muelleri	0.4	<1
Petalostylis cassioides	2	1
Ptilotus astrolasius	0.3	<1
Ptilotus calostachyus	0.6	<1
Senna artemisioides subsp. *helmsii*	0.4	<1
Senna artemisioides subsp. *oligophylla*	0.4	<1
Senna notabilis	0.2	<1
Triodia basedowii	0.5	20
Yakirra australiensis var. *australiensis*	0.1	<1

NY2117

Staff KCP **Date** 17/07/2021 **Season** A

Revisit

Type Q 50 m x 50 m

Location Nyidi

MGA Zone 50 741118 **mE** 7481814 **mN** **Lat.** -22.7539 **Long.** 119.3481

Habitat Minor drainage line

Aspect SE **Slope** Very Gentle

Soil Type Brown loam

Rock Type Ironstone

Loose Rock 2-10 % cover; 20-60 mm in size **Litter** 1 % cover ; 1 cm in depth

Bare ground 10 % cover **Weeds** 85 % cover

Vegetation U ^*Corymbia hamersleyana*\^tree\6\r;M+ ^^*Acacia tumida* var. *pilbarensis*,*Petalostylis labicheoides*,*Grevillea wickhamii*\^shrub\4\c;G ^^*Cenchrus ciliaris*,*Cenchrus setiger*,*Triodia epactia*\^tussock grass,hummock grass\1\d

Veg. Condition Good

Disturbance Weeds

Fire Age >10 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia ancistrocarpa		2	<1	
Acacia inaequilatera		1	<1	
Acacia pachyacra		0.7	<1	
Acacia tumida var. *pilbarensis*		2.3	30	

Afrohybanthus aurantiacus	.4	<1
Bonamia erecta	.4	<1
**Cenchrus ciliaris*	.4	60
**Cenchrus setiger*	.4	25
Clerodendrum floribundum	1.5	<1
Corchorus sidoides subsp. *sidoides*	.3	<1
Corymbia hamersleyana	7	2
Dicrastylis cordifolia	1	<1
Evolvulus alsinoides var. *villosicalyx*	.3	<1
Gossypium robinsonii	1	<1
Grevillea wickhamii	1	1
Hibiscus sturtii var. *platychlamys*	.2	<1
Indigofera monophylla	.5	<1
Jasminum didymum subsp. *lineare*	1	<1
Petalostylis labicheoides	2	5
Ptilotus astrolasius	.3	<1
Ptilotus calostachyus	.5	<1
Ptilotus exaltatus	.3	<1
Rhynchosia minima	.5	<1
Santalum lanceolatum	1.3	<1
Senna artemisioides subsp. *oligophylla*	.5	<1
Trichodesma zeylanicum var. *zeylanicum*	1	<1
Trigastrotheca molluginea	.2	<1
Triodia epactia	.45	2

NY2118

Staff LC **Date** 17/07/2021 **Season** E

Revisit

Type Q 50 m x 50 m

Location

MGA Zone 50 741158 **mE** 7486961 **mN** **Lat.** -22.7074 **Long.** 119.3477

Habitat Flat

Aspect N/A **Slope** N/A

Soil Type Red brown sandy loam

Rock Type Ironstone

Loose Rock <2 % cover; 6-20 mm in size **Litter** <1 % cover ; 1-5 cm in depth

Bare ground 50 % cover **Weeds** 40 % cover

Vegetation U+ ^*Acacia citrinoviridis*,^*Acacia pruinocarpa*\^tree\6\c;G ^*Cenchrus ciliaris*,^*Cenchrus setiger*\^tussock grass\1\c

Veg. Condition Degraded

Disturbance Weeds, cattle

Fire Age >5 years

Notes

Species	WA Cons.	Height (m)	Cover (%)	Count
Acacia citrinoviridis		6	25	
Acacia pruinocarpa		5	10	
Acacia sclerosperma subsp. *sclerosperma*		2	1	
Aristida contorta		0.2	<1	
Atalaya hemiglauca		1	<1	

**Cenchrus ciliaris*	0.4	35
**Cenchrus setiger*	0.4	5
Corchorus crozophorifolius	0.3	<1
Duperreya commixta	Climber	<1
Enneapogon polyphyllus	0.3	<1
Eriachne pulchella subsp. *dominii*	0.05	<1
Heliotropium tenuifolium	0.2	<1
Notoleptopus decaisnei var. *orbicularis (A.B. Craig 428)*	0.2	<1
Ptilotus astrolasius	0.3	<1
Ptilotus exaltatus	0.3	<1
Ptilotus obovatus	0.3	<1
Senna artemisioides subsp. *helmsii*	0.5	<1

APPENDIX SIX DBCA REPORT FORMS

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Atriplex flabelliformis **TPFL Pop. No:**

OBSERVATION DATE: 6/5/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 130 km NW of Newman, western end of the Fortescue Marsh

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7523535
Long / Easting: 706271
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	15			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Infrastructure corridor	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☒

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☒
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☐
Brown ☐
Yellow ☐
White ☐
Grey ☒
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☐
Seasonally inundated ☒
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Tecticornia indica
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☒ Good ☐ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☐ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479) **TPFL Pop. No:**

OBSERVATION DATE: 10/5/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 145 km NNW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7547599
Long / Easting: 725250
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	200			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Neptunia dimorphantha, Hibiscus brachysiphonius
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

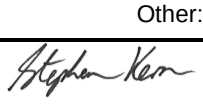
FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	200	50	725250.5	7547599.8	10/05/2021
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	1	50	725293.1	7547559.6	10/05/2021
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	50	50	728326.5	7548190.3	14/05/2021
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	1	50	728430.3	7548172	14/05/2021
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	50	50	728971.4	7548628.6	10/05/2021

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Eragrostis sp. Erect spikelets (P.K. Latz 2122) **TPFL Pop. No:**

OBSERVATION DATE: 21/7/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 130 km NW of Newman, western end of the Fortescue Marsh

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7524479
Long / Easting: 706382
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	100			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☒

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☐
Seasonally inundated ☒
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Tecticornia indica
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed: Stephen Kern Date: 1/2/2022

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RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	100	50	706382.7	7524479.5	21/07/2021
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	100	50	706914	7525484.5	21/07/2021
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	100	50	707354.2	7526728.7	20/07/2021

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GOVERNMENT OF WESTERN AUSTRALIA

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TAXON: Eremophila spongiocarpa **TPFL Pop. No:**

OBSERVATION DATE: 6/5/2021 **CONSERVATION STATUS:** P3 **New population** ☐

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Fortescue Marsh, approximately 130 km NW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7522618
Long / Easting: 705889
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 50%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
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Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☒

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☐
Seasonally inundated ☒
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Tecticornia indica
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

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SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed: Stephen Kern Date: 1/2/2022

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RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Eremophila spongiocarpa	10	50	705889.5	7522618.2	21/07/2021
Eremophila spongiocarpa	10	50	706152.8	7523490.8	6/05/2021
Eremophila spongiocarpa	10	50	706207.9	7523486.2	6/05/2021
Eremophila spongiocarpa	30	50	706263.9	7528209.4	20/07/2021
Eremophila spongiocarpa	1	50	706271.9	7523535.8	6/05/2021
Eremophila spongiocarpa	10	50	706314.4	7524843.8	21/07/2021
Eremophila spongiocarpa	30	50	706319.4	7528173.5	20/07/2021
Eremophila spongiocarpa	1	50	706382.7	7524479.5	21/07/2021
Eremophila spongiocarpa	30	50	706400.1	7528233.9	20/07/2021
Eremophila spongiocarpa	30	50	706440.7	7528231.3	20/07/2021
Eremophila spongiocarpa	30	50	706571.8	7528200.7	20/07/2021
Eremophila spongiocarpa	50	50	706637.3	7524699	21/07/2021
Eremophila spongiocarpa	50	50	706684.3	7524785.5	21/07/2021
Eremophila spongiocarpa	50	50	706749	7524912.8	21/07/2021
Eremophila spongiocarpa	50	50	706775.6	7525067.1	21/07/2021
Eremophila spongiocarpa	30	50	706785.7	7527867.5	20/07/2021
Eremophila spongiocarpa	30	50	706797.9	7528098.6	20/07/2021
Eremophila spongiocarpa	10	50	706811.7	7526340.4	6/05/2021
Eremophila spongiocarpa	50	50	706893	7525814.2	6/05/2021
Eremophila spongiocarpa	10	50	706914	7525484.5	21/07/2021
Eremophila spongiocarpa	50	50	706932.1	7527473.1	11/05/2021
Eremophila spongiocarpa	50	50	706949.3	7528100.1	20/07/2021
Eremophila spongiocarpa	50	50	706970.9	7527622.7	11/05/2021
Eremophila spongiocarpa	5	50	707025.3	7528097.9	20/07/2021
Eremophila spongiocarpa	50	50	707030	7527160.3	9/05/2021
Eremophila spongiocarpa	50	50	707035.8	7526291.8	6/05/2021
Eremophila spongiocarpa	50	50	707078.9	7528015.1	11/05/2021
Eremophila spongiocarpa	50	50	707080.8	7527072.7	9/05/2021
Eremophila spongiocarpa	5	50	707090.7	7525813.1	6/05/2021
Eremophila spongiocarpa	50	50	707109.7	7528127	11/05/2021
Eremophila spongiocarpa	5	50	707115.3	7527056.7	9/05/2021
Eremophila spongiocarpa	10	50	707131.3	7527200.1	20/07/2021
Eremophila spongiocarpa	50	50	707132	7526291.5	6/05/2021
Eremophila spongiocarpa	30	50	707135.8	7527257.6	20/07/2021
Eremophila spongiocarpa	10	50	707215.7	7527033.7	20/07/2021
Eremophila spongiocarpa	30	50	707230.5	7526606.4	20/07/2021
Eremophila spongiocarpa	10	50	707251.5	7527126.4	20/07/2021
Eremophila spongiocarpa	5	50	707261.2	7527132.8	9/05/2021
Eremophila spongiocarpa	10	50	707261.7	7526655.2	20/07/2021
Eremophila spongiocarpa	10	50	707276.8	7527995	21/07/2021
Eremophila spongiocarpa	100	50	707436.5	7527833.2	21/07/2021
Eremophila spongiocarpa	10	50	707507.4	7526865.3	20/07/2021
Eremophila spongiocarpa	20	50	707562.7	7526697.1	20/07/2021
Eremophila spongiocarpa	10	50	707607.5	7528025.2	21/07/2021
Eremophila spongiocarpa	1	50	707649.8	7527100.5	9/05/2021
Eremophila spongiocarpa	10	50	707678.9	7527848.5	21/07/2021
Eremophila spongiocarpa	100	50	735684.8	7515174.8	8/05/2021
Eremophila spongiocarpa	100	50	735716.3	7515259.4	8/05/2021
Eremophila spongiocarpa	50	50	735740.9	7515353.7	8/05/2021

Species	Count	Zone	Easting	Northing	Date
Eremophila spongiocarpa	50	50	735755.3	7515414.5	8/05/2021
Eremophila spongiocarpa	20	50	735790.3	7515214	8/05/2021
Eremophila spongiocarpa	50	50	735840.2	7515393.6	8/05/2021
Eremophila spongiocarpa	50	50	735880.8	7515391.7	8/05/2021
Eremophila spongiocarpa	20	50	735916.4	7515273.1	8/05/2021
Eremophila spongiocarpa	50	50	735945.8	7515366.2	8/05/2021
Eremophila spongiocarpa	20	50	735997.2	7515459.9	12/05/2021
Eremophila spongiocarpa	50	50	758309.9	7507369.1	12/05/2021
Eremophila spongiocarpa	50	50	758982	7506754.2	12/05/2021
Eremophila spongiocarpa	50	50	760970.7	7505244	12/05/2021
Eremophila spongiocarpa	50	50	761409.2	7505725.3	12/05/2021
Eremophila spongiocarpa	20	50	762804.1	7506269.5	8/05/2021
Eremophila spongiocarpa	50	50	762821	7506252.7	8/05/2021
Eremophila spongiocarpa	50	50	762847.2	7506236.7	8/05/2021
Eremophila spongiocarpa	20	50	762887	7506263.6	8/05/2021
Eremophila spongiocarpa	2	50	762889.7	7506388.9	8/05/2021
Eremophila spongiocarpa	20	50	762904.2	7506323.3	8/05/2021

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TAXON: Euphorbia australia var. glabra **TPFL Pop. No:**

OBSERVATION DATE: 23/7/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 140 km NW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒

Lat / Northing: 7507120

Long / Easting: 731664

ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐

No. satellites: _____ Map used: _____

Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	10			
Dead				

Area of pop (m²): _____

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☒
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Acacia aptaneura
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☐ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed: Stephen Kern Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
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TAXON: Euphorbia inappendiculata var. queenslandica **TPFL Pop. No:**

OBSERVATION DATE: 20/7/2021 **CONSERVATION STATUS:** P2 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 80 km NNW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7532088
Long / Easting: 707650
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

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Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☒
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Acacia aptaneura
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed: Stephen Kern Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
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RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Euphorbia inappendiculata var. *queenslandica*	2	50	707650.3	7532088.5	20/07/2021
Euphorbia inappendiculata var. *queenslandica*		50	730247.3	7501776	5/05/2021
Euphorbia inappendiculata var. *queenslandica*	3	50	735167.7	7504690.2	6/05/2021

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GOVERNMENT OF WESTERN AUSTRALIA

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TAXON: Goodenia nuda **TPFL Pop. No:**

OBSERVATION DATE: 6/5/2021 **CONSERVATION STATUS:** P4 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 140 km NNW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7521753
Long / Easting: 706349
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

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HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☒
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1.
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

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RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Goodenia nuda	1	50	706349.1	7521753.4	6/05/2021
Goodenia nuda	10	50	706350.4	7521744.2	6/05/2021
Goodenia nuda	1	50	711556.9	7542616.1	11/05/2021
Goodenia nuda	1	50	726608.4	7536935.9	11/05/2021
Goodenia nuda	5	50	727075.5	7537260	11/05/2021

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TAXON: Lepidium catapycnon **TPFL Pop. No:**

OBSERVATION DATE: 23/7/2021 **CONSERVATION STATUS:** P4 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 80 km NNW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7485558
Long / Easting: 741594
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
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•			
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Flat ☐
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Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☒
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☒

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☒
Clay loam ☐
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1.
2.
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ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☒ Good ☐ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Lepidium catapycnon	3	50	741594.5	7485558.9	23/07/2021
Lepidium catapycnon	5	50	741616.3	7485401.9	23/07/2021
Lepidium catapycnon	30	50	743446.2	7477366.7	8/05/2021
Lepidium catapycnon	30	50	743470.4	7477373.3	8/05/2021
Lepidium catapycnon	30	50	743486.8	7477394.1	8/05/2021

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

Please complete as much of the form as possible, with emphasis on those sections bordered in black. For information on how to complete the form please refer to the Threatened & Priority Flora Report Form (TPRF) manual on the DBCA website at www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants

TAXON: Seringia exastia **TPFL Pop. No:**

OBSERVATION DATE: 23/7/2021 **CONSERVATION STATUS:** T **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 150 km NNW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒

Lat / Northing: 7545563

Long / Easting: 711688

ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐

No. satellites: _____ Map used: _____

Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

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HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☒
Loam ☐
Clay loam ☐
Light clay ☐
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1.
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☒ Good ☐ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

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RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Seringia exastia		50	711688.4	7545563.3	11/05/2021
Seringia exastia		50	712852.3	7544046.9	11/05/2021
Seringia exastia		50	714721.2	7544836.9	11/05/2021
Seringia exastia		50	726608.4	7536935.9	11/05/2021

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TAXON: Stackhousia clementii **TPFL Pop. No:**

OBSERVATION DATE: 20/7/2021 **CONSERVATION STATUS:** P3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Fortescue Marsh, approximately 130 km NW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7528085
Long / Easting: 707011
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	40			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☒
Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
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HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☒

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☐
Seasonally inundated ☒
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Tecticornia indica
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☐ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed: Stephen Kern Date: 1/2/2022

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TAXON: Swainsona thompsoniana **TPFL Pop. No:**

OBSERVATION DATE: 21/7/2021 **CONSERVATION STATUS:** 3 **New population** ☒

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Approximately 140 km NW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:
GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)
DecDegrees ☐ DegMinSec ☐ UTMs ☒
Lat / Northing: 7525484
Long / Easting: 706913
ZONE: 50

METHOD USED:
GPS ☒ Differential GPS ☐ Map ☐
No. satellites: _____ Map used: _____
Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____
(Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____
Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐
Immature fruit ☐ Fruit ☐ Dehisced fruit ☐ Percentage in flower: 100%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

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HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☒
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☐

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☒
Seasonally inundated ☐
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1.
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☒ Good ☐ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☒ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Swainsona thompsoniana	1	50	706914	7525484.5	21/07/2021
Swainsona thompsoniana	1	50	707359.5	7532187.3	20/07/2021
Swainsona thompsoniana	1	50	707508.4	7532072.3	20/07/2021

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TAXON: Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063) **TPFL Pop. No:**

OBSERVATION DATE: 20/7/2021 **CONSERVATION STATUS:** P1 **New population** ☐

OBSERVER/S: Stephen Kern **PHONE** 08 9430 8955

ROLE: Botanist **ORGANISATION:** Ecoscape

EMAIL: stephenk@ecoscape.com.au

DESCRIPTION OF LOCATION (Provide at least nearest town/named locality, and the distance and direction to that place)**:**

Fortescue Marsh, approximately 130 km NW of Newman

Reserve No:

DBCA DISTRICT: Pilbara **LGA:** East Pilbara Land manager present: ☐

DATUM:

GDA94 / MGA94 ☒
AGD84 / AMG84 ☐
WGS84 ☐
Unknown ☐

COORDINATES: (If UTM coords provided, **Zone** is also required)

DecDegrees ☐ DegMinSec ☐ UTMs ☒

Lat / Northing: 7528177

Long / Easting: 706357

ZONE: 50

METHOD USED:

GPS ☒ Differential GPS ☐ Map ☐

No. satellites: _____ Map used: _____

Boundary polygon captured: ☐ Map scale: _____

LAND TENURE:

Nature reserve ☐	Timber reserve ☐	Private property ☐	Rail reserve ☐	Shire road reserve ☐
National park ☐	State forest ☐	Pastoral lease ☐	MRWA road reserve ☐	Other Crown reserve ☐
Conservation park ☐	Water reserve ☐	UCL ☒	SLK/Pole _____ to _____	Specify other: _____

AREA ASSESSMENT: Edge survey ☐ Partial survey ☒ Full survey ☐ Area observed (m²): 2500

EFFORT: Time spent surveying (minutes): _____ No. of minutes spent / 100 m²: _____

POP'N COUNT ACCURACY: Actual ☐ Extrapolation ☐ Estimate ☒ Count method: _____ (Refer to field manual for list)

WHAT COUNTED: Plants ☒ Clumps ☐ Clonal stems ☐

TOTAL POP'N STRUCTURE:

	Mature:	Juveniles:	Seedlings:	Totals:
Alive	See attached			
Dead				

Area of pop (m²): _____

Note: Pls record count as numbers (not percentages) for database.

QUADRATS PRESENT: No. _____ Size _____ Data attached ☐ Total area of quadrats (m²): _____

Summary Quad. Totals: Alive				

REPRODUCTIVE STATE: Clonal ☐ Vegetative ☐ Flowerbud ☐ Flower ☐ Immature fruit ☐ Fruit ☒ Dehisced fruit ☐ Percentage in flower: 0%

CONDITION OF PLANTS: Healthy ☒ Moderate ☐ Poor ☐ Senescent ☐

COMMENT:

THREATS - type, agent and supporting information: Eg clearing, too frequent fire, weed, disease. Refer to field manual for list of threats & agents. **Specify agent** where relevant. Rate current and potential threat impact: N=Nil, L=Low, M=Medium, H=High, E=Extreme Estimate time to potential impact: S=Short (<12mths), M=Medium (<5yrs), L=Long (5yrs+)	**Current impact (N-E)**	**Potential Impact (L-E)**	**Potential Threat Onset (S-L)**
• Potential infrastructure	N	M	M
•			
•			

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

Threatened and Priority Flora Report Form

Version 1.4 March 2021

HABITAT INFORMATION:

LANDFORM:
Crest ☐
Hill ☐
Ridge ☐
Outcrop ☐
Slope ☐
Flat ☐
Open depression ☐
Drainage line ☐
Closed depression ☐
Wetland ☒

ROCK TYPE:
Granite ☐
Dolerite ☐
Laterite ☐
Ironstone ☐
Limestone ☐
Quartz ☐
Specify other: _____

LOOSE ROCK:
(on soil surface; eg gravel, quartz fields)
0-10% ☐
10-30% ☐
30-50% ☐
50-100% ☐

SOIL TYPE:
Sand ☐
Sandy loam ☐
Loam ☐
Clay loam ☐
Light clay ☒
Peat ☐
Specify other: _____

SOIL COLOUR:
Red ☒
Brown ☒
Yellow ☐
White ☐
Grey ☐
Black ☐
Specify other: _____

DRAINAGE:
Well drained ☐
Seasonally inundated ☒
Permanently inundated ☐
Tidal ☐

Specific **Landform** Element: _____
(Refer to field manual for additional values)

CONDITION OF SOIL: Dry ☒ Moist ☐ Waterlogged ☐ Inundated ☐

VEGETATION CLASSIFICATION*:
Eg: **1**. Banksia woodland (B. attenuata, B. ilicifolia); **2**. Open shrubland (Hibbertia sp., Acacia spp.) ; **3**. Isolated clumps of sedges (M.tetragona)

1. Tecticornia indica
2.
3.
4.

ASSOCIATED SPECIES:

Other (non-dominant) spp

* Please record up to four of the most representative vegetation layers (with up to three dominant species in each layer). Structural Formations should follow 2009 *Australian Soil and Land Survey Field Handbook* guidelines – refer to field manual for further information and structural formation table.

CONDITION OF HABITAT: Pristine ☐ Excellent ☐ Very good ☐ Good ☒ Degraded ☐ Completely degraded ☐

COMMENT:

FIRE HISTORY: **Last Fire:** Season/Month: _____ Year: _____ **Fire Intensity:** High ☐ Medium ☐ Low ☐ No signs of fire ☒

FENCING: Not required ☒ Present ☐ Replace / repair ☐ Required ☐ Length req'd: _____

ROADSIDE MARKERS: Not required ☒ Present ☐ Replace / reposition ☐ Required ☐ Quantity req'd: _____

OTHER COMMENTS: (Please include recommended management actions and/or implemented actions - include date. Also include details of additional data available, and how to locate it.)

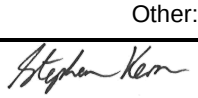
FLORA AUTHORISATION / LICENCE No: FB62000001 Note if only observing plants (i.e. no specimens or plant matieral is taken) then no authorisation/licence is required. For further information on authorisation and licening requirements see the Threatened Flora and Wildlife Licensing pages on DBCA's website. Any actions carried out under authorisations/licences should be recorded above in the OTHER COMMENTS section.

SPECIMEN: Collectors No: _ WA Herb. ☐ Regional Herb. ☐ District Herb. ☐ Other:

LODGEMENT: WA Herb Lodgement No: _____

ATTACHED: Map ☐ Mudmap ☐ Photo ☐ GIS data ☐ Field notes ☐ Other: _____

COPY SENT TO: Regional Office ☐ District Office ☐ Other: _____

Submitter of Record: Stephen Kern Role: Botanist Signed:  Date: 1/2/2022

Please return completed form to **Species And Communities Program** DBCA,
Locked Bag 104, BENTLEY DELIVERY CENTRE WA 6983 **OR** email to: flora.data@dbca.wa.gov.au

RECORDS: Please forward to **Flora Administrative Officer,** Species and Communities Program.

Record entered by:_____ **Sheet No.:**_____ **Record Entered in Database** ❑

Species	Count	Zone	Easting	Northing	Date
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	40	50	706357.4	7528177.4	20/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	4	50	707011.5	7527957.7	20/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	50	50	707031.7	7527791.6	11/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	50	50	707078.1	7528004.5	11/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	10	50	707113.5	7527971.8	21/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		50	707134.1	7526301.9	6/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	30	50	707140.4	7527246.8	20/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)		50	707159.5	7526297.1	6/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	10	50	707262.2	7526655.5	20/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	5	50	707354.2	7526728.7	20/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	2	50	707361.4	7527118.5	9/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	10	50	707447.8	7527832.2	21/07/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	10	50	707625.9	7527036.2	9/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	3	50	735992.4	7515461.3	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	300	50	745597.7	7515093.1	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	300	50	745663.1	7515046.3	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	300	50	758278.6	7507376.1	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	3000	50	762161.4	7505957.8	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	200	50	762784.7	7506284.7	8/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	200	50	762904.2	7506346.1	8/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	50	50	763487.3	7506601.1	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	50	50	763508.6	7506561.3	12/05/2021
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	5	50	763517	7506606.7	12/05/2021

APPENDIX SEVEN FLORISTIC ANALYSIS DENDROGRAMS

Figure 5: Survey area floristic analysis dendrogram

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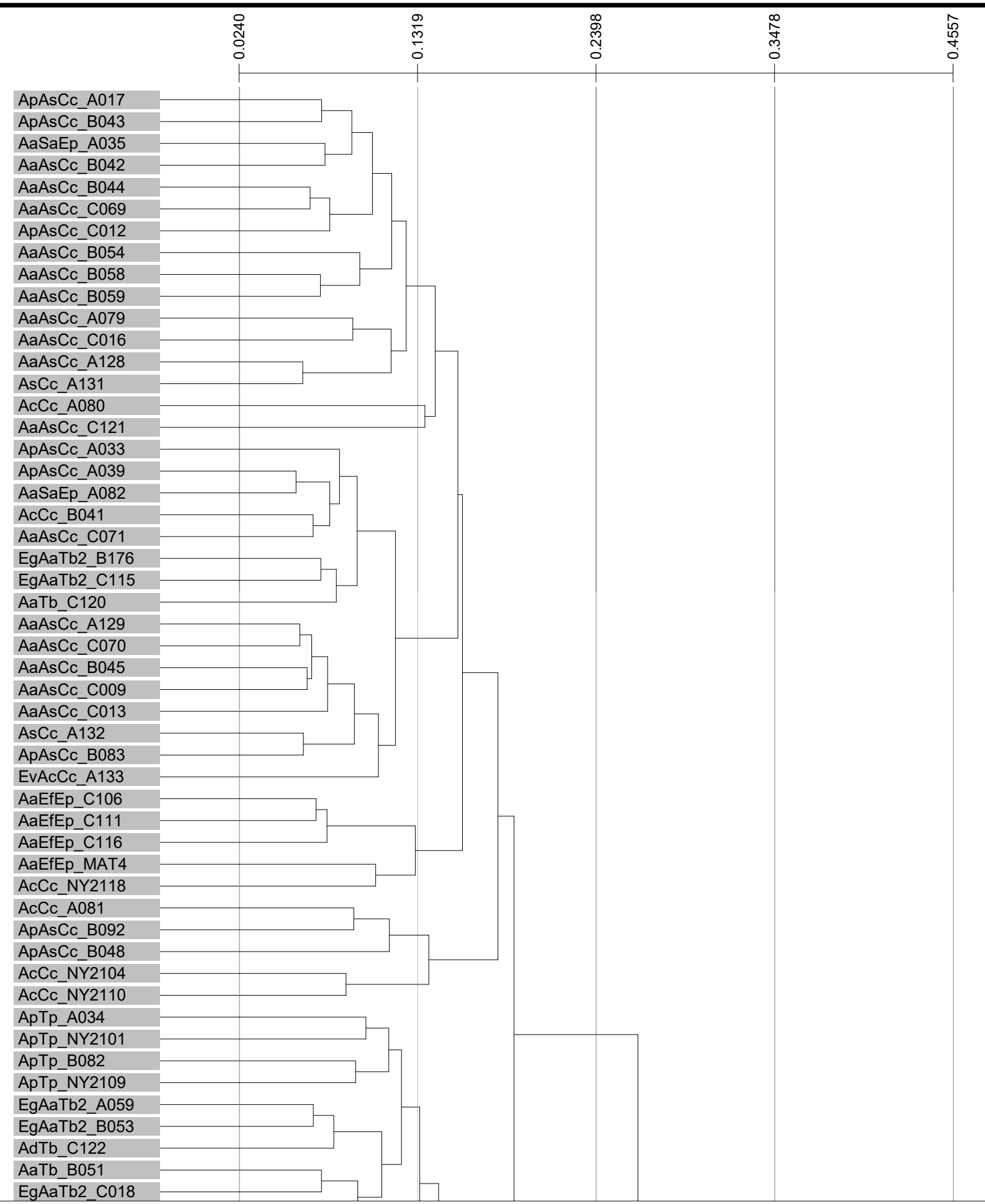
On Association: Two-Step (Columns) Created on: 16:23:43, December 10, 2021

Column Fusion Dendrogram



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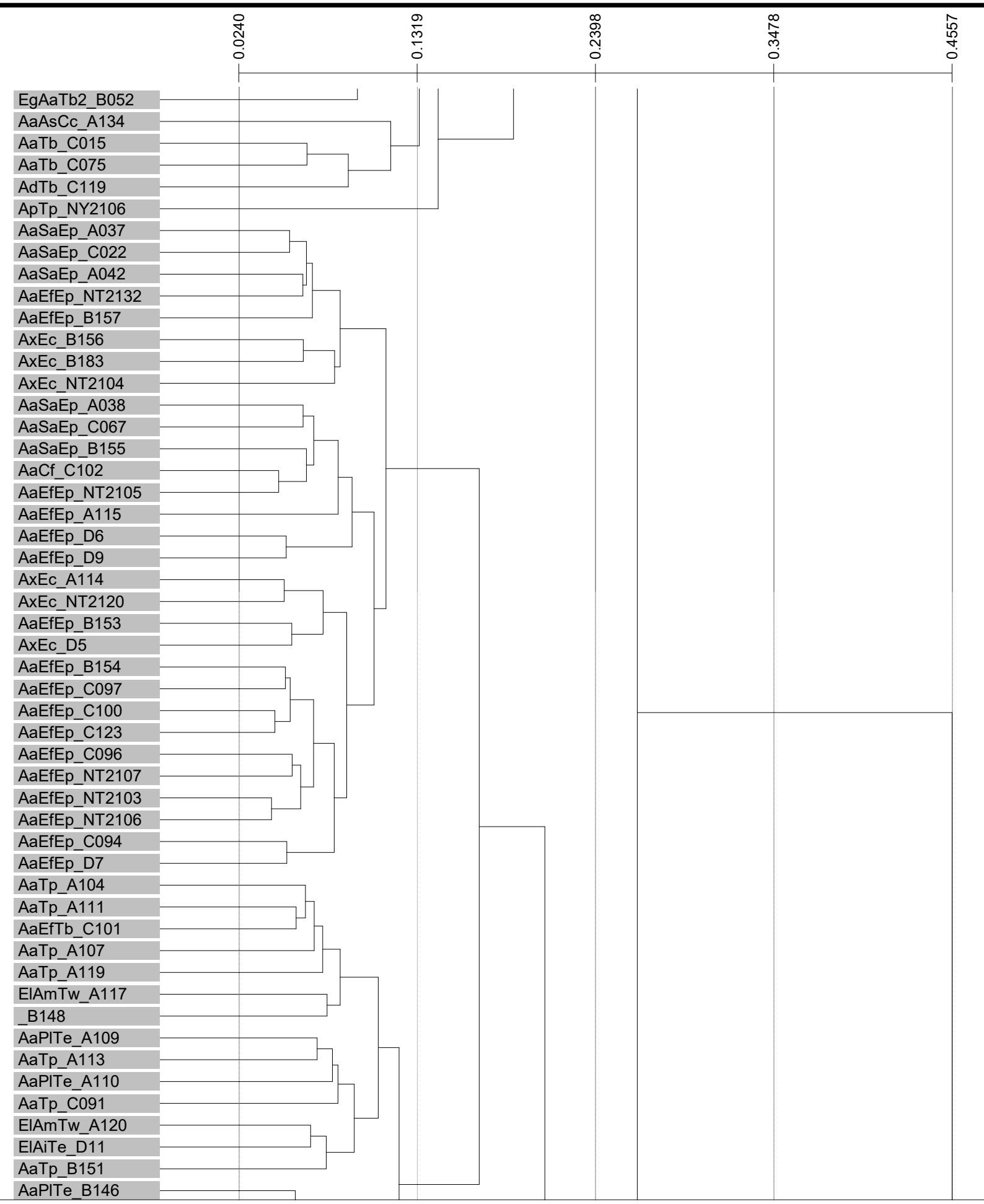

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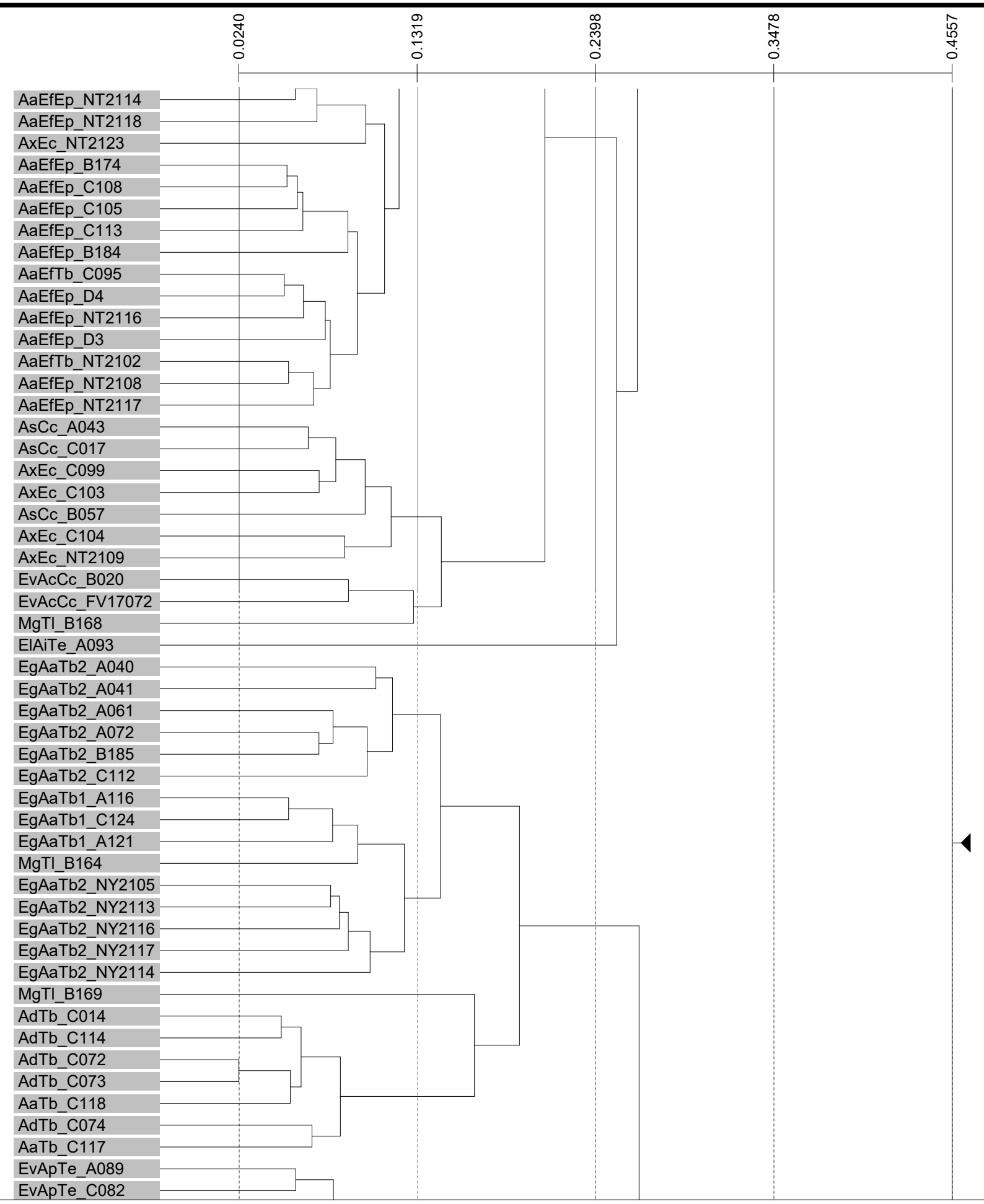

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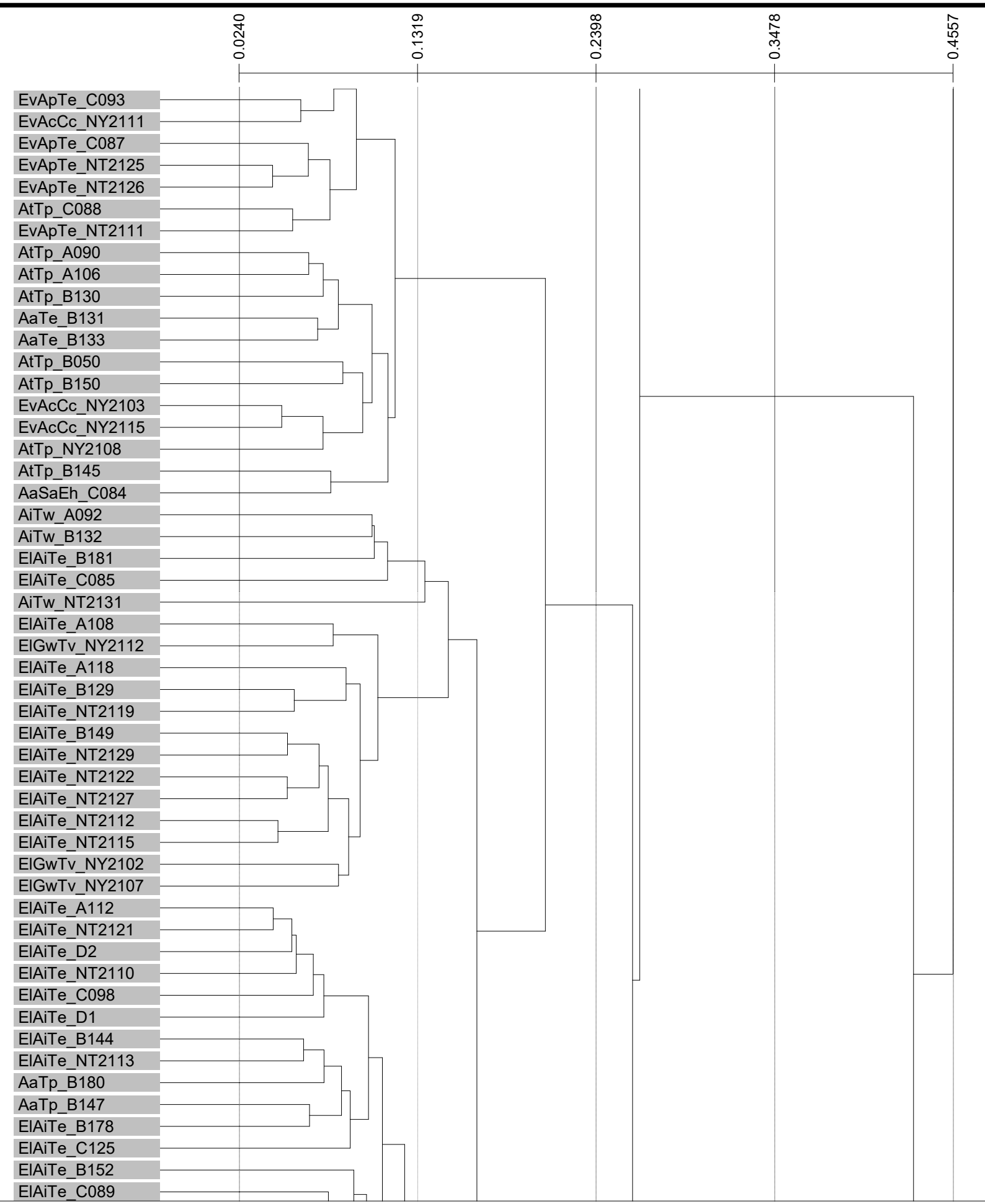

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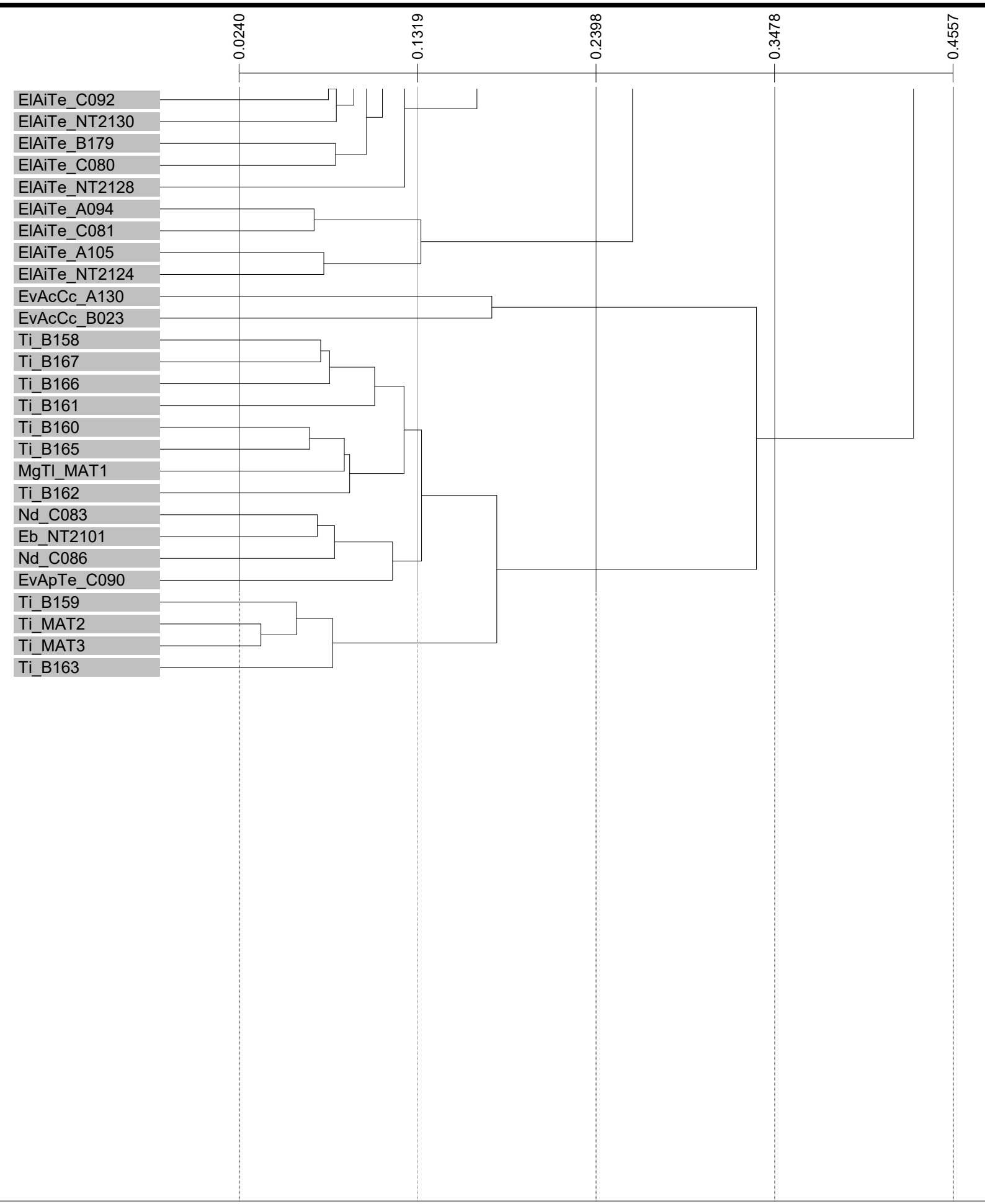

Figure 6: Regional floristic analysis dendrogram

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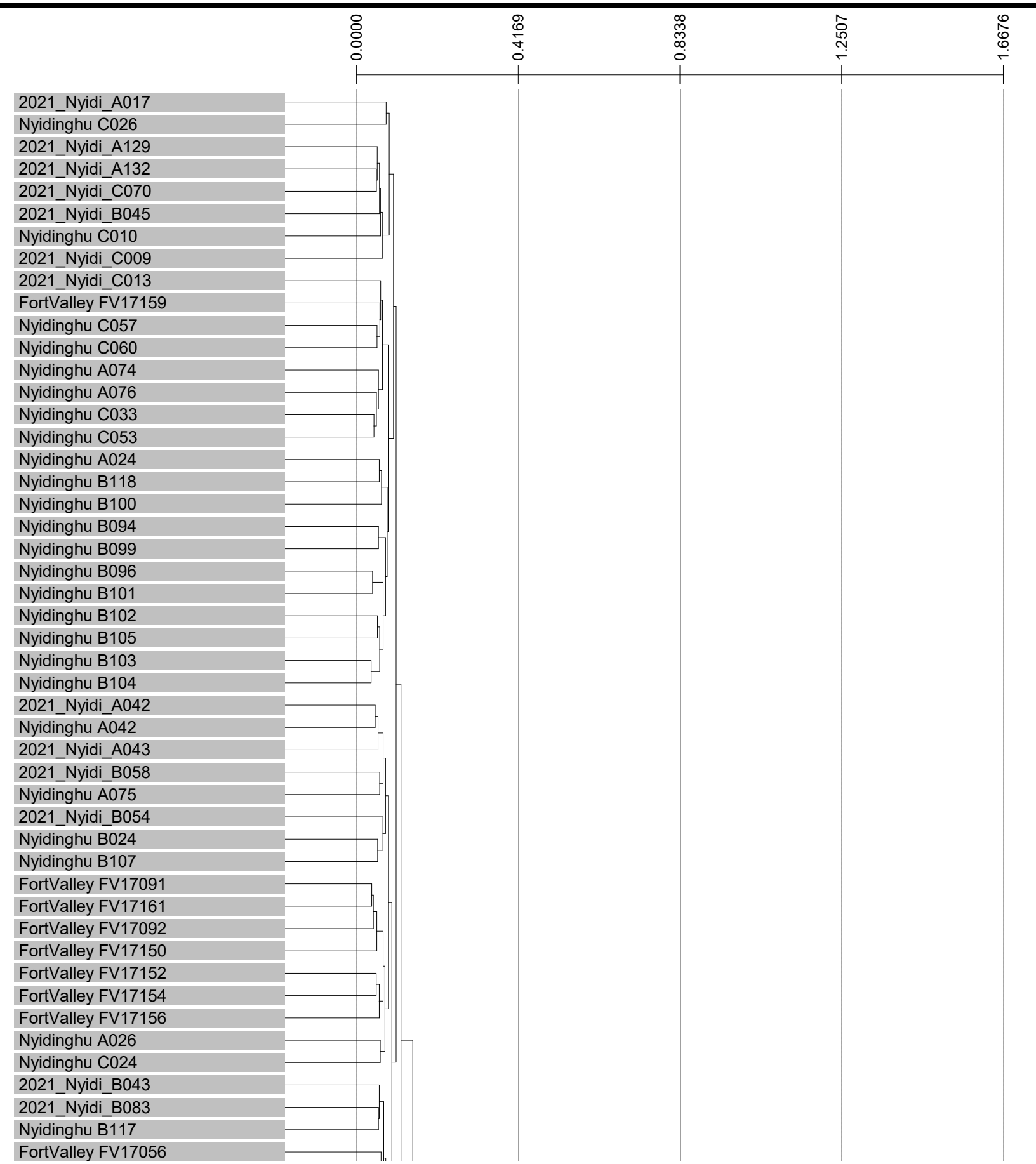

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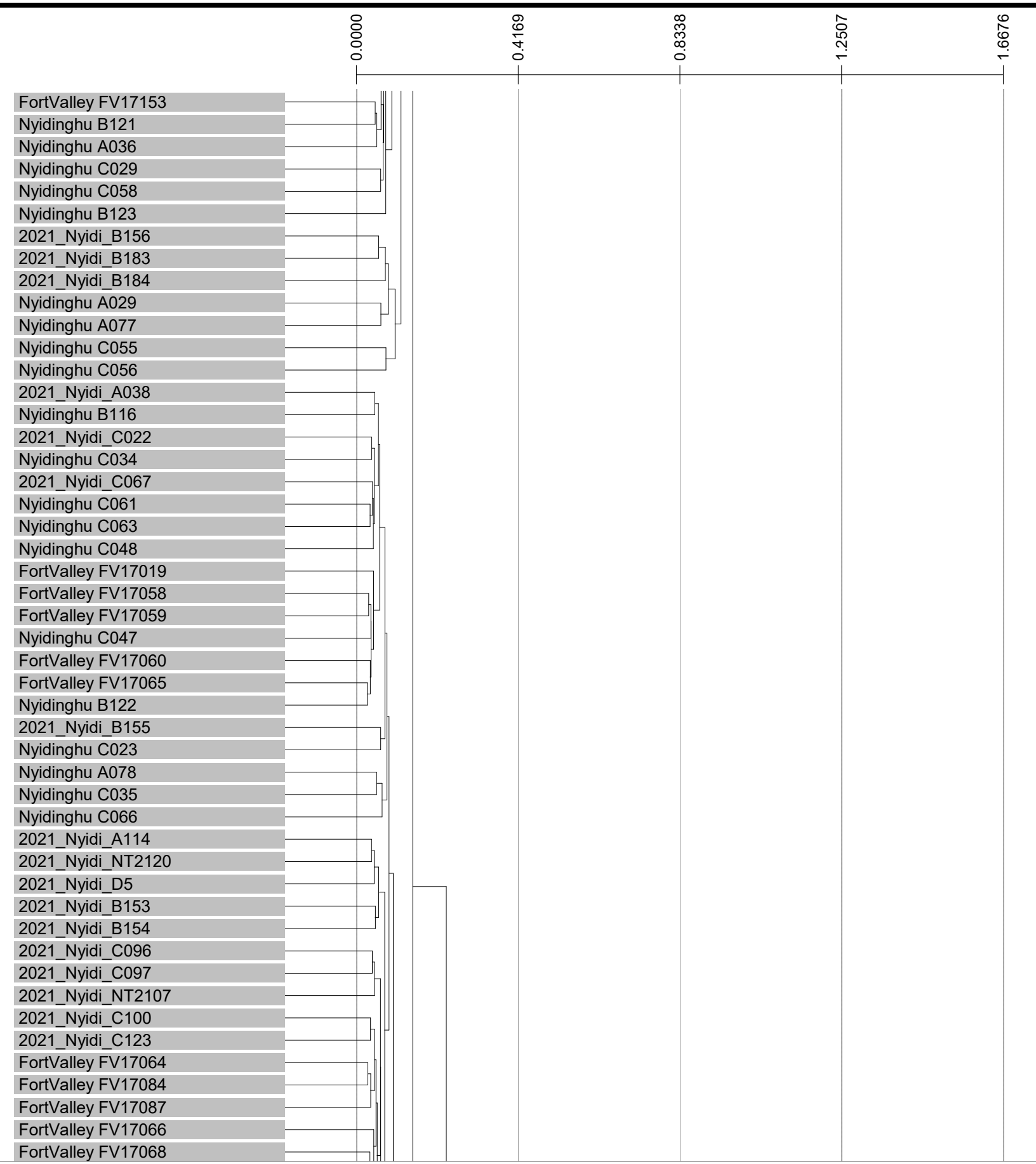

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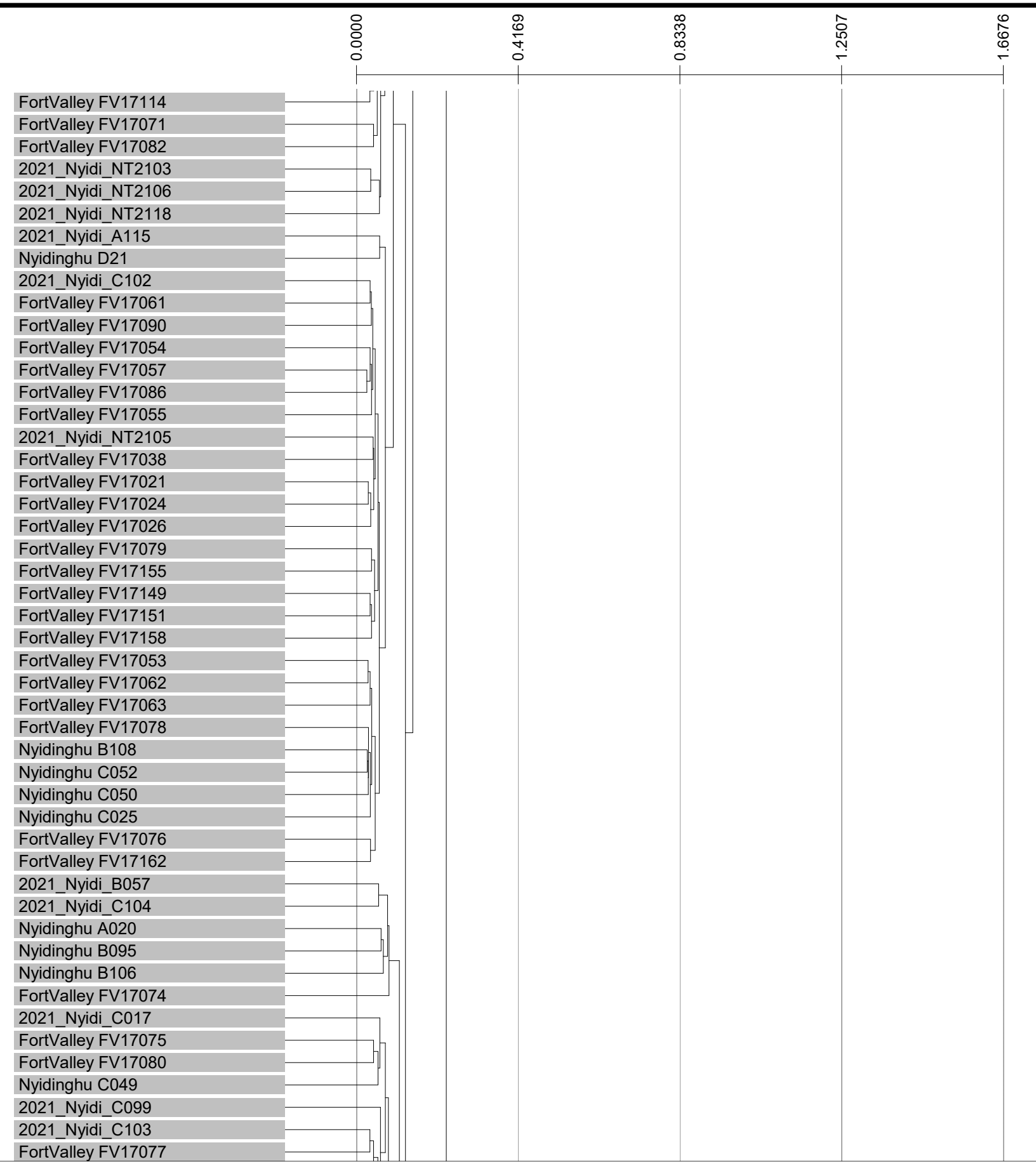

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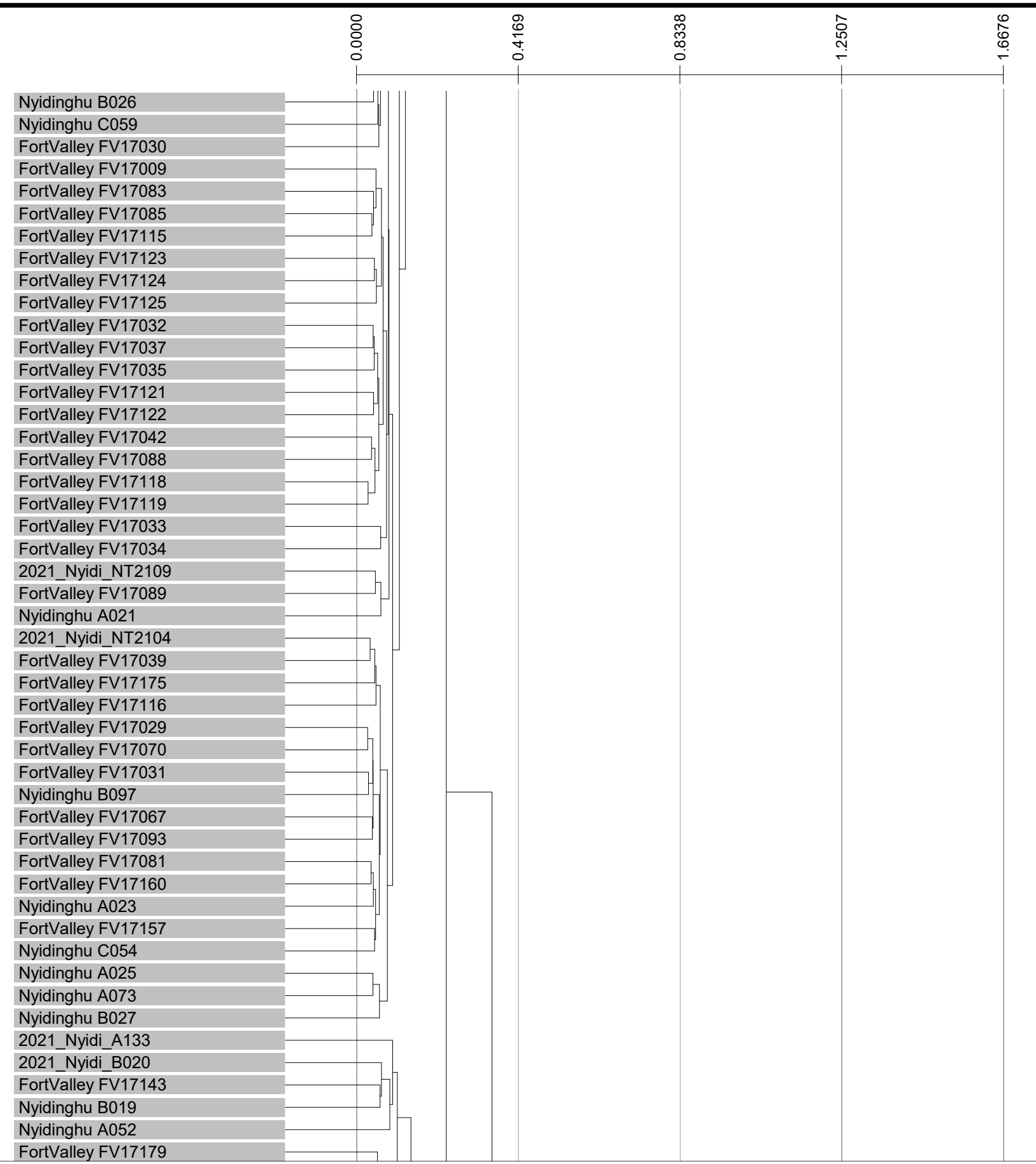

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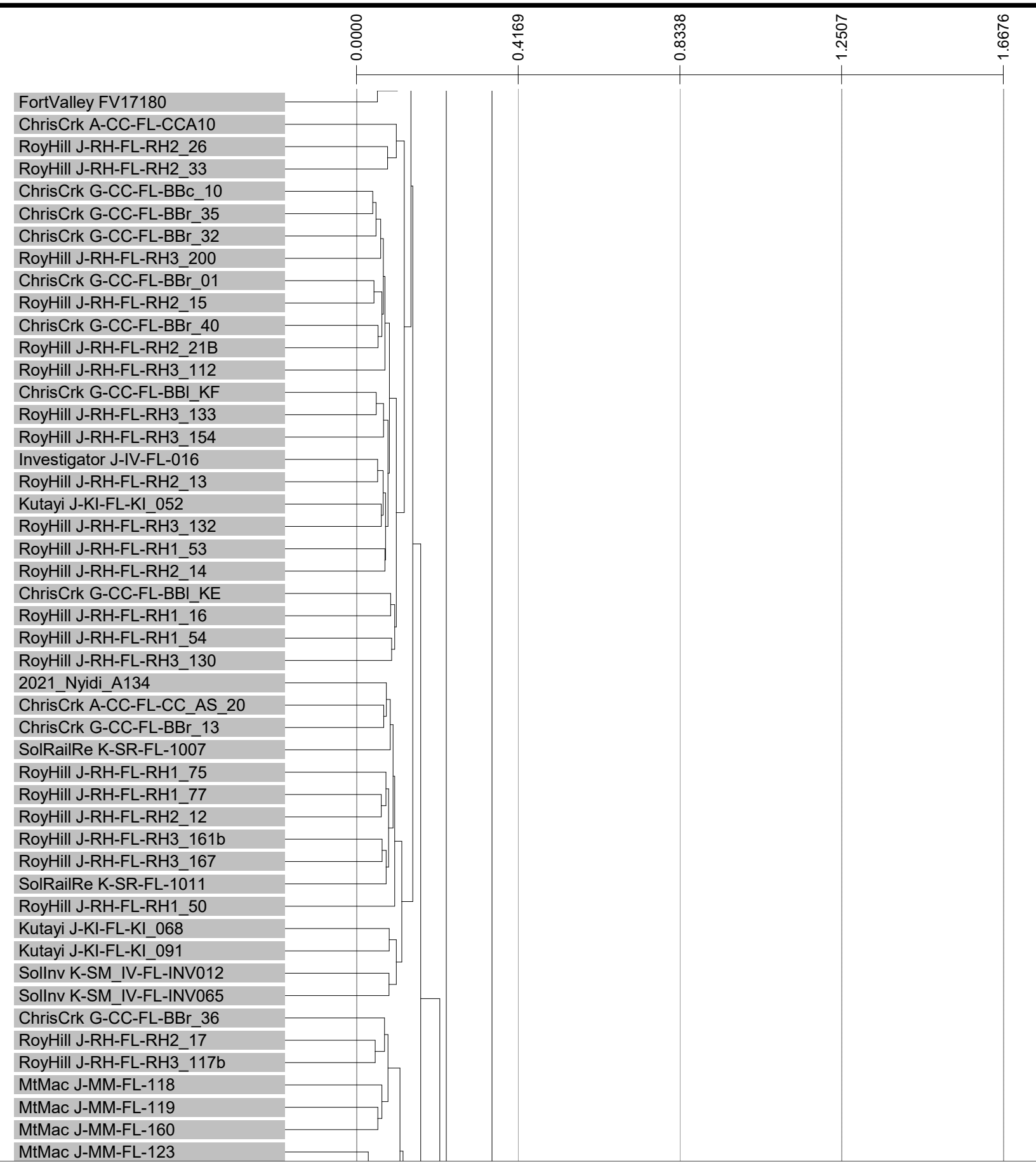

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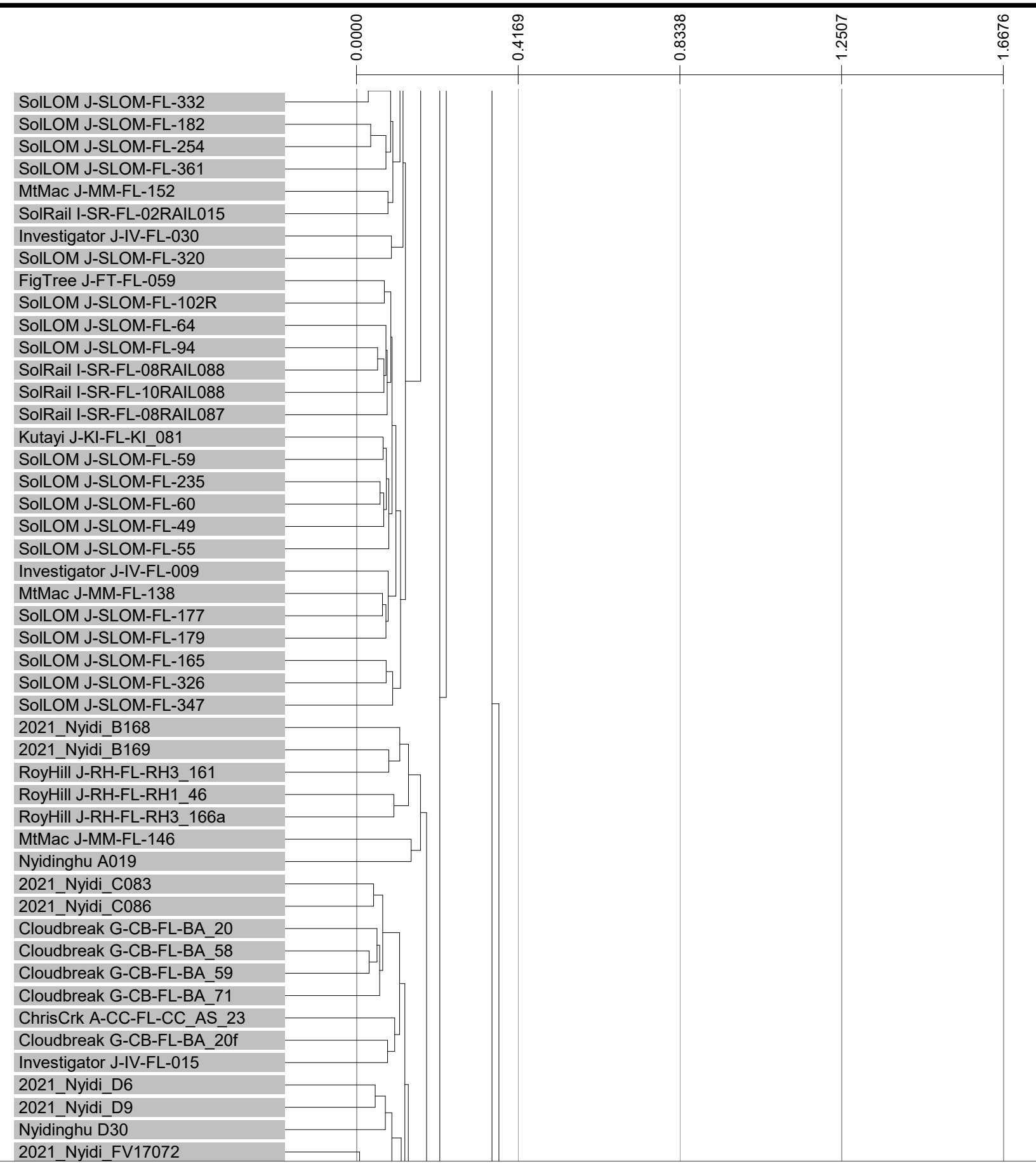

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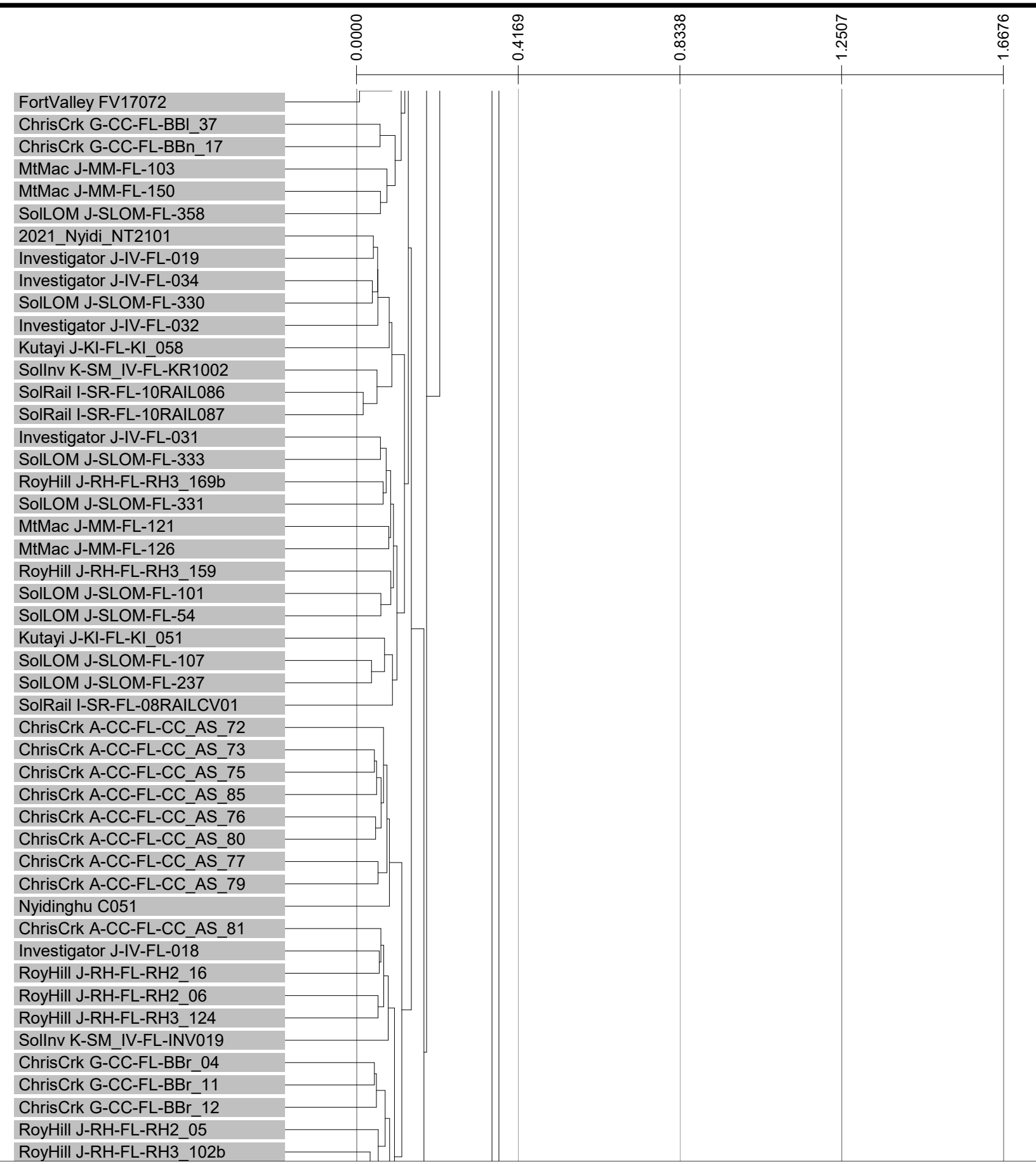

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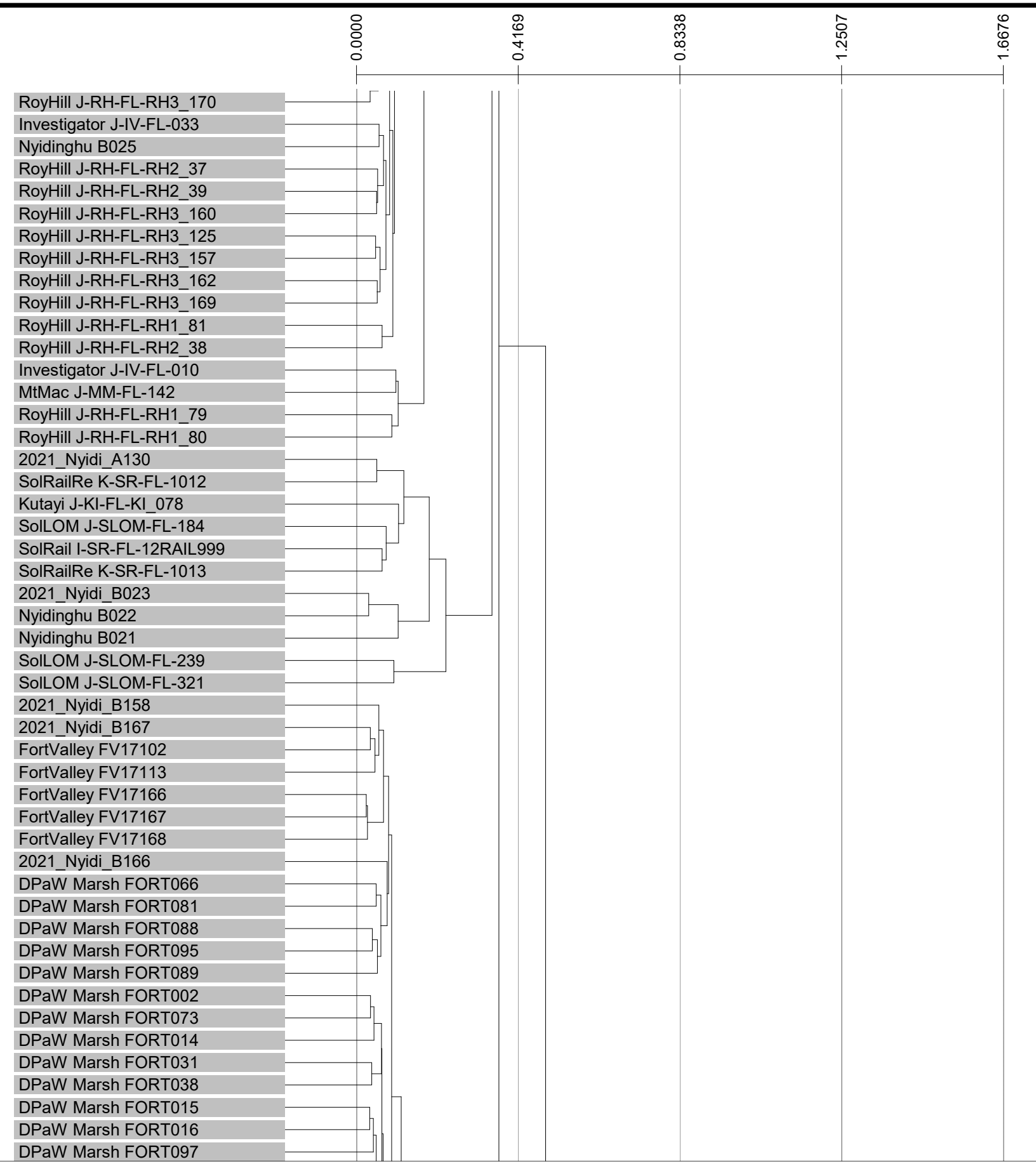

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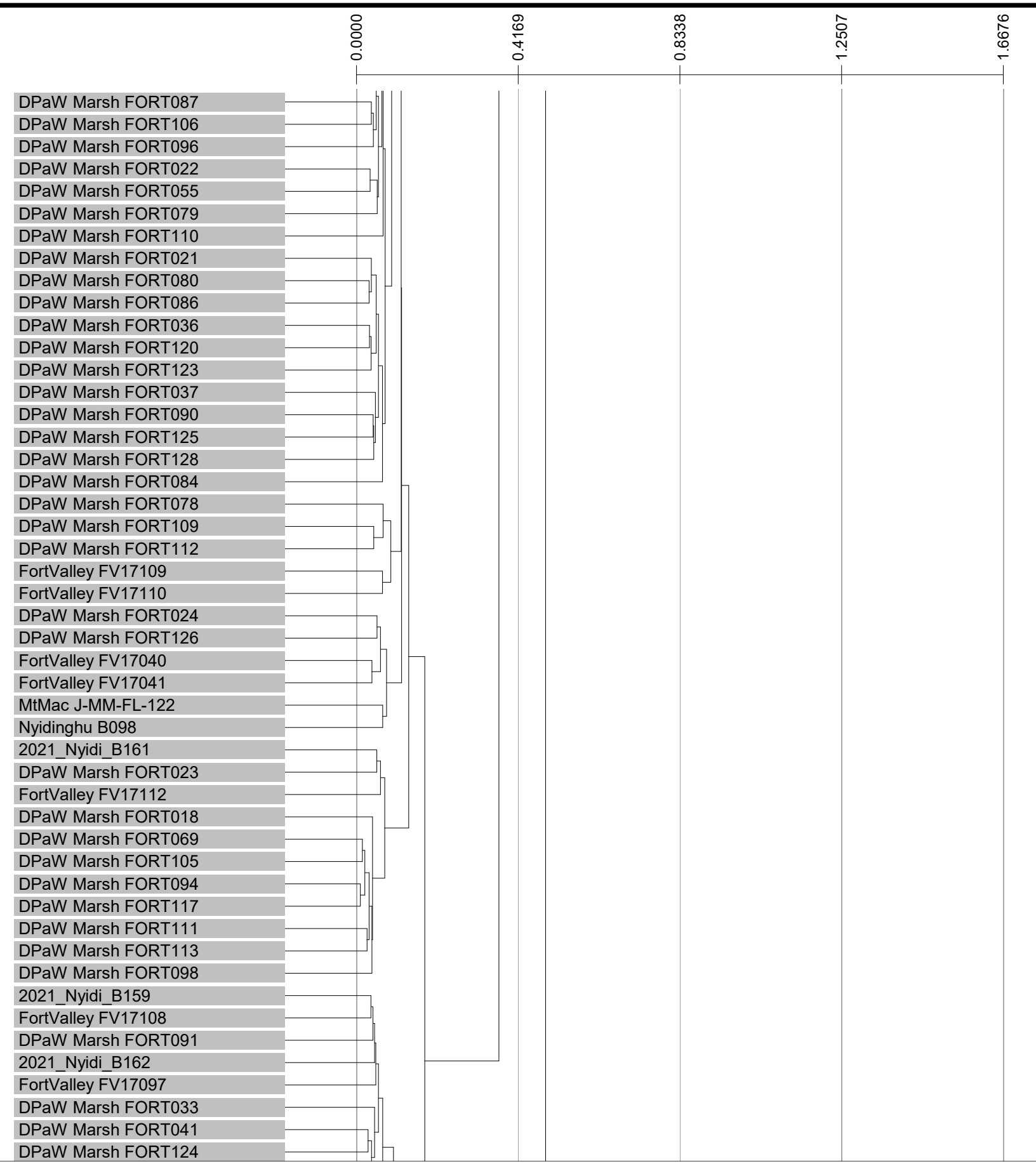

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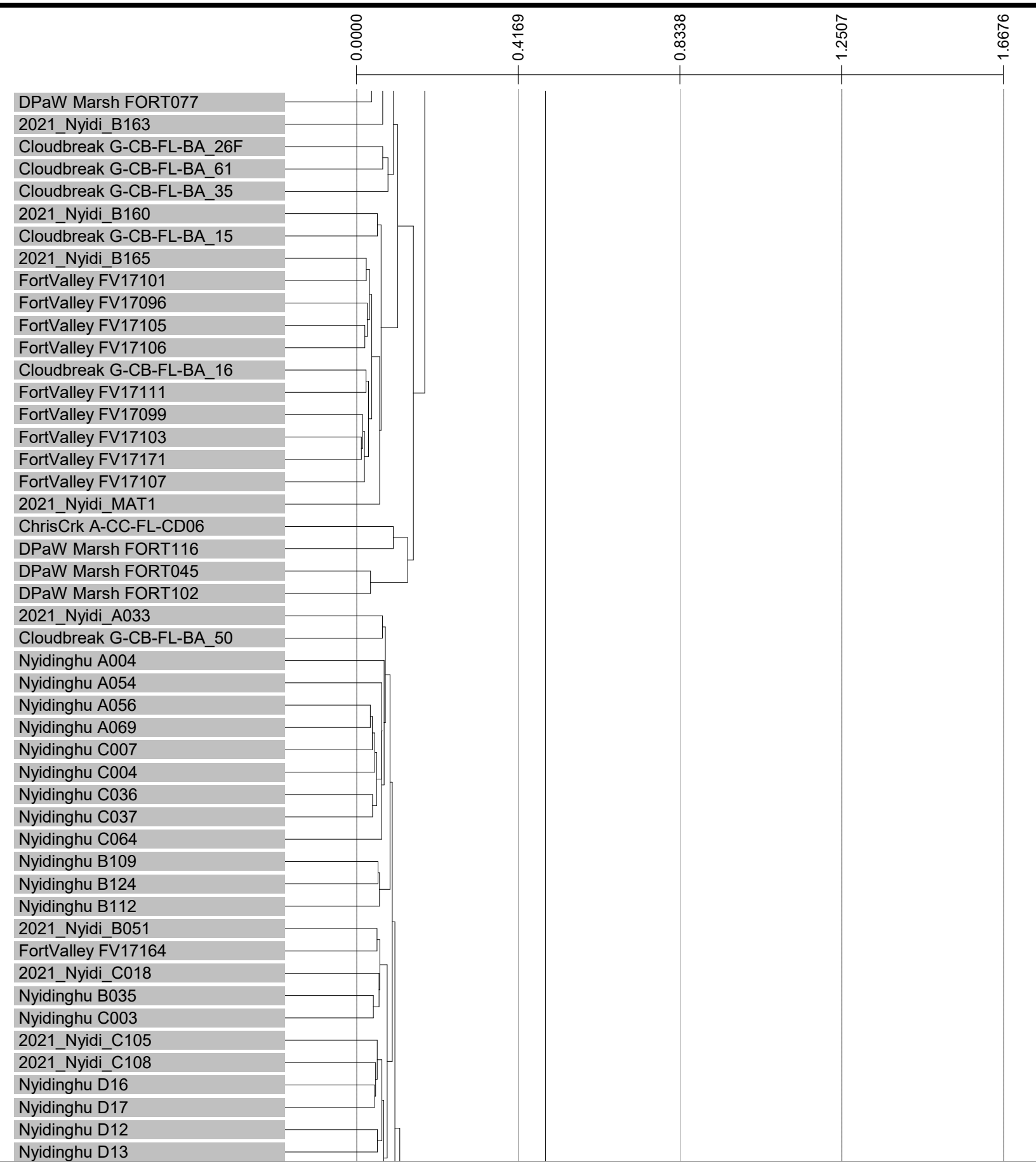

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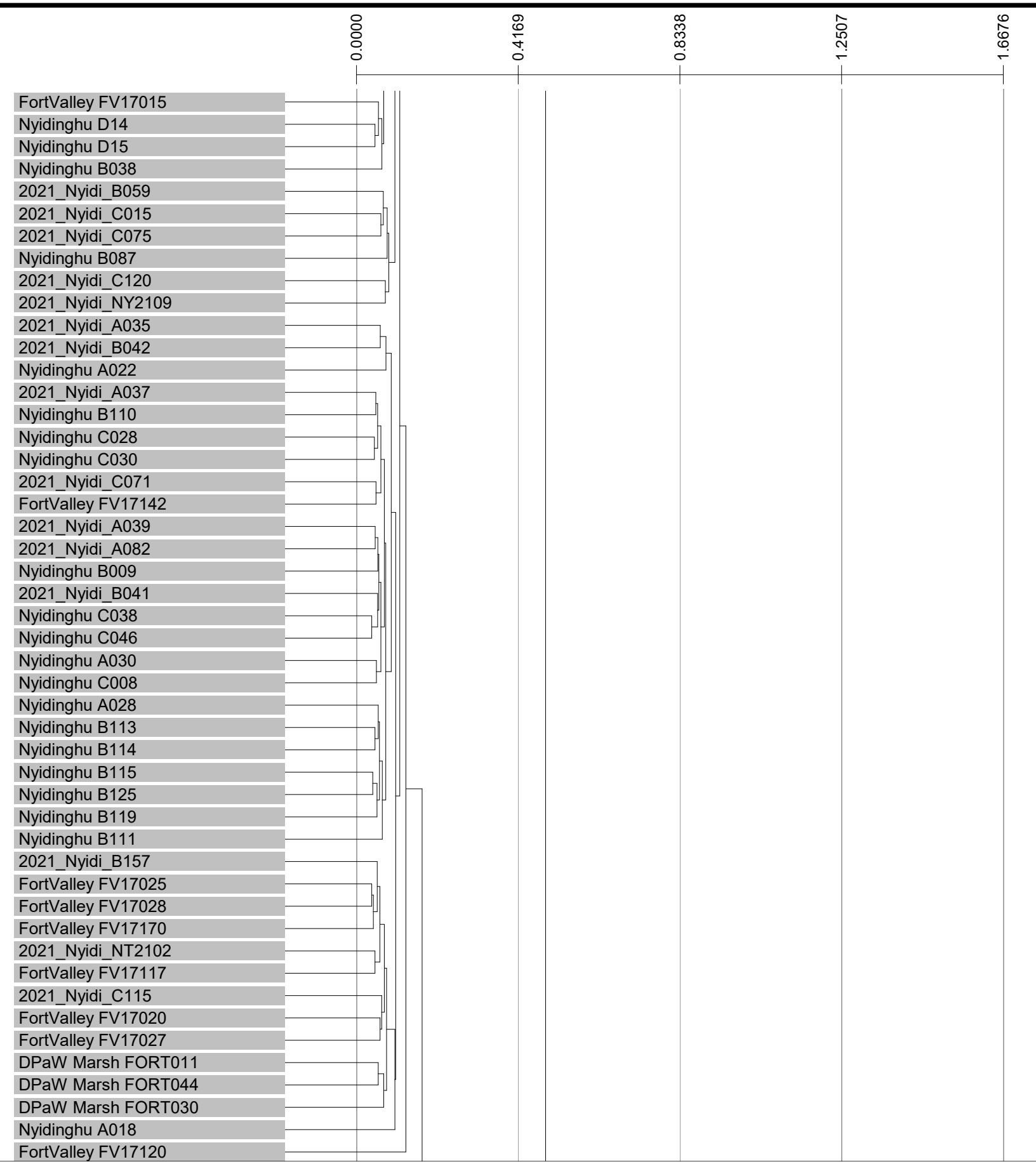

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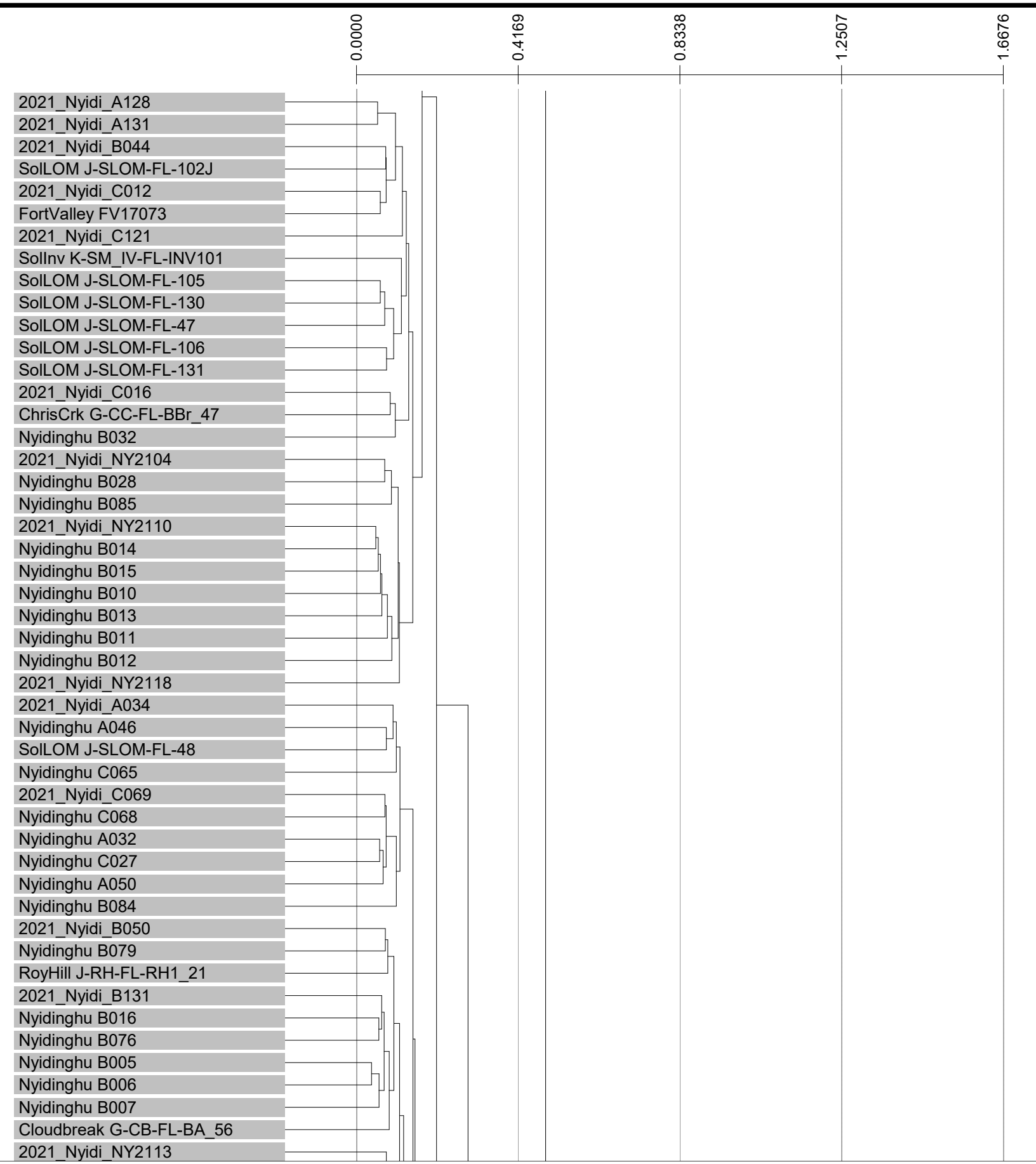

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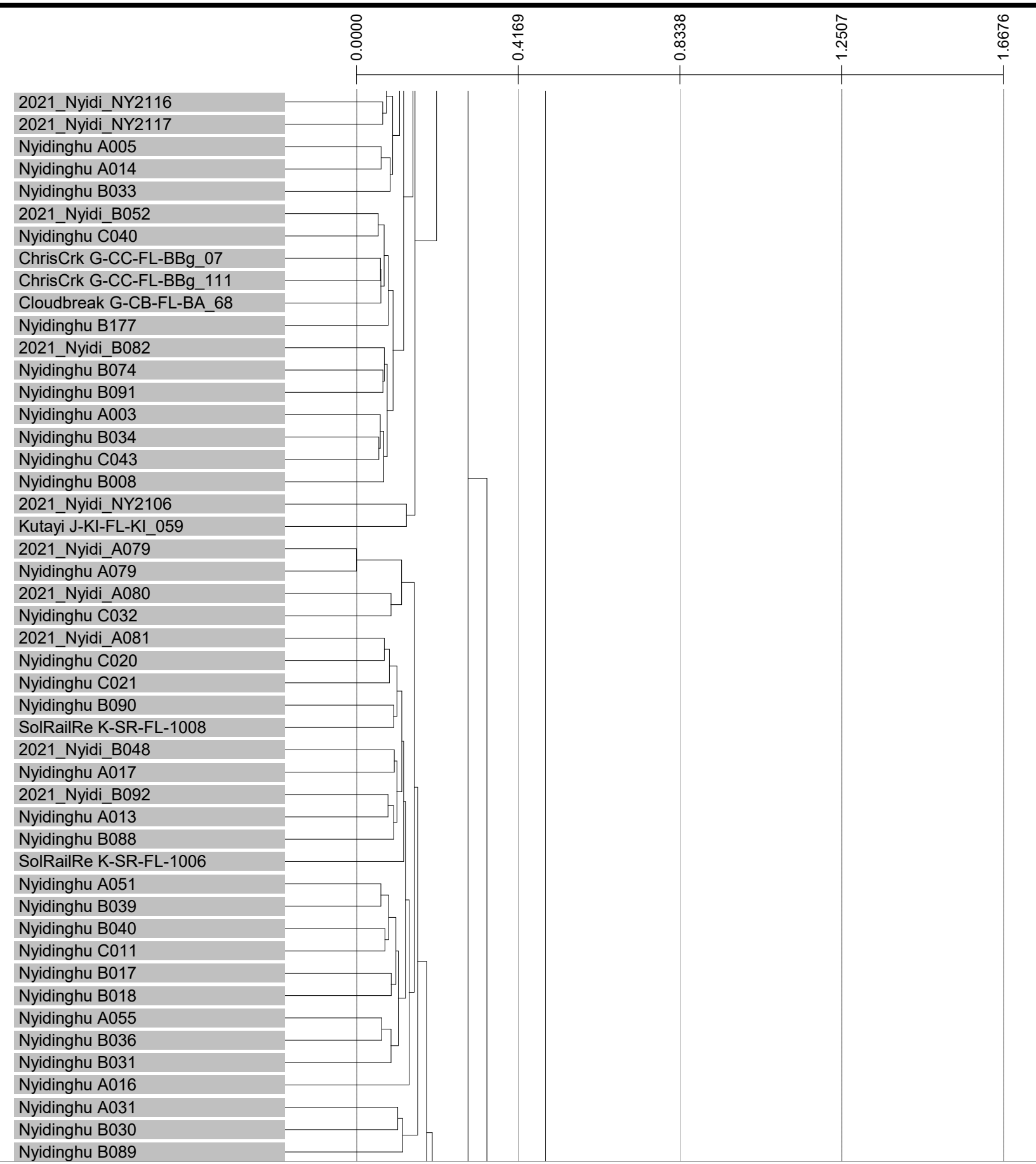

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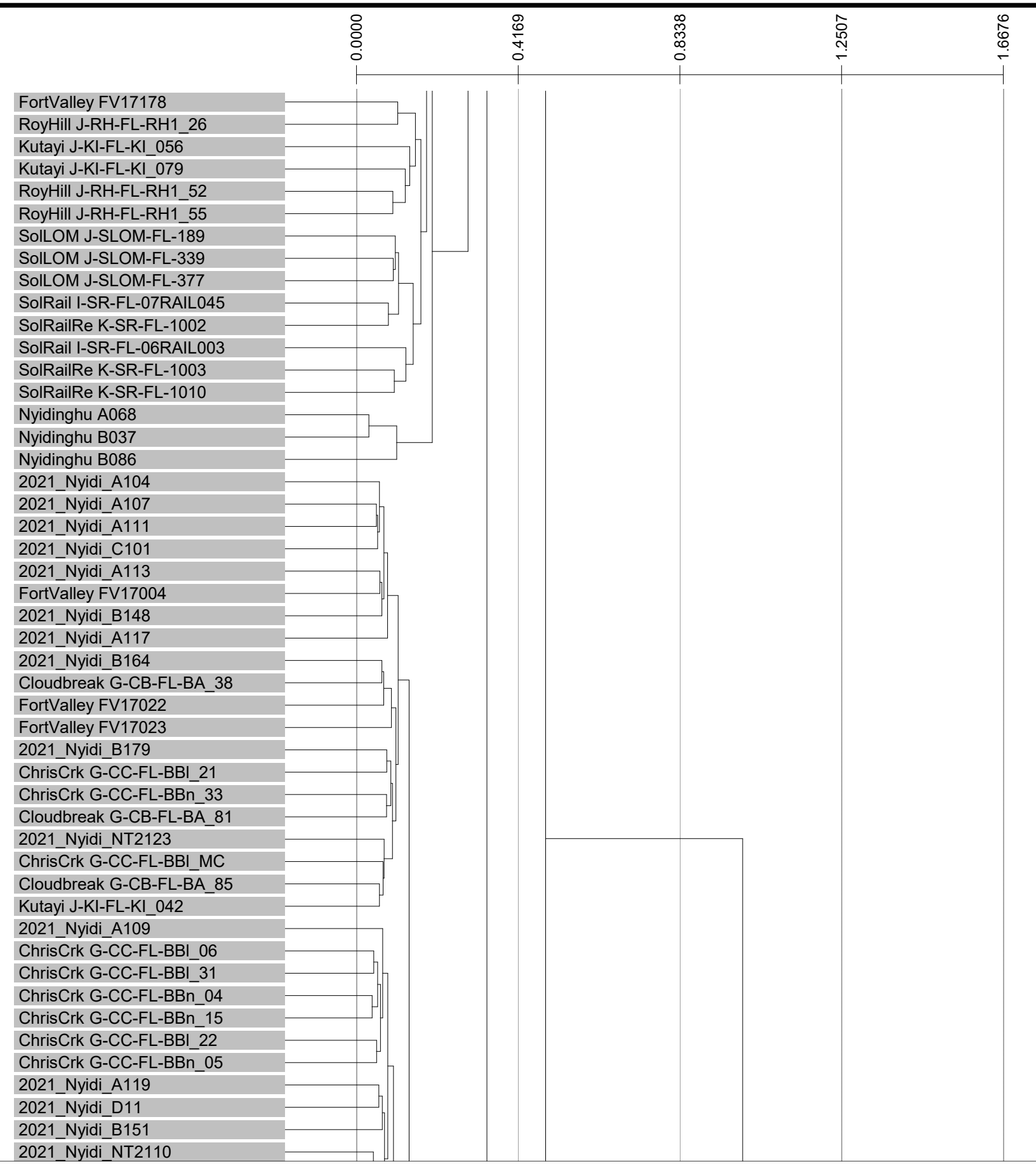

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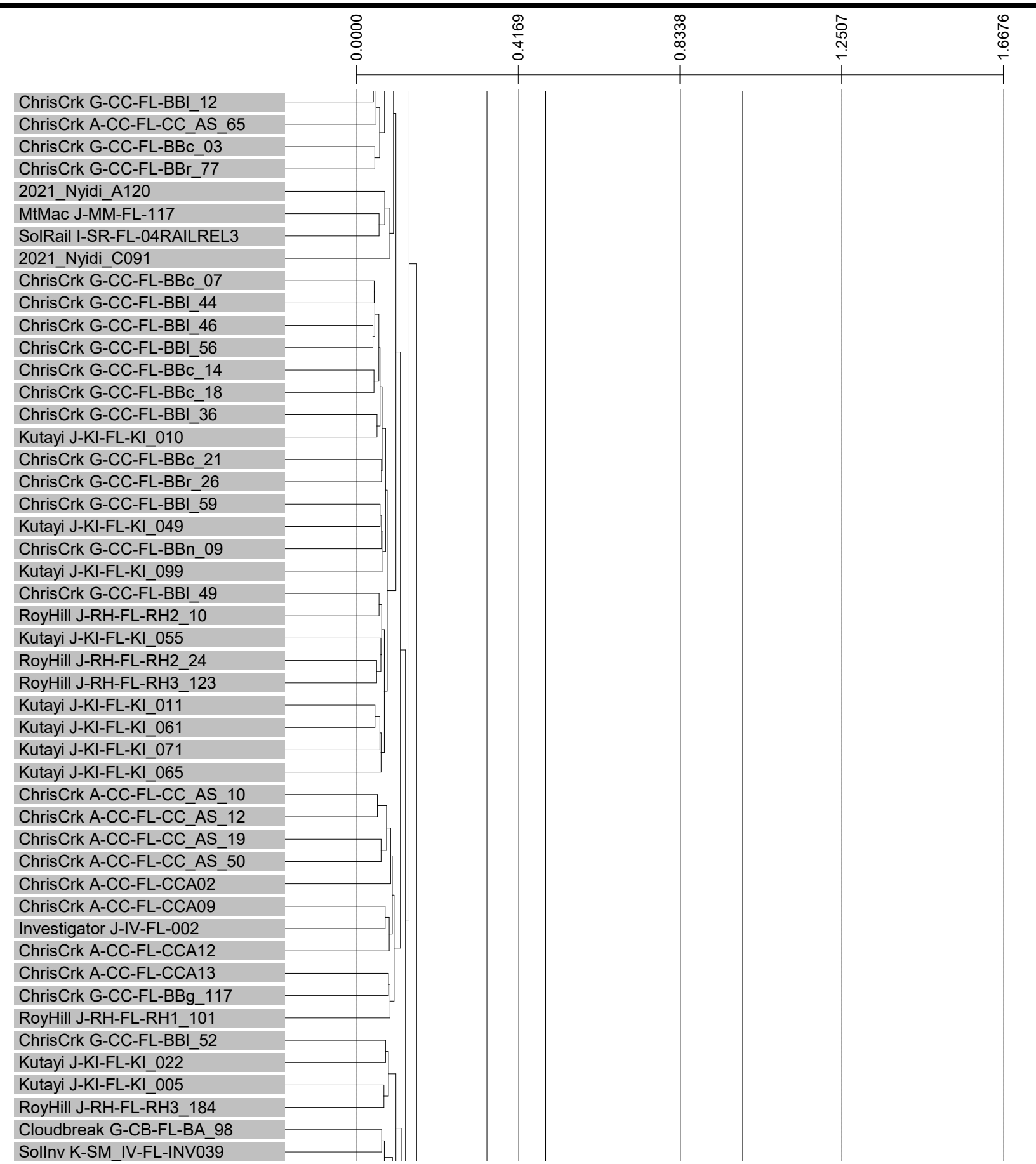

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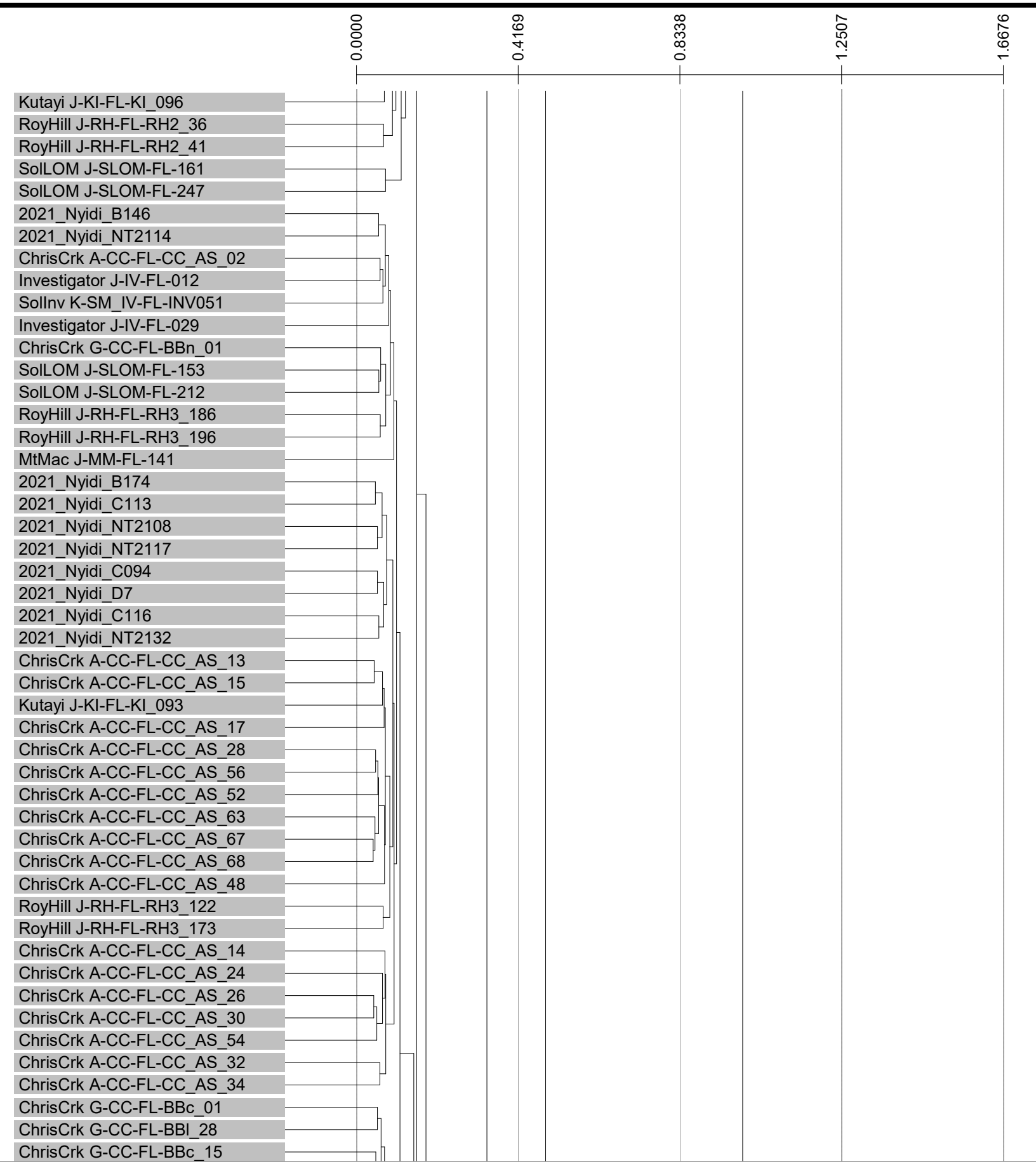

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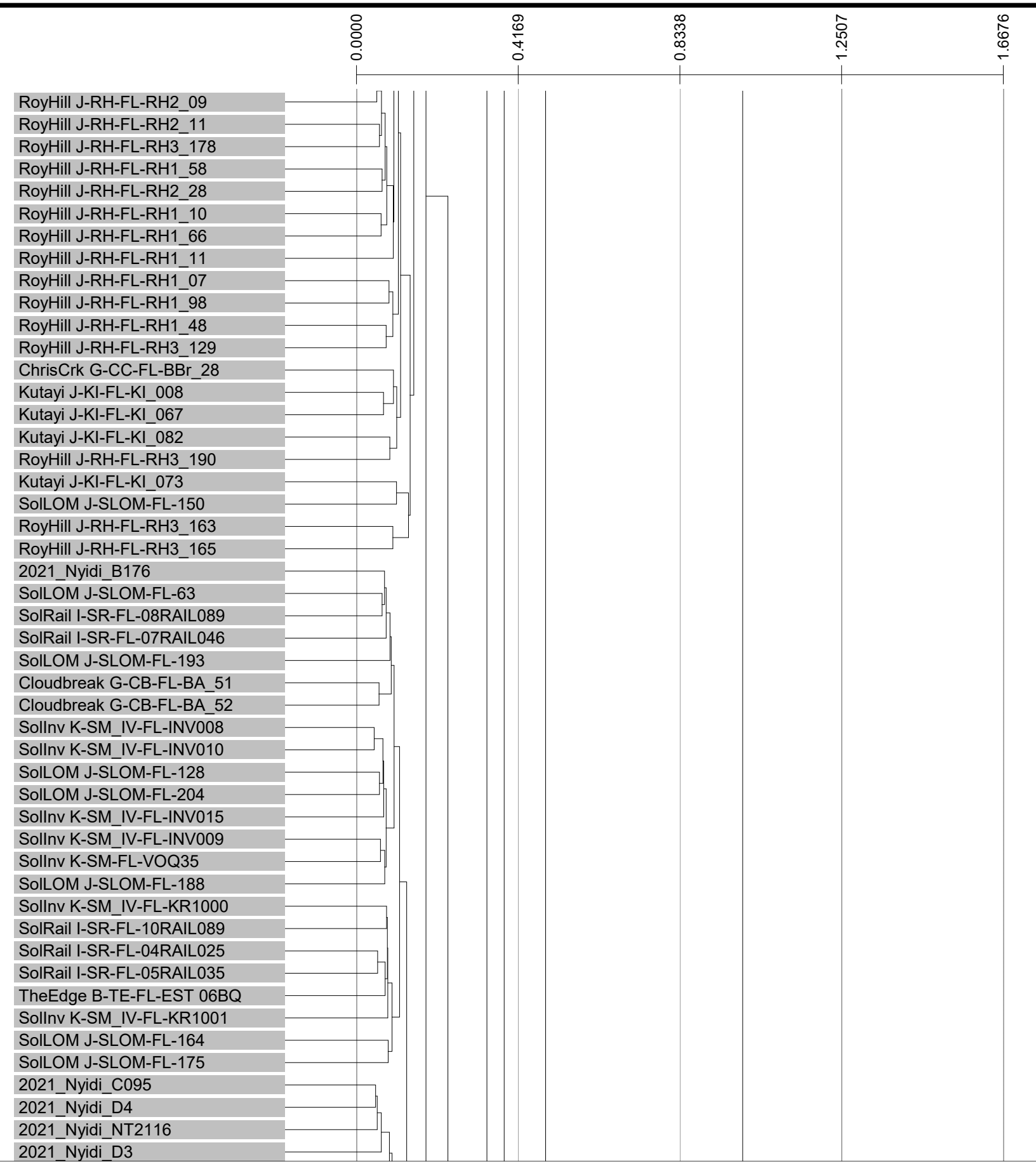

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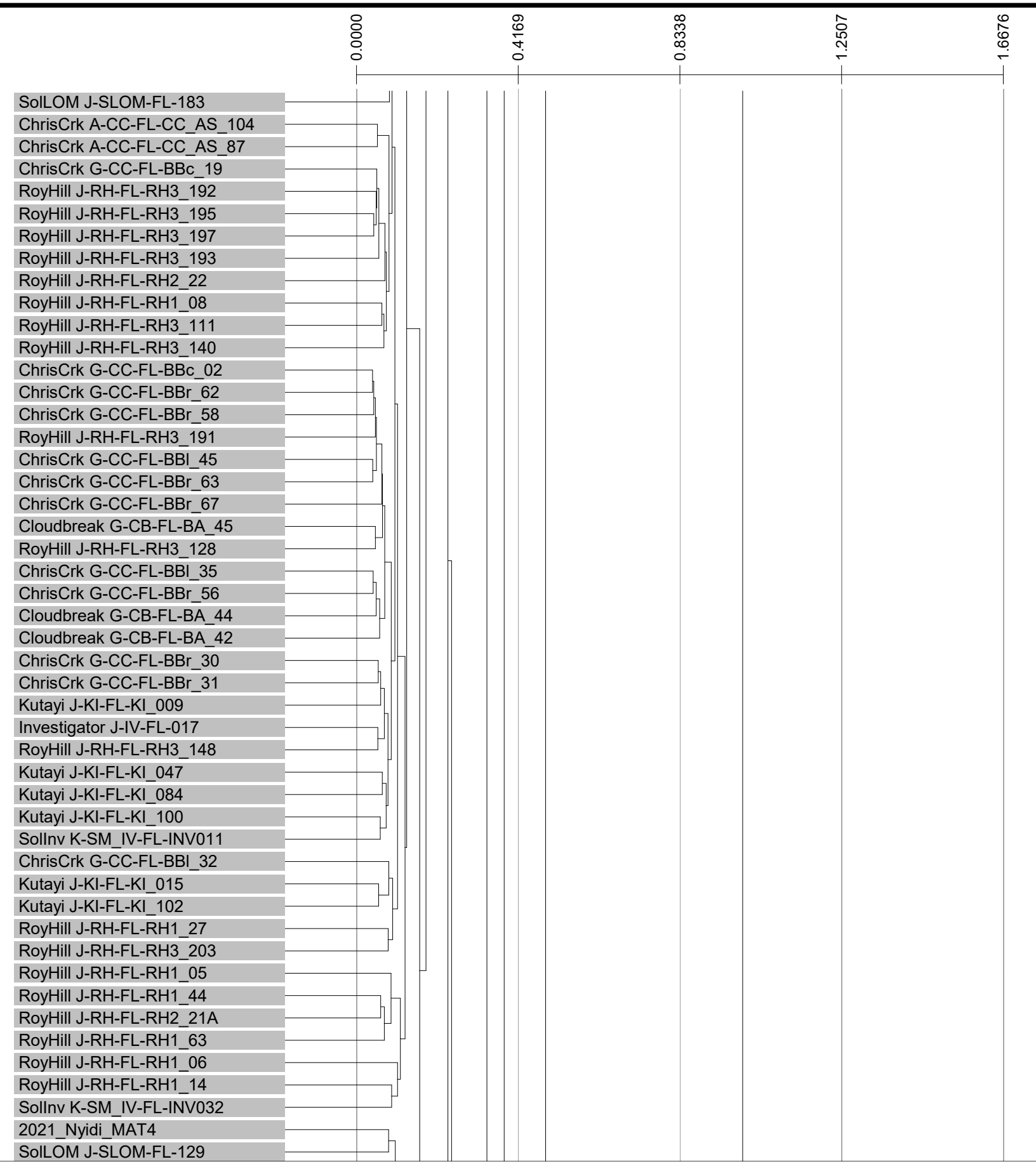

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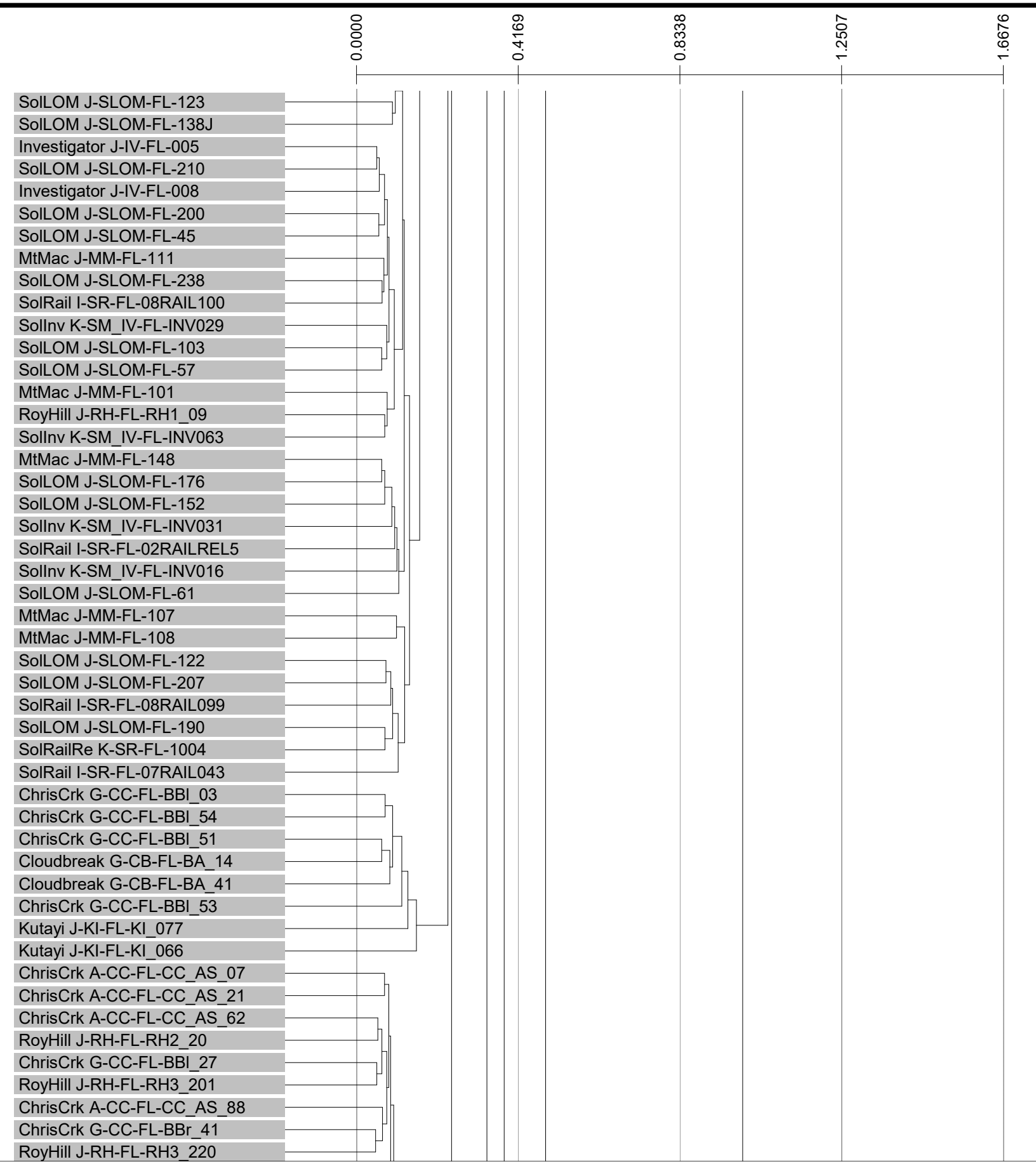

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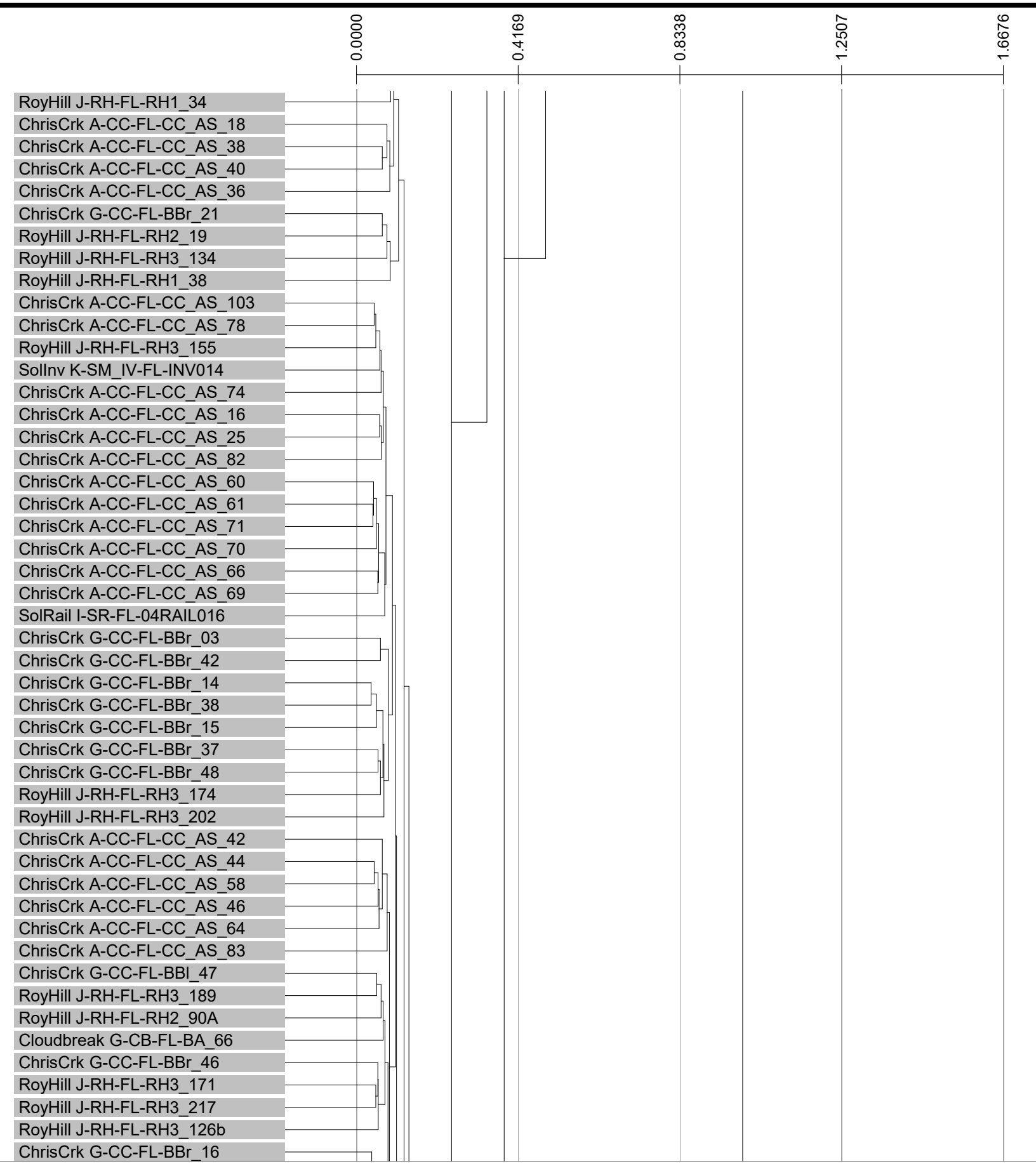

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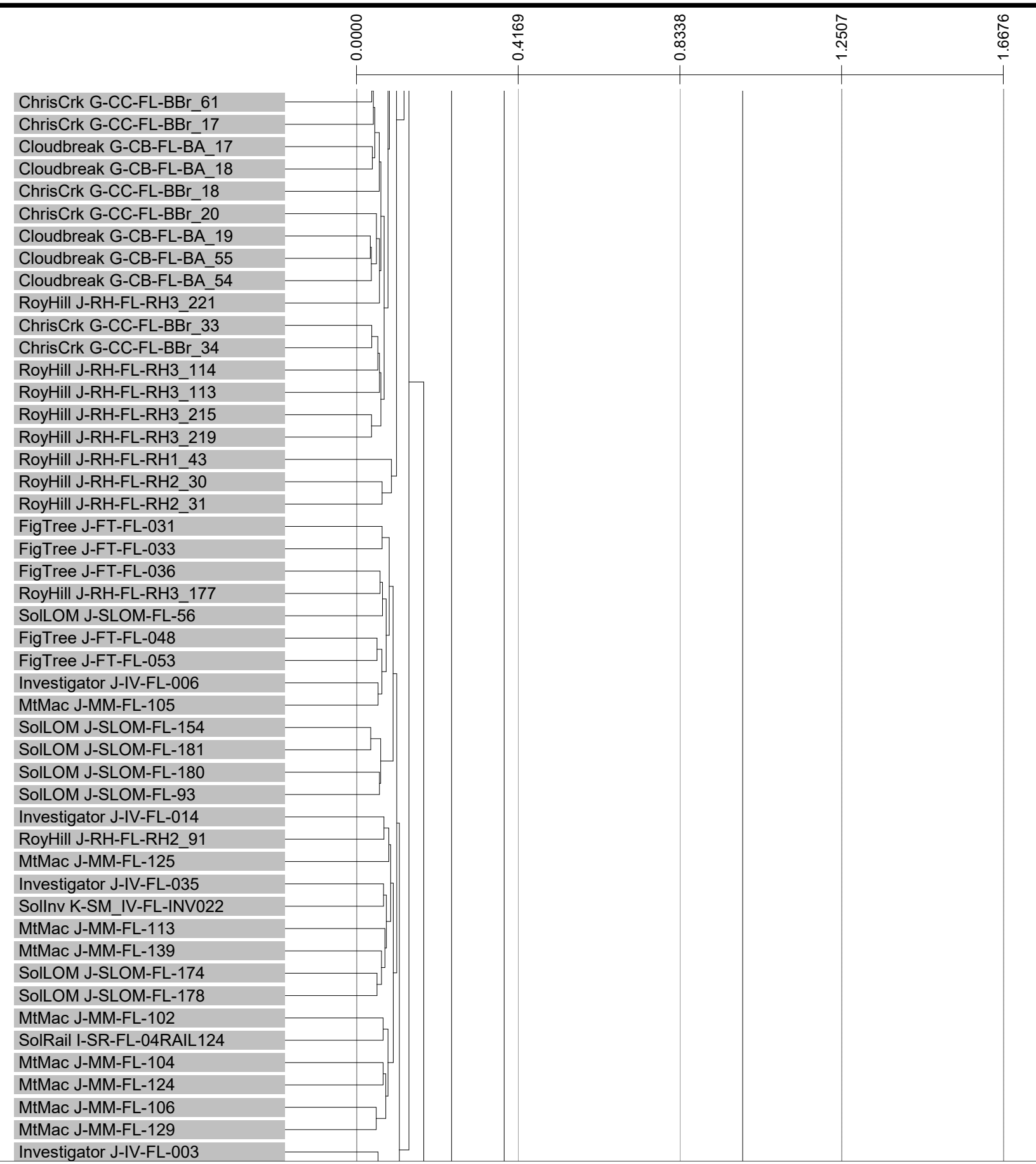

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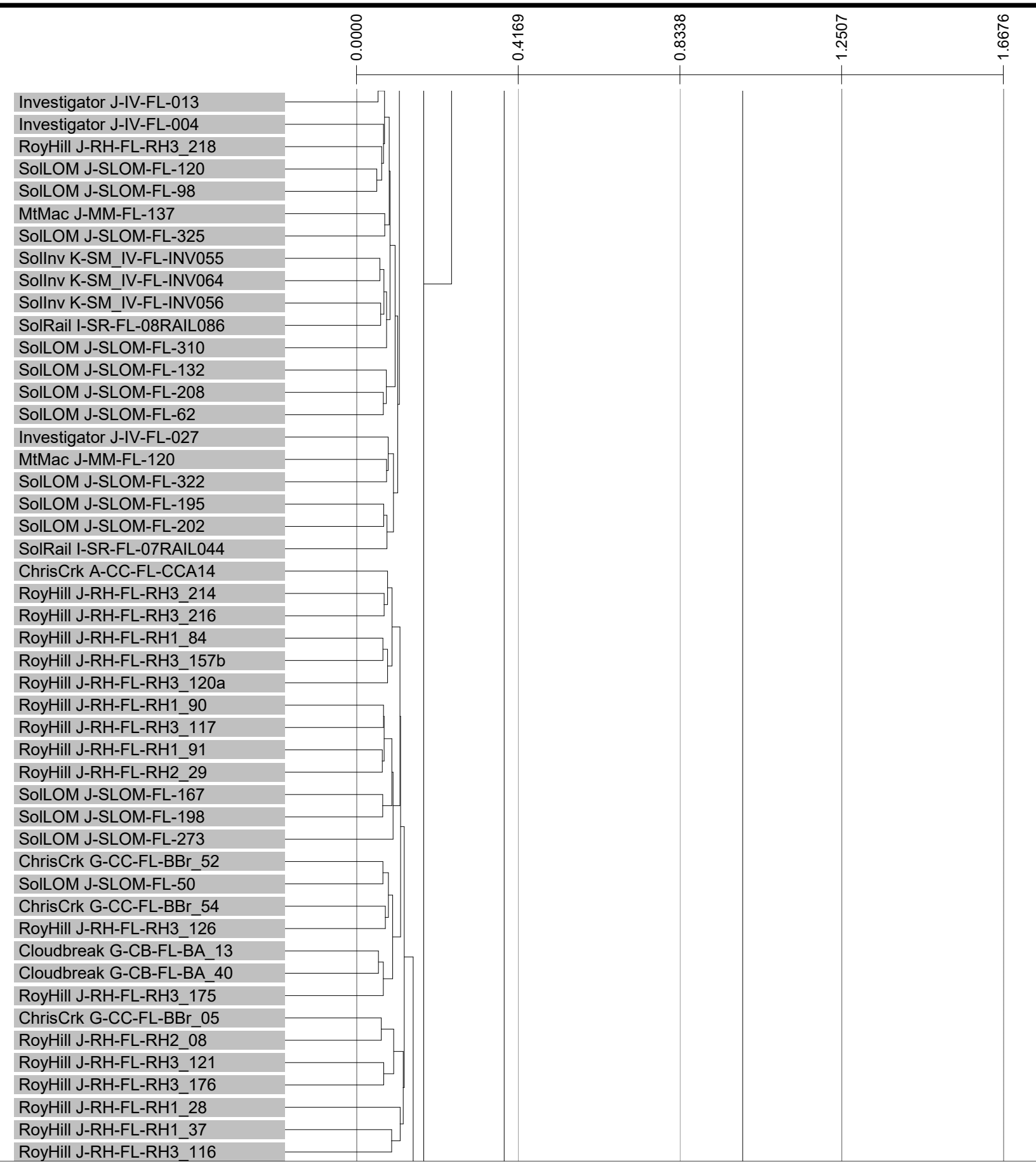

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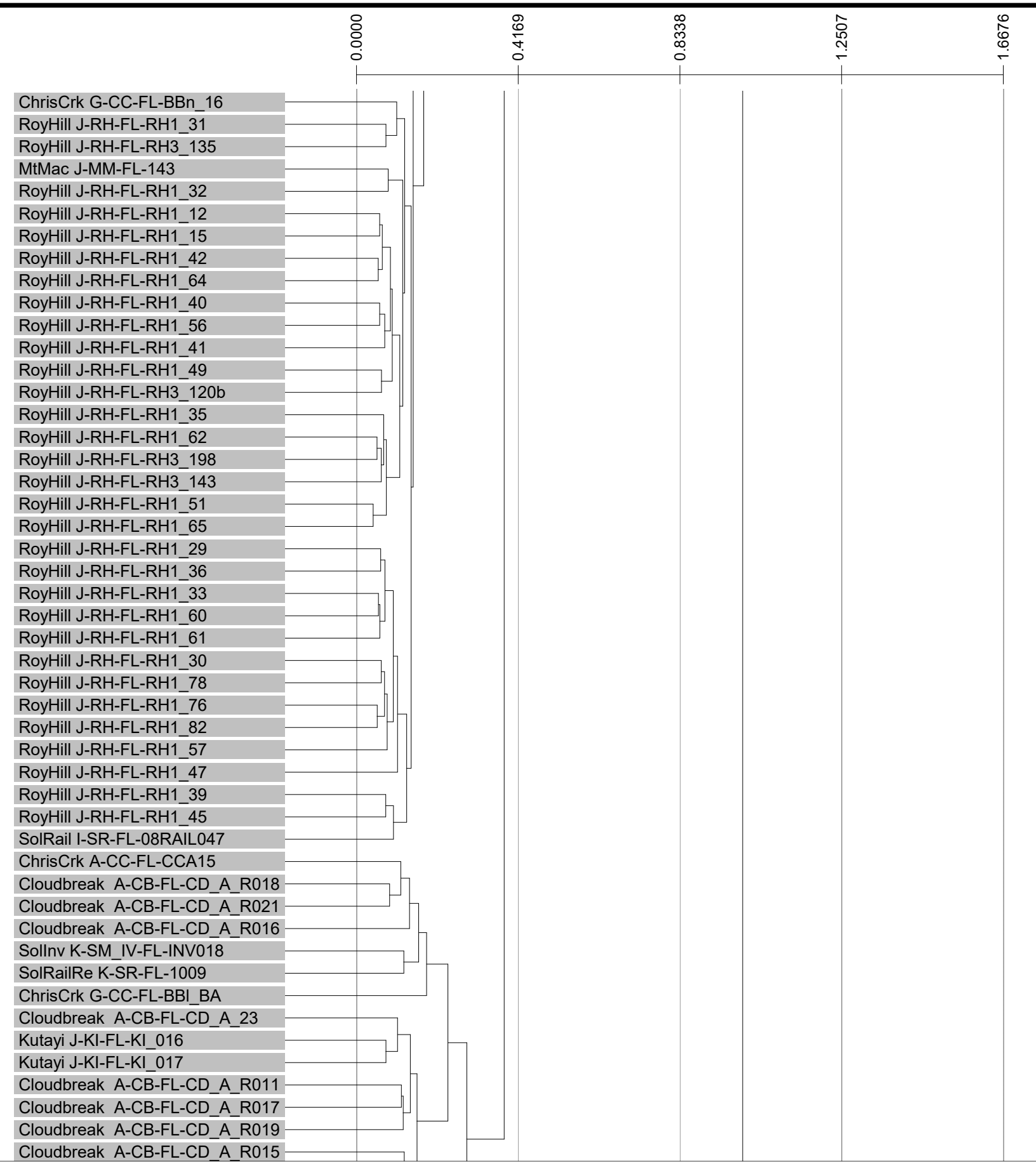
Column Fusion Dendrogram



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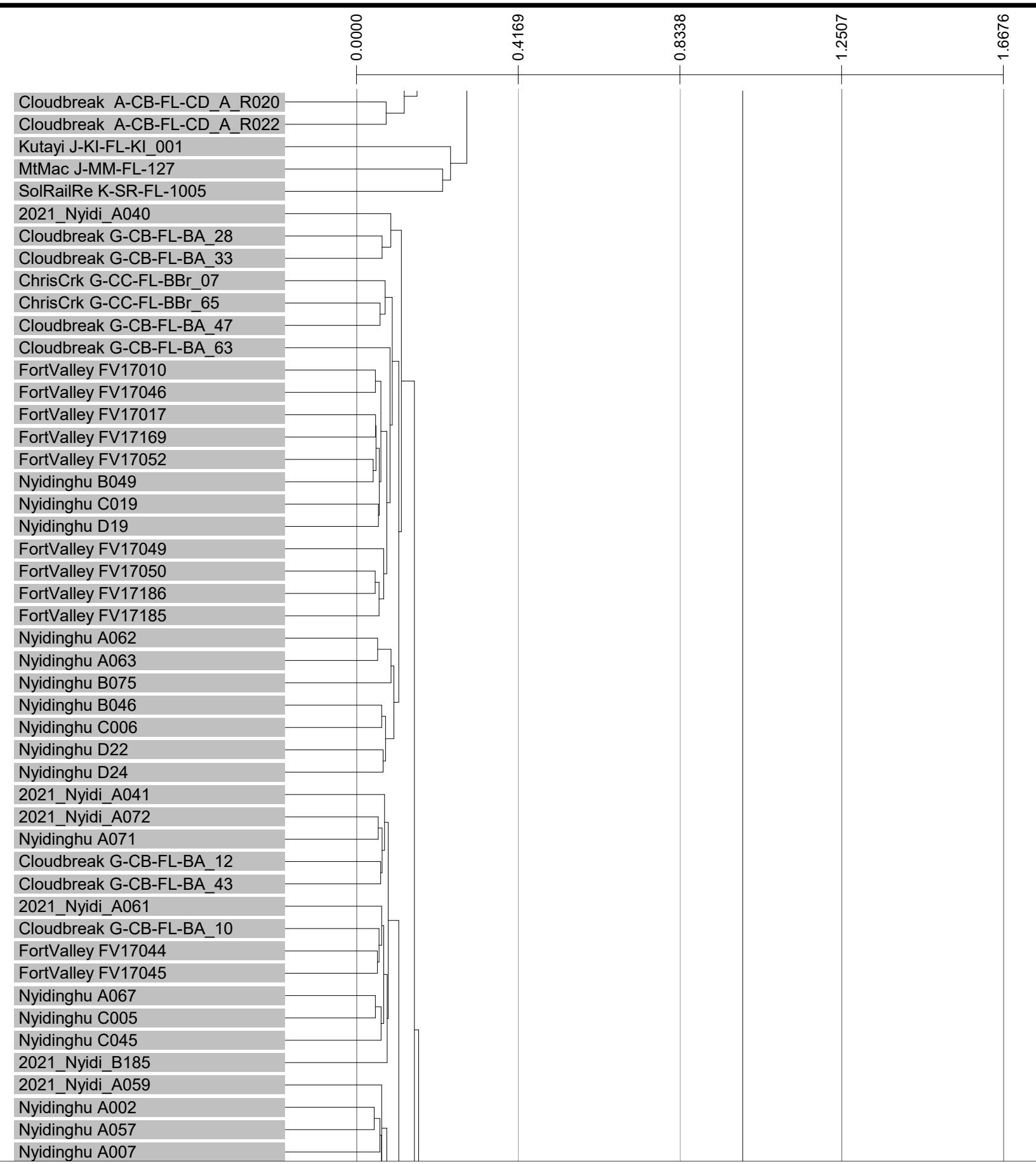

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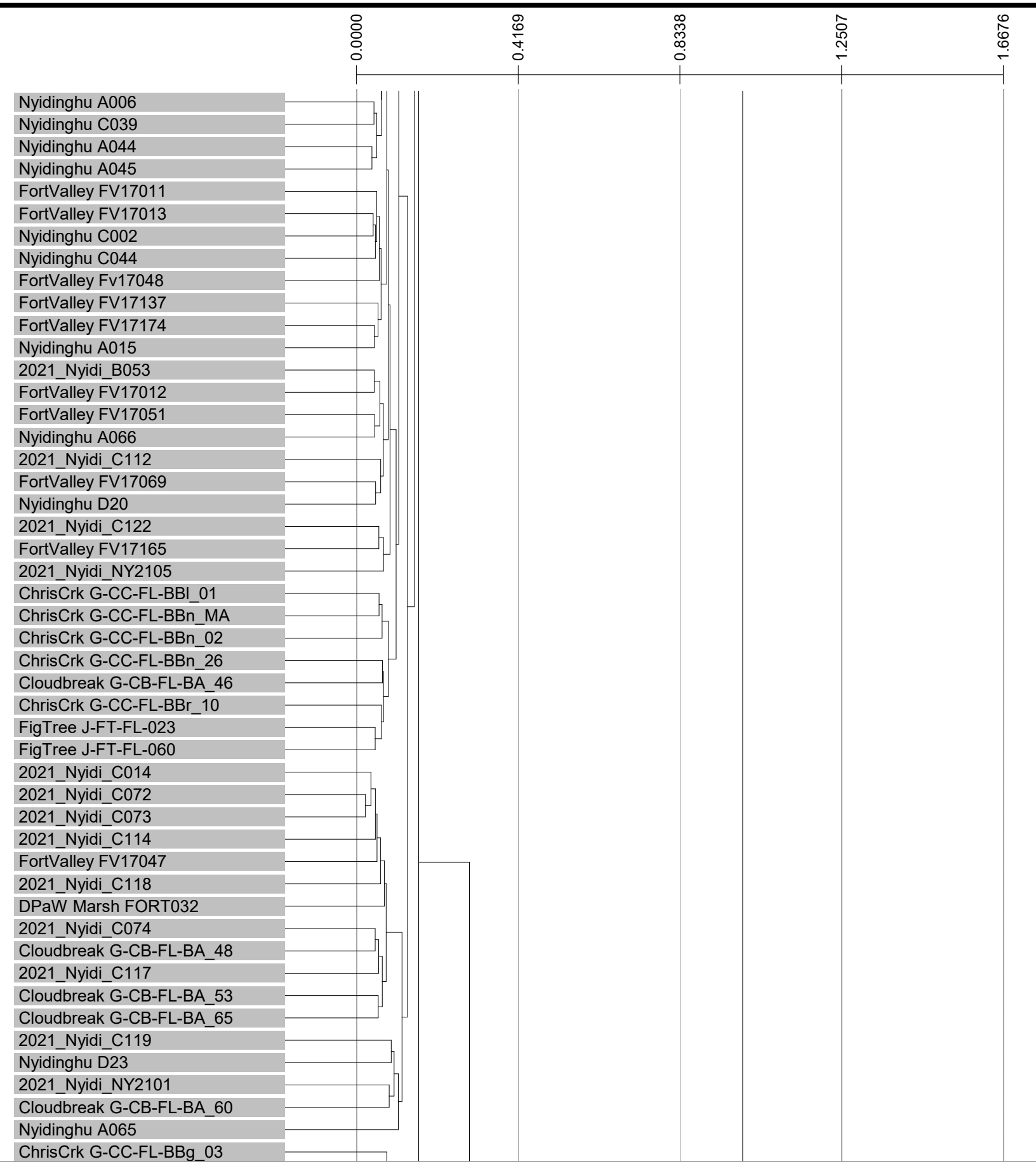

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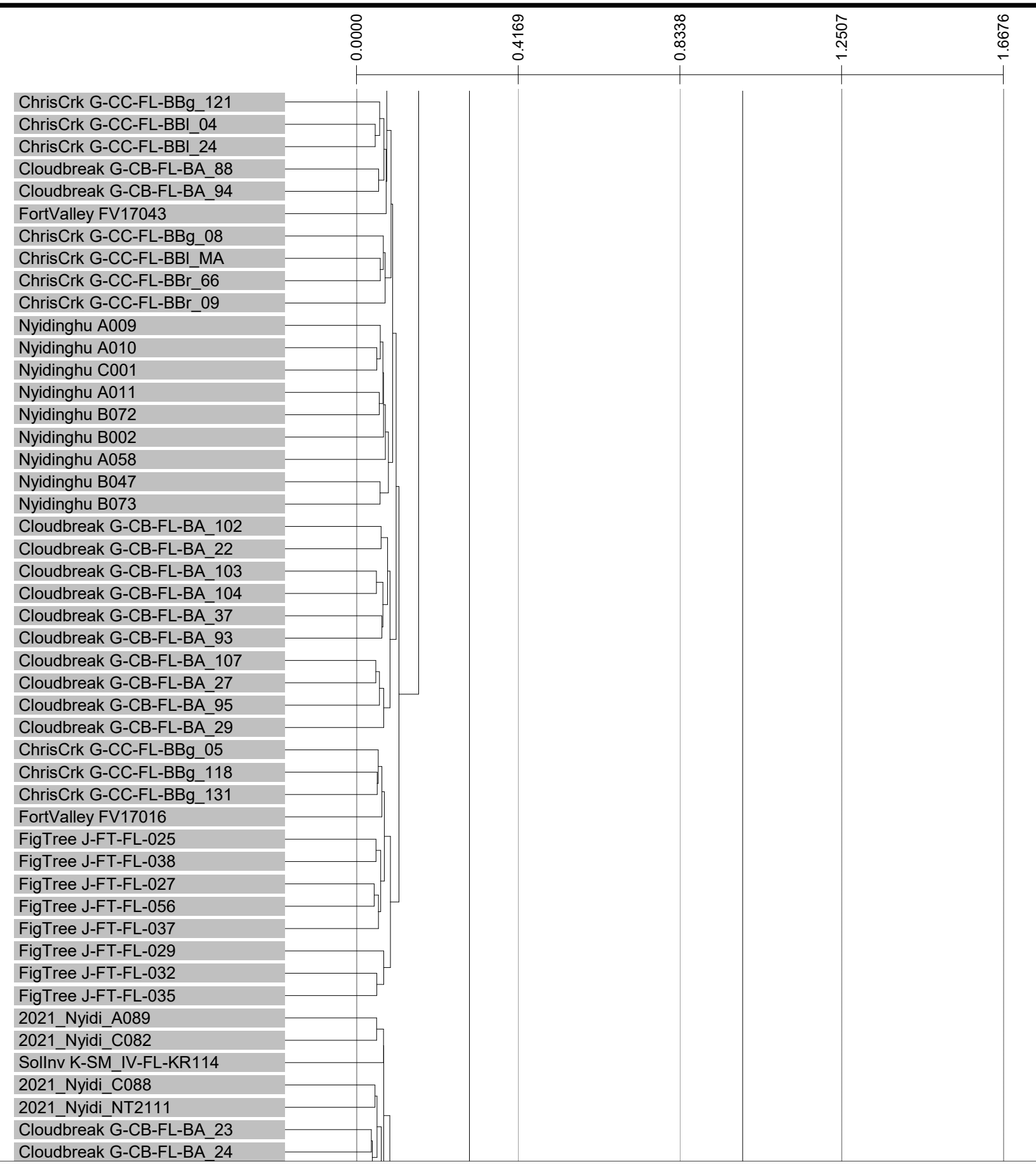

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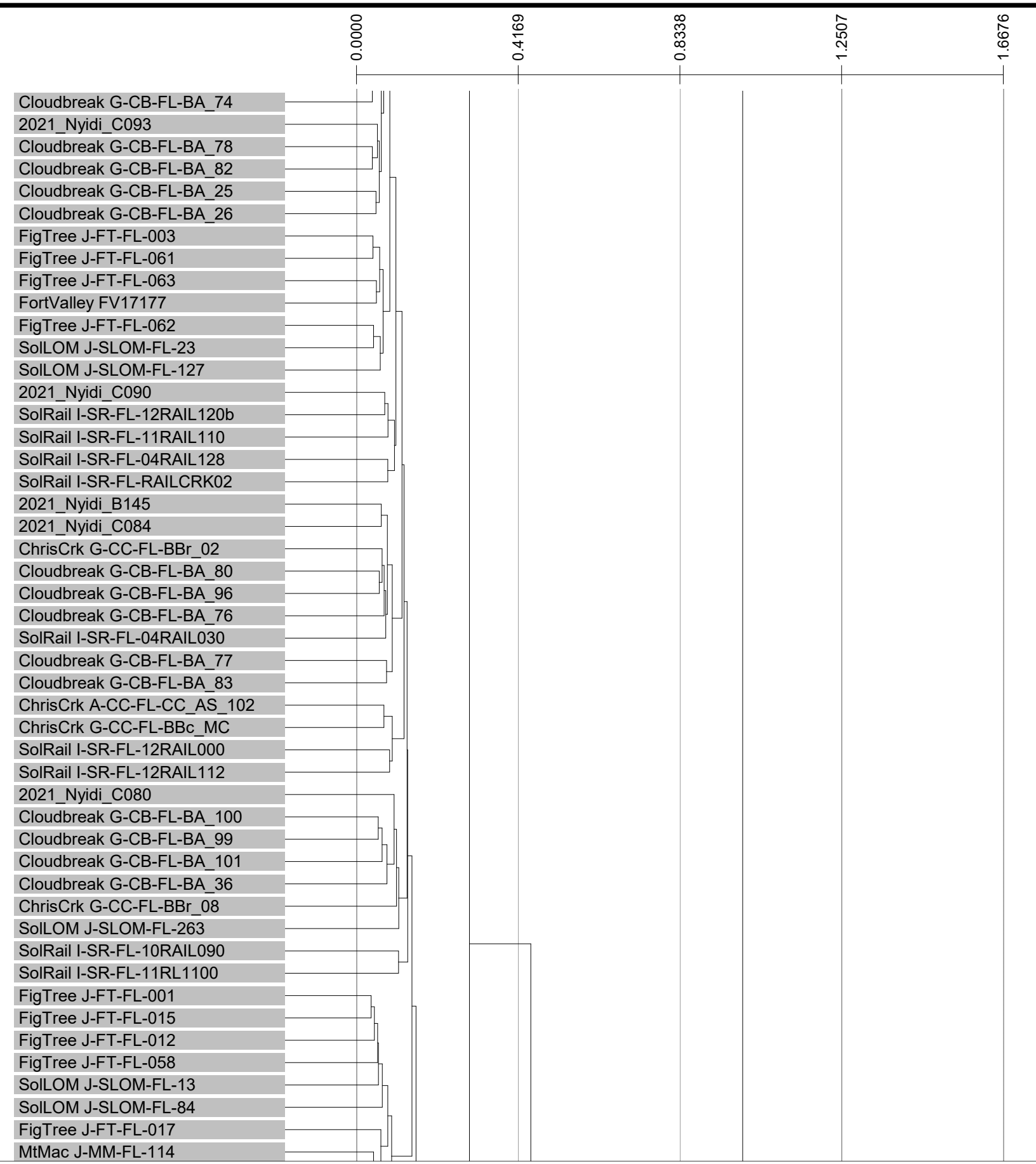

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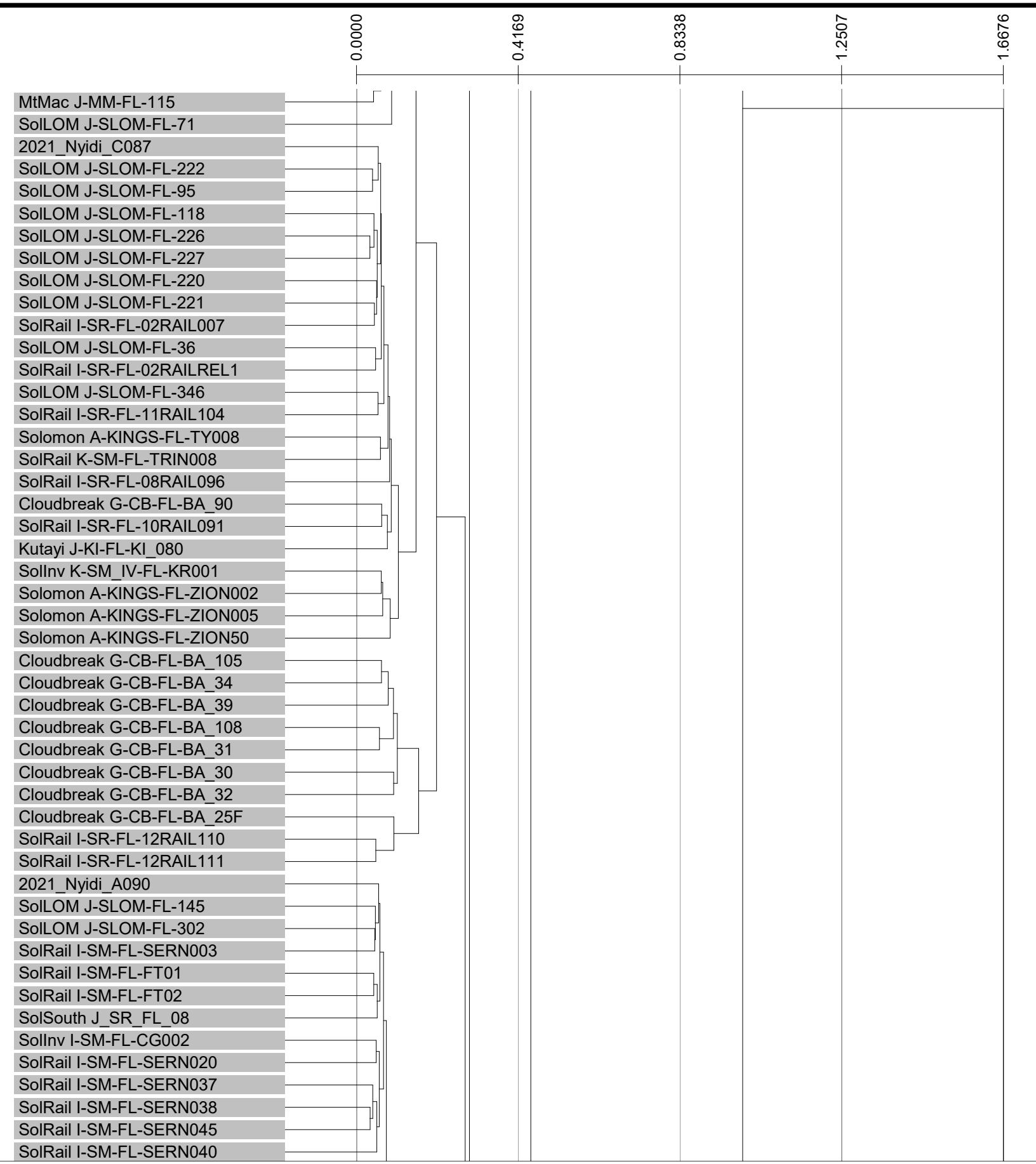

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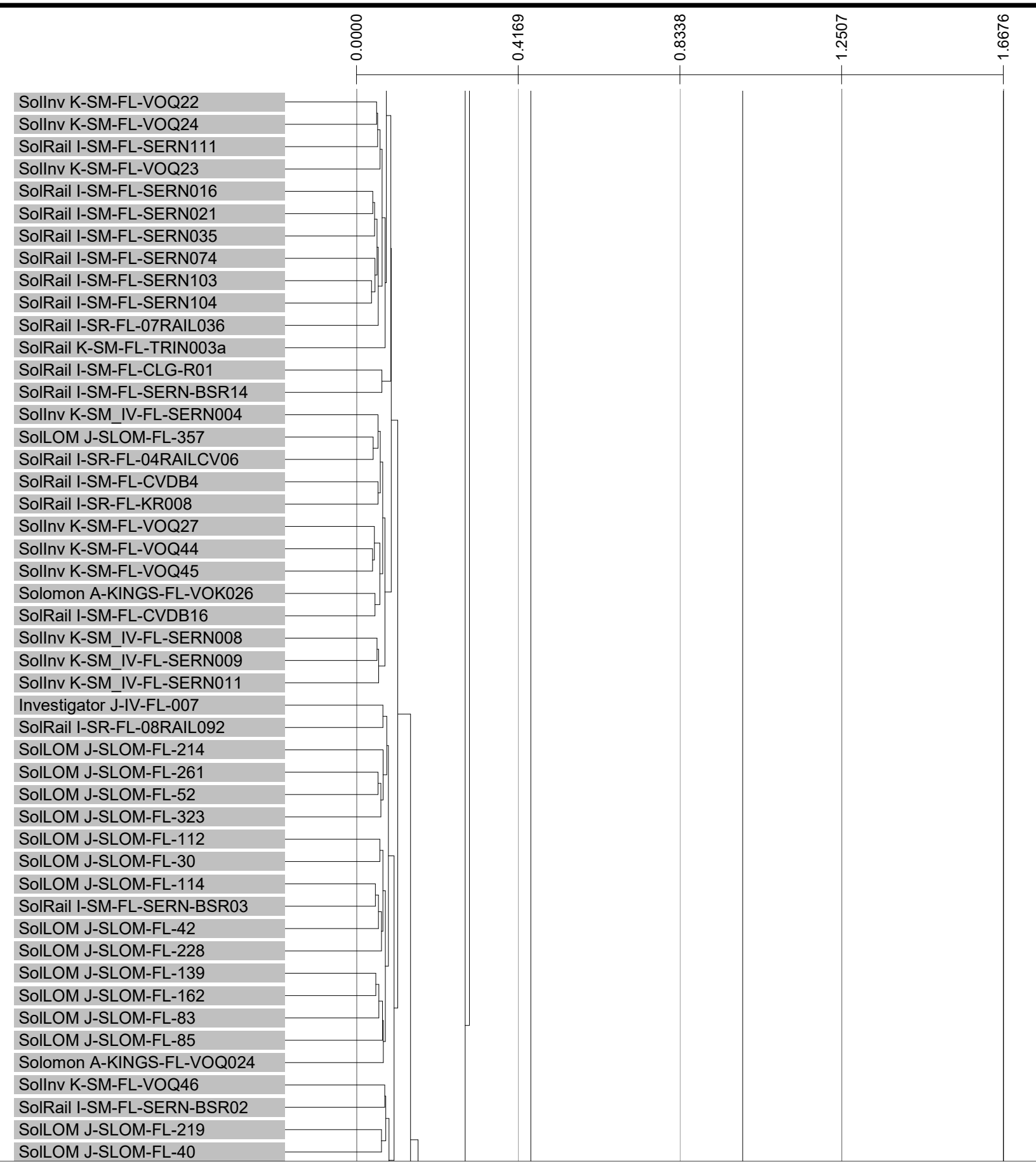

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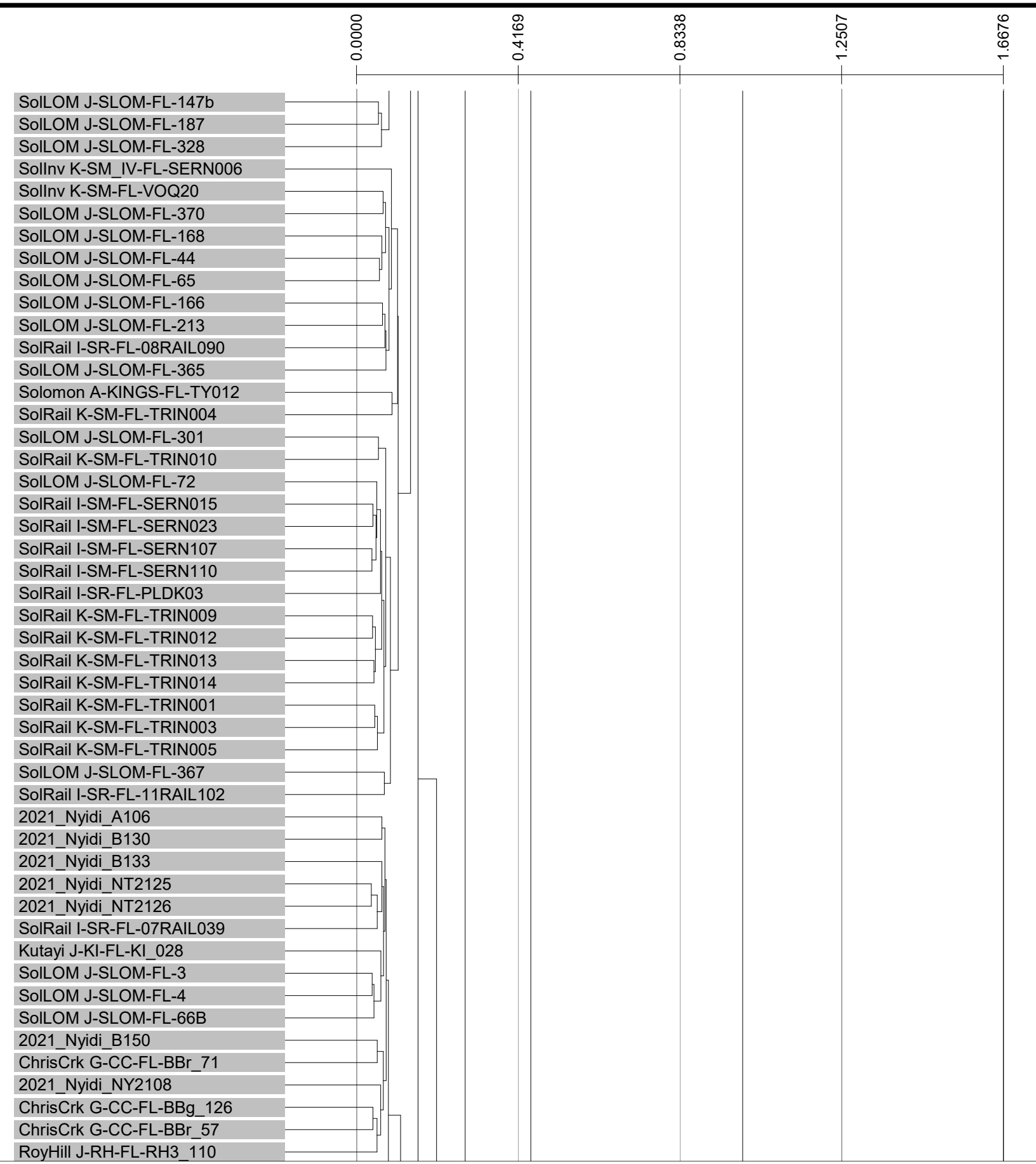

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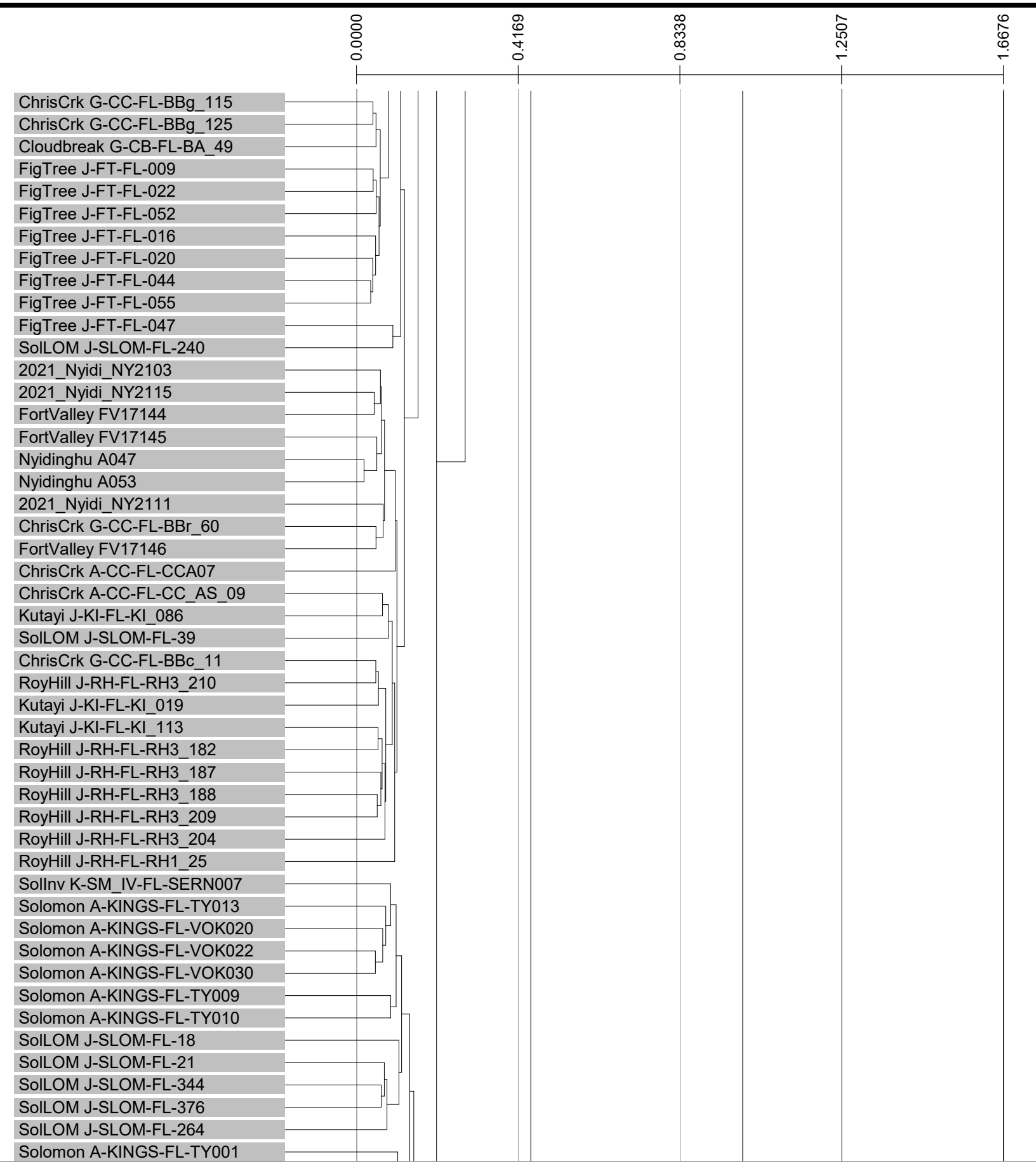

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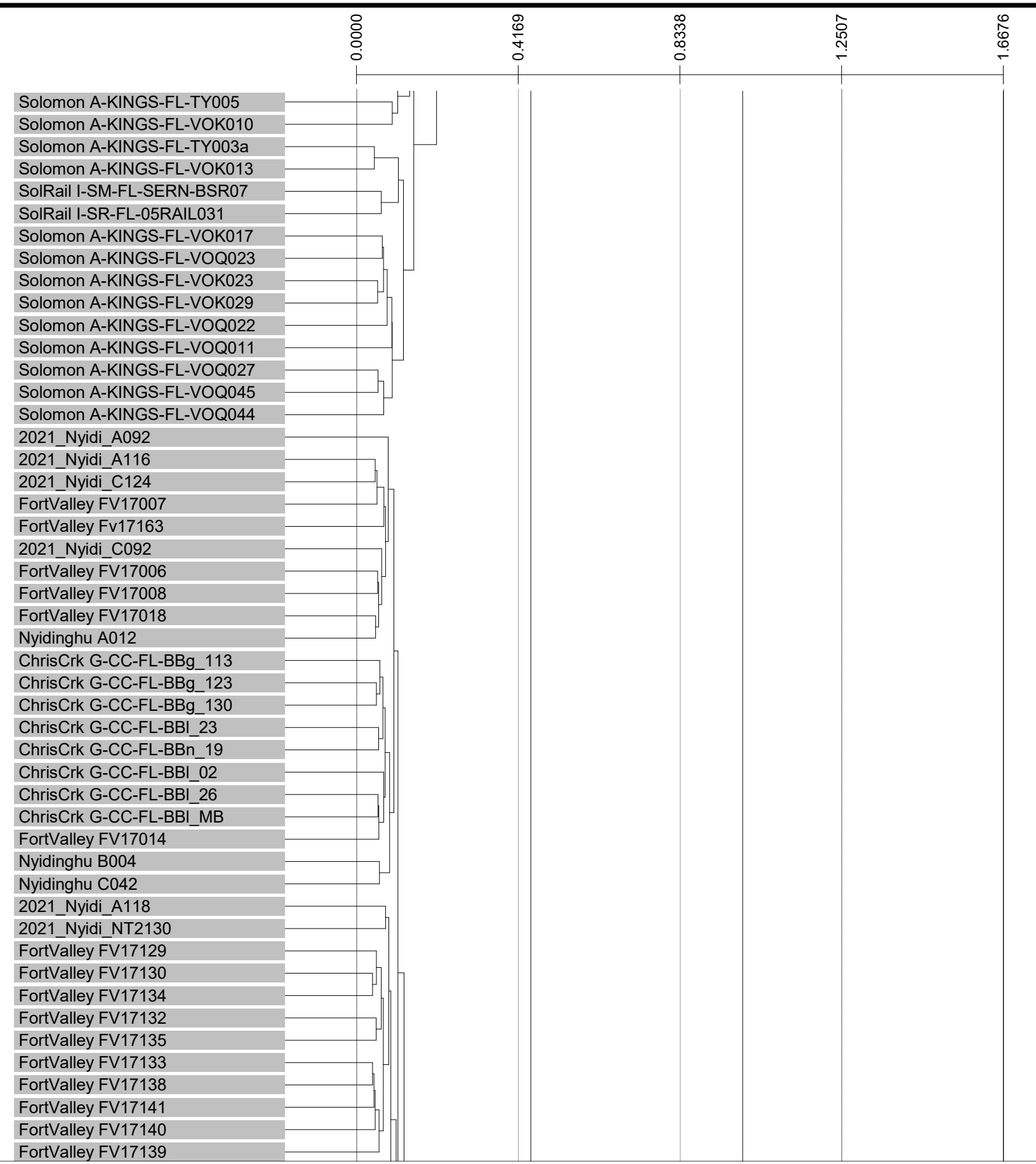

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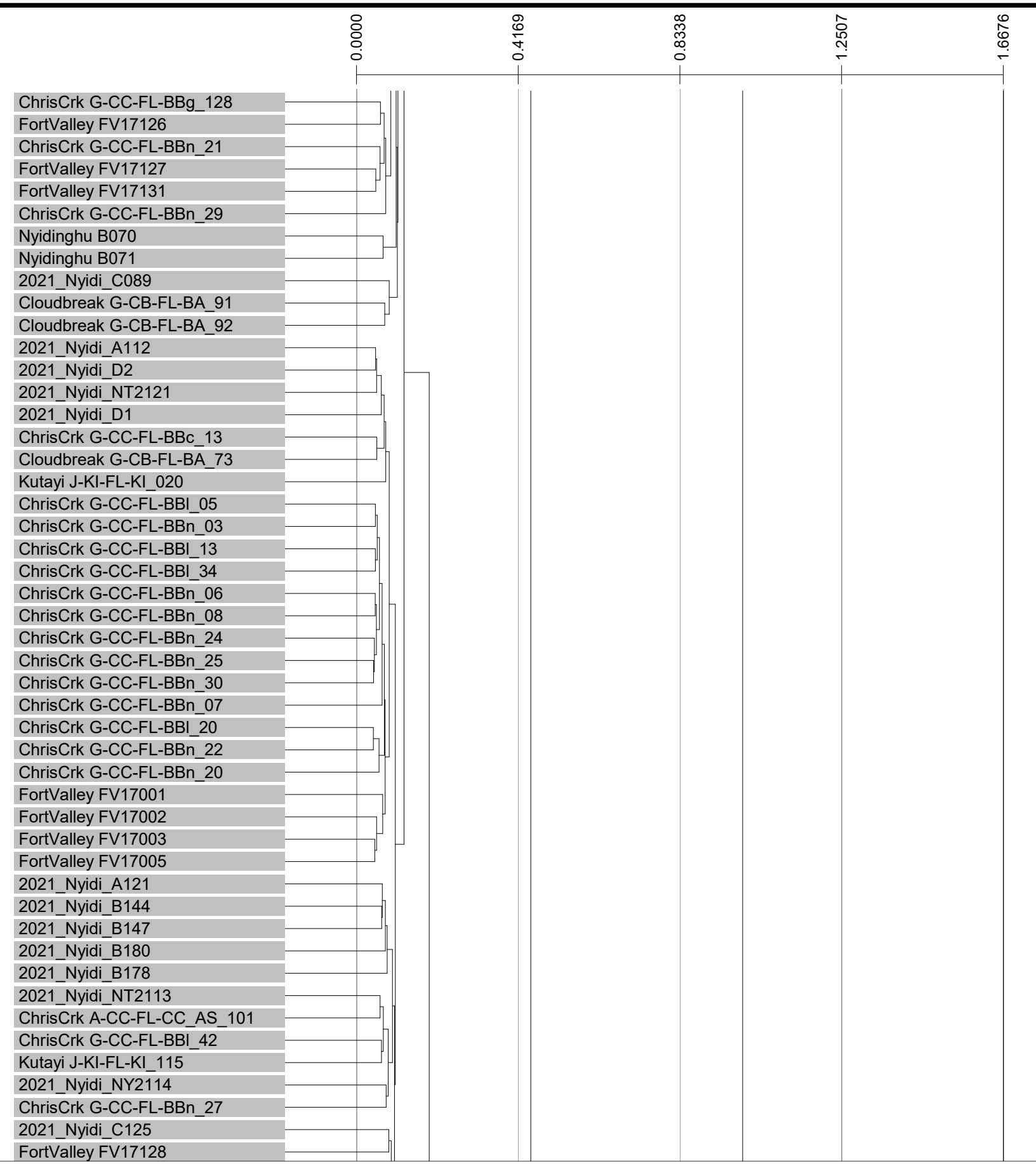

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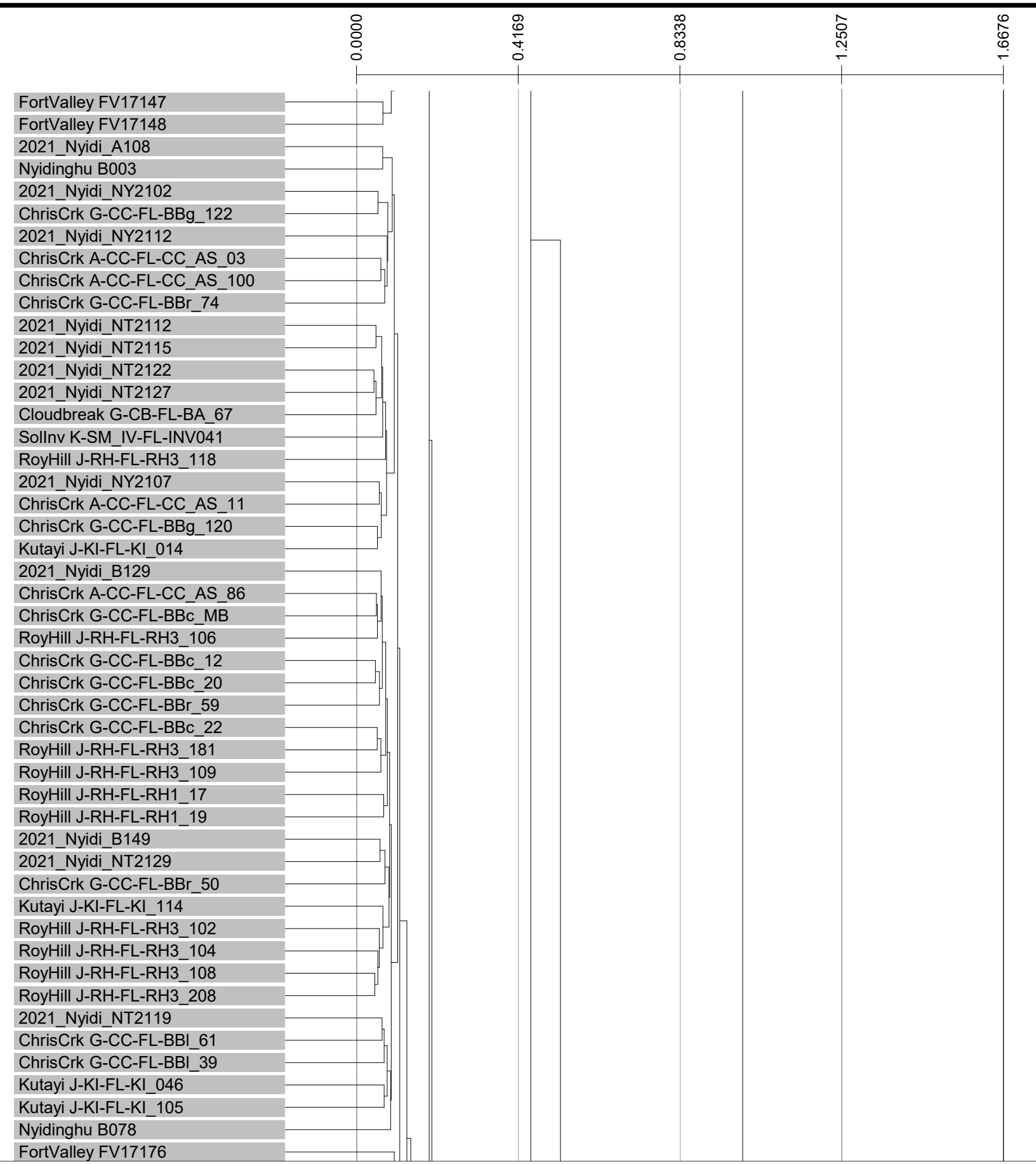

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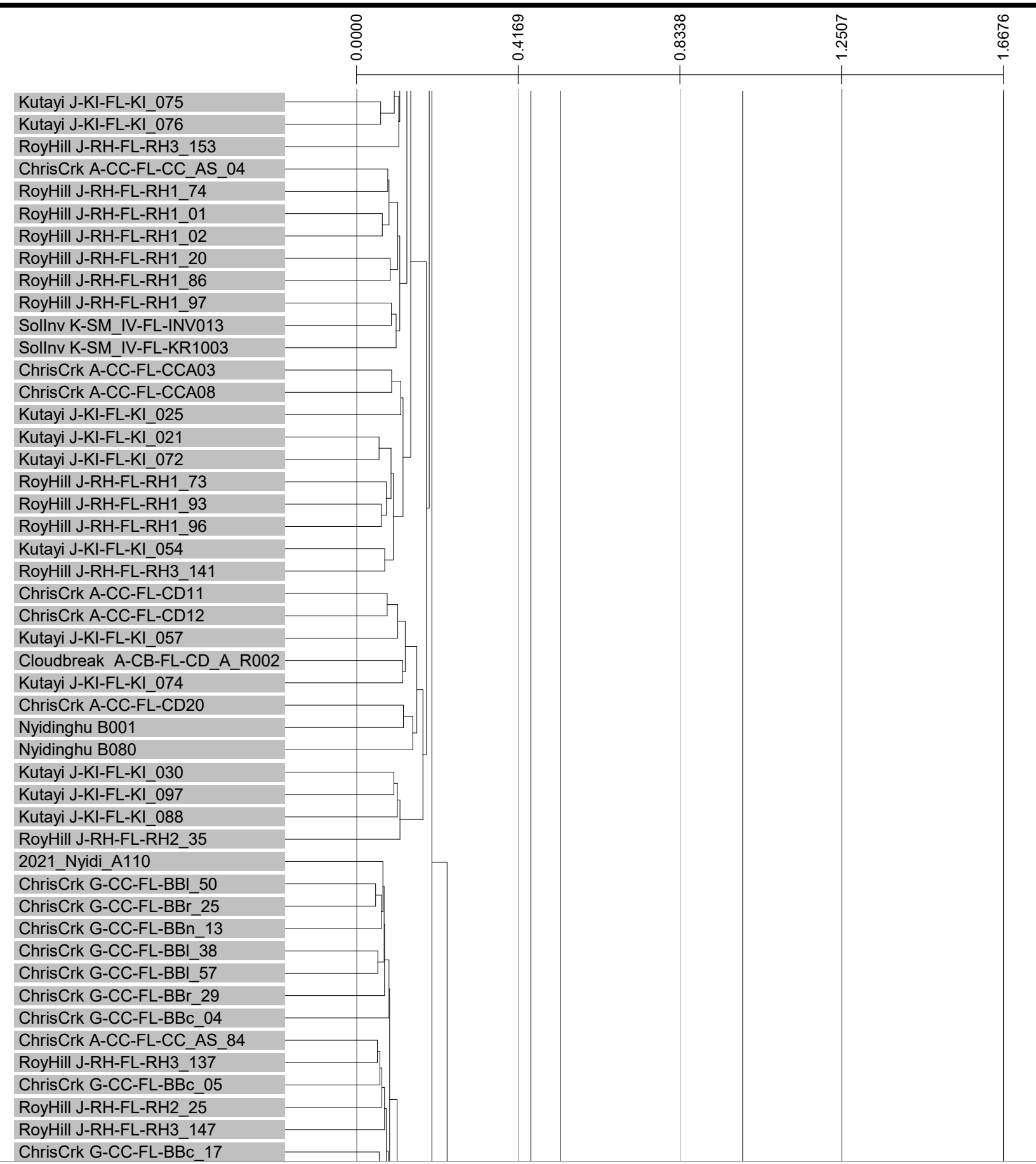

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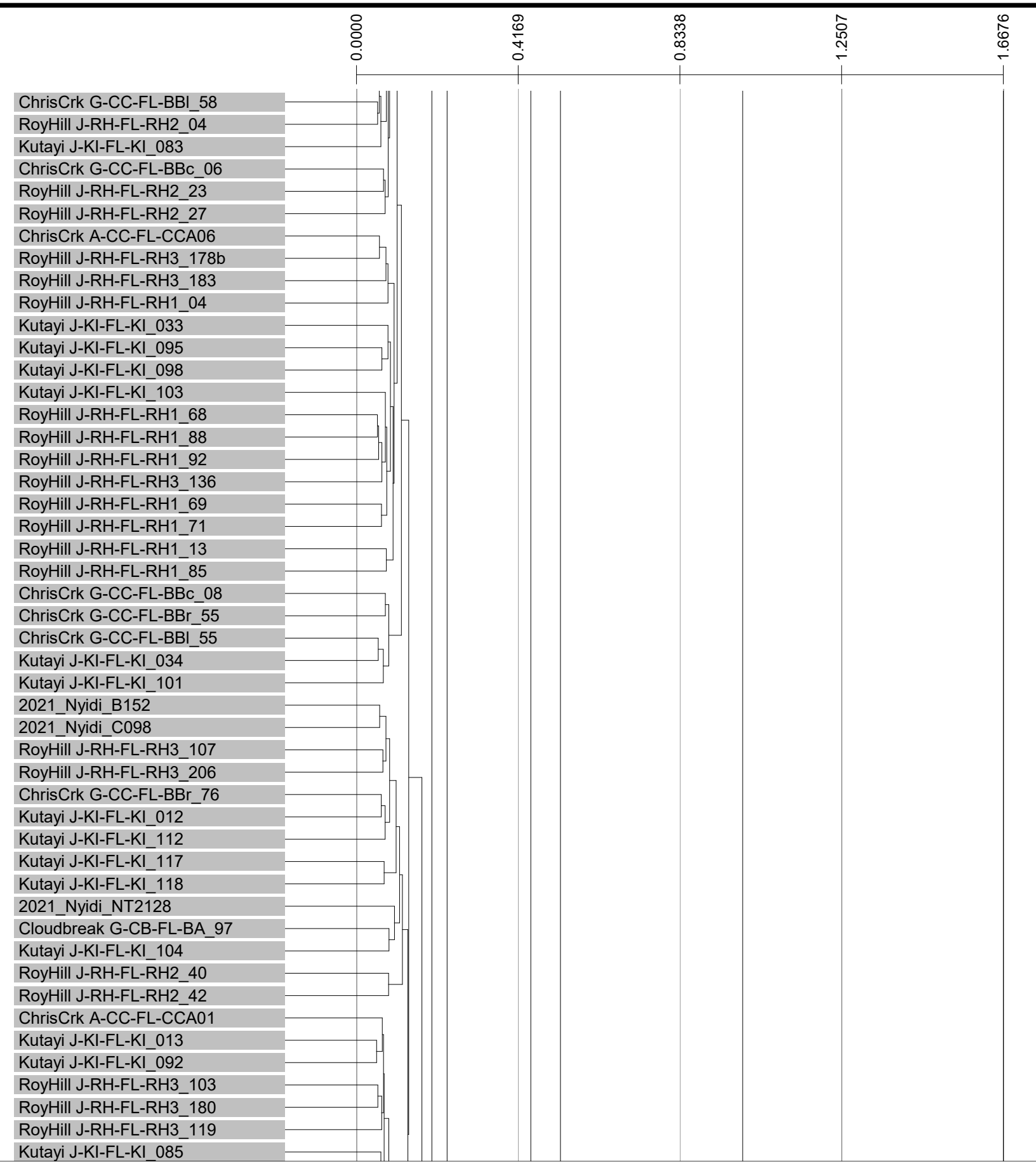

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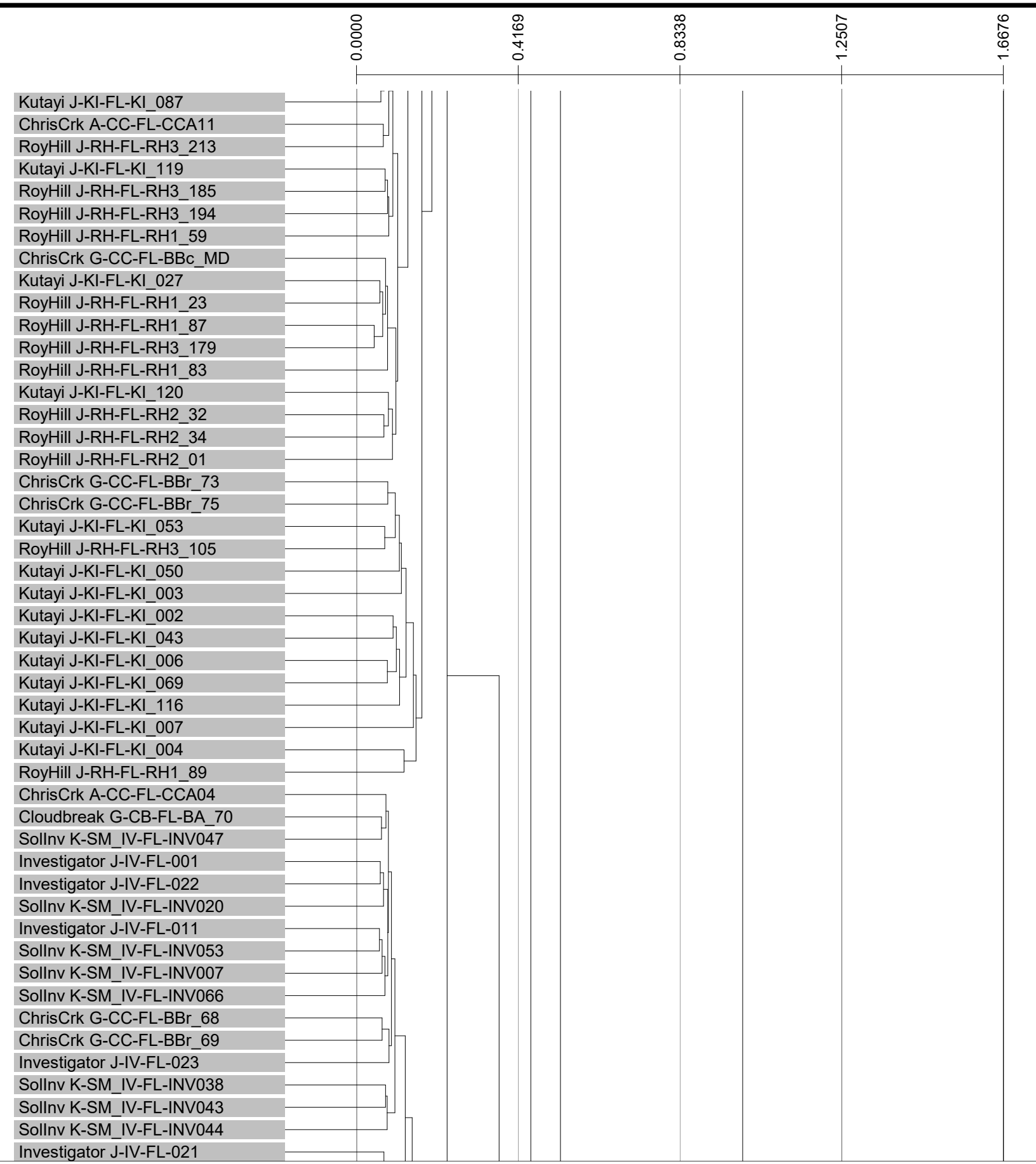

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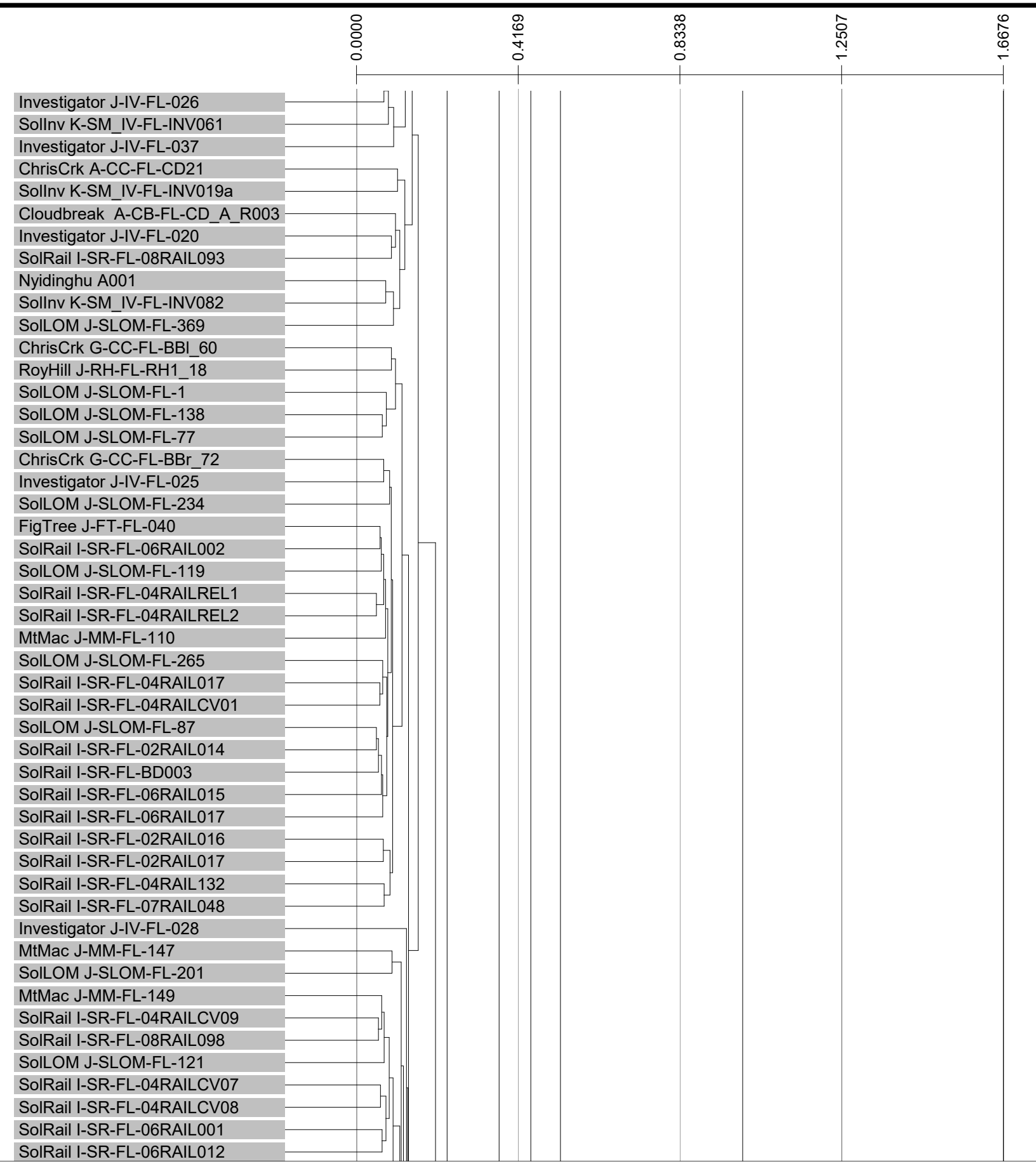

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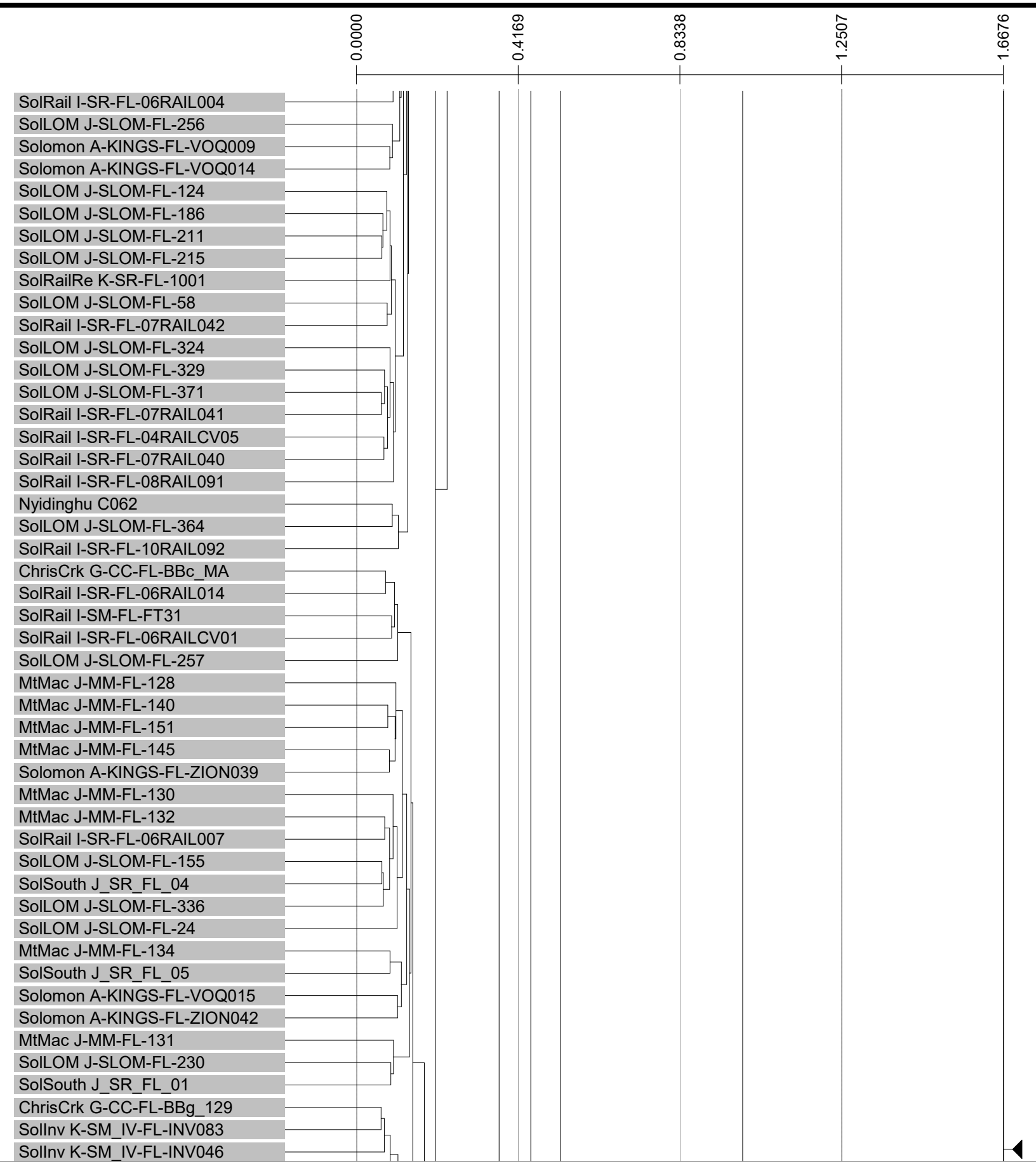

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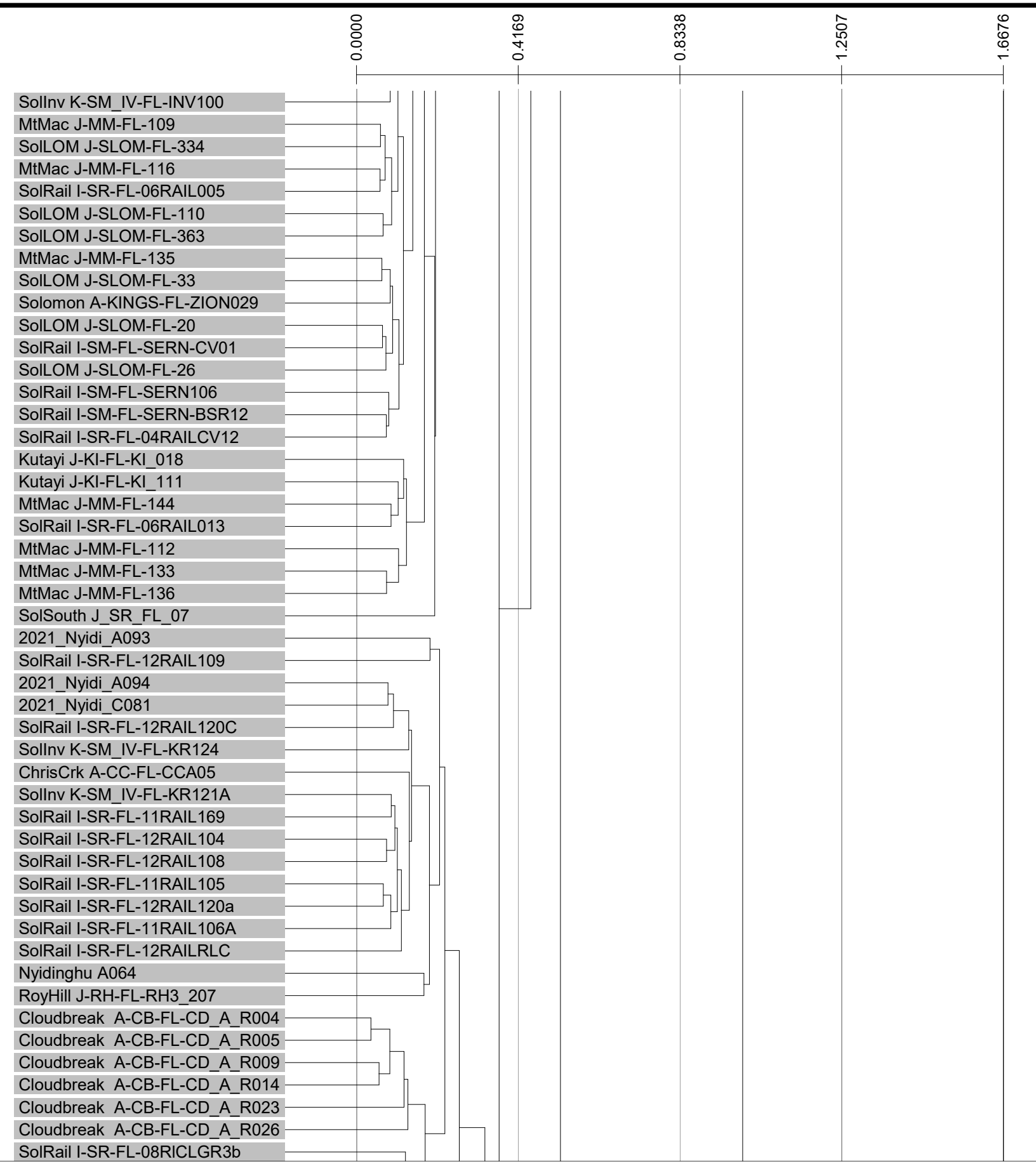

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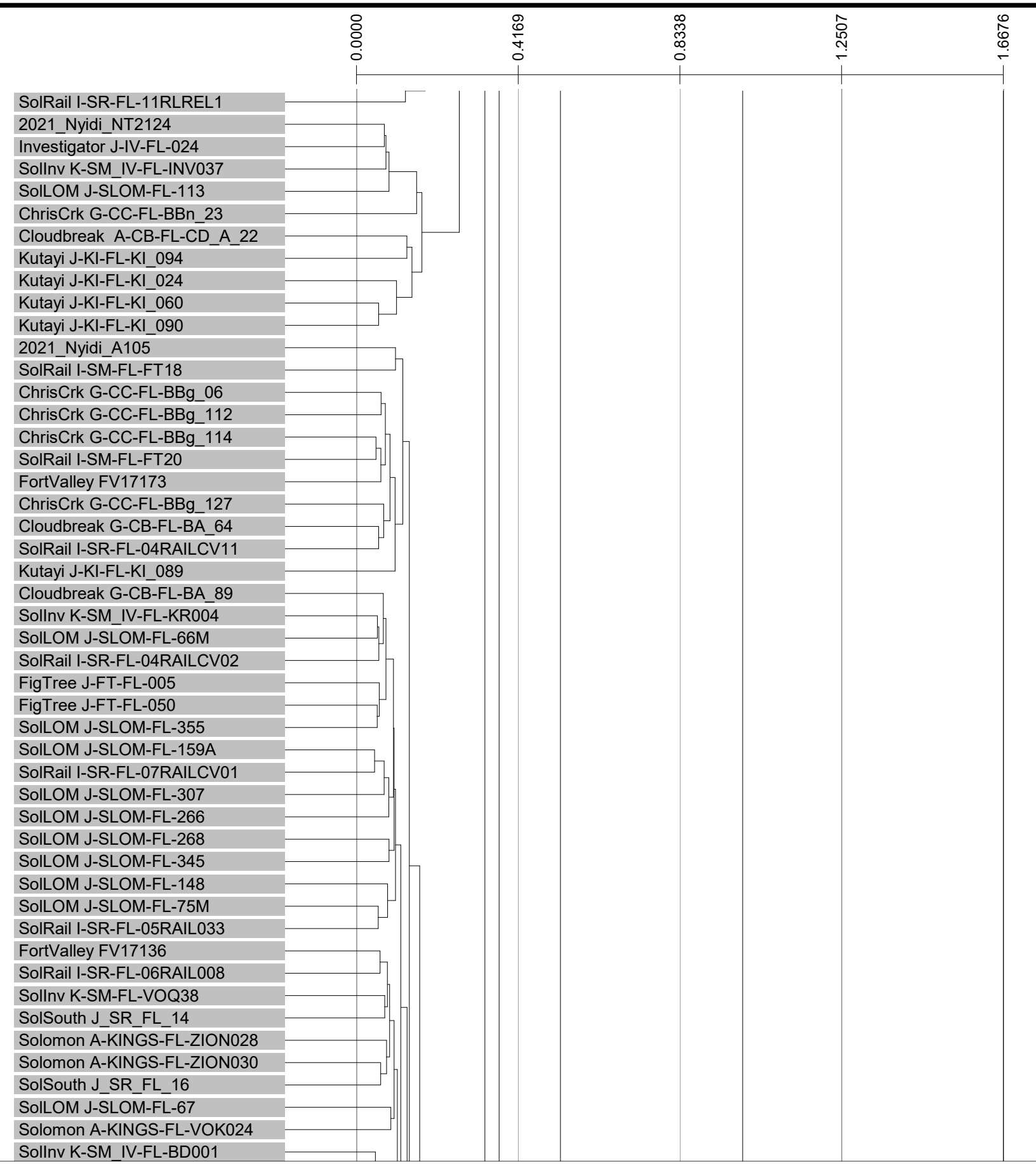

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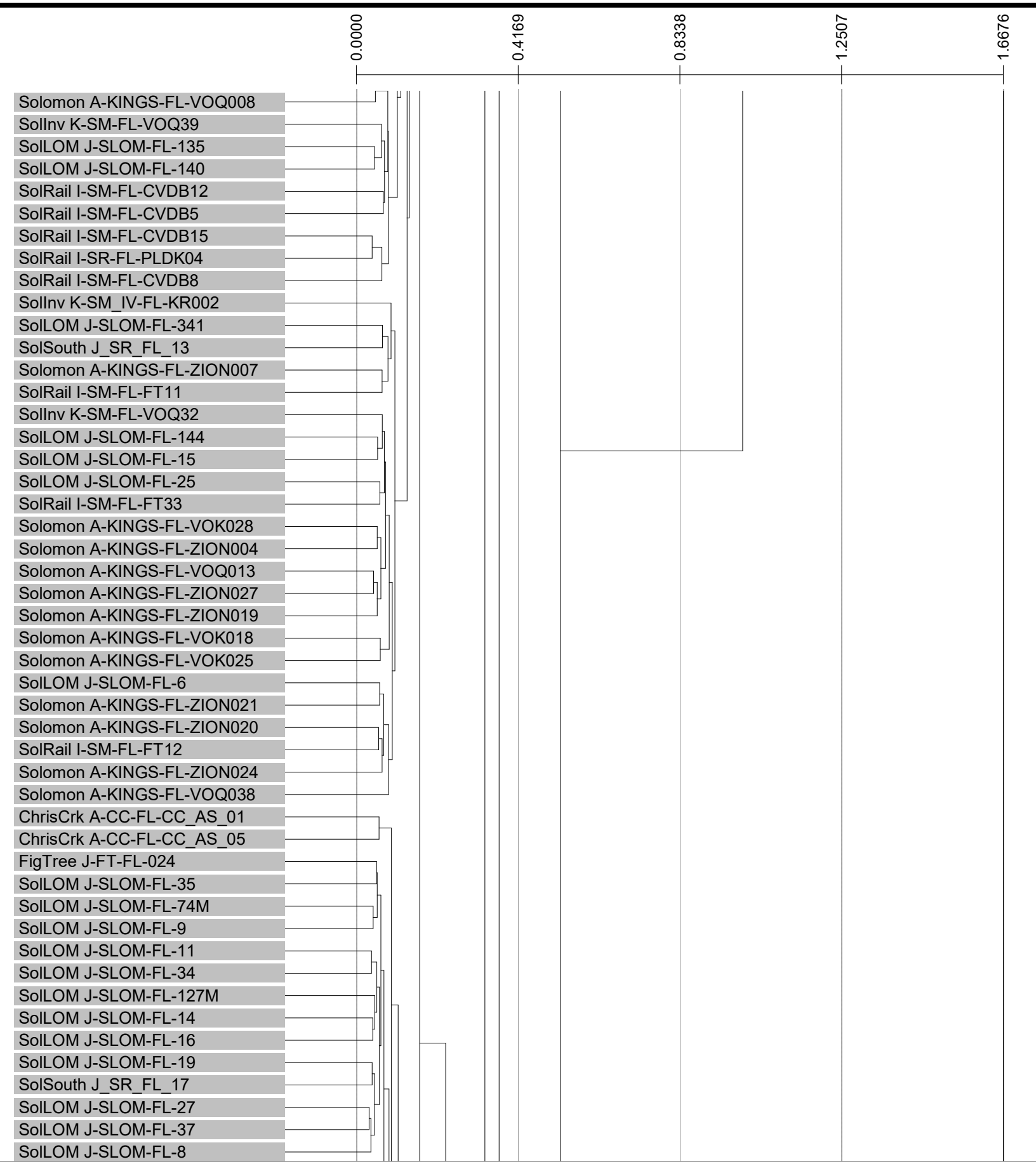

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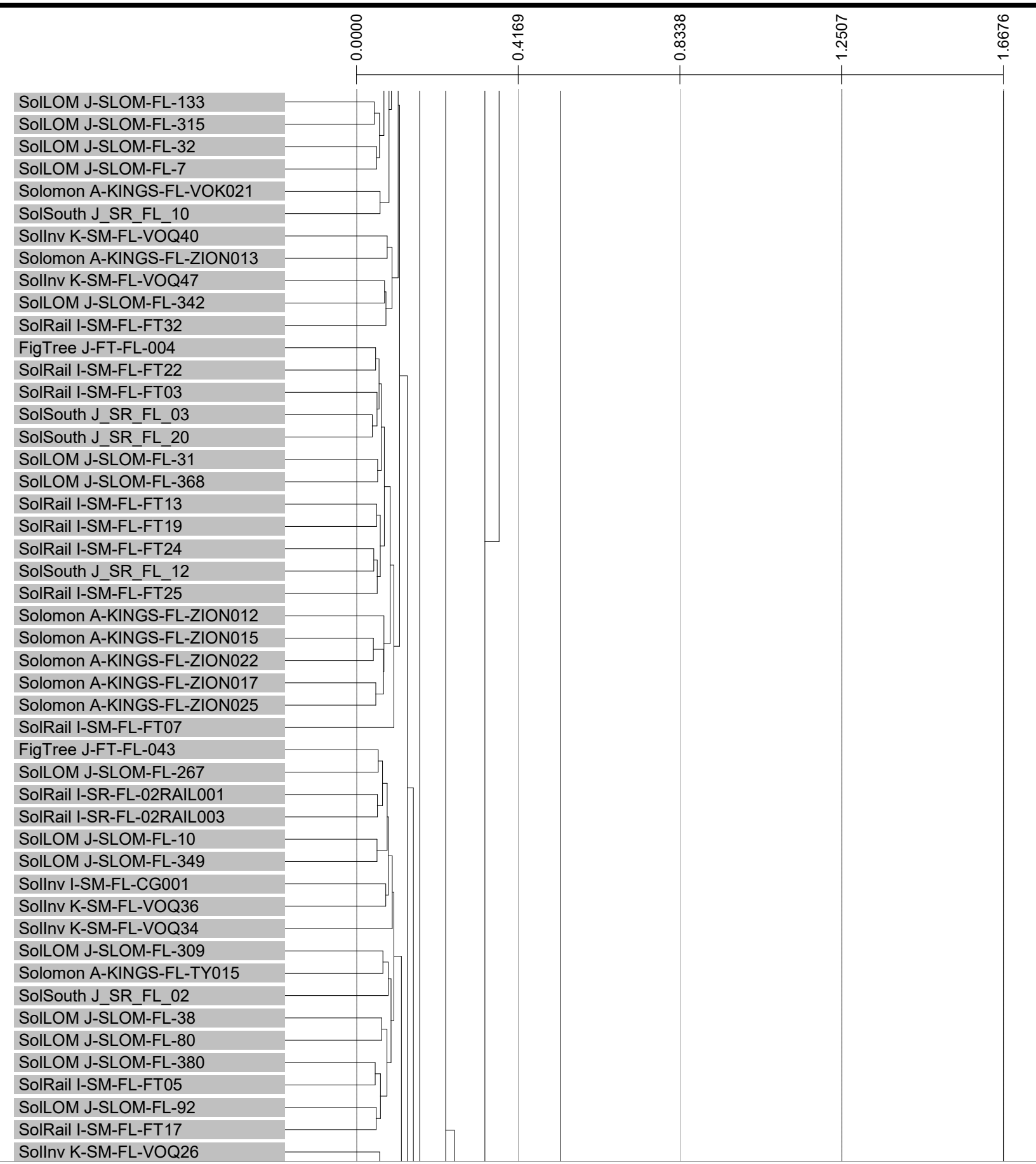

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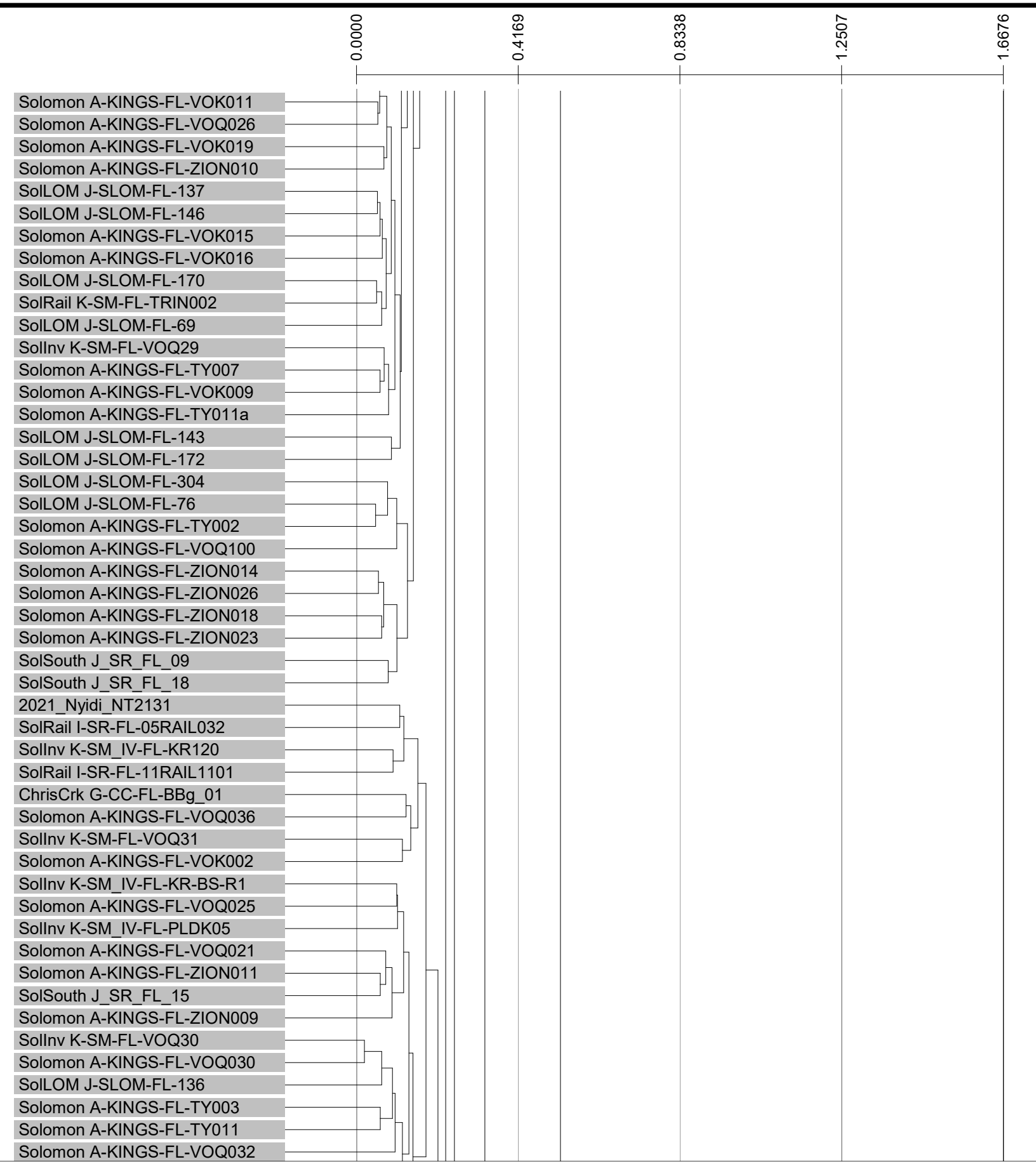

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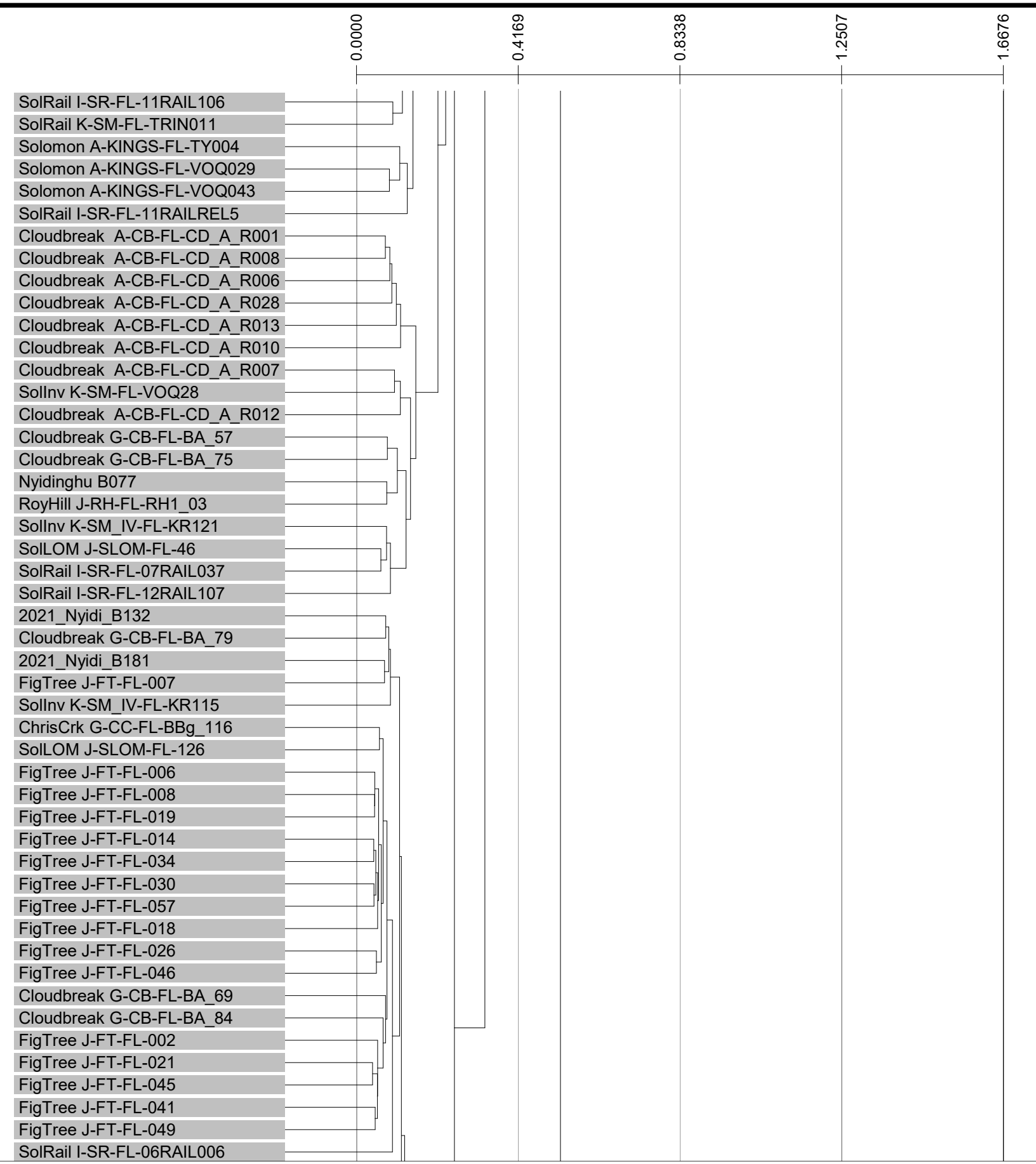

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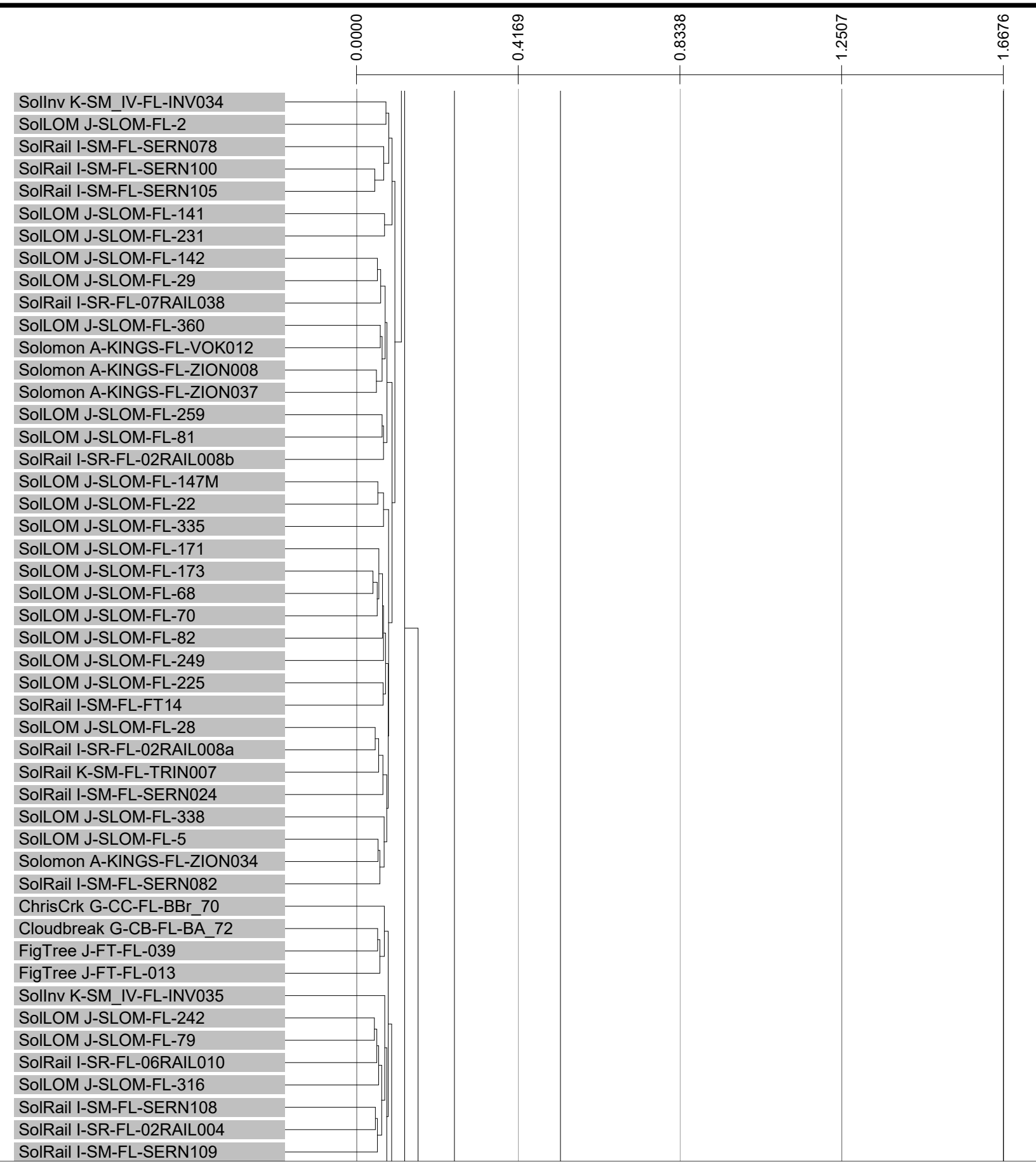

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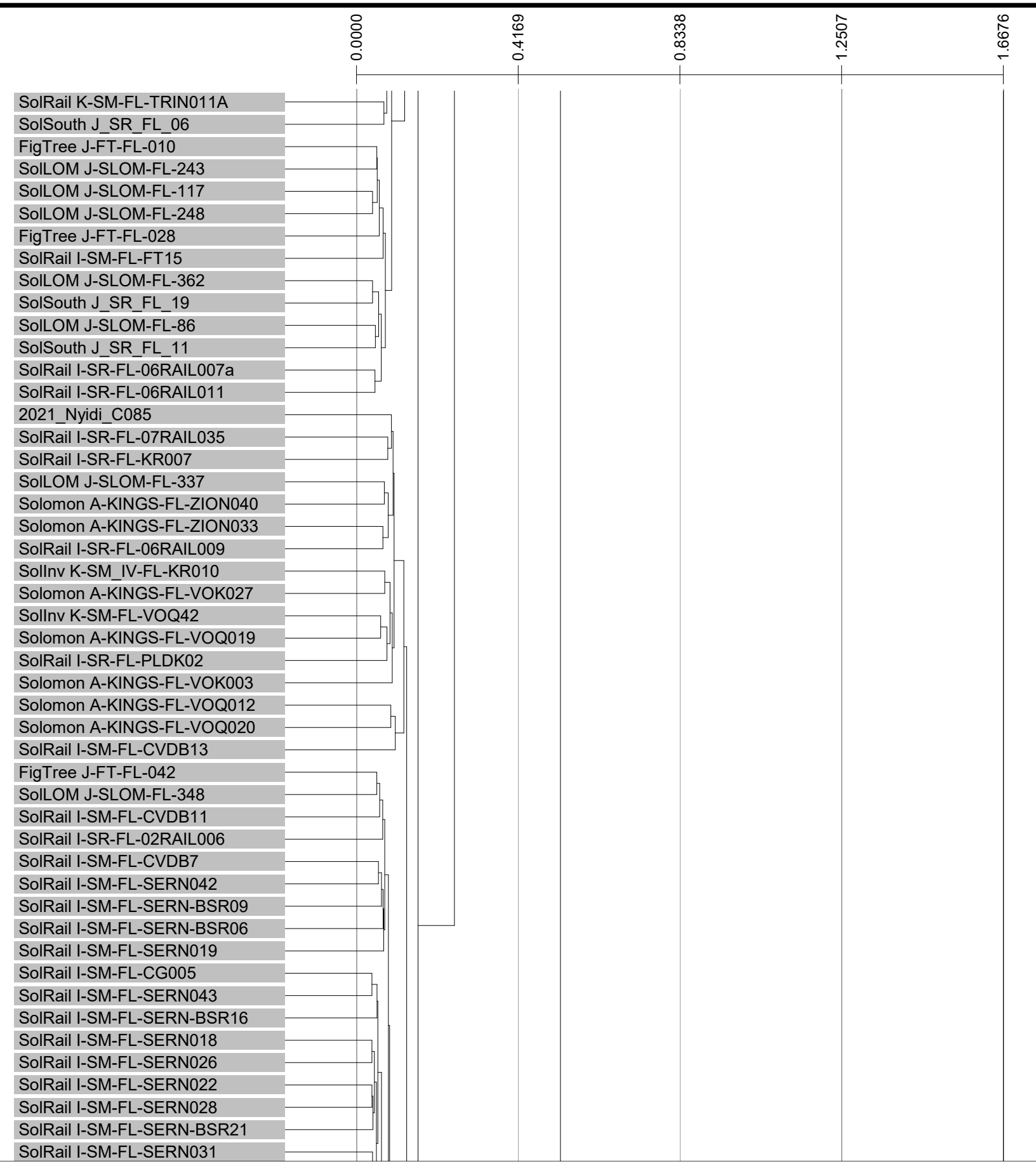

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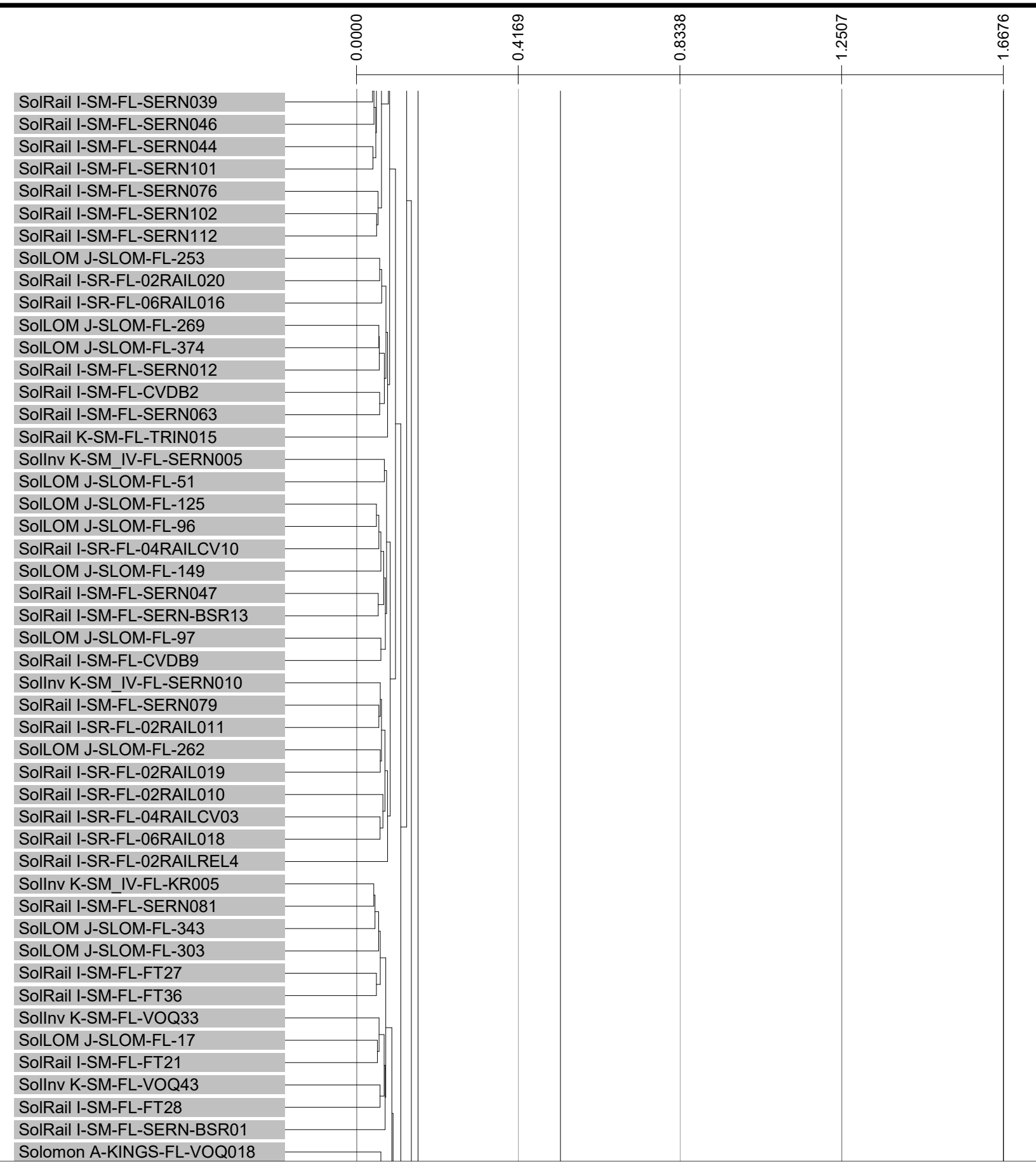

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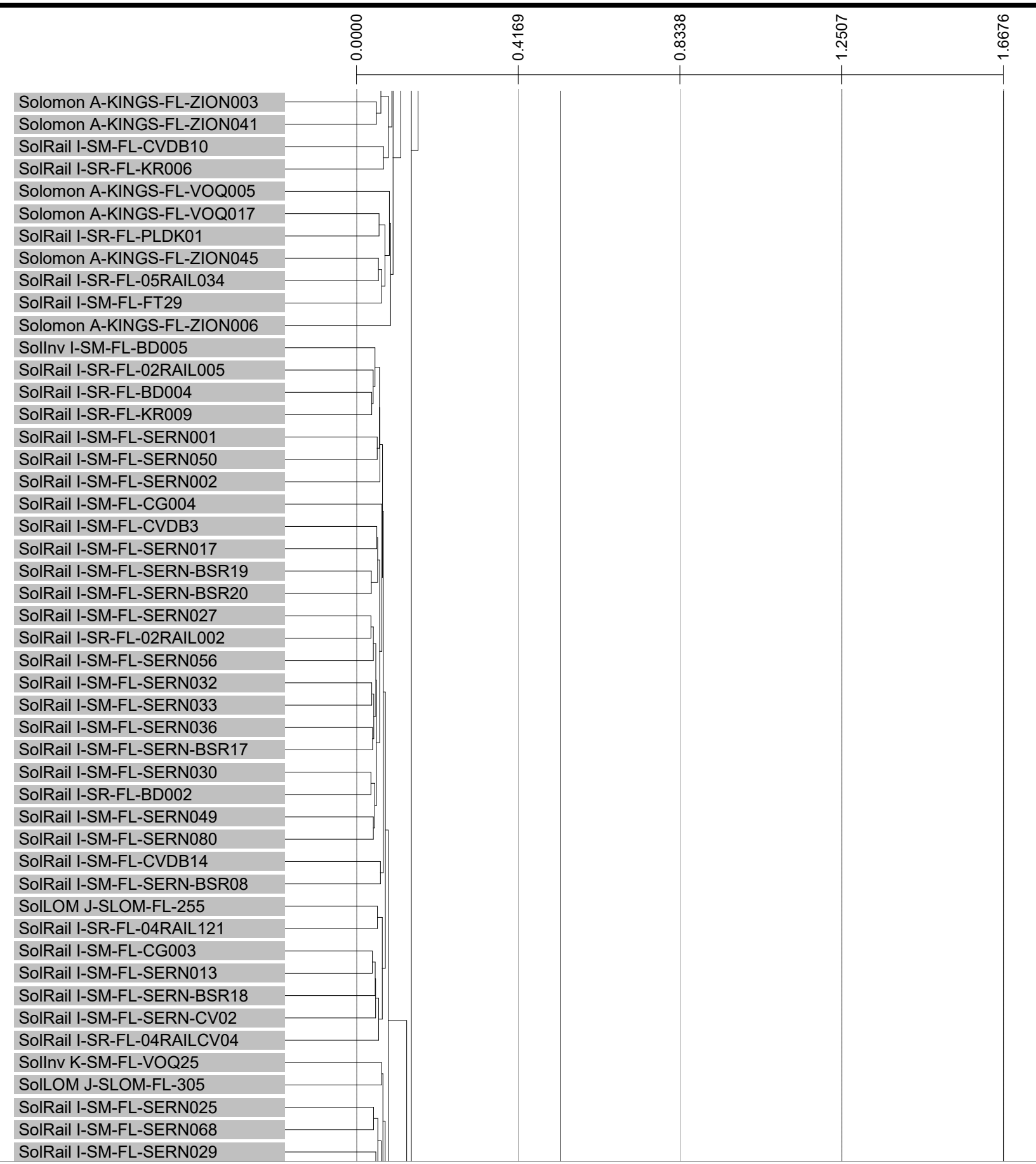

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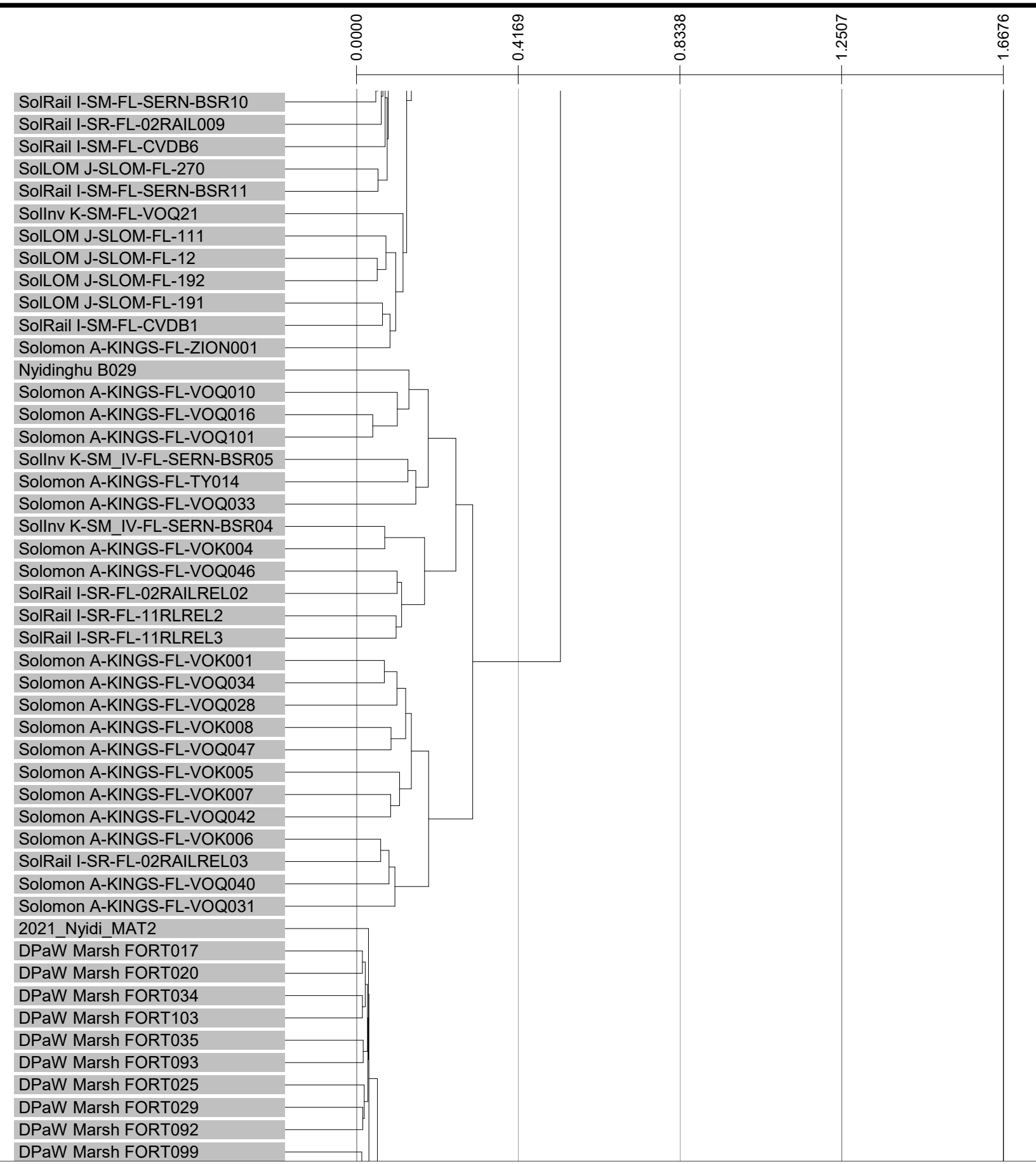

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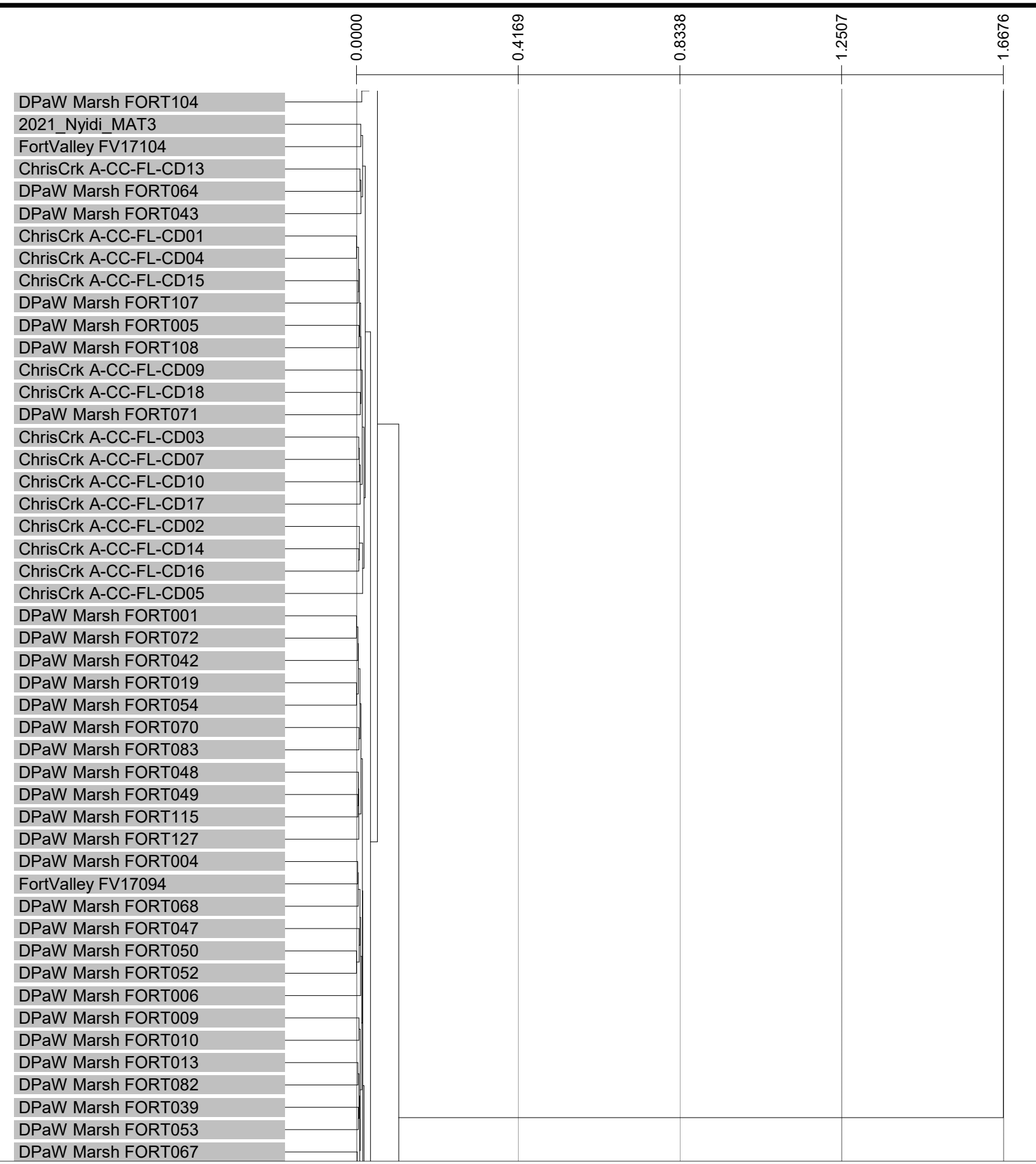

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Column Fusion Dendrogram