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21-Sep-2018

Vegetation Condition Monitoring Event 3

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Client: Main Roads Western Australia

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Prepared by

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Executive Summary

This report represents the third monitoring event (ME3) for the Roe Highway Rehabilitation Project – Vegetation Condition Monitoring. The vegetation condition monitoring plan was prescribed as part of the Roe Highway Extension Project in 2015. The objective of the monitoring plan was to assess the indirect impacts, including edge effects (shading, dust and weeds) and altered hydrology of the Project on adjacent native vegetation. Monitoring event 1 (ME1) was undertaken in Spring 2015.

Significant changes to the Project scope have occurred since the commencement of works. Between 2015 and 2017 the project commenced, vegetation was cleared, and temporary fencing established. Considerable community involvement led to large groups of protestors visiting the site daily until works ceased on 11 March 2017. Since then, remediation works have involved weed control, establishing permanent fencing, removal of mulch stockpiles and constructing limestone tracks.

An interim monitoring event was undertaken in spring of 2016 (Monitoring event 2 [ME2]). As construction had not commenced, a detailed report was prepared but not submitted.

Monitoring event 3 (ME3) was undertaken on 25 October to 1 November, 2017, during which time 45 of the 49 permanent quadrats were visited and floristic data recorded including plant density, foliage cover, species richness, and a photograph was taken. Following this the data was amalgamated with monitoring event 1 and 2 and data analysis followed. The report focussed on a comparison of ME3 to ME1 which represents the baseline dataset.

Change over time was analysed for species richness, native and weed density and native and weed foliage cover. In summary:

- Species richness has remained fairly constant over time (162 species during ME1 to 166 species during ME3
- Native species density has mostly increased since ME1 (43 quadrats increased)
- Weed species density has mostly increased since ME1 (37 quadrats increased)
- Native foliage cover fluctuated with 25 quadrats increasing since ME1, four quadrats were similar, and 15 decreased
- Weed foliage cover fluctuated with 26 quadrats increasing and 19 decreasing since ME1.

All quadrats exceeded one or more triggers. In particular, the density and foliage cover of native and weed species relative to reference quadrats was exceeded by all quadrats with the exception of one for each instance. Furthermore, a change of 10% in indicator species health was exceeded by all quadrats.

It is likely that factors not related to the project have influenced the results of ME3. This includes natural fluctuation over time, the change of project scope, rainfall variation and seasonality, limitations with monitoring methods and idiosyncratic effects.

1.0 Introduction

1.1 The Project Overview

The Roe Highway Extension Project (RHE) commenced works in 2016 following approval from the Environmental Protection Authority (EPA) and Department of the Environment and Energy (DotEE). Clearing for the project commenced in December 2016, with construction (defined by commencement of earthworks) commencing in November 2017. The Project proposed the construction of approximately 5 km of road, extending Roe Highway from its current terminus at the Kwinana Freeway in Jandakot to Stock Road in Coolbellup.

Direct and indirect impacts were defined by EPA (2013) and included localised indirect hydrological changes outside the 10 metre (m) zone of indirect impact due to compaction, and edge effects including shading, dust and weeds. A Flora and Vegetation Monitoring and Management Plan (the Plan) was developed to monitor and manage the potential indirect impacts of the Project on vegetation health outside the zone of indirect impact (Strategen 2015).

Contingency actions were proposed to manage indirect impacts as informed by three vegetation triggers. Should a trigger be exceeded, a decision-making process would be followed to determine if the trigger event is considered a result of the Project and whether contingency actions are required to be implemented (Strategen 2015).

Permanent quadrats were established in Spring 2015 (Monitoring Event 1; ME1) and baseline data collected from within vegetation communities identified as likely to be indirectly affected by the project. A second Monitoring Event (ME2) was undertaken in Spring 2016, with a third Monitoring Event (ME3) undertaken in Spring 2017. This report presents the monitoring results for all three events, assessing change over time, applying the triggers defined for the Project, and a discussion of results.

1.2 History of Roe Highway Extension

In 2009 the Project was referred to the Environmental Protection Authority (EPA) under the *Environmental Protection Act 1986* (EP Act), and to the then Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Project was set a level of assessment of Public Environmental Review (PER) and the bilateral agreement between the State and Commonwealth governments was enacted. The PER was released on 20 June 2011 for a 12 week public review period.

The Project was approved by the Minister for Environment in 2 July 2015, with the release of Ministerial Statement 1008 (Statement 1008) establishing conditions for the Project implementation. Condition 10 of the statement established a “zone of indirect impacts” which is to contain any potential environmental effects of the Project. The condition states that immediately outside the “zone of indirect impacts” there is not to be any detectable adverse effects on flora and vegetation communities. Condition 10 also requires ongoing monitoring to detect potential impacts as well as the implementation of a progressive rehabilitation program for areas within the final Roe Highway road reserve that have been temporarily disturbed for construction. Condition 10-2 states that

> *The proponent shall undertake a Baseline Flora and Vegetation Condition Survey prior to commencement of construction to the requirements of the CEO on advice from the Department of Parks and Wildlife.*
>
> 1. *The Baseline Flora and Vegetation Condition Survey shall: use quadrat based surveys of the area outside the ‘zone of indirect impacts’, including immediately outside the ‘zone of indirect impacts’, and reference quadrat locations;*
> 2. *identify the indicators of flora and vegetation health including the condition and composition of flora and vegetation communities and correlative environmental parameters including soil moisture within the survey area; and*
> 3. *include protocols to measure the indicators of flora and vegetation health including duration, timing and frequency*

Clearing for construction of RHE commenced in December, 2016. This included the installation of temporary site fencing, clearing of native vegetation, mulching and stockpiling, and relocation of fauna species. Protestors traversed the area directly outside the fenced project area on a daily basis. The temporary fencing used around the project area was regularly damaged and discarded. Similarly, quadrat pegs were often found discarded near the quadrat location.

Following the election of Labor Government on 11 March, construction of RHE was suspended due to an election promise.

Remediation works commenced 19 May 2017. The Alliance commenced initial remediation works for safety reasons. This has included weed management, removal of asbestos containing material that had been discovered scattered throughout the road reserve, relocation of mulch piles, removal of temporary fencing and installation of a low key conservation fence.

All works undertaken by the Alliance ceased and were permanently put on hold in December 2017 and the site was handed over to an organised community-based rehabilitation program led by the State Government. The community group is responsible for revegetating the site. Main Roads retains responsibility for implementing the conditions of MS 1008, including undertaking monitoring of the project area.

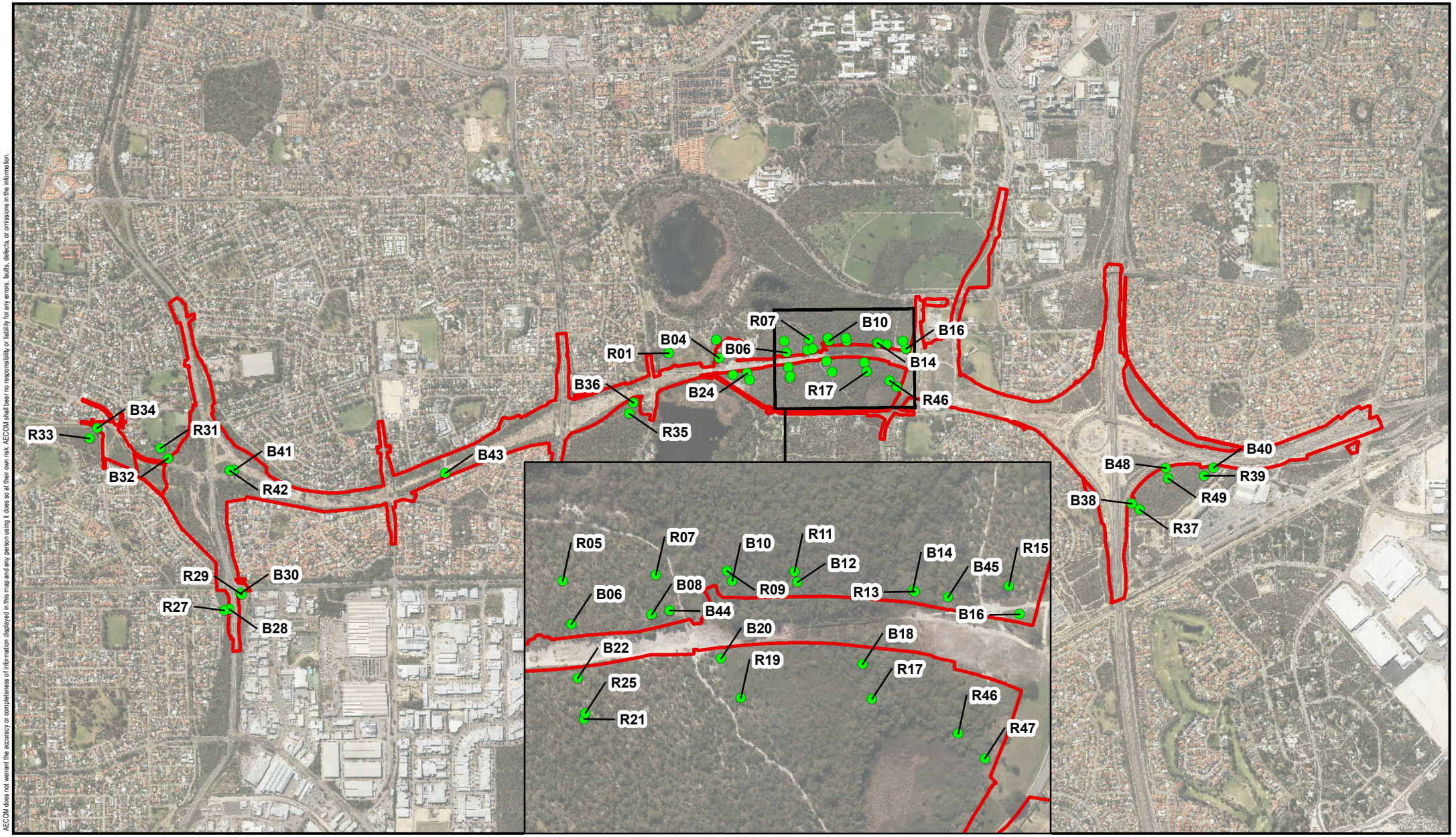
1.3 Location

The RHE Project is located 14 km south of Perth within the City of Cockburn extending a small distance into City of Melville. The Project Area is located mostly within road reserve under the Metropolitan Regional Scheme, between Kwinana Freeway and east of Stock Road. Generally, the proposed road was orientated east-west, and planned to be a two lane dual carriageway in each direction.

Forty-nine permanent quadrats were established outside the zone of indirect impacts around the Project Area (see Figure 1).

1.4 Objectives

The Flora and Vegetation Monitoring and Management Plan (the Plan) was developed to monitor and manage the potential indirect impacts of the Project on vegetation health outside the zone of indirect impact (Strategen 2015). Specifically, the Plan aims to identify changes to flora and vegetation health through routine monitoring, and assess whether any changes are due to the Project or external and/or natural factors.



PROJECT ID	60550185
CREATED BY	DGF
APPROVED BY	FDeWitt
LAST MODIFIED	26 FEB 2018

Metropolitan Road Improvement Alliance

N

DATUM GDA 1994, PROJECTION MGA ZONE 50

0 160 320 480 640

metres

1:27,376 when printed at A4

LEGEND

Project Development Envelope

Data sources:

Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010).

Survey Area and Quadrat Locations

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure

1

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig1_SurveyArea.mxd (fotheringhamd)

A4 size

2.0 Existing Conditions

2.1 Rainfall

Precipitation has been recognised as the major driving force for vegetation growth. Variation in rainfall both annually and seasonally is reflected in plant growth, germination rates, annual plant presence, and reproductive cycles of pants. Rainfall is therefore an important factor to consider when analysing the monitoring event results and change over time.

Monthly rainfall data was obtained for 2015 to 2017 from Jandakot Aero station (Figure 2). Average annual rainfall at Jandakot Aero is 823.9 mm which predominantly occurs between May and September. In summary, ME1 was undertaken following several months of below average rainfall. This could cause lower recruitment, diversity of annual species, and reduced foliage vigour. Rainfall preceding ME2 was near-average, while ME3 followed several months of above-average rainfall. In 2017 there was a late onset of winter rainfall. This may also have implications on vegetation vigour, however this relationship is poorly understood in WA.

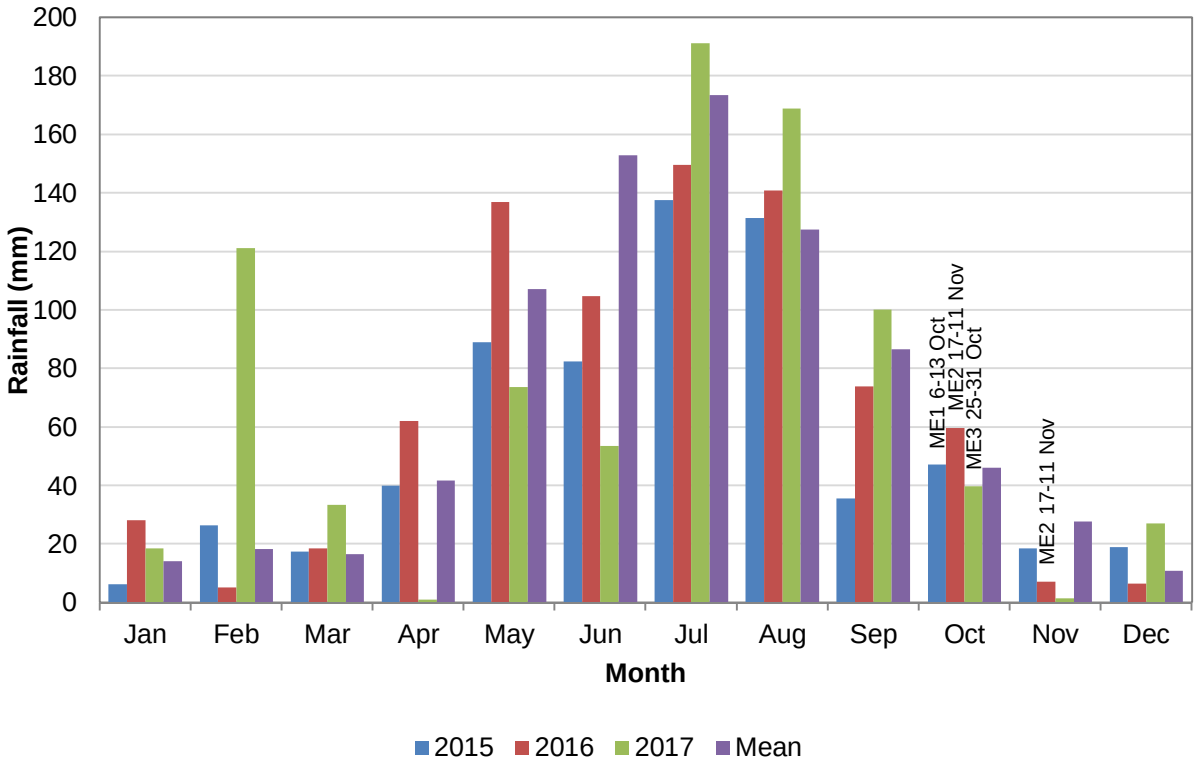


Figure 2 Rainfall for Jandakot Aero station 9172 with monthly rainfall data for 2017 and average rainfall (BOM 2018)

3.0 Methodology

3.1 Monitoring event

3.1.1 Floristic sampling

Monitoring event 3 (ME3) was completed between 25 October and 1 November, 2017. Forty-five of the 49 quadrats were monitored at this time. A hand-held GPS was used to locate the permanently marked 10x10 metre (m) quadrats.

Missing pegs were replaced where required. GPS and photographs were used to determine location of quadrats where all pegs had been removed. It is likely that these quadrats (in particular the sub-quadrats) have moved over time.

Data recorded within each quadrat included:

- GPS location of northwest corner
- date
- plant density – count method determined by consulting ME2 data to maintain consistency
    - large, easily distinguished and/or iconic species were counted within the quadrats and noted as 'actual counts'
    - herbs, grasses small shrubs, sedges and rushes were recorded in the four sub-quadrats within each corner of the quadrat and depicted as such (**Plate 1**).
    - adults and juveniles were distinguished
    - sedges, grasses and rushes were counted as clumps
- species foliage cover, defined as the area of ground within a quadrat that is occupied by the above-ground parts of each species when viewed from above, shown as % of 100m^2
- photograph taken above northwest corner (approx. 150 cm from ground) using a digital camera facing the centre of the quadrat.

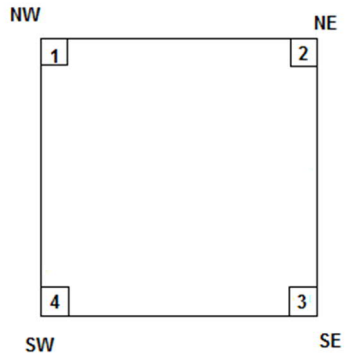


Plate 1 Nested quadrat design with four 1 x 1 m sub-quadrats

3.1.2 Soil Moisture sampling

Soil samples were collected from an approximate depth of 0.5 m within each quadrat in order to determine the moisture content. The depth at which soil was collected was revised from 1 m (as stipulated in the Plan) to 0.5 m. The field team was unable to penetrate the soil with the auger any deeper than 0.5 m using strength and body weight alone.

Soil collected was put in glass jars with air-tight lids and kept in an Eski with cooler blocks. Duplicate soil samples were taken at a rate of one duplicate sample per ten holes to confirm the accuracy of results. Eskies were delivered to ALS laboratory for soil moisture analysis.

3.2 Reporting

3.2.1 Data analysis

Species richness, density and foliage cover were assessed as change over time for each quadrat and compared with paired reference and buffer quadrats.

Density data was transformed to represent plant density/m^2. Calculations for density were made to reflect density count method. Once transformed, the dataset was reconciled with ME1/ME2 data.

Paired buffer and reference quadrat associations have been previously determined following ME1, informed by vegetation community representation. Buffer and reference quadrat relationships are shown on graphs by communities. For easier reading the community names were abbreviated to fit on graphs. A summary of buffer and reference association, and abbreviated community names is presented in Appendix A.

Condition of indicator species was determined using three categories:

- decline = one or both of density and foliage are lower and/or one is the same
- no change = density and foliage are both the same or one is higher and the other is lower
- improve = one or both density and foliage are higher, and/or one is the same.

Vegetation condition for each quadrat was determined using change since baseline of native and weed foliage cover. Three categories were defined:

- decline = native foliage cover decreased while weed foliage cover increased
- no change = native and weed foliage increased, or if both native and weed foliage decreased
- improve = native foliage cover increased while weed foliage cover decreased.

This report focusses on a comparison of ME3 to baseline conditions represented in ME1. Where relevant, trends since ME2 are discussed.

3.2.2 Trigger assessment

The Plan outlines three triggers:

Three triggers have been specified in the Plan. Note that wording of triggers has been changed for clarity, excluding parts that are not applicable, and avoiding duplication.

- Trigger 1: A change of 10% in native foliage cover and plant density compared with baseline and reference quadrats:
    - comparison of native density and foliage (ME1 to ME3)
    - assess change over time and rate of change of native density and foliage data and compare buffer to associated reference quadrat

The trigger assumes both a decline and increase of 10% represents an exceedance of the trigger. Assessing plant condition has not been defined previously. Methods for this assessment have remained unclear. This part of the trigger has therefore been excluded since ME2.

- Trigger 2: Change of 10% in indicator species plant health relative to baseline and reference quadrats:

Plant health is informed by plant density and foliage cover and is applicable to indicator species. This indicator has been interpreted as follows: if more than 10% of indicator species have declined, the trigger has been exceeded. For example, if there are six indicator species, and one or more (representing 16%) have improved, then it has not exceeded the trigger.

Trigger 2 includes two aspects, change over time, and comparing the rate of change in baseline and associated reference quadrats. However, each quadrat had different indicator species, and a different number of indicator species. With no easily calculable method, comparing the rate of change in buffer and reference quadrats and applying a 10% trigger was not completed.

- Trigger 3: An increase of 10% in weed cover and density compared with baseline and reference quadrats:
    - comparison of weed density and foliage (ME1 to ME3)
    - assess change over time and rate of change of native density and foliage data and compare buffer to associated reference quadrat.

3.3 Limitations

A number of limitations significantly impact on the use and application of the monitoring program, its results, and its ability to provide clarity around impacts of the project on vegetation condition. These are briefly outlined below.

Change in impacts

Unforeseen impacts from protestors and the considerable foot traffic associated with the protestor movement for several months over the summer of 2017/2018 are likely to have impacted on vegetation condition. Impacts including trampling, weed spread, rubbish (including discarding temporary fencing), removal of quadrat pegs, and soil disturbance were observed during the monitoring event.

Methods

Density counts were based on species recorded in four 1x1m sub-quadrats, and those counted within the 10x10 quadrat. Species that were not present in any of the four corners, but were too prolific to be counted within a 10x10 quadrat are not represented as a density count.

There is a high rate of error associated with counting grasses, sedges and rushes. Foliage cover data may be a more appropriate measure for these species.

Soil sampling using the hand held auger could not penetrate soil deeper than 0.5 m. Furthermore, due to the characteristics of sandy soils, it was difficult to ensure that soil from the bottom of the hole was collected in the glass jars. It is likely that in some instances, soil from the surface was mixed with sub-surface soil.

Quadrats R46 and R47 were entirely inundated and unable to be monitored. They have not been accessible since ME1. As they do not represent buffer quadrats the impact of their exclusion is negligible.

Quadrats B30 and R29 situated on the southwest corner of Stock and Phoenix Road had been destroyed. Lacking any geographical markers, pegs, (Plate 2), these quadrats were unable to be re-established. The removal of these paired buffer and reference quadrats is unlikely to impact on the outcomes given the lack of native species.

Plate 2 Quadrats B30 and R29 were not re-established

Data analysis

The following changes were made following ME3 to indicator species outlined in the Plan:

- R09 *Baumea* sp. changed to *Baumea articulata*
- R17 indicator species changed from *Baumea* sp. to *Baumea juncea*.
- B14 *Hibbertia racemosa* not recorded in plot since 2015. Suspect this species is *Hibbertia cuneiformis* recorded in 2016 and 2017 at same height (150cm) with ME3 density and foliage the same as ME1 for this species. Indicator species changed to *H. cuneiformis*.
- B18 *Baumea* sp. changed to *Baumea preissii*.
- B22 *Eucalyptus marginata* is recorded as overhang, species density does not get considered as part of indicator species condition.
- B38 *Conostephium pendulum* has not been counted in plot since ME1 due to difficulty in counting accurately within 100m^2. Species density doesn't get considered as part of indicator species condition.
- R11 *Baumea* sp. not recorded since ME1 in foliage or density. *Taxandria linearifolia* density not recorded since ME1.
- R42 and R49 *Schoenus clandestinus* density and foliage cover not recorded since ME1.
- R21 *Xanthorrhoea preissii* not recorded in foliage or density since ME1.

Plant health was determined using foliage and plant density results only.

4.0 Results

4.1 Species richness

A total of 166 native flora species were recorded during ME3. This is similar to ME1 (162 species) however represents a reduction since ME2 (199 species). The most common native species during ME3 were:

- *Xanthorrhoea preissii* – 19 quadrats
- *Gompholobium tomentosum* – 18 quadrats
- *Burchardia congesta* and *Banksia attenuata* – 17 quadrats
- *Banksia menziesii* and *Hibbertia hypericoides* – 15 quadrats.

Two Priority flora species were recorded, including Priority 4 *Tetraria* sp. Chandala (G.J. Keighery 17055) within four quadrats, and Priority 3 *Dampiera triloba* within 2 quadrats. *Tetraria* sp. Chandala was recorded in quadrat R17 where it had not been previously recorded. The rest of the results are consistent with ME1 and ME2.

Eleven quadrats decreased in native species richness since ME1, varying between one to four species. This included buffer and reference quadrats in particular in wetland communities ErMpH (EM1 and EM2 on graphs), and CcXpMr (CXM). Twenty-four quadrats increased in native species richness including eight paired buffer and reference quadrats (16 total) and eight miscellaneous buffer and reference quadrats. Ten quadrats remained stable since ME1. Spatial representation of species richness changes is shown in Figure 11 at the end of the document.

Species richness (total) increased from 161 native species in ME1 to 186 native species in ME2, reducing to 166 in ME3.

Weed species were recorded in 44 of 45 quadrats. The most common weed species recorded during ME3 were:

- **Hypochaeris glabra* – 34 quadrats
- **Ehrharta calycina* – 28 quadrats
- **Briza maxima* – 23 quadrats
- **Zantedeschia aethiopica* – 20 quadrats

Weed species richness was not further analysed.

Species richness data from ME1, ME2 and ME3, grouped by community is shown in Figure 3 Species lists are presented in Appendix B.

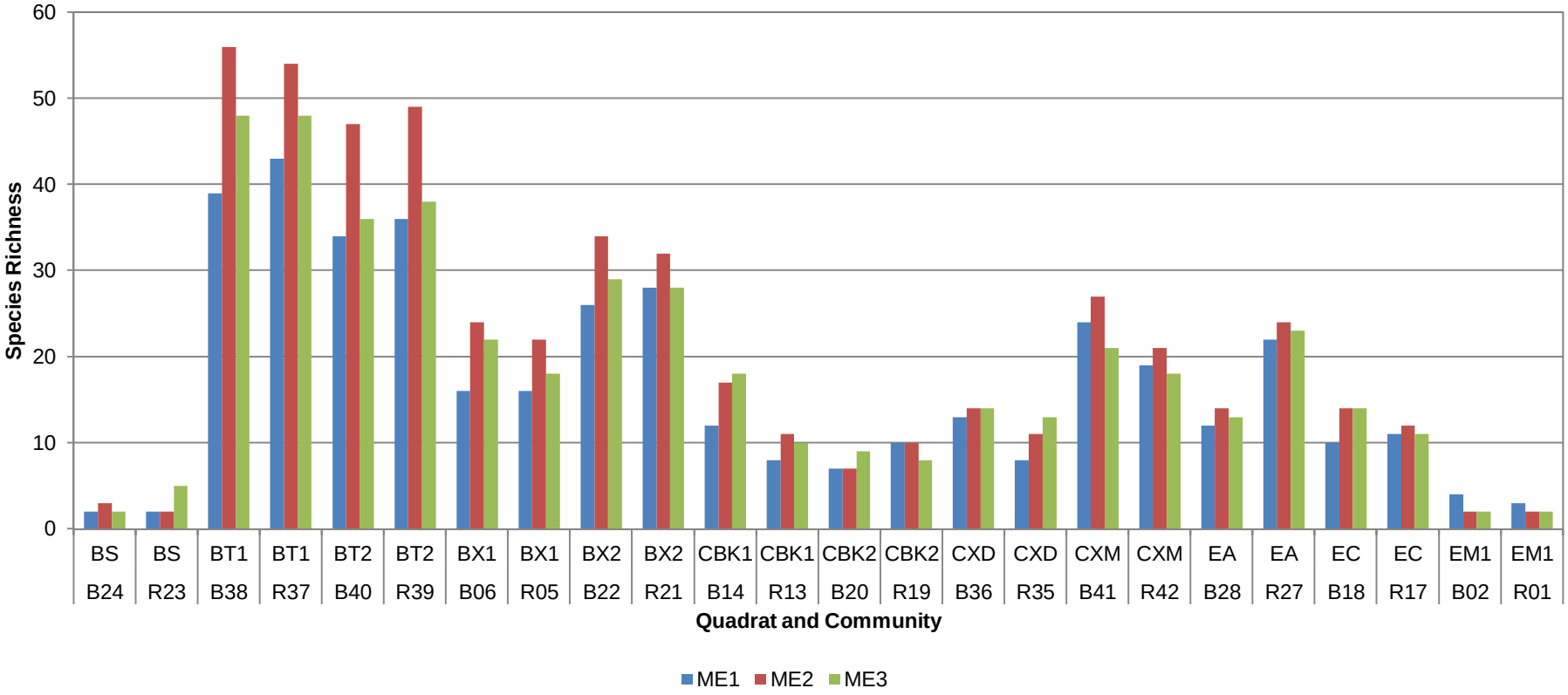


Figure 3a Species richness change over time showing ME1, ME2 and ME3 data grouped by community

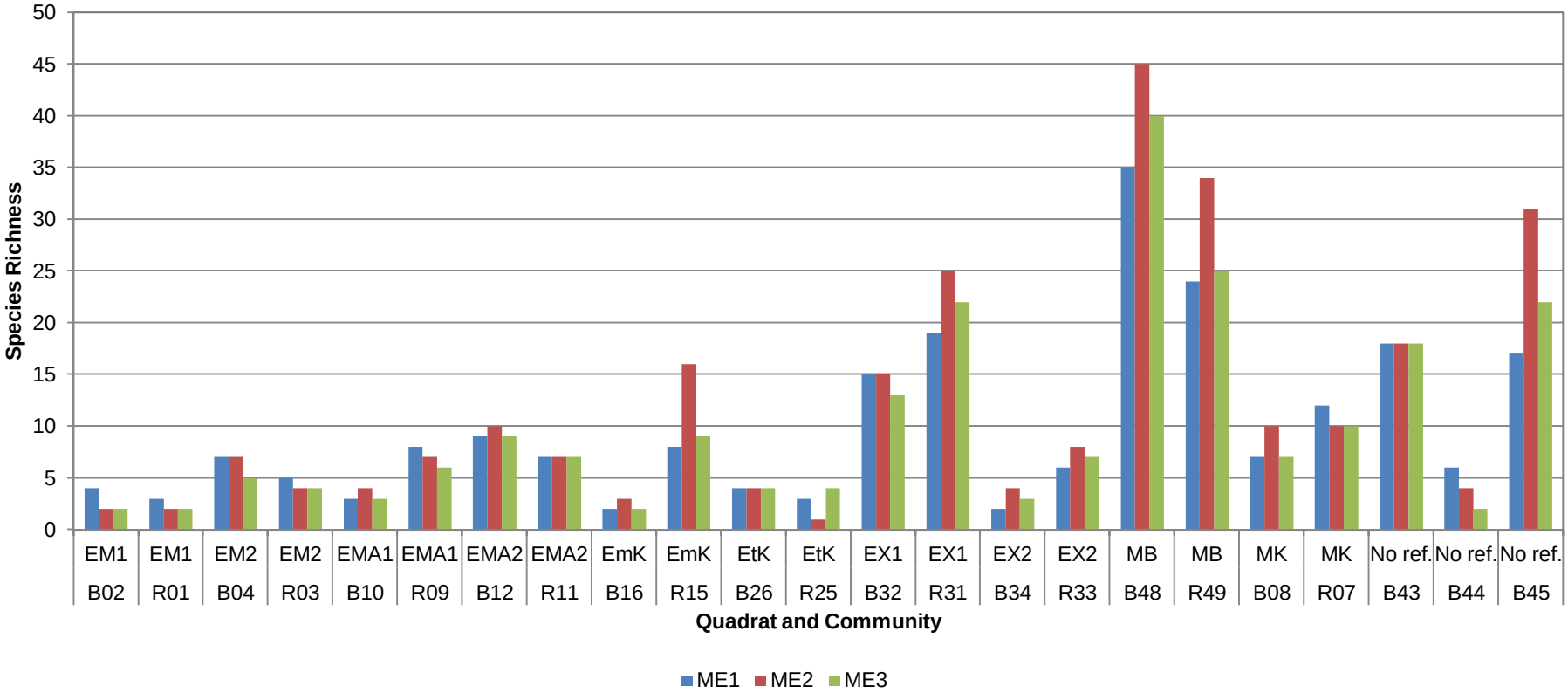


Figure 3b Species richness change over time showing ME1, ME2 and ME3 data grouped by community

4.2 Density change over time

4.2.1 Native species

Density of native species varied between 0.02 to 125.29 native plants/m^2 within quadrats in ME3. Quadrats with a high native species density were those in wetland community ErMpH (EM on graphs) with dense understorey of sedges (Cyperaceae species). This included quadrats B12, B18, R09 and R11 within communities ErMpAfS and ErCtS (EMA and EC on graphs) which also showed the highest increases in native density since ME1.

Quadrat R25 showed increased plant density since ME1 which was attributed to *Crassula colorata* var. *colorata*, which is an annual herb species.

In summary:

- 21 quadrats show an upward trend in plant density over time
- 22 quadrats fluctuated with the majority (17 quadrats) increasing by ME2 then decreasing by ME3 with ME3 results still higher than ME1
- two quadrats had a decreasing trend since ME1
- one quadrat remained stable over time.

Eight quadrats decreased in native plant density since ME1. Of these only two has a considerable decline of 2 or more plants/m^2 including Quadrats R21 and R23. Quadrat R21 decreased considerably due to a decline in *Drosera porrecta,* decreasing from 20.5 plants/m^2 to 3.25 plants/m^2. In Quadrat R23 it was *Kunzea glabrescens* which declined considerably. These quadrats are located in Banksia Woodlands BXpW and BiSiH (BX and BS on graphs).

The results are displayed in **Figure 4**.

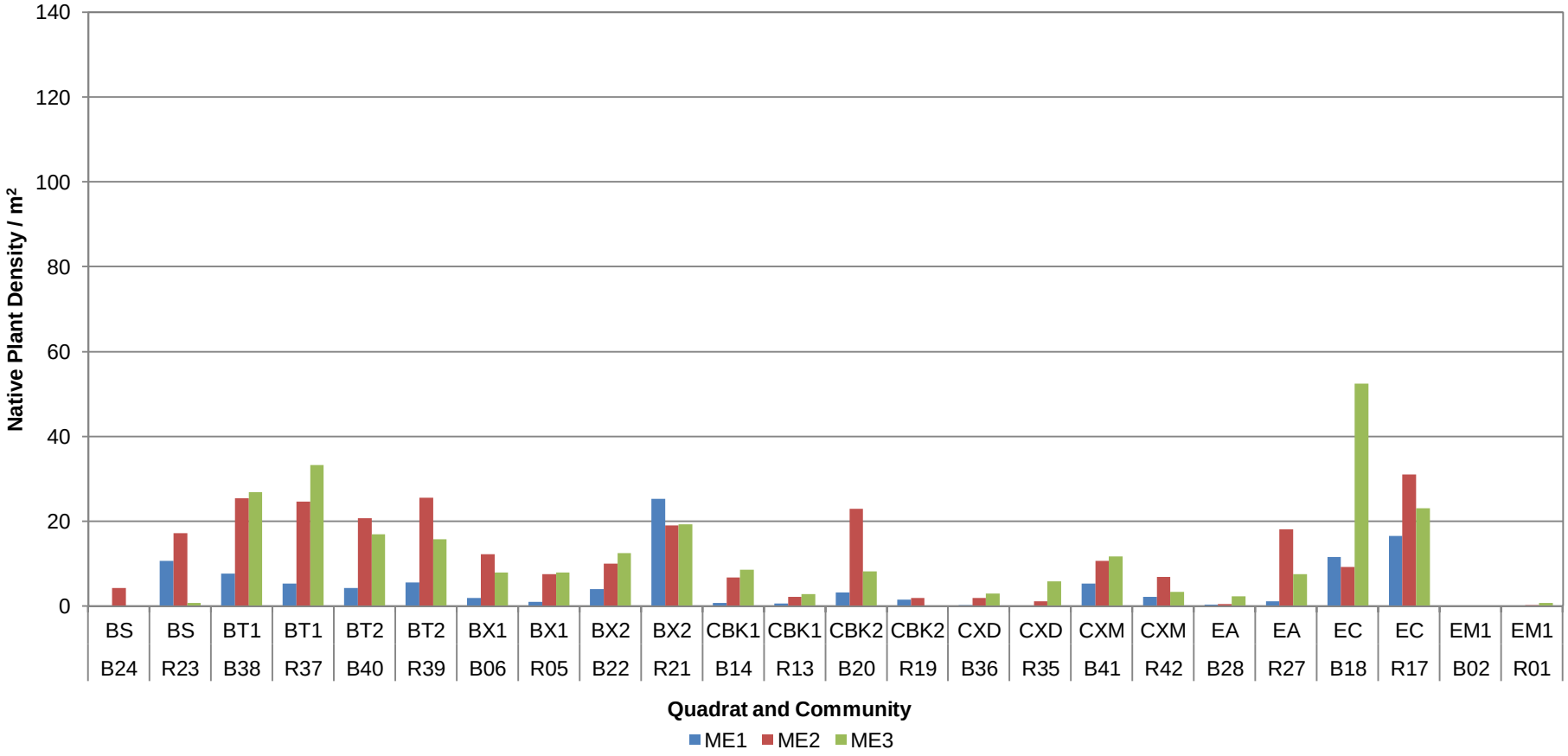


Figure 4a Native plant density (plants/m2) of ME1, ME2 and ME3 grouped by community

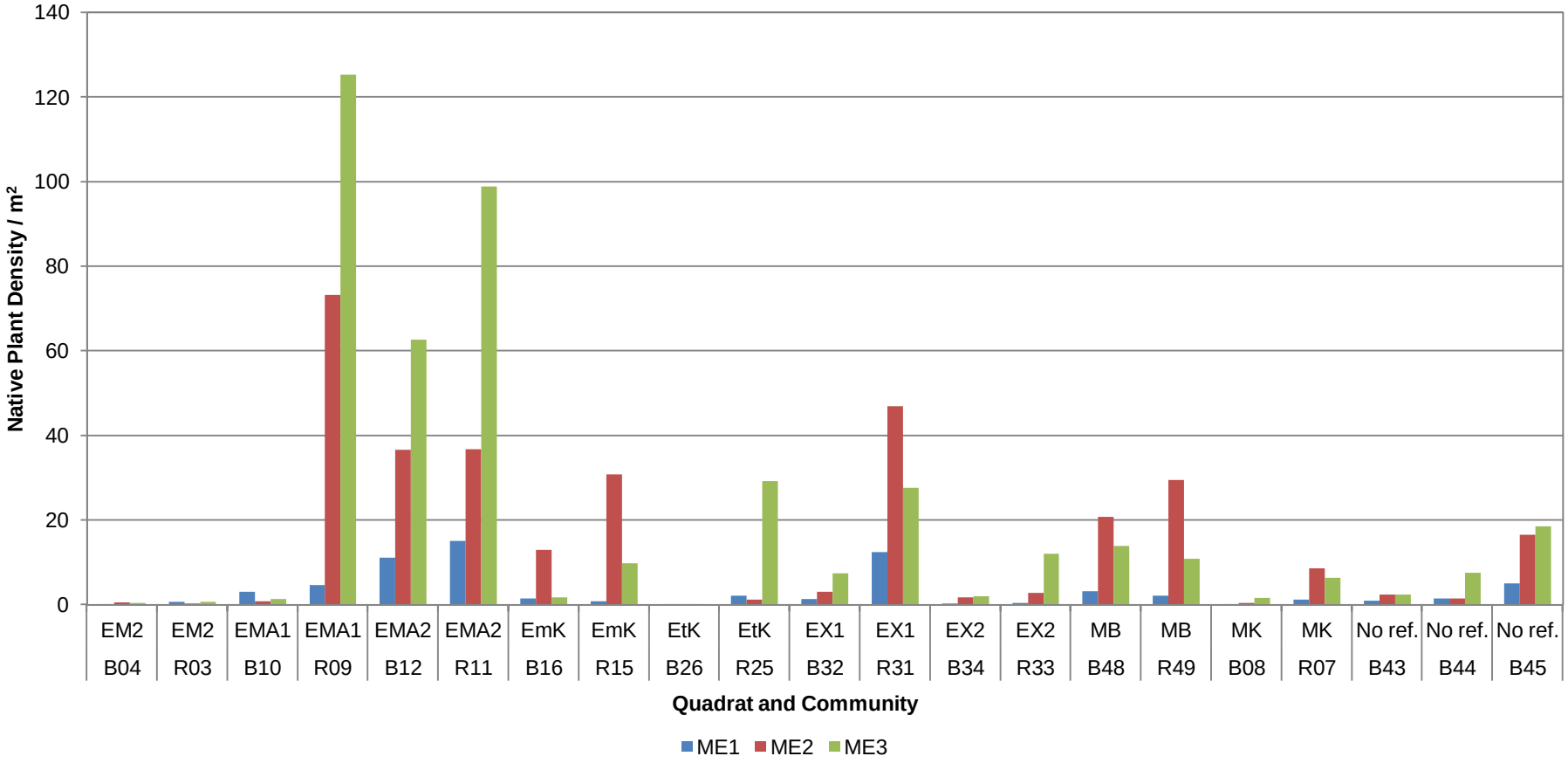


Figure 4b Native plant density (plants/m^2) of ME1, ME2 and ME3 grouped by community

4.2.2 Weed species

Weed species were recorded in 44 of 45 quadrats, varying in density between 0.02 to 250.75 plants/m^2. Weed density was higher than native species density in 35 quadrats.

Eight quadrats decreased in weed species density since ME1. Decreases were low, between 0.04 and 5.95 plants/m^2 and not considered significant. By comparison, thirty-seven quadrats increased in weed species density since ME1, varying between 0.39 to 195.96 plants/m^2.Of these, 17 increased in weed density by more than 50 plants/m^2 including buffer and reference quadrats. The largest increases (>100 plants/m^2) were in R17, B24, R23, B02, B44 and R19 including upland Banksia communities and wetlands. Increases were attributed to **Hypochaeris glabra* and grasses including **Vulpia myuros, *Bromus diandrus, *Ehrharta calycina* and **Ehrharta longiflora*.

In summary:

- two quadrats decreased over time (R11, B18)
- six quadrats initially increased by ME2, however have since declined to below ME1 results
- 18 quadrats initially increased by ME2, declining by ME3 however ME3 results are still considerably higher than ME1 results
- 19 quadrats show an upward trend.

There does not appear to be a correlation between location, or buffer and reference associations for these results. The results are illustrated in **Figure 5**.

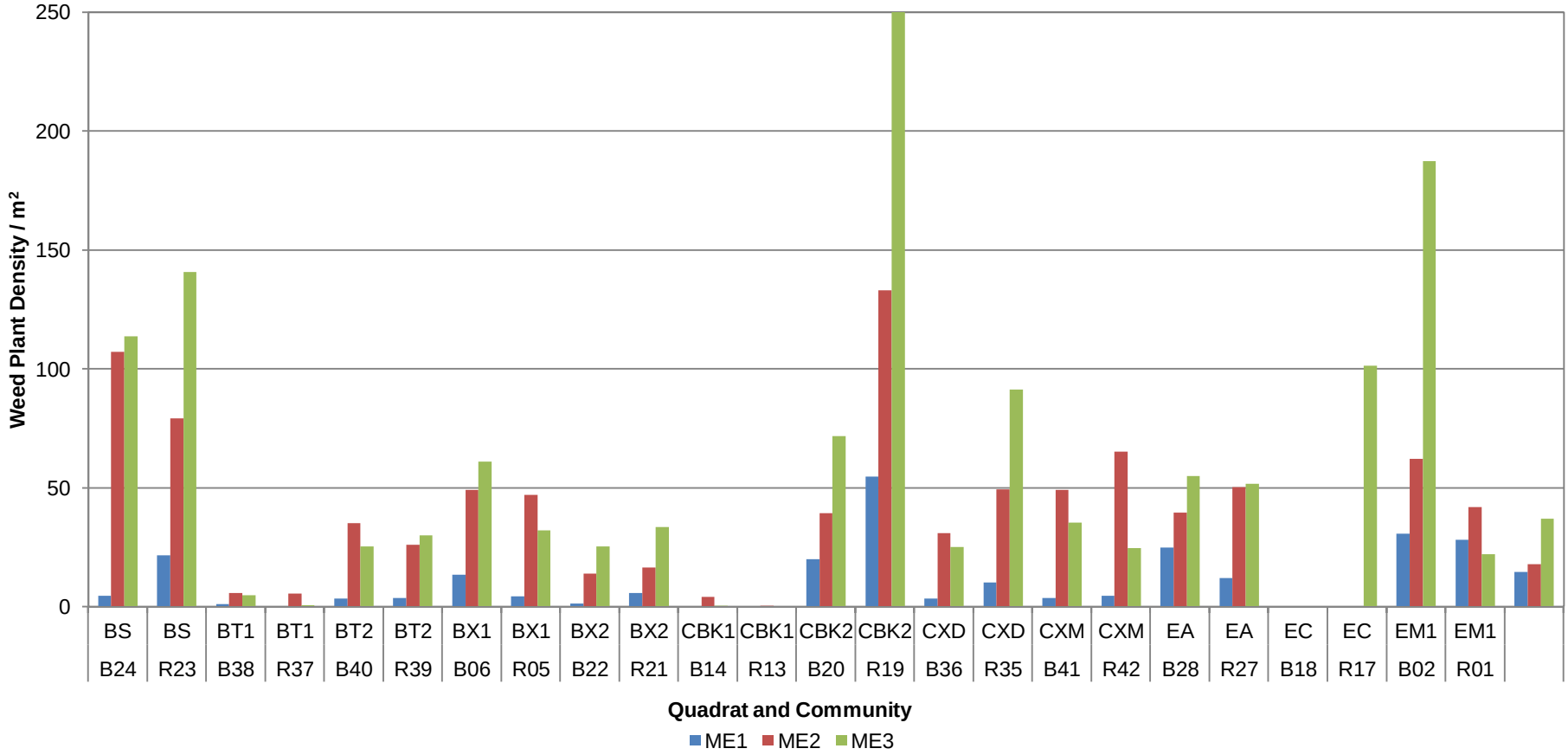


Figure 5a Weed plant density (plants/m2) of ME1, ME2 and ME3 grouped by community

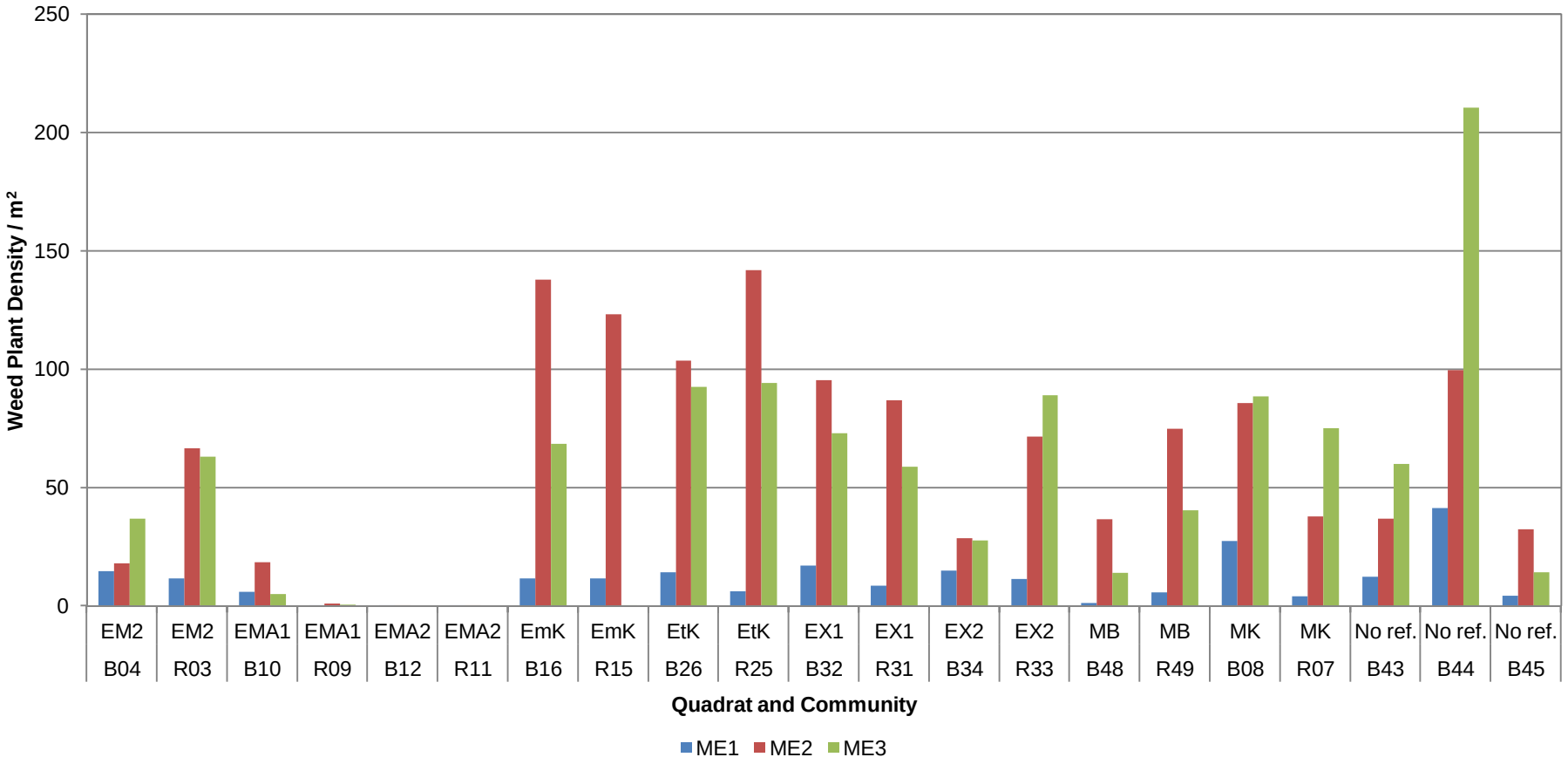


Figure 5b Weed plant density (plants/m^2) of ME1, ME2 and ME3 grouped by community

4.3 Foliage change over time

4.3.1 Native foliage cover

Native foliage cover varied between 0 to 214.3%, with B12 scoring the highest in wetland community ErMpAfS (214%, EMA on graphs). Since ME1, 27 quadrats increased in native foliage cover, ranging from 0.5 to 46%. Considerable increases in foliage cover correspond somewhat with increases since ME2 (R19, B36, B10 and B06). Upward trends were recorded across numerous species within these quadrats, with no single significantly large increase of a single species. This may represent widespread vigour.

Eighteen quadrats decreased in native foliage cover since ME1. The largest declines in quadrat B20 correspond with trends since ME1 caused by senescence of *Kunzea glabrescens*. Of these, 13 show a downward trend since ME1. This includes both buffer and reference quadrats in five communities (ten quadrats) including BaTs, CcBKgS, ErMpG, EgXpS and MpBaS.

In summary:

- four quadrats showed an upward trend since ME1
- 11 quadrats increased by ME2 followed by a decrease in ME3 however ME3 results are still higher than ME1
- four quadrats increased by ME2, then decreased by ME3 with ME3 results similar to ME1
- three quadrats increased by ME2, then decreased by ME3 with results less than ME1
- six quadrats decreased by ME2, then increased by ME3 with ME3 results higher than ME1
- four quadrats were similar in ME2, then increased by ME3
- 13 quadrats had a downward trend since ME1.

Native foliage cover for ME1 and ME2, grouped by community is illustrated in **Figure 6**.

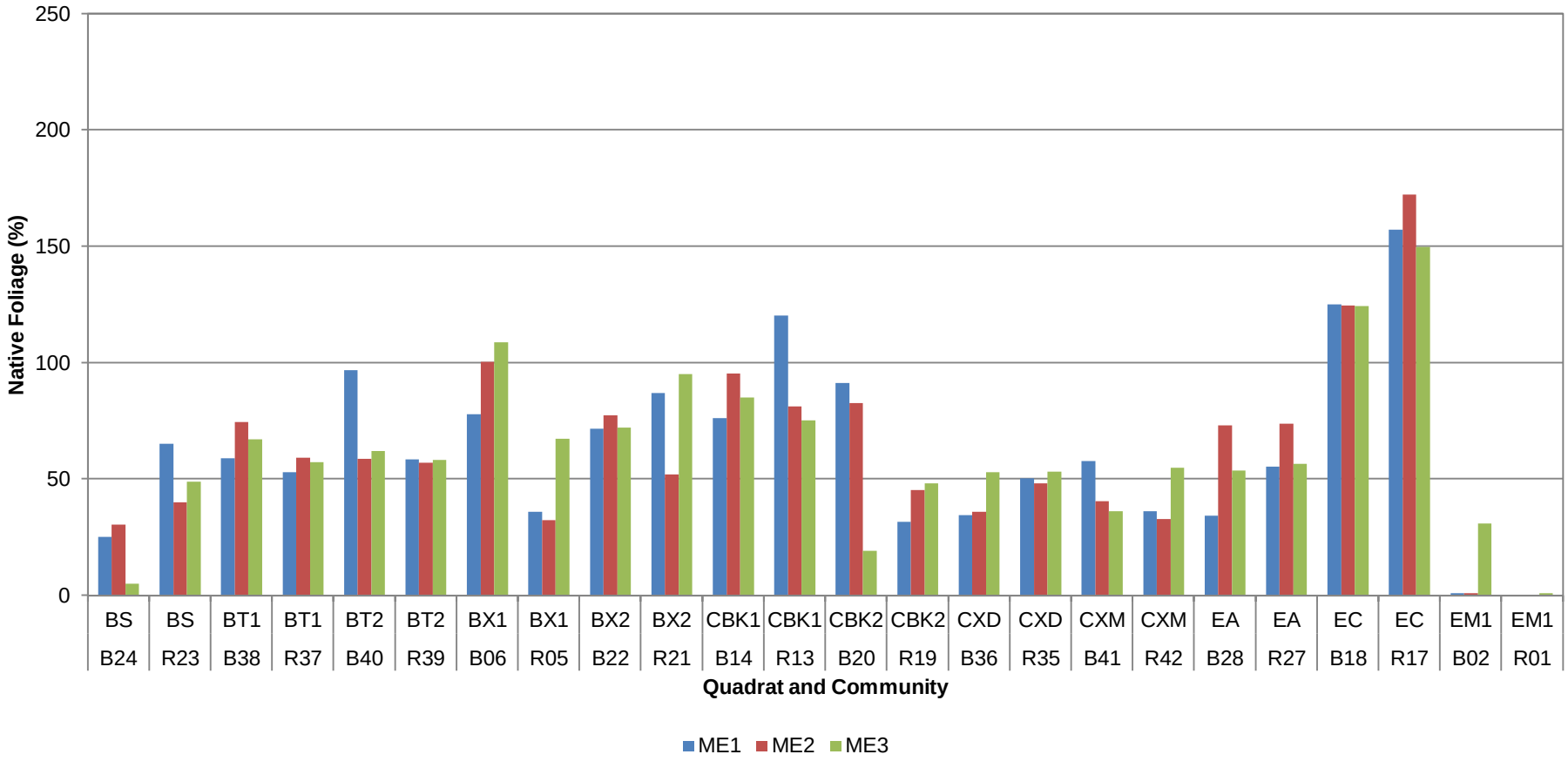


Figure 6a Native foliage cover (%) of ME1, ME2 and ME3 grouped by community

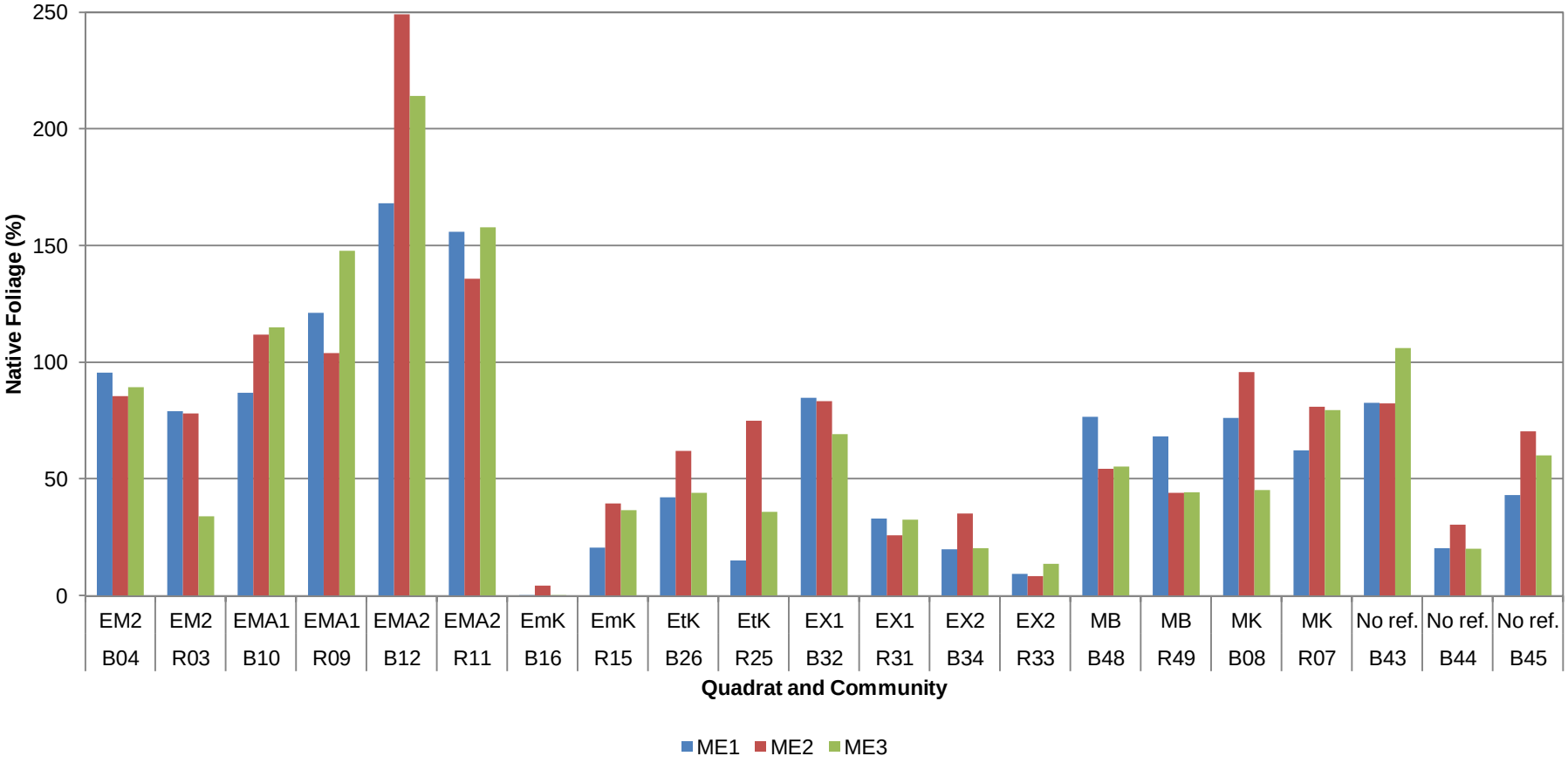


Figure 6b Native foliage cover (%) of ME1, ME2 and ME3 grouped by community

4.3.2 Weed foliage cover

Weed foliage cover varied between 0.4 to 115%. The highest weed foliage cover was recorded in B10 and R01 with +100% cover, remaining consistent since ME1. Contributing species include **Zantedeschia aethiopica* and **Ficus carica* (B10) and a mix of common grasses and herbs **Avena barbata, *Ehrharta calycina* and herbs (R01).

Nineteen quadrats have decreased in weed foliage cover since ME1. The largest decreases include quadrats R35 and R33 (-56.2 and -31% respectively). This trend was observed in communities CcXpDdS, ErMpH, EmKgS and EgXpS (nine quadrats) and ten unpaired quadrats. Decreases were seen in perennial grasses and herbs including **Carpobrotus edulis, *Ehrharta* spp., and **Euphorbia terracina*.

In summary:

- eight quadrats have an upward trend since ME1
- 13 quadrats increased by ME2 followed by a decrease in ME3 where ME3 results remain higher than ME1
- eight quadrats increased by ME2 followed by a decrease in ME3 where ME3 results are lower than ME1
- six quadrats decreased by ME2 followed by an increase by ME3 where five quadrats have results in ME3 higher than those from ME1
- ten quadrats show a downward trend since ME1.

Twenty-six quadrats have increased in weed foliage cover since ME1 and include paired quadrats in communities BaTs, BXpW, CcBKgS, ErMpAfS, EtKgS, EgXpS and MpBaS (19 quadrats).

The results are illustrated in **Figure 7**.

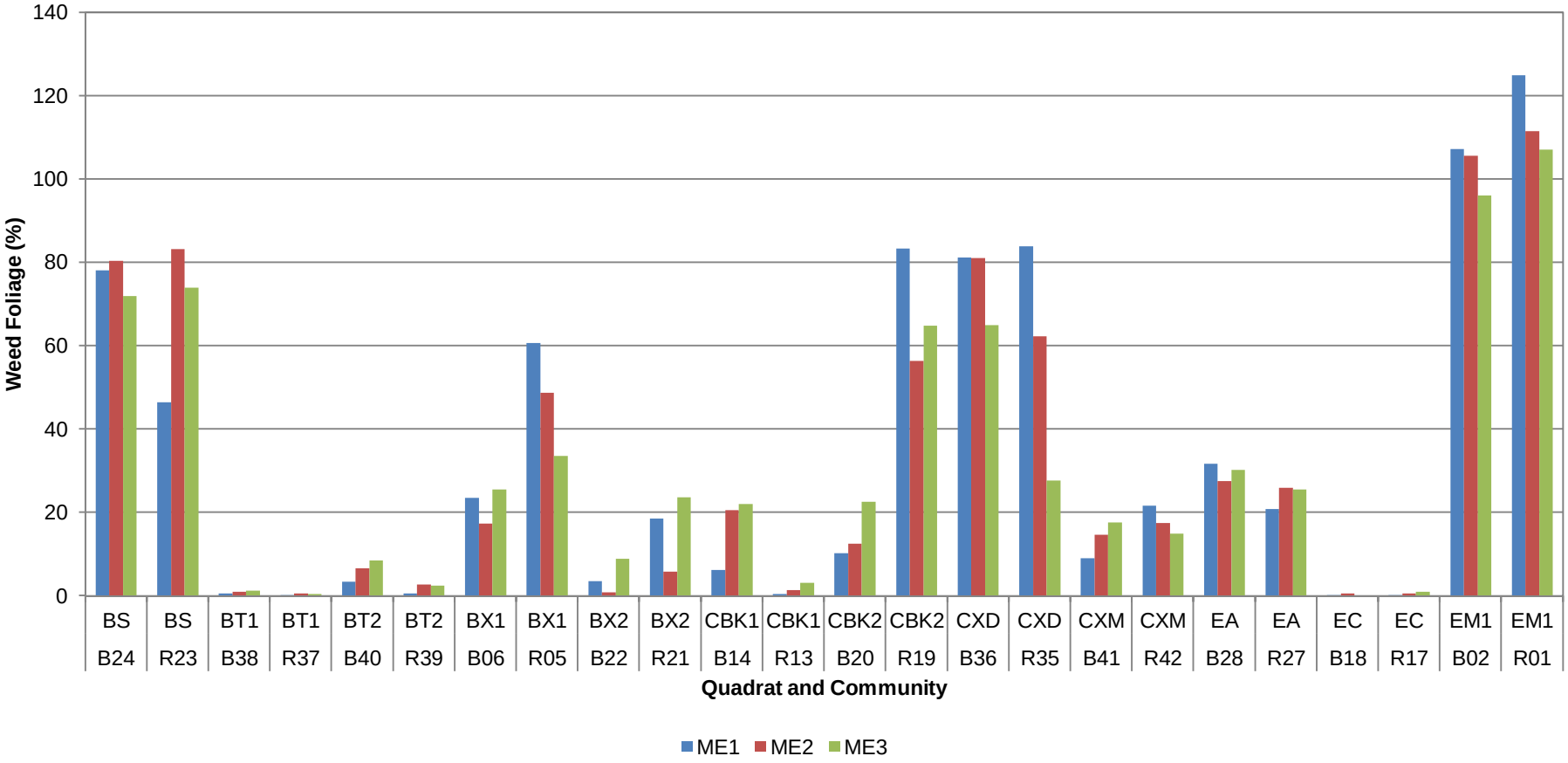


Figure 7a Weed foliage cover (%) of ME1, ME2 and ME3 grouped by community

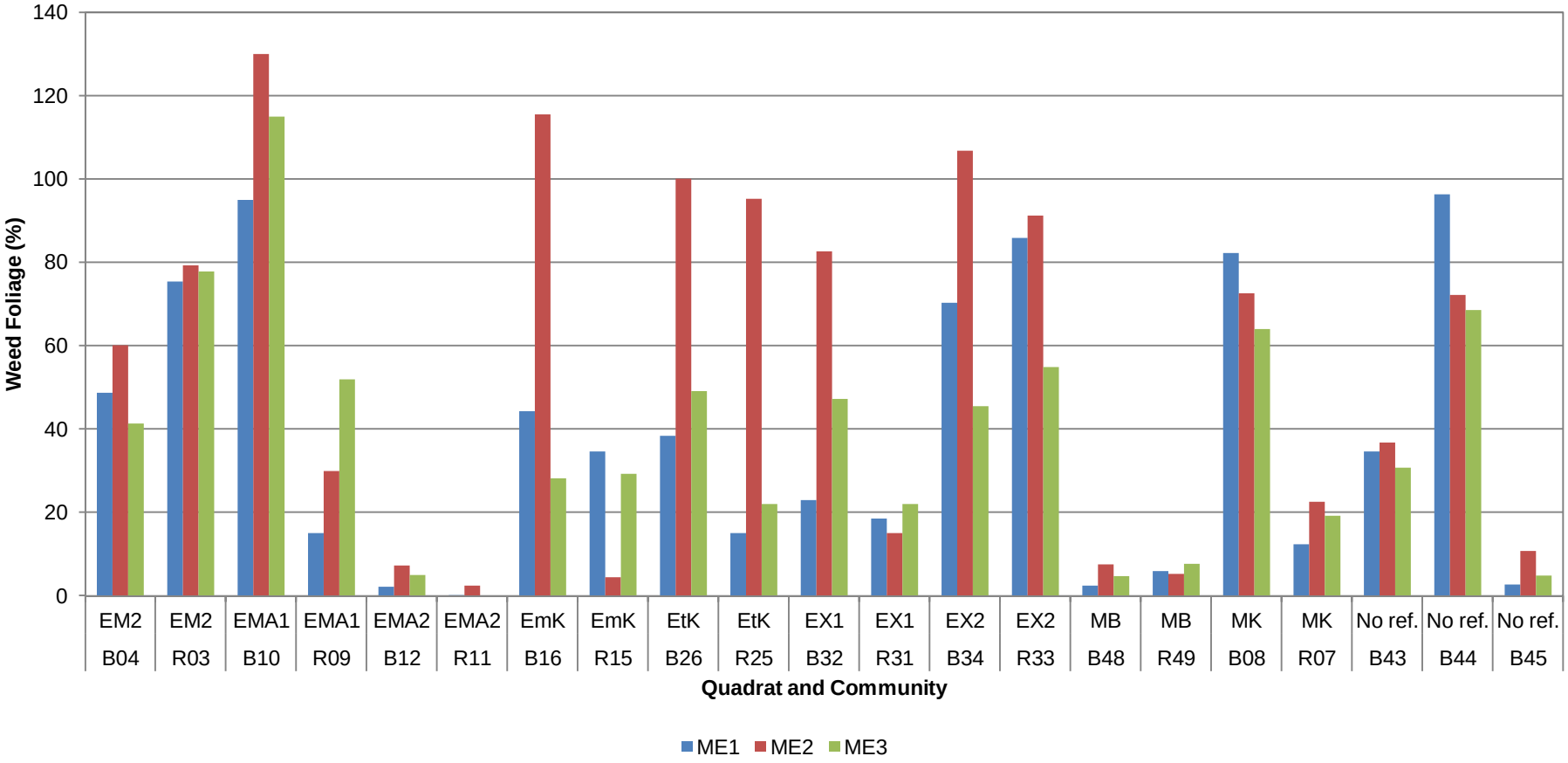


Figure 7b Weed foliage cover (%) of ME1, ME2 and ME3 grouped by community

4.4 Indicator species

The Plan defined indicator species for 42 quadrats. The number of indicator species varies from zero to nine species. Of these, 26 quadrats showed one or more indicator species that improved in health since ME1 as informed by plant density and foliage cover data.

Twenty-six quadrats improved in one or more indicator species. Of these, four quadrats had no indicators that declined in condition (i.e. all indicators remained stable or improved). Thirty-eight quadrats had one or more indicator species that declined in condition. Of these, five quadrats had no indicators that remained stable or improved in plant condition.

The number of indicator species and plant health is shown in **Figure 8**.

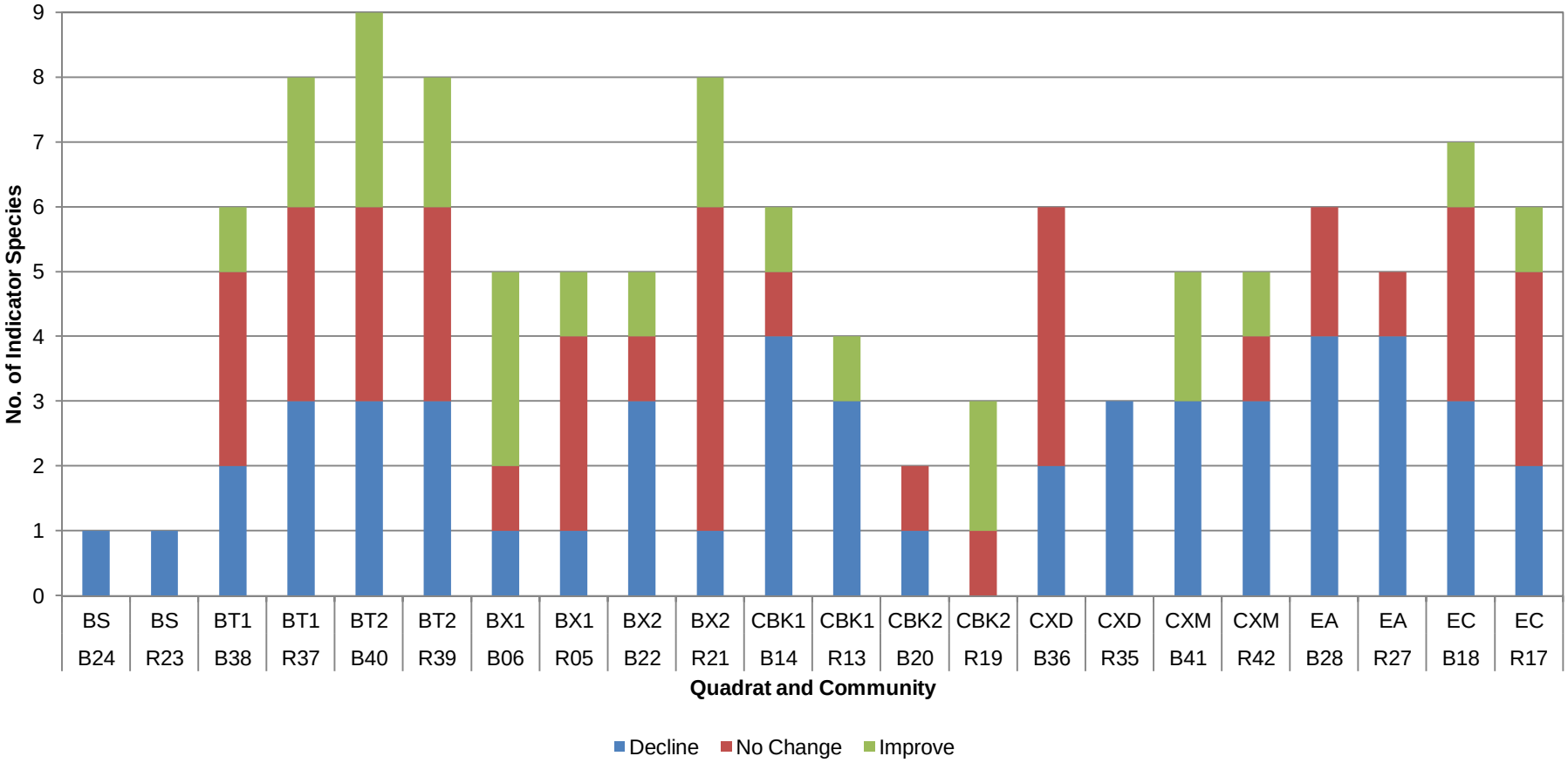


Figure 8a Number of indicator species that have declined, not changed or improved since ME1

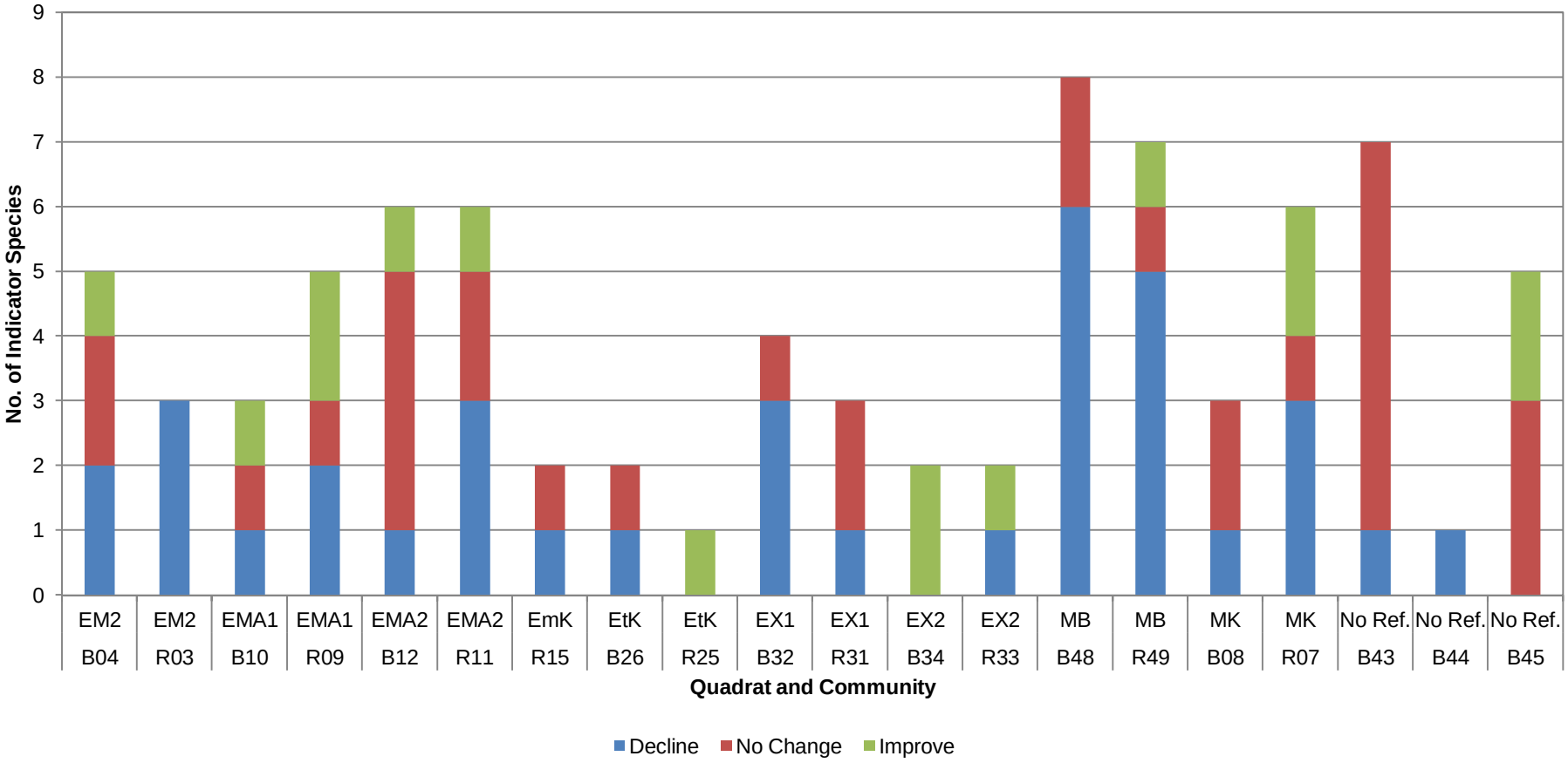


Figure 8b Number of indicator species that have declined, not changed or improved since ME1

4.5 Vegetation Condition

Vegetation condition was determined by assessing change in native and weed foliage cover since ME1. In summary:

- 13 quadrats improved in condition including five buffer and eight reference quadrats
- 20 quadrats showed no changes, of which six decreased in both native and weed foliage cover, and 14 increased in both weed and native foliage cover
- 12 quadrats declined in condition including five buffer and seven reference quadrats

Results across buffer and reference quadrats were variable, with no obvious relationship between vegetation communities and results.

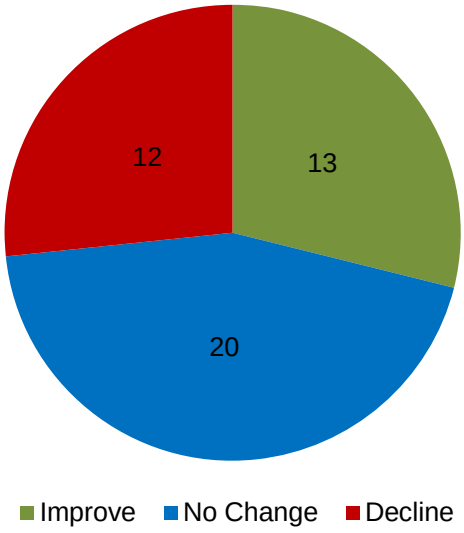


Figure 9 Pie graph of quadrat vegetation condition trends

4.6 Soil Moisture

Soil moisture varied between 1 to 26.1% moisture content. Five quadrats were completely inundated, including B10, B12, B20, R09 and R11. Four of these have been inundated since ME1 and have therefore not been monitored since. Of the 40 quadrats, 17 decreased in soil moisture since ME1 with variations usually around 1%. The largest decrease occurred in B02 (-8.5%), R17 (-3.8%) and R01 (-2.3%).

Twelve quadrats increased in soil moisture since ME1, varying between 0.3-6.1%. The largest increase in soil moisture was evident in B18 with an increase of 6.1%. In general, soil moisture increased in ME2, followed by a reduction in ME3, as evident in **Figure 10**.

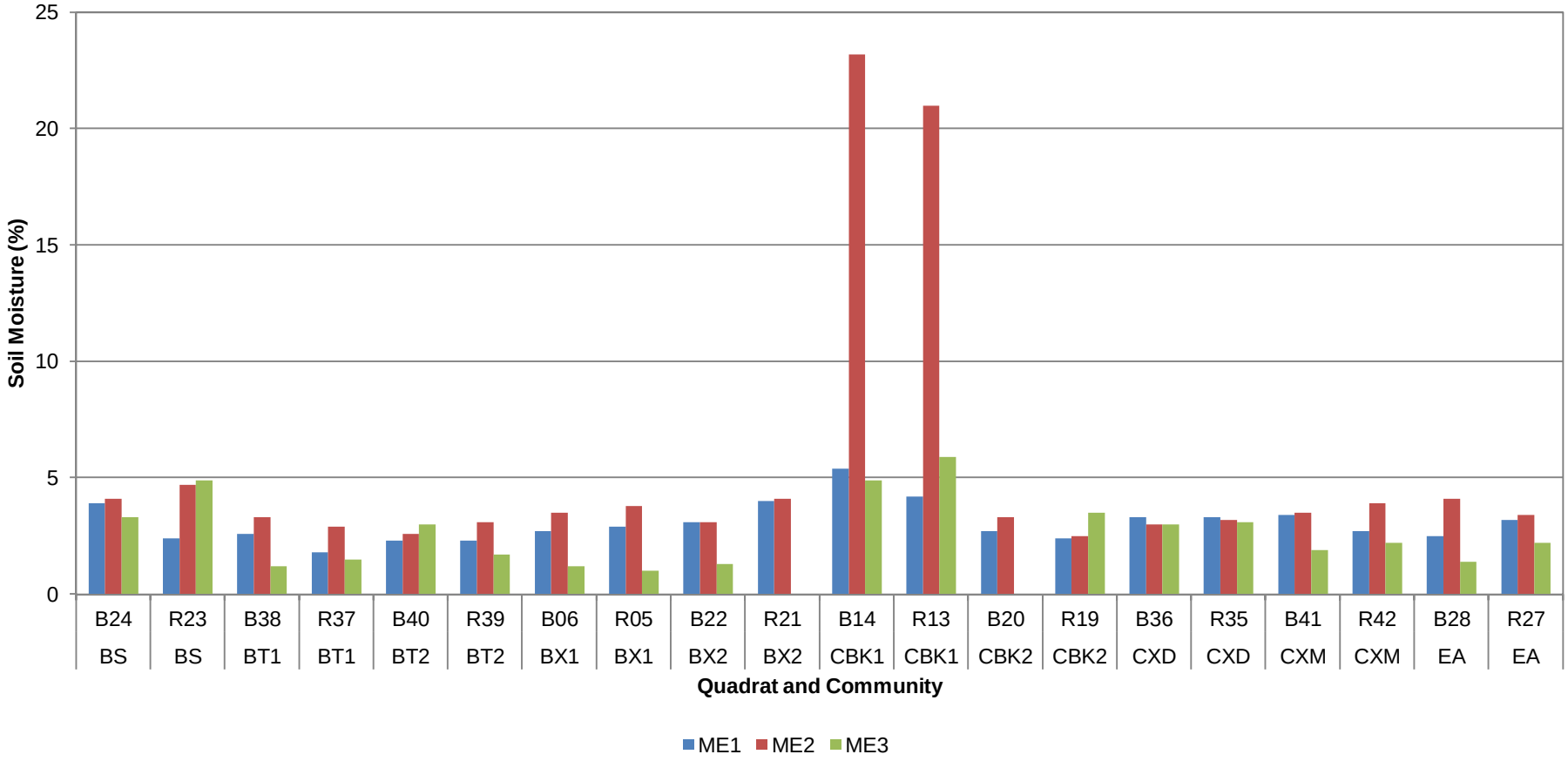


Figure 10a Soil moisture percentage of quadrats showing ME1, ME2 and ME3 results grouped by community

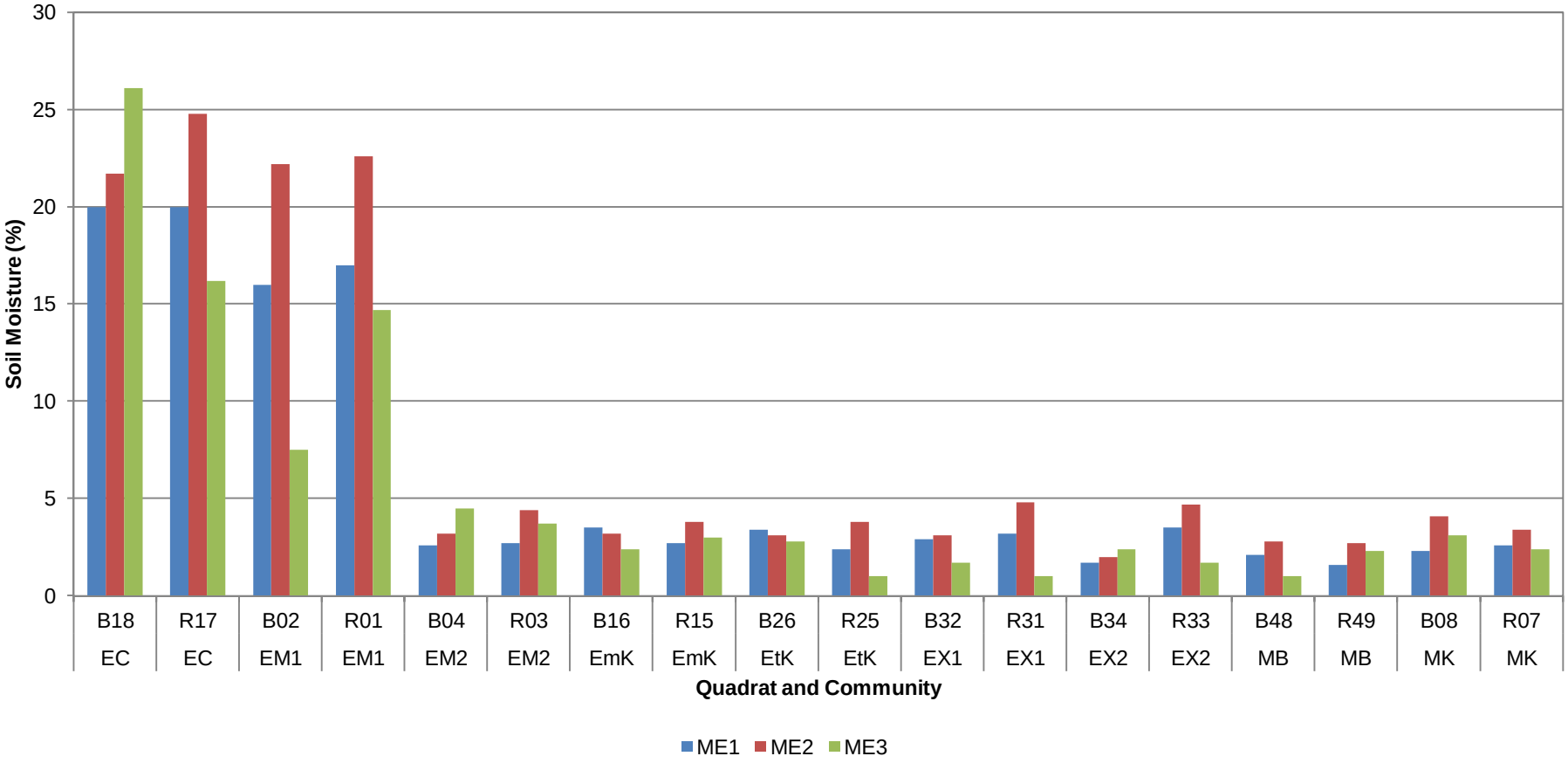


Figure 10b Soil moisture percentage of quadrats showing ME1, ME2 and ME3 results grouped by community

4.7 Trigger Assessment

4.7.1 Summary

The trigger assessment showed that no quadrats met all three triggers as summarised in Table 1 and discussed in detail in the following Sections. The results of the trigger assessment and how they applied to each quadrat is presented in Appendix C.

Table 1 Trigger assessment results showing total quadrats (n value) and number of quadrats that did and did not exceed the trigger

Trigger	N value of Quadrats	Exceeded	Did Not Exceed
Trigger 1: A differential change of 10% in foliage cover, plant condition and/or plant density compared with baseline & reference			
Native plant density compared with baseline	45	43	2
Native density relative to reference quadrats	21	21	0
Native foliage cover compared with baseline	45	31	14
Native foliage cover relative to reference quadrats	21	20	1
Trigger 2: Change of 10% in indicator species plant health relative to baseline & reference			
Plant health compared with baseline	42	42	0
Plant health relative to reference quadrats – not completed			
Trigger 3: An increase of 10% in weed cover and/or density compared with baseline & reference			
Increase of 10% in weed density	45	38	7
Weed density relative to reference quadrats	21	20	1
Increase of 10% in weed foliage cover	45	24	21
Weed foliage cover relative to reference quadrats	21	20	1

4.7.2 Trigger 1: A differential change of 10% in foliage cover, plant condition and/or plant density compared with baseline and reference quadrats

10% change in native plant density compared to baseline

A 10% change in native plant density was recorded in 43 of the 45 quadrats monitored for ME3. Thirty-seven quadrats increased by more than 10%, and six quadrats decreased by more than 10%. Quadrats B24 and R03 showed no change in native plant density since ME1.

It could be argued that an increase in plant density should not warrant a trigger as it is an indication of recruitment and restoration.

10% change in native plant density comparing reference with buffer quadrats

There are 21 pairs representing 15 communities. Buffer quadrats have been paired up with their associated reference quadrat to determine whether the change over time in buffer quadrats was more or less 10% change within the associated reference quadrat.

All 21 buffer quadrats showed a difference in change by more than 10% compared to the reference quadrats. Nine buffer quadrats had a native density change higher than 10% compared to their associated reference quadrat. Twelve buffer quadrats had a native density change less than 10% compared to their associated reference quadrat.

10% change in native species foliage cover compared to baseline

A 10% change in native foliage cover in ME3 since ME1 was observed in 31 quadrats. Nineteen quadrats exceeded the trigger upwards and 12 quadrats exceeded the trigger downwards. Similar to native species density, it could be argued that an increase in native species foliage cover should not be recorded as an exceedance.

10% change in native species foliage cover comparing reference with buffer quadrats

Of the 21 paired quadrats, 20 exceeded the 10% change in buffer quadrats compared to their associated reference quadrat. The pair R05 and B06 were the only pair to both change the same amount over time since ME1, increasing by 31.1 and 31.5% respectively.

Ten buffer quadrats had a higher increase in native foliage cover compared to the reference quadrats. Ten quadrats had a lower rate of change in foliage cover compared to reference quadrats.

4.7.3 Trigger 2: Change of 10% in indicator species plant health relative to baseline and reference quadrats

There was some uncertainty in applying of a 10% change to a subjective trigger. It was assumed that plant density and foliage cover is used to inform this analysis. Forty-two quadrats have nominated indicator species. Within all 42 quadrats one or more indicator species showed a decrease or increase of more than 10% in density and/or foliage cover. Four species from three quadrats did not exceed a change of more than 10%, including:

- *Acacia pulchella* var. *glaberrima* B06
- *Eucalyptus marginata* B22
- *Hibbertia hypericoides* and *Xylomelum occidentale* B43.

As the “change in health” does not stipulate whether this applies to an increase or decrease in foliage and/or density therefore both have been assumed as an exceedance. If only a decrease in foliage and/or density is considered then two quadrats have not exceeded this trigger (B34 and R25).

No comparison of buffer and reference quadrats were undertaken due to the discrepancy between indicator species selection and number of indicator species associated with each quadrat.

4.7.4 Trigger 3: An increase of 10% in weed cover and/or density compared with baseline and reference quadrats

10% increase in weed density compared to baseline data

Of the 45 quadrats, seven did not exceed the trigger of an increase in weed plant density by more than 10% since ME1. These quadrats include R13, B18, R01, B10, B12, R11 and R15 representing CcBKgS, ErCtS, erMpH and ErMpAfS which include wetland and upland woodland vegetation. Of these quadrats two quadrats had no weeds and two have considerably low weed density (<0.04 plants/m^2).

Significant increases in weeds were recorded in six quadrats with an increase of more than 100 plants/m^2.

10% increase in weed density comparing reference and buffer quadrats

Of the 21 paired buffer and reference quadrats 20 exceeded this trigger where buffer quadrats showed more or less 10% change compared to their associated reference quadrat. One pair, B24 and R23 did not exceed this trigger. These quadrats are located in BiSiH. It should be noted that this pair of quadrats increased in weed density by more than 100 plants/m^2. This demonstrates that this indicator is not suitable for assessing change in vegetation condition.

Of the seven quadrats that did not exceed the 10% change in density since ME1, all exceeded this trigger.

10% increase in weed foliage cover compared to baseline data

Twenty four quadrats exceeded the trigger with more than 10% change in weed foliage cover since ME1. Four quadrats showed weeds had not changed in foliage cover (increase or decrease) by more than 10%. The remaining 17 quadrats decreased in weed foliage cover by more than 10%.

10% increase in weed foliage cover comparing reference and buffer quadrats

Of the 21 pairs of buffer and reference quadrats, only one pair showed less than 10% variation in levels of change since ME1. B22 and R21 in community BXpW both increased in weed density by 5.1% and 5.4% respectively. Despite not exceeding this trigger, they still increased in weed density by more than 10% compared to ME1, thereby exceeding Trigger 1.

5.0 Discussion

The objective of the monitoring program is to determine, through routine monitoring, if changes are occurring to flora and vegetation health and assess whether these changes are a result of Project activities or other factors. Currently there are three years of data available and an attempt has been made to provide a discussion around what some of the preliminary trends are implying, and outline potential causes that may have implications on results.

5.1 Change over Time

Change over time was variable for all parameters (density, foliage cover, and species richness). There are a number of factors to consider that may have influenced these results. Assessing these parameters on a Project-wide scale was not providing any useful results. With inconsistent changes occurring at a community scale (i.e. reference and buffer quadrat associations), it appeared that the quadrat scale would be more appropriate for future assessments.

There was no clear relationship between native density and foliage cover, with Figure 12 showing the spatial relationship and change over time. Increases in plant density did not necessarily reflect an increase in foliage cover, with some cases even showing a decrease in foliage cover despite the increase in density. Weed density and foliage cover, shown in Figure 13, showed a majority increased in weed density, with foliage cover fluctuating.

The scope of the Project changed significantly. Originally a clearly defined Project was to be constructed, including removal of vegetation, earthworks, construction of a highway and bridge, and associated management of environmental impacts. Instead, vegetation was cleared, considerable media attention and foot traffic was present for three months, and then all project work ceased. Cleared areas suffered from weed infestations and erosion, limestone tracks and fences were installed, and eventually rehabilitation commenced. These alterations in project scope and activity will undoubtedly have impacts on vegetation adjacent to the footprint. The increase in foot traffic may have resulted in further erosion and loosening of the soil surface, thereby preventing herbs and juveniles from sprouting. Damage from fencing and people has occurred, including broken branches and trampling. It was considered that weeds could have been exacerbated and reflected in ME3, however this was not the case. Weed foliage cover recorded during ME3 was very similar to that recorded during ME1.

Climate, in particular rainfall, varied greatly in the months preceding the three monitoring events. Two quadrats have not been sampled since ME1 due to access issues from inundation. This can be seen in the annual total rainfall experienced in the local area for that monitoring year (Table 2). Wetland communities in particular showed considerable increases in native species density and foliage in the ME3 dataset. This could very likely be a result of ideal inundation depth, length and timing. All quadrat pegs were in place, people were unlikely to have penetrated dense wetland vegetation during Project protests, and no evidence of other impacts were observed.

Near average rainfall was recorded prior to ME2. This increase in rainfall since ME1 was evident in an increase in species richness, juvenile recruitment, species density and foliage cover. Following this it was thought that juvenile recruitment may serve as a good indicator of plant health. During ME2 782 juveniles were recorded. This reduced to 127 juveniles during ME3 despite the higher than average rainfall in the months leading up to the survey. This may be attributed to the change in Project scope, increased foot traffic, or other factors not yet considered. Our understanding of vegetation and germination response to varying climatic conditions remains unclear. It is possible that changes in rainfall distribution and changes in intra-annual rainfall will affect interactions of native and weed species (Goldstein & Suding 2014).

Our poor understanding of the effects of climate on vegetation mean it is also difficult to incorporate these variations in the monitoring program at this time. Furthermore our restricted understanding of the responses to and effects upon individual plants inhibits our ability to assess influential factors.

Table 2 Summary of rainfall statistics for 2015 to 2017

Year	Annual Total (mm)	Rainfall Total Jul-Sep (mm)	Deviations from the Mean
2015	651.2	304.8	Five months of <mean rainfall from May to September.
2016	794.2	364.6	Deviations from mean rainfall in April, May and June.
2017	830.6	460.4	Above average rainfall three months before ME. Deviations from mean April to June.
Mean (1972-2018)	823.9	387.7	NA

Monitoring permanent quadrats plays an important role in consistency of data collection. The re-pegging of 24 quadrats during ME3, and 21 quadrats during ME2 are likely to have impacted on the results, in particular the sub-quadrat data recording. This was seen (for example) in quadrat B41 (pegs replaced in both 2016 and 2017) *Allocasuarina fraseriana* represented 20% alive foliage cover in ME1 comprising five individuals. No *A. fraseriana* was recorded during ME2 despite attempts to establish the quadrat in same location. This changed again in ME3 to three juvenile species representing 1%.

Despite changes in Project scope and rainfall between ME2 and ME3, the large variation shown in all parameters between ME1 and ME2 reflects the large variation that can be expected in native vegetation, particularly in an urban setting. Observer bias, 'random' error, and idiosyncratic effects are common causes of high variations in data sets (Cook *et al.* 2010; Milberg *et al*. 2008). Given these largely unmonitored variables, and no consideration for natural variation within the ecosystem, attributing cause and effect relationships at this time are arbitrary.

The Flora and Vegetation Monitoring Plan is a mandated monitoring program which may be able to produce coarse level summaries of temporal changes in vegetation condition however it is unlikely to be able to identify the mechanism influencing this change. Idiosyncratic effects have led to high variations in measurements recorded. This has reduced the ability for the monitoring program to identify detectable vegetation condition change as a result of the Project.

5.2 Trigger Assessment

Three triggers with multiple facets have been defined that set the level of acceptable change or 'thresholds' applicable to the Vegetation Monitoring Plan. This has been determined as 10% of the baseline level. Buffer and reference quadrats have been paired so that rates of change can be compared. Where changes are occurring in buffer quadrats and not in reference quadrats may imply indirect impacts from the Project are affecting vegetation condition.

The application of the three triggers is limited. It is unlikely that a change of 10% in plant density or foliage cover would imply an impact as a result of the Project. Indirect impacts proposed to be monitored include changes in surface and ground water, and edge effects (dust, erosion, weed encroachment). Reference quadrats are often a mere 50 m from the buffer quadrats. Nested between existing development including roads and houses, it seems that impacts from adjacent land use is evident across the entire survey area.

The limited effectiveness of triggers was evident during the ME2 reporting phase, which represented the first ability for the application of triggers. During this event and following the ME3 event it was clear that none of the quadrats remained within the 10% change thresholds. Perhaps a review of triggers should be undertaken. Reference quadrats could represent the baseline dataset on an annual basis rather than comparing results to ME1. Following this, reference quadrats would represent local condition changes that would be expected to affect all quadrats for the Project.

The application of indicator species monitoring, including plant health and condition change over time, is inappropriately developed. Lacking specific methods for assessing this, and incorporating weed species and the dominant robust perennial species is not suitable for assessing change over time.

6.0 Conclusion and Recommendations

The Roe Highway Extension Flora and Vegetation Monitoring Event 3 (ME3) was successfully completed in late October, 2017. Forty-five quadrats were visited and floristic data recorded. The data were configured with the monitoring event 1 dataset to enable change over time analysis. Triggers were also applied to determine exceedances using a 10% level of acceptable change.

In general, plant density, foliage, and species richness recorded during ME3 are similar to those recorded during ME1. ME2 presents some anomalies in the dataset with increases across all parameters. These are not yet fully understood. Contributing factors to consider include rainfall, change in Project scope, methods, and natural variation all considered potential influencing factors. A the time of ME2, no construction had yet commenced, since then considerable works have been completed which may have resulted in a trend reversal from ME2 to ME3 (compared to ME1 to ME2).

All quadrats exceeded one or more of the proposed triggers during ME3. This corroborates the argument that applying 10% threshold levels to foliage, density, and change over time is not suitable for this Plan.

A number of limitations have been identified that may have impacted on the results of ME3. In particular the re-pegging of a number of quadrats is likely to have led to a change in location, however slightly, of quadrats.

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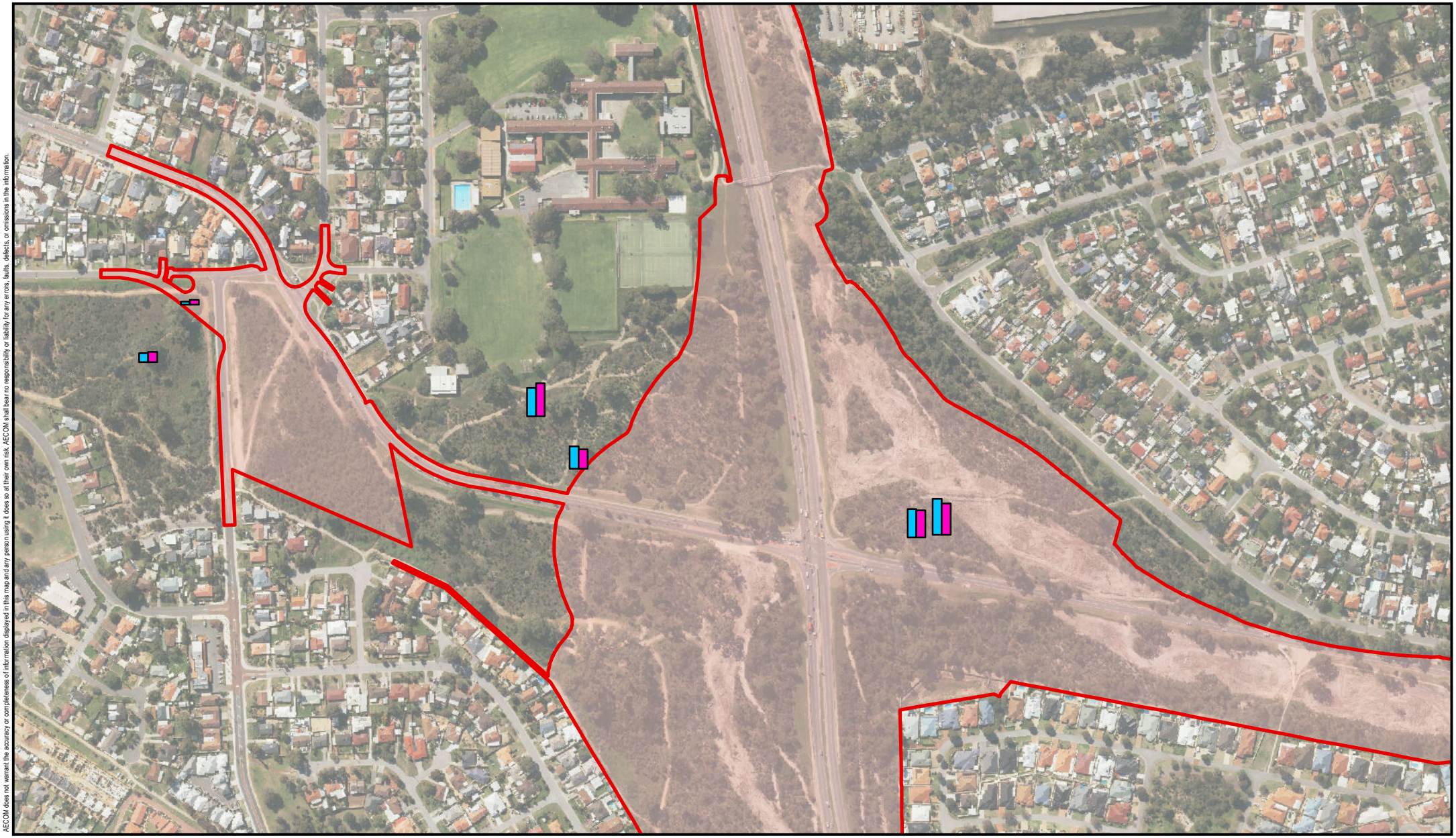
8.0 Figures



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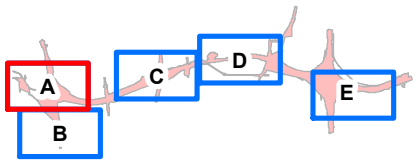

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Species Richness

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
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Figure

11A

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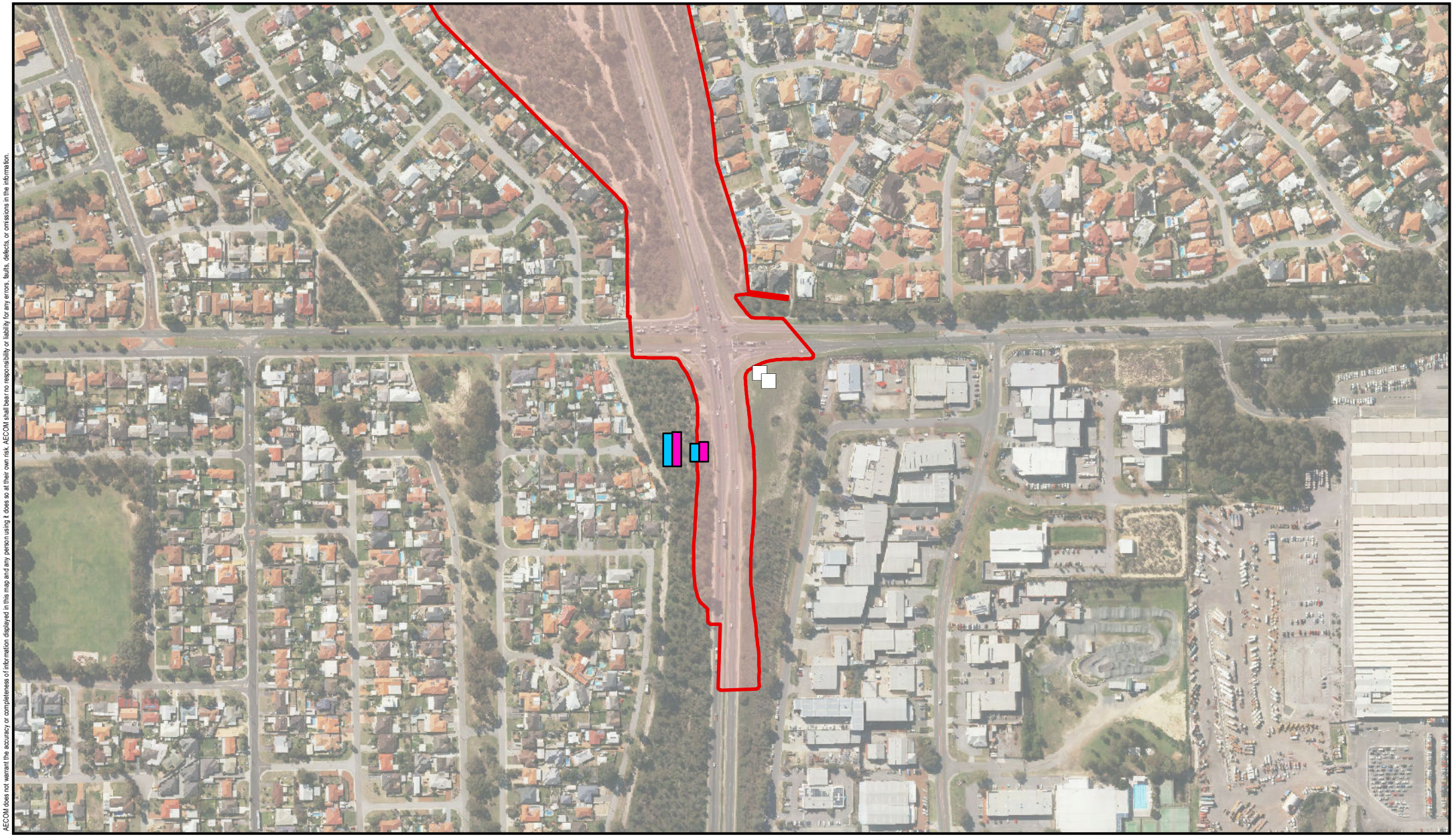

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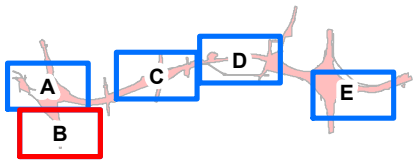

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Species Richness

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Figure

11B

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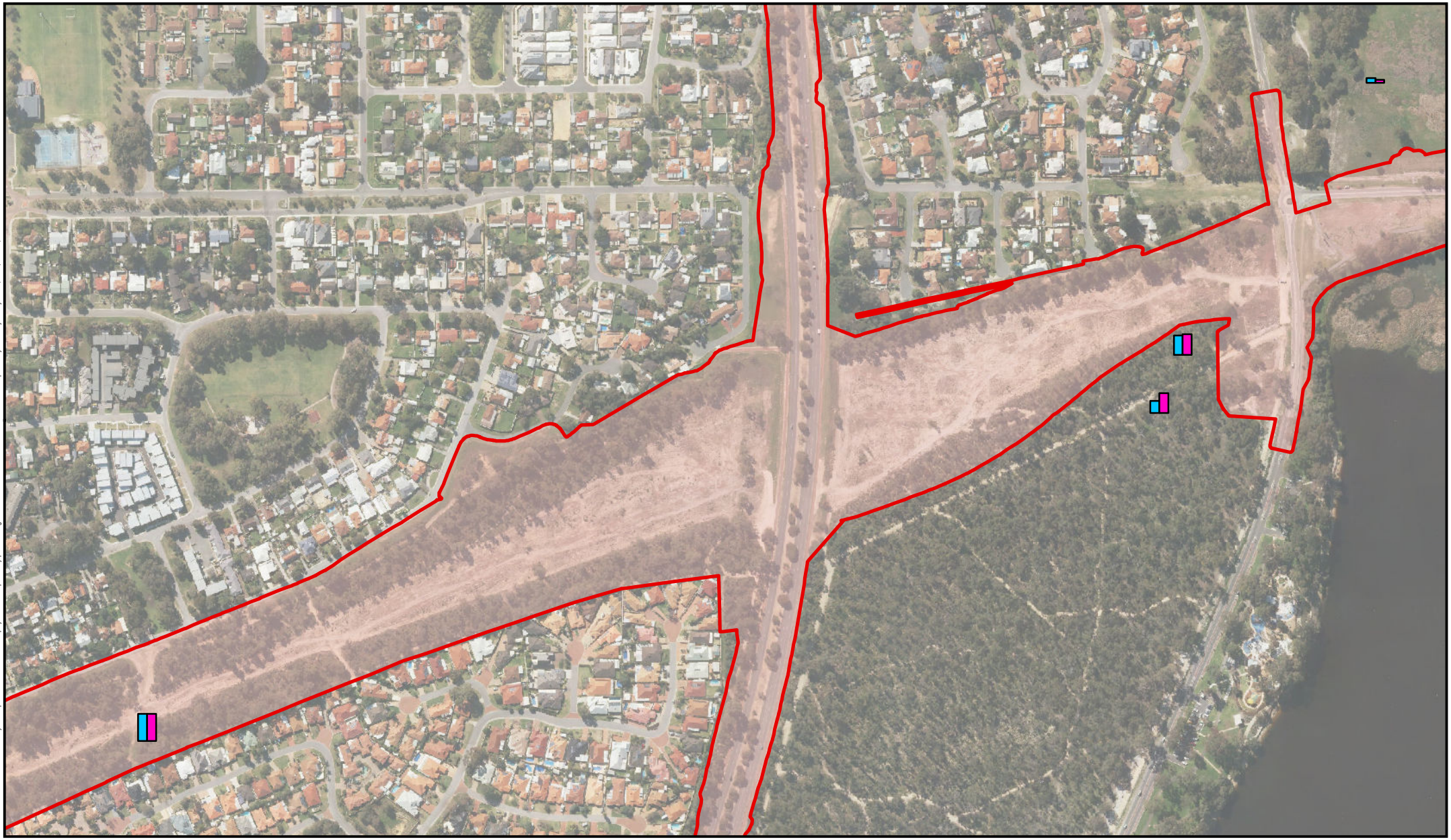

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Species Richness

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Vegetation Condition Monitoring Event 3
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Figure
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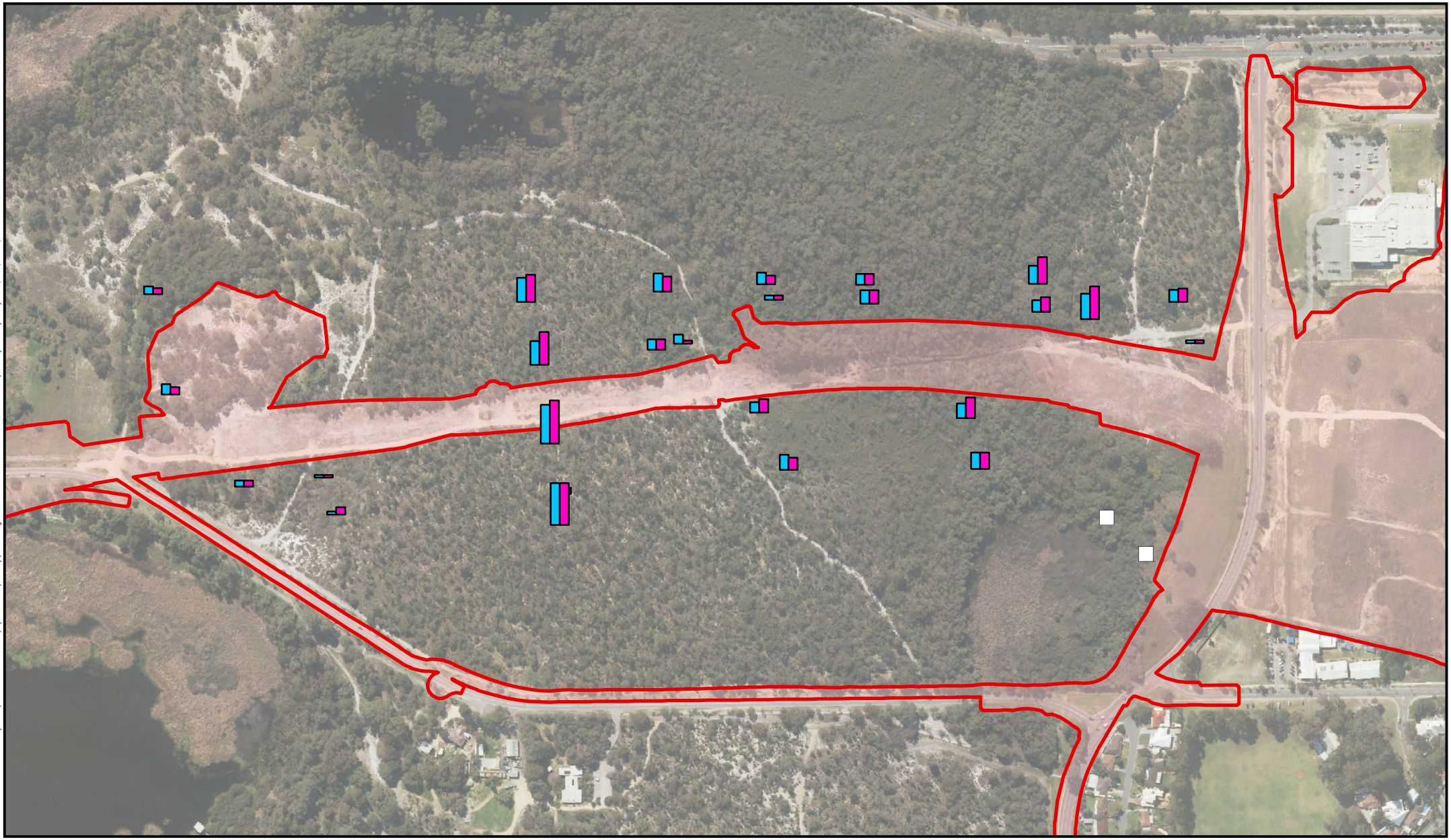

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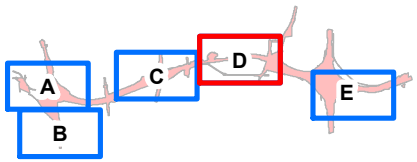

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Species Richness

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Figure

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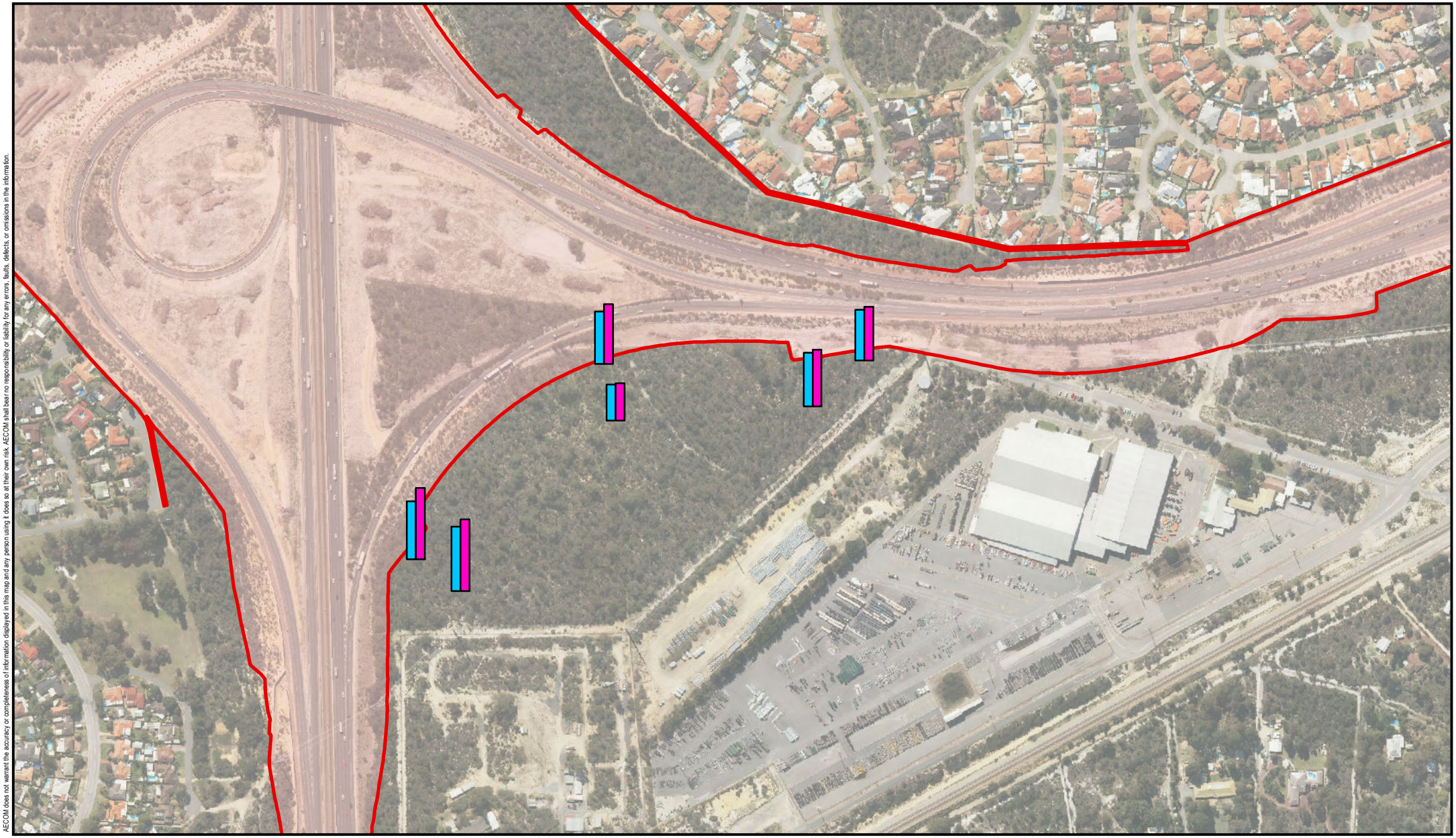

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- ME3

A B C D E

Data sources:

Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010).

Species Richness

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure

11E

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig11_Richness.mxd (fotheringhamd)

A4 size

PROJECT ID 60550185
CREATED BY DGF
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LAST MODIFIED 17 AUG 2018

Metropolitan Road Improvement Alliance

N

DATUM GDA 1994, PROJECTION MGA ZONE 50

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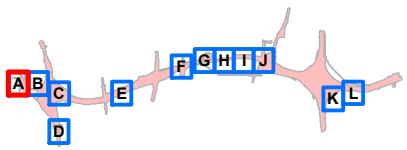

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Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010).

Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12A

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig12_NativeChange.mxd (fotheringhamd)

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Metropolitan Road Improvement Alliance

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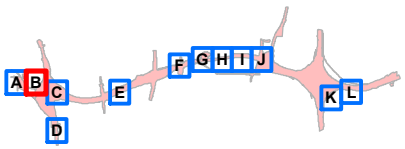

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12B

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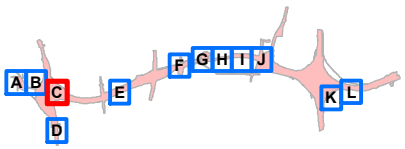

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12C

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig12_NativeChange.mxd (fotheringhamd)

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PROJECT ID	60550185
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Metropolitan Road Improvement Alliance

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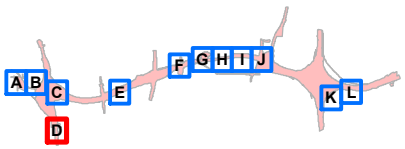

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12D

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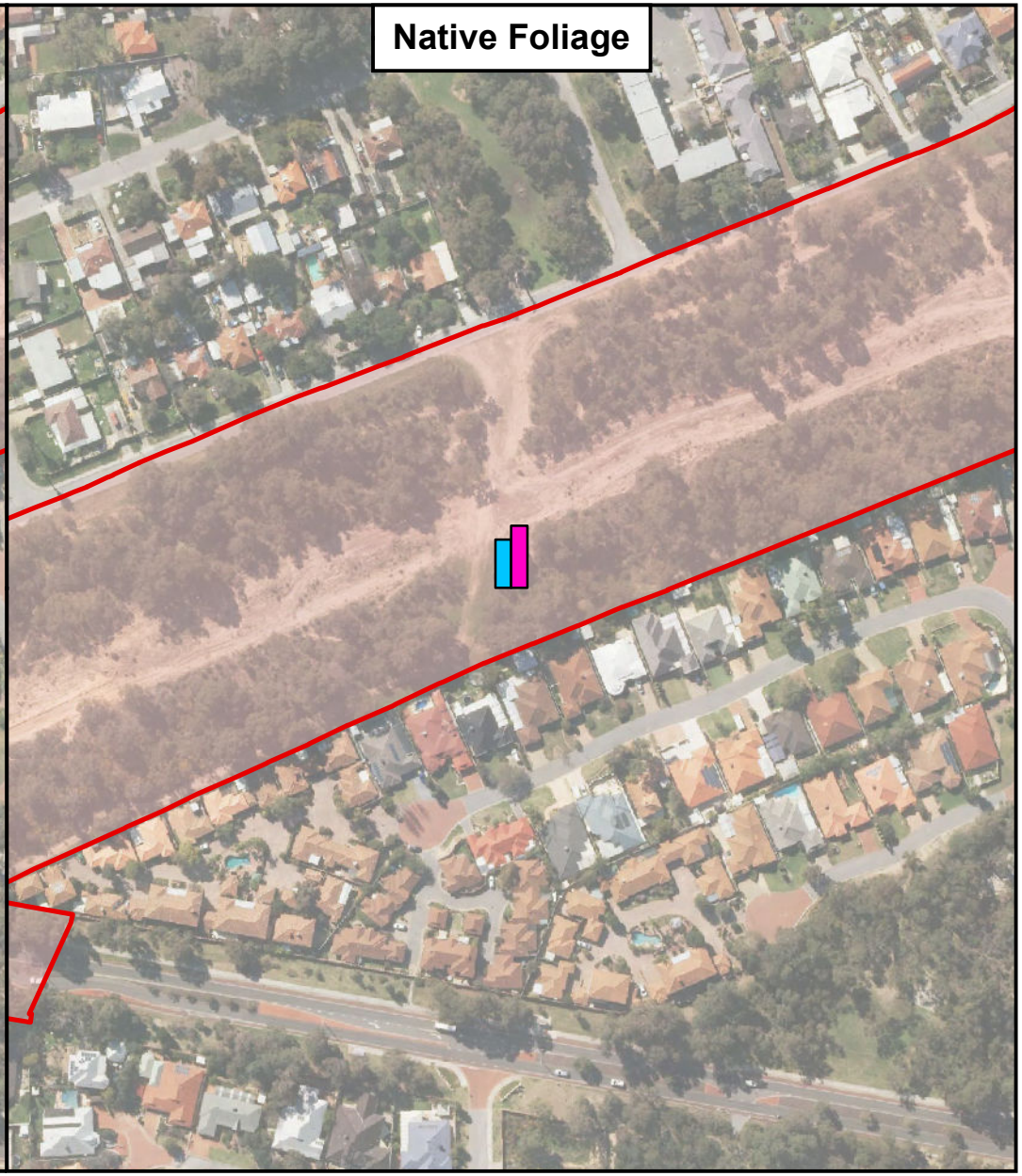

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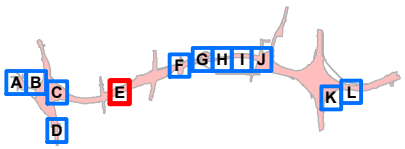

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12E

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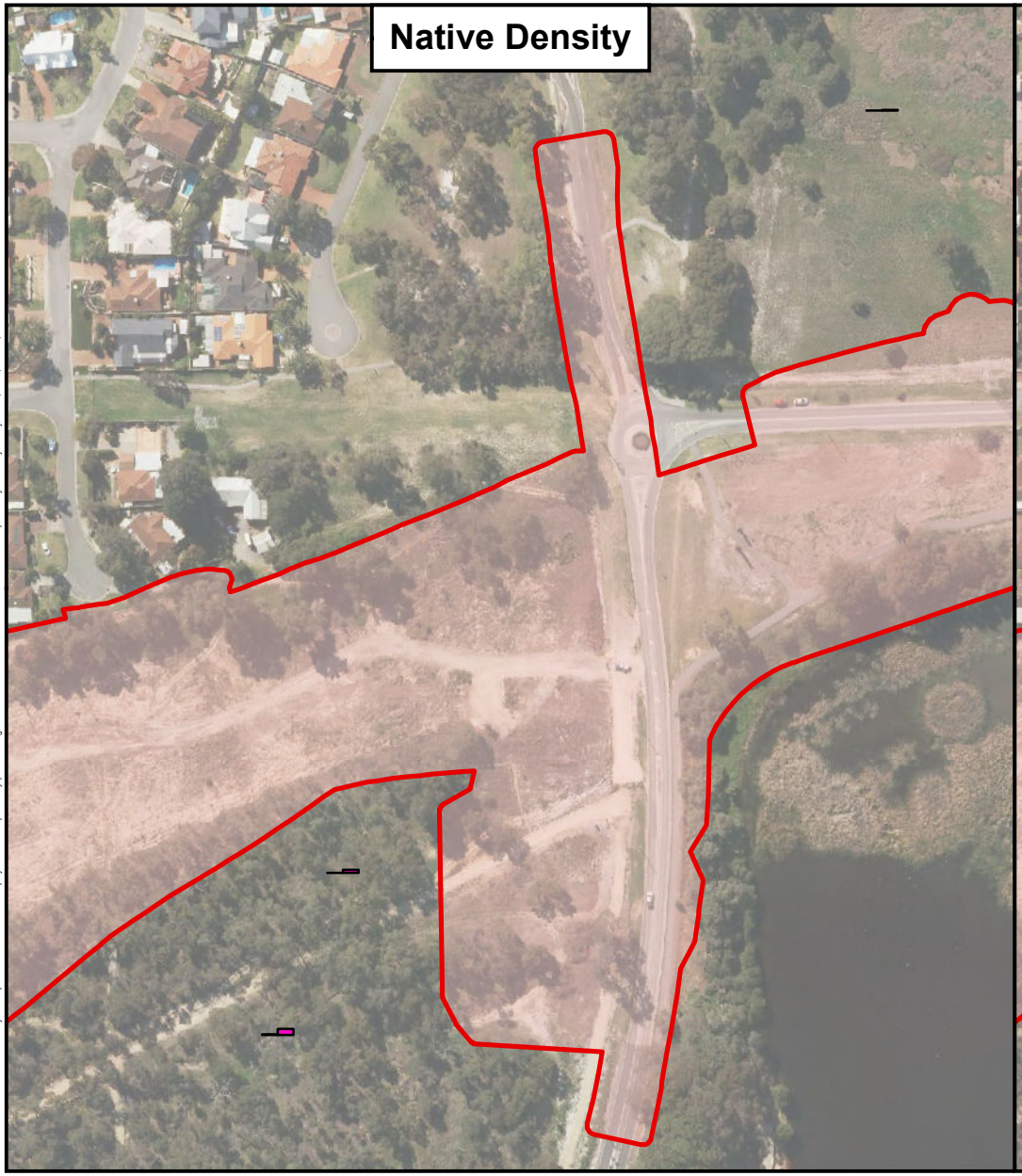

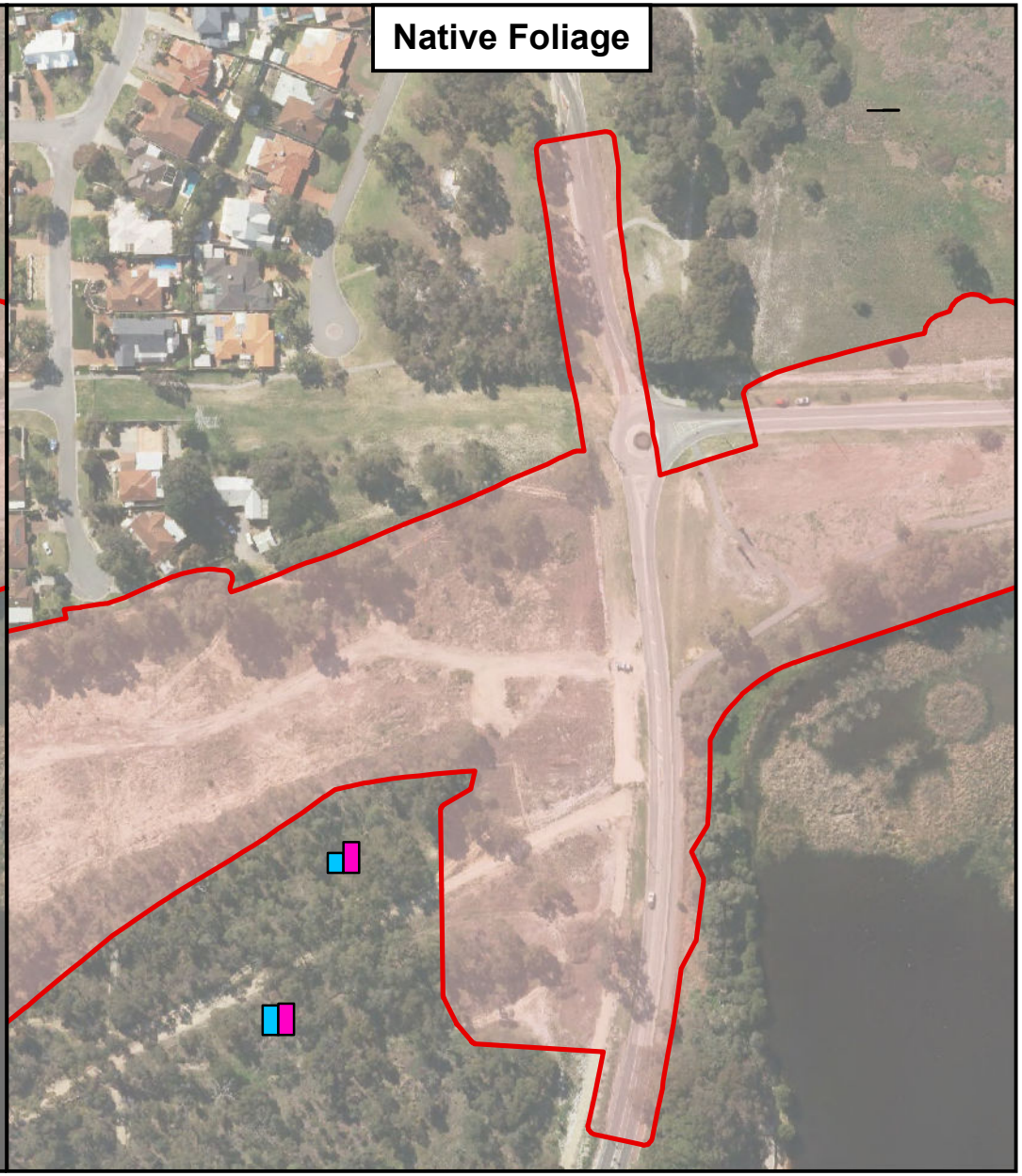

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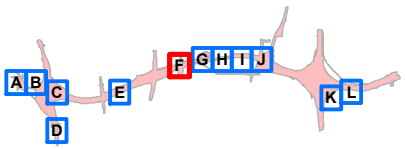

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12F

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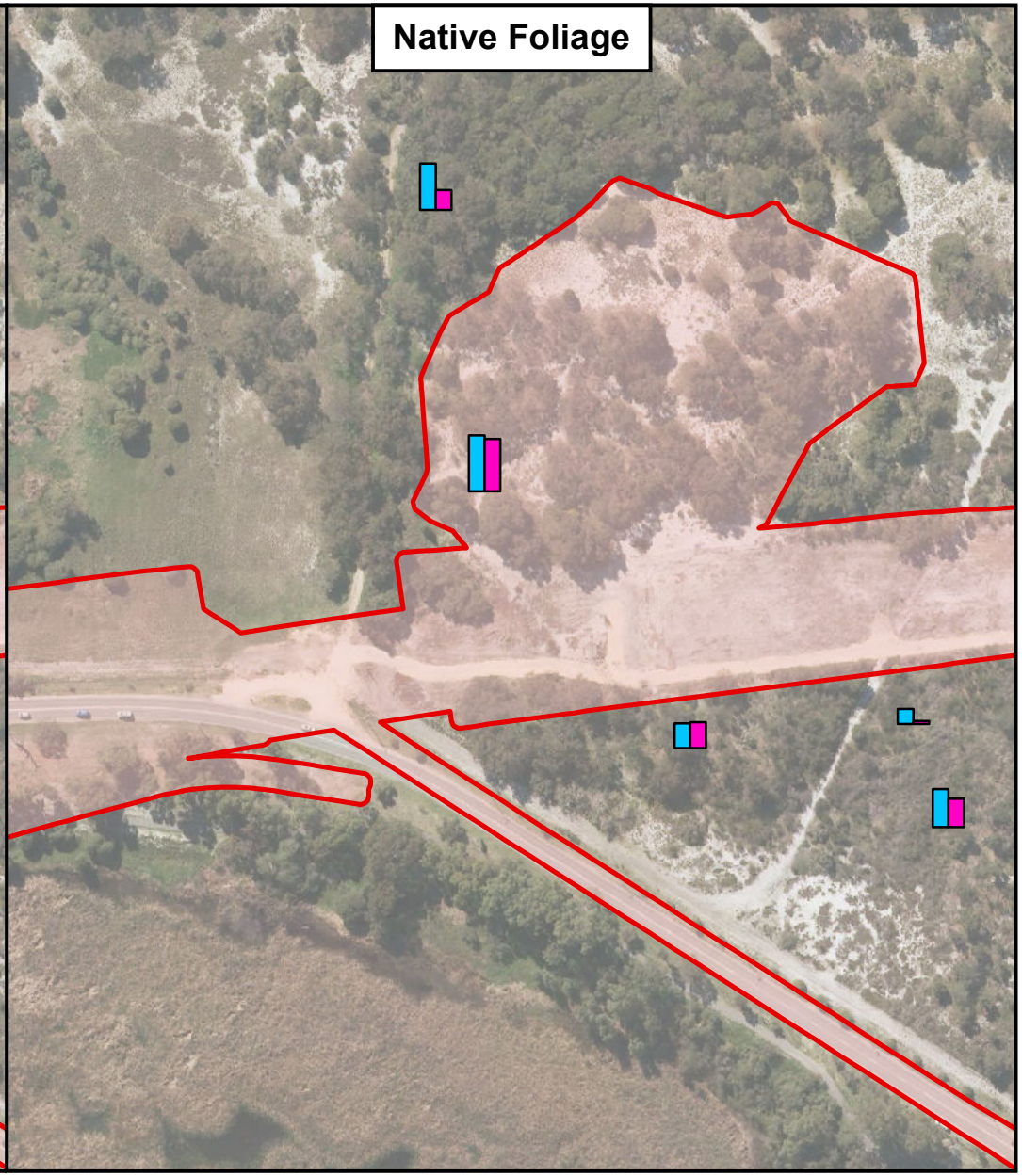

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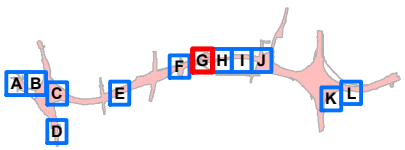

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12G

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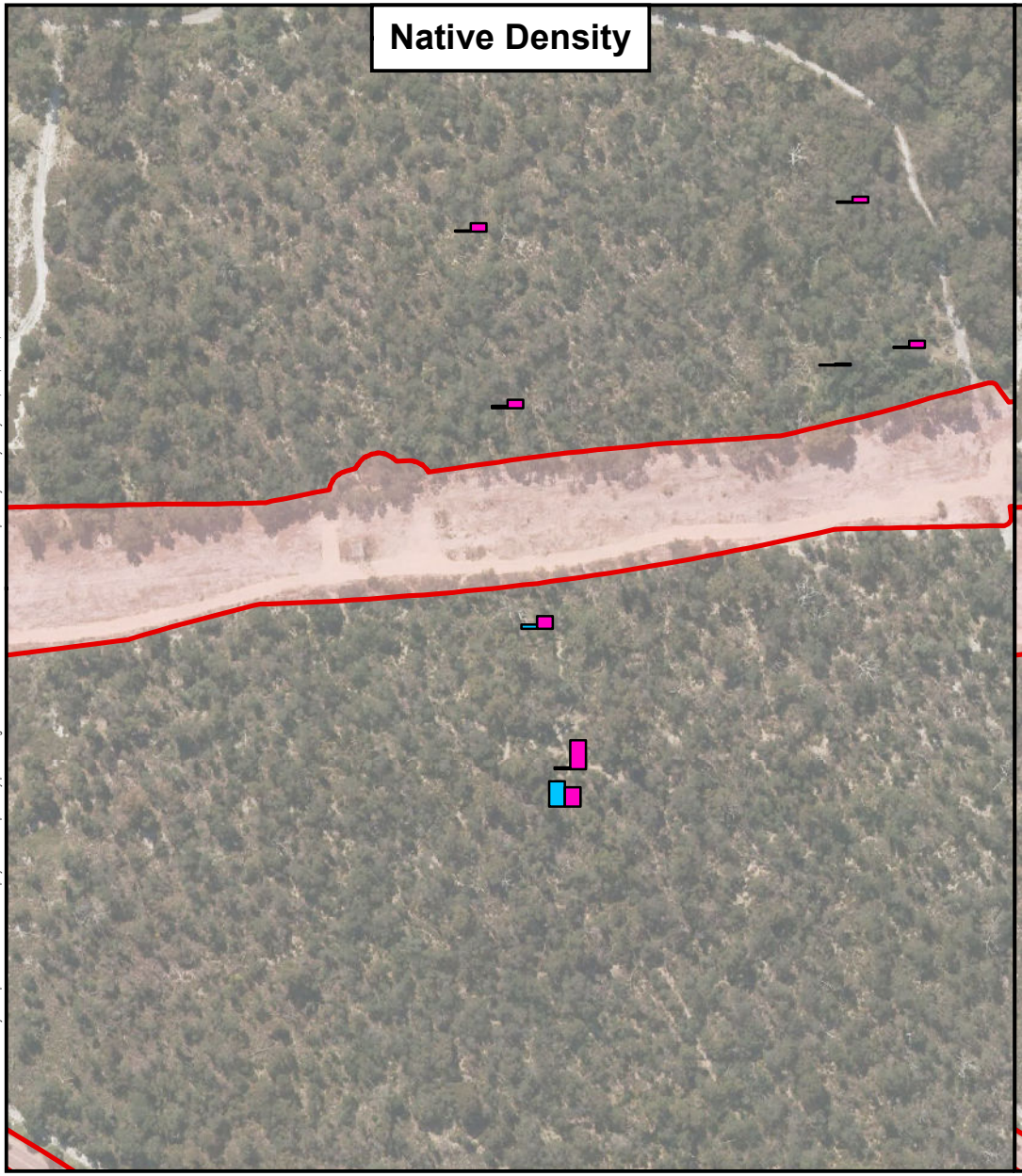

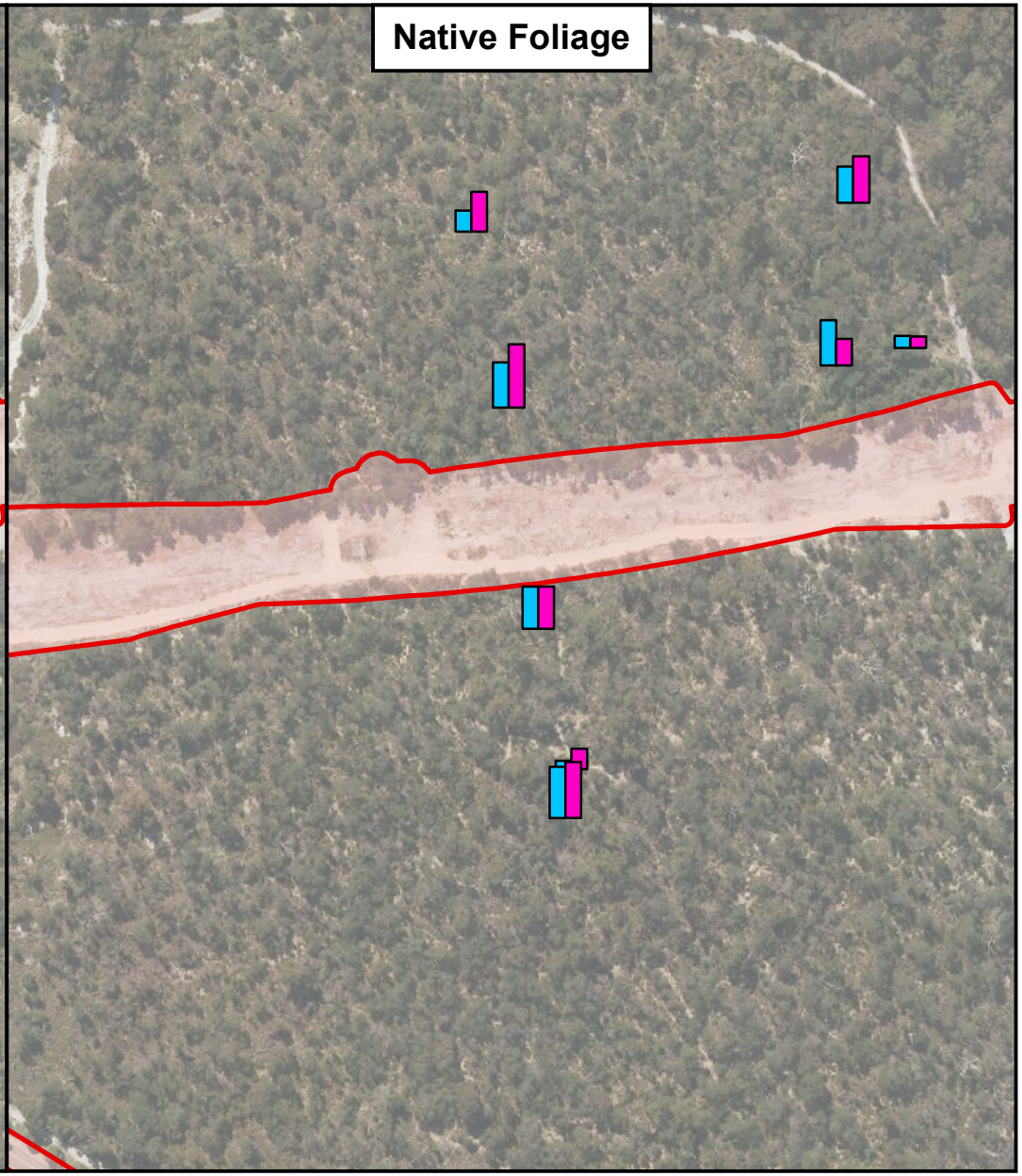

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LAST MODIFIED	17 AUG 2018

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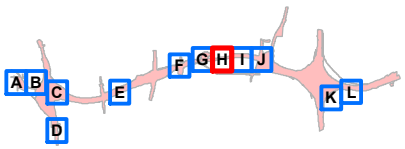

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure

12H

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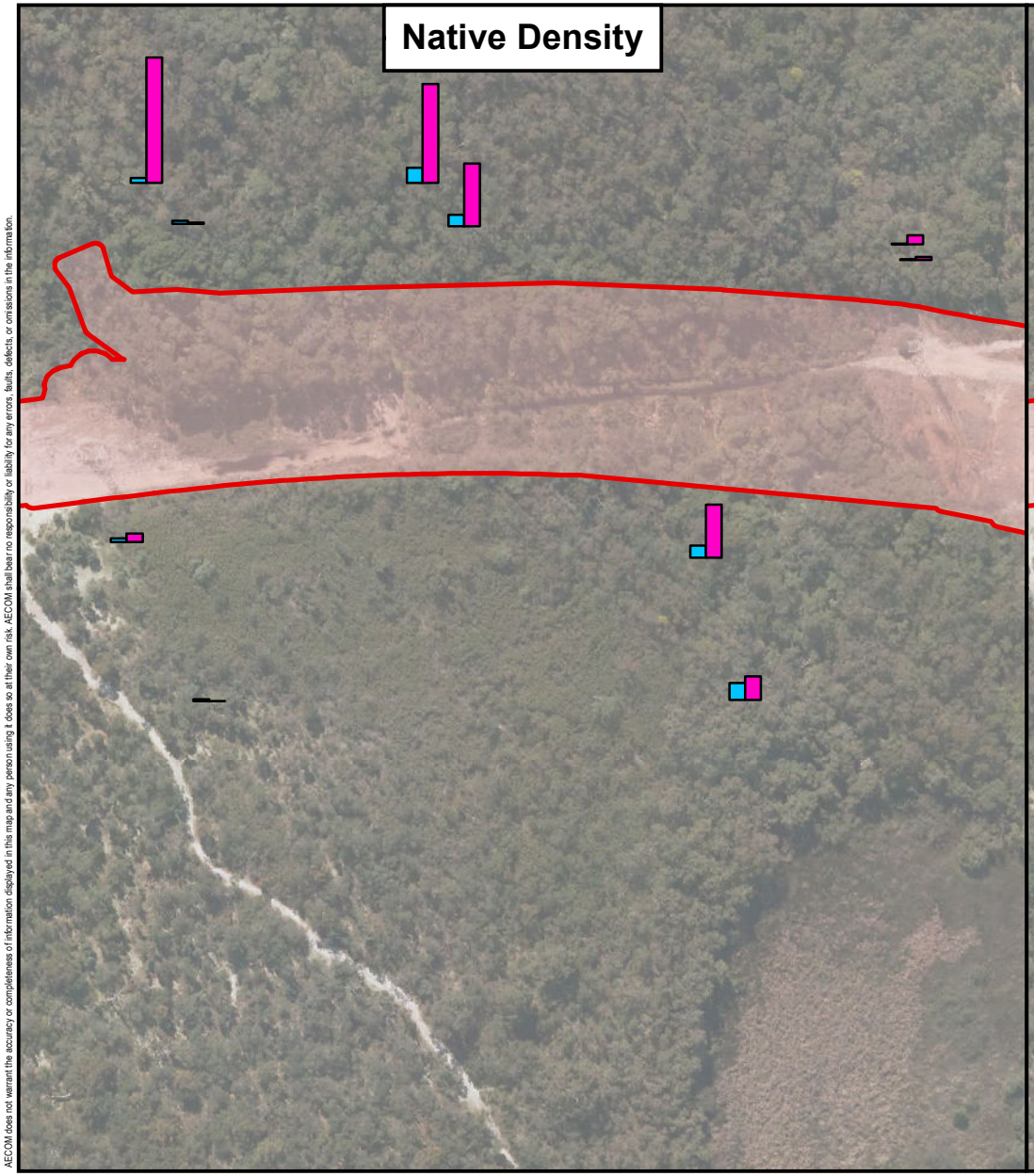

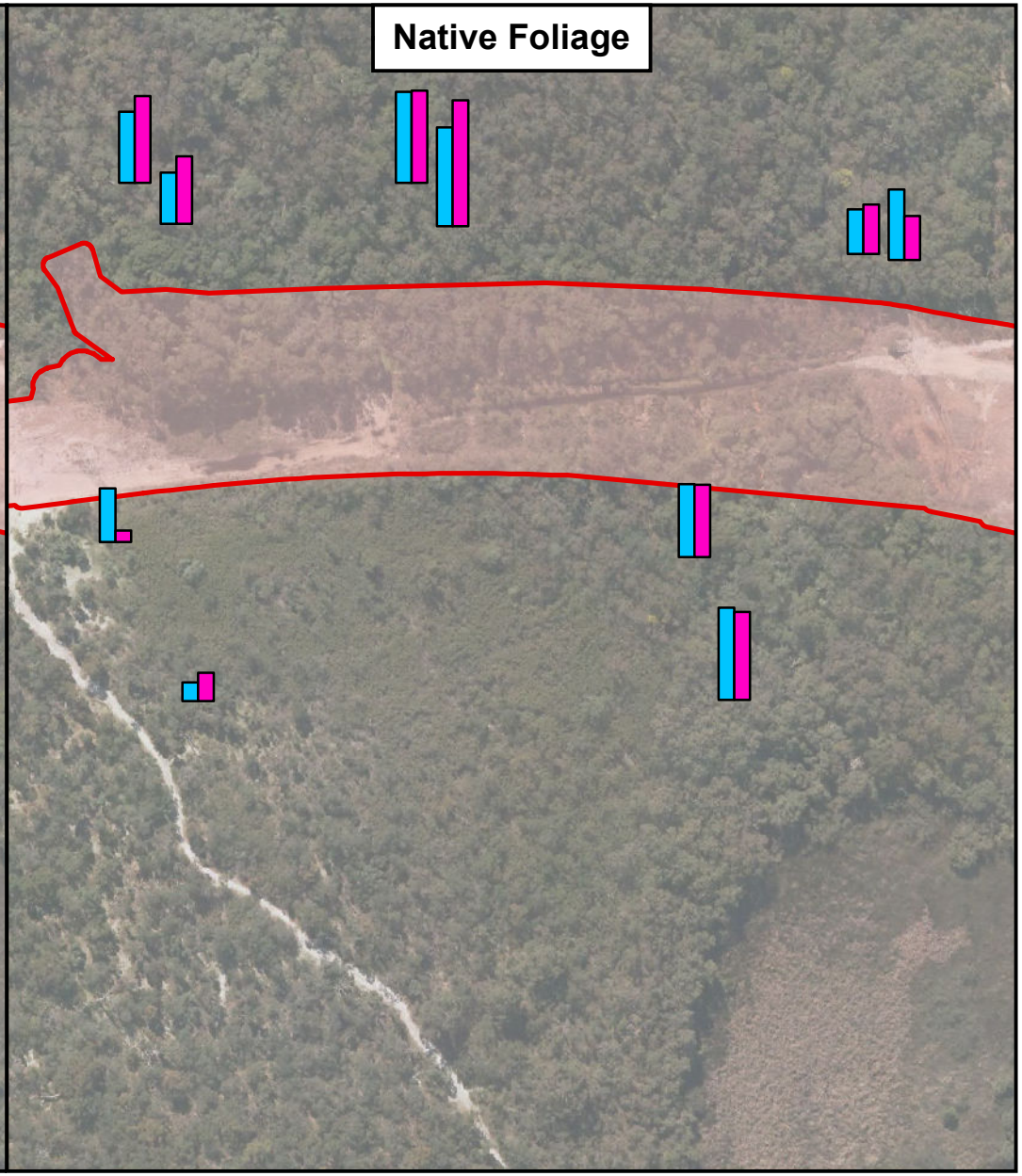

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Metropolitan Road Improvement Alliance

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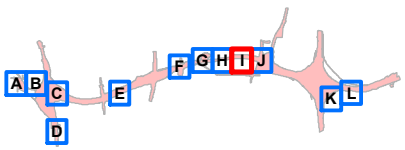

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure

12I

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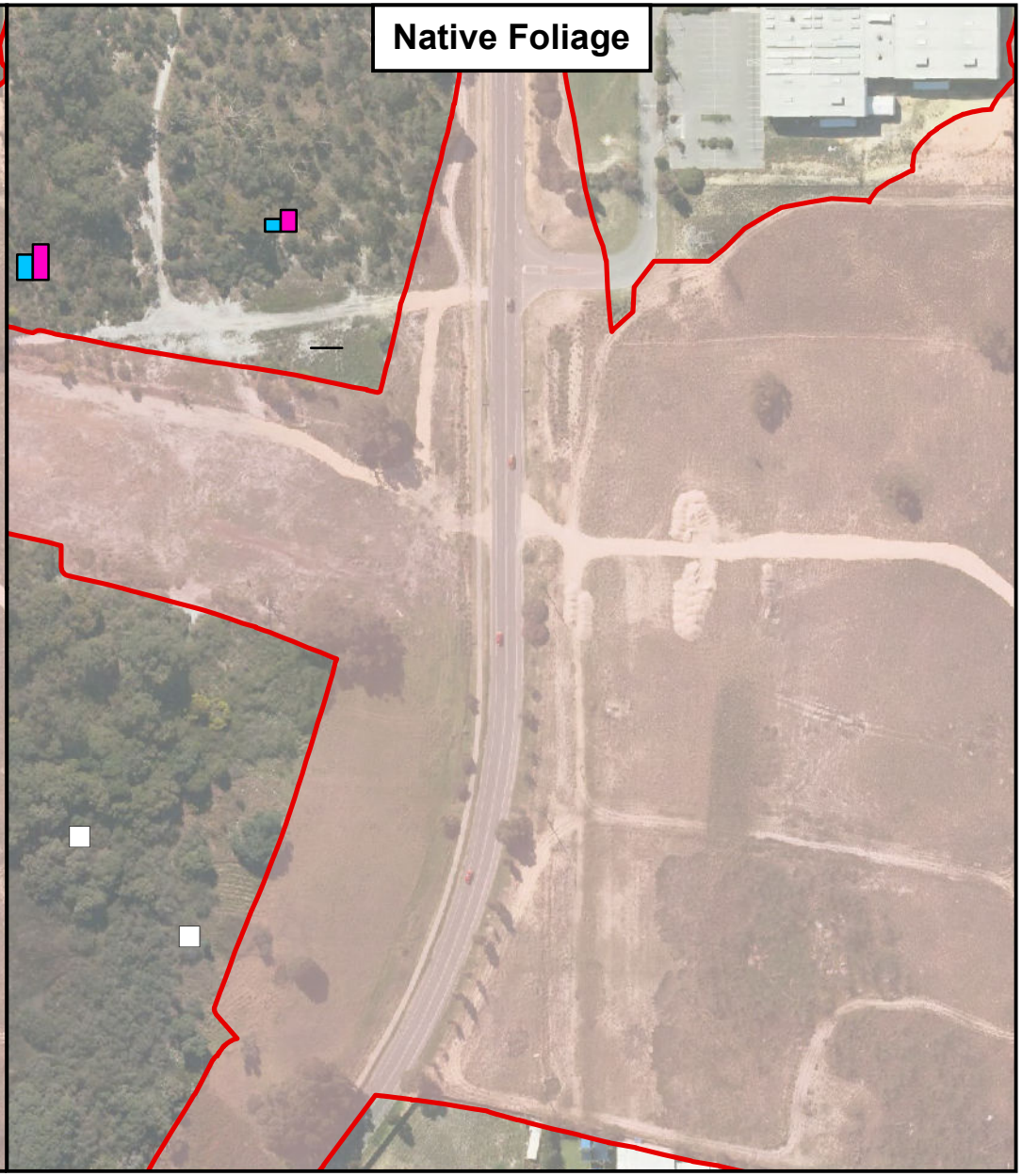

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Metropolitan Road Improvement Alliance

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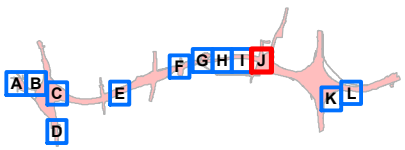

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12J

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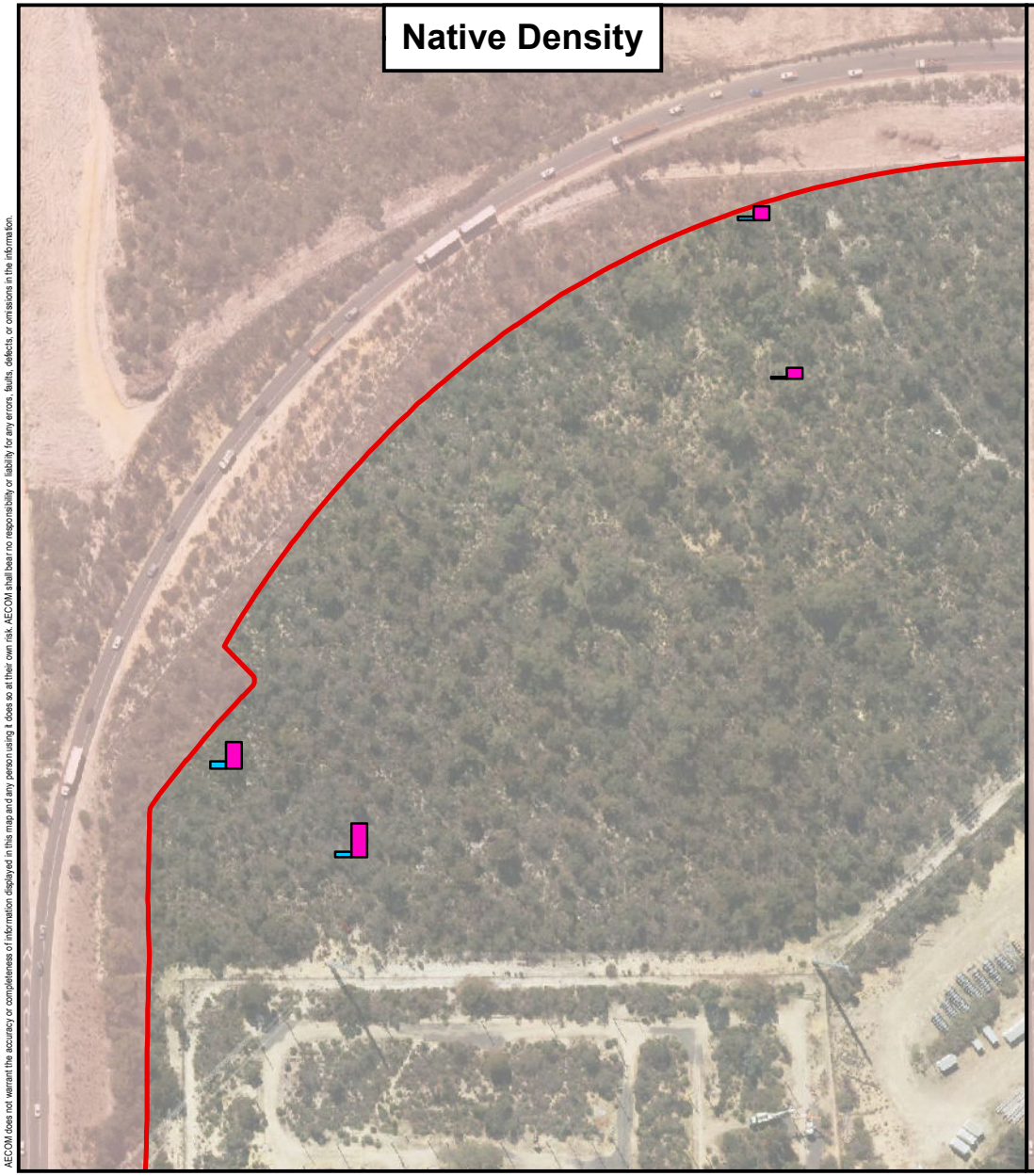

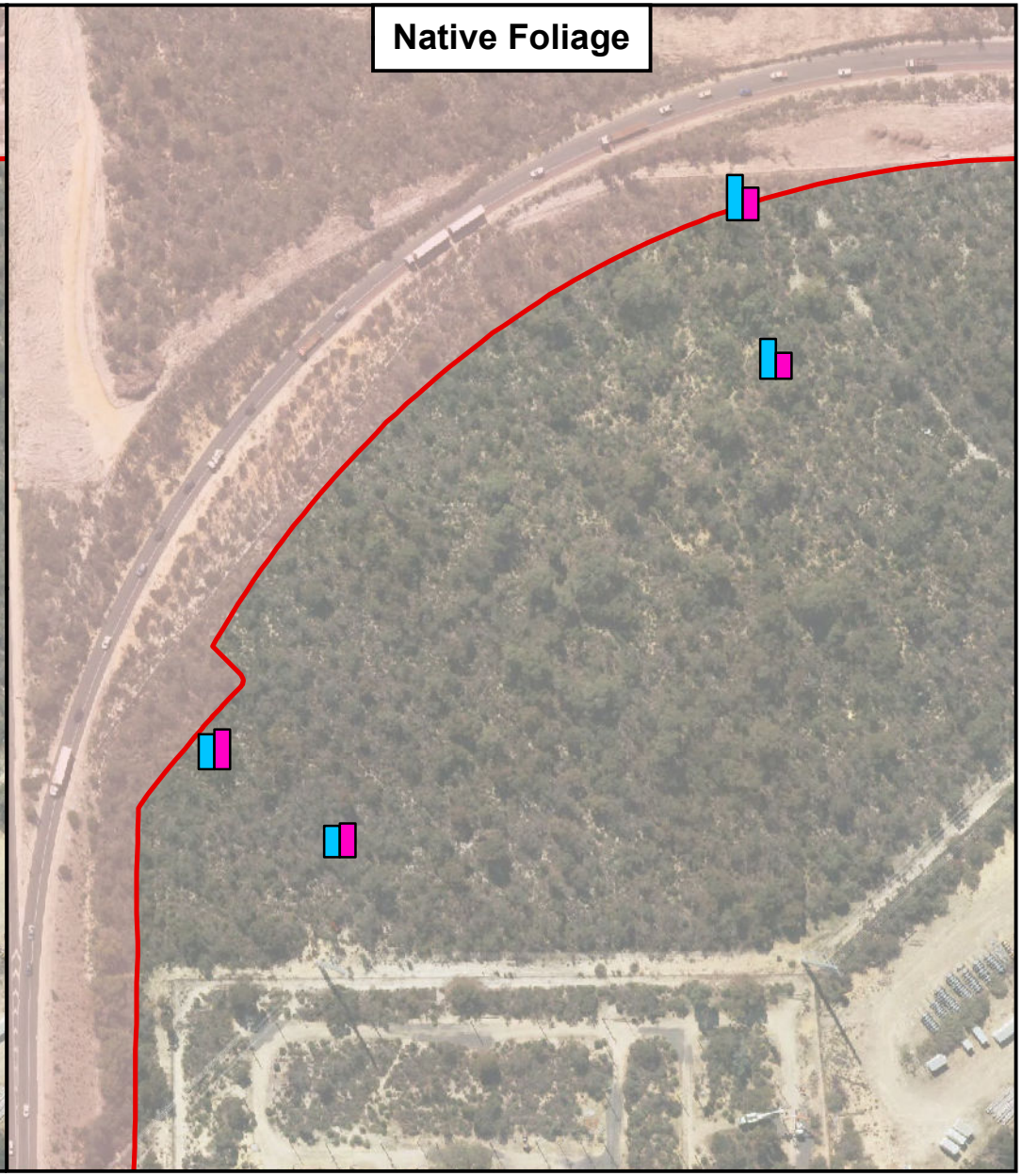

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Metropolitan Road Improvement Alliance

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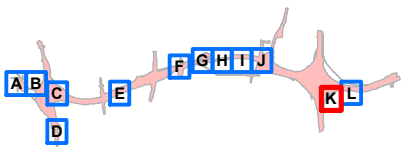

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12K

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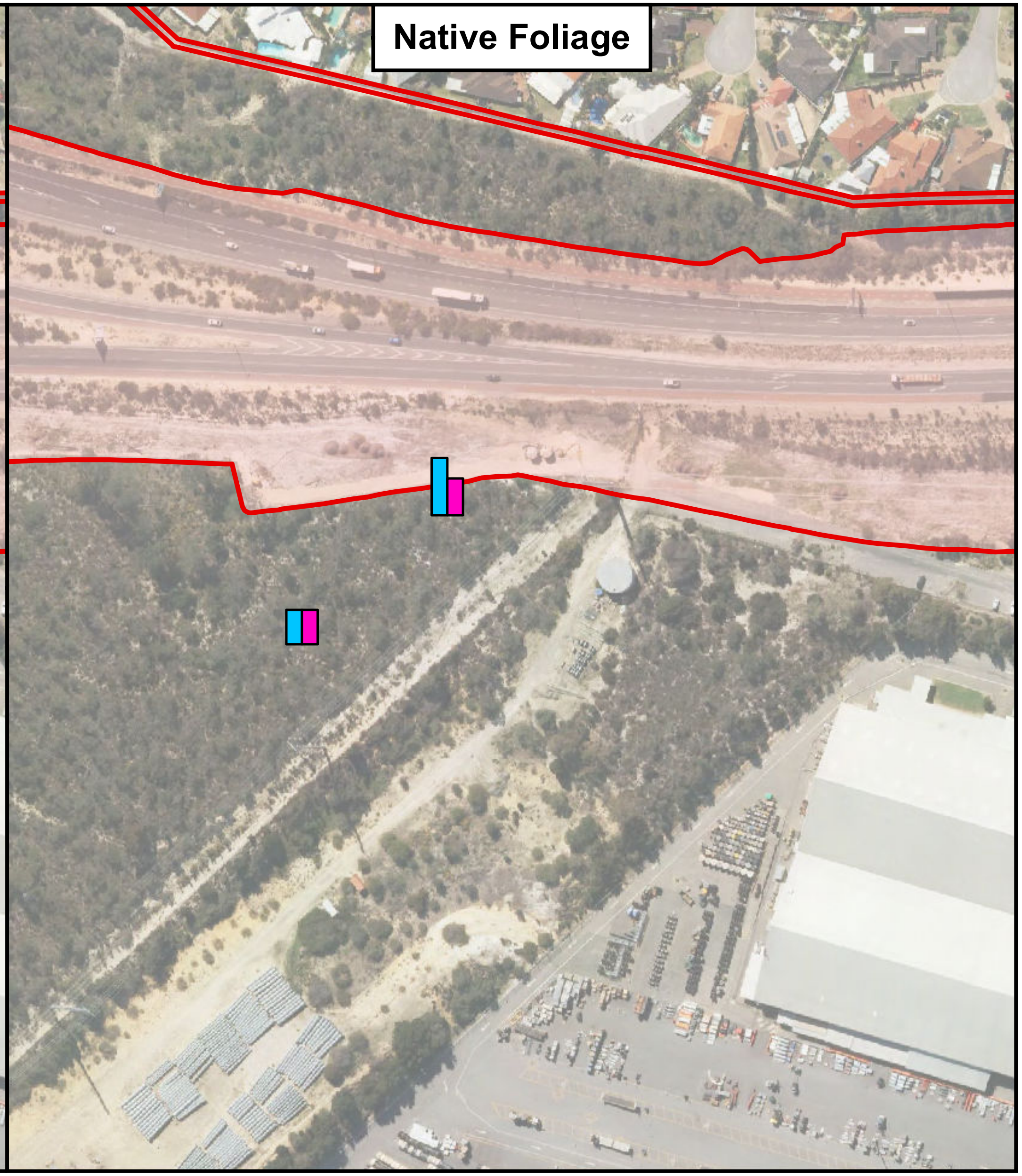

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MRIA Metropolitan Road Improvement Alliance

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DATUM GDA 1994, PROJECTION MGA ZONE 50

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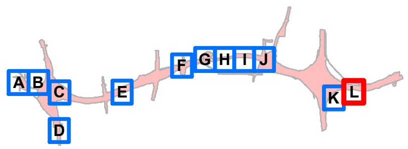

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Native Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
12L

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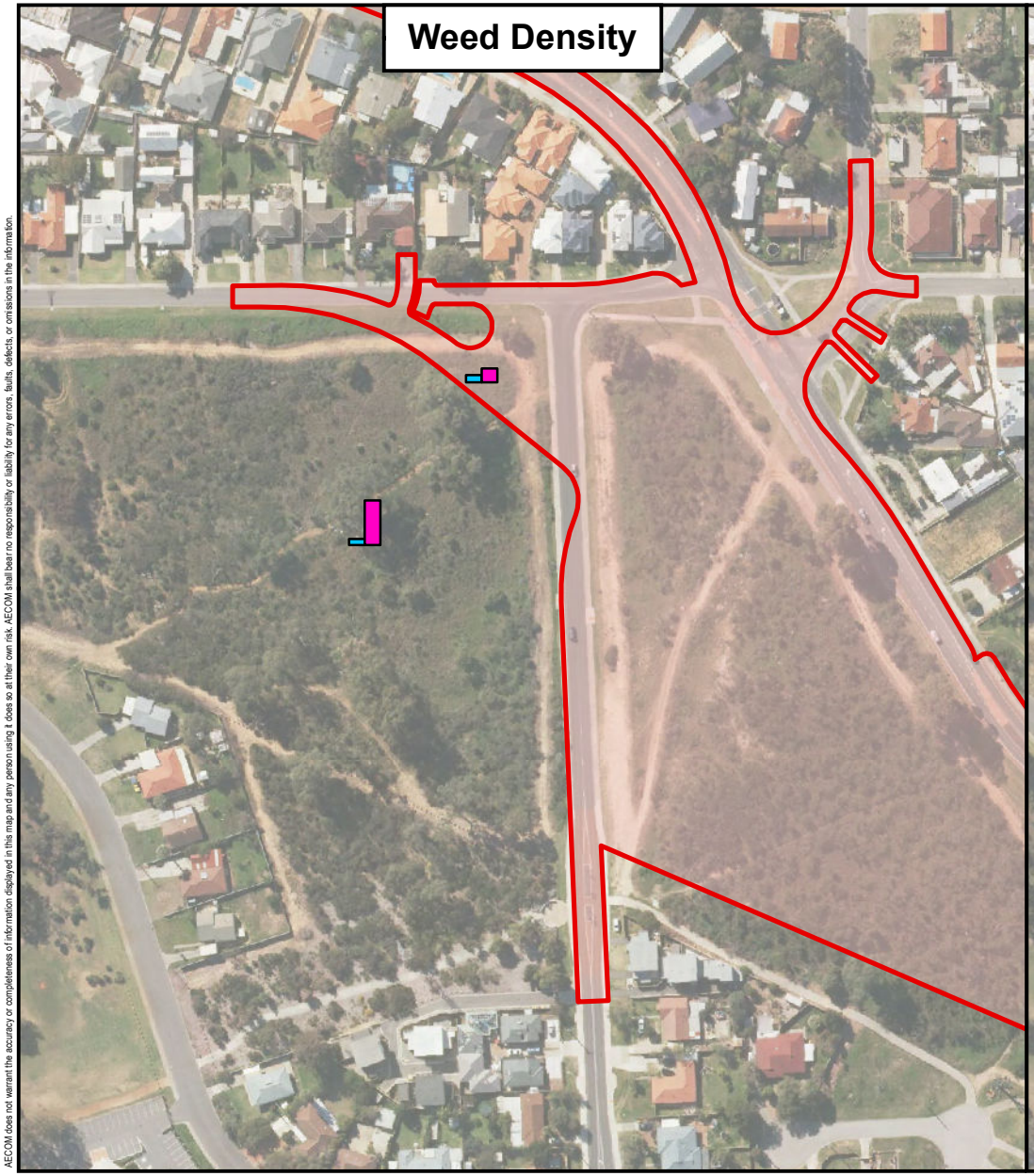

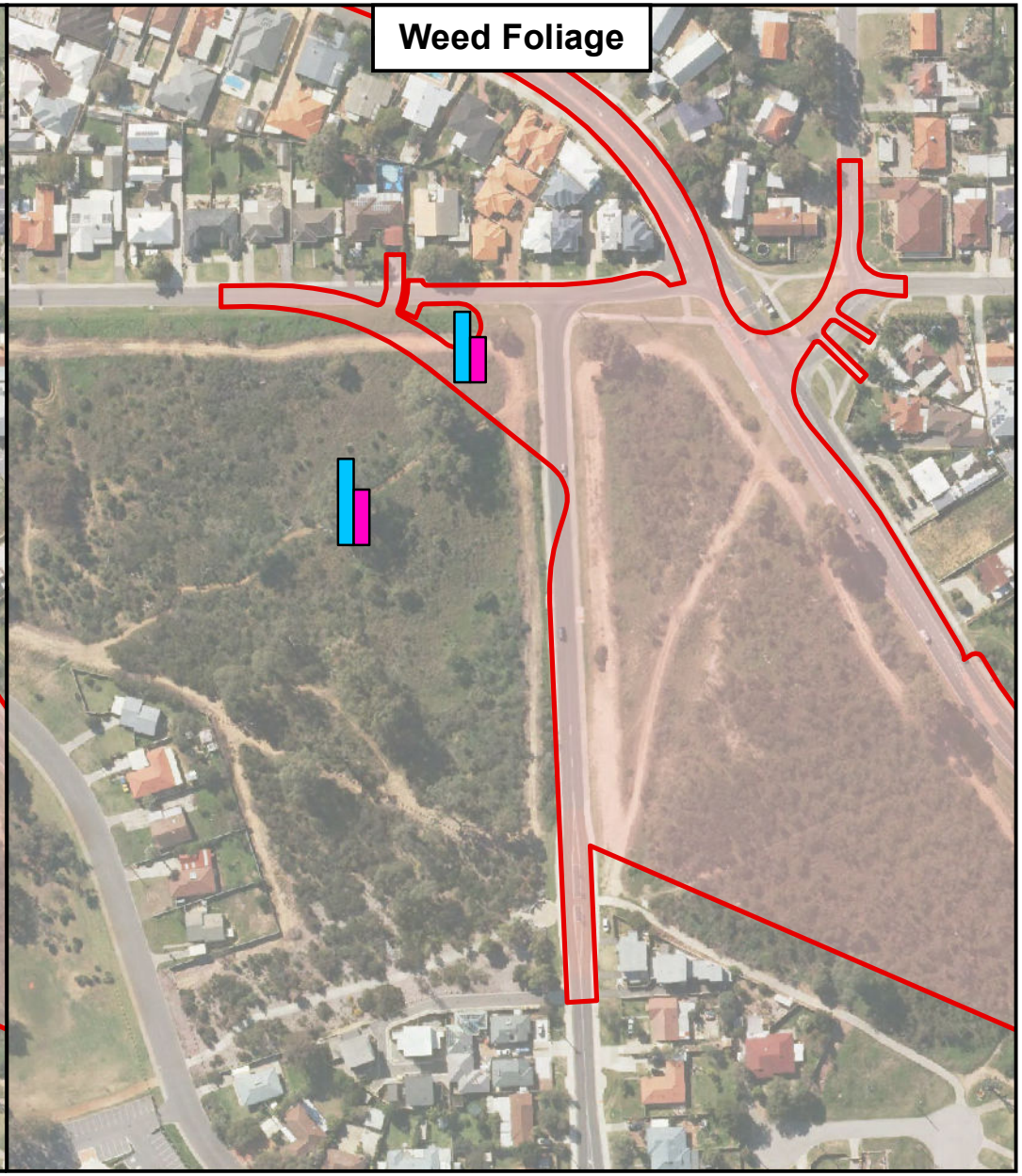

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Metropolitan Road Improvement Alliance

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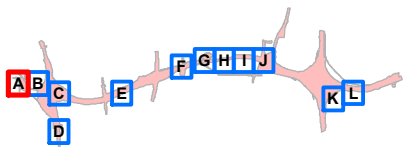

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13A

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig13_WeedChange.mxd (fotheringhamd)

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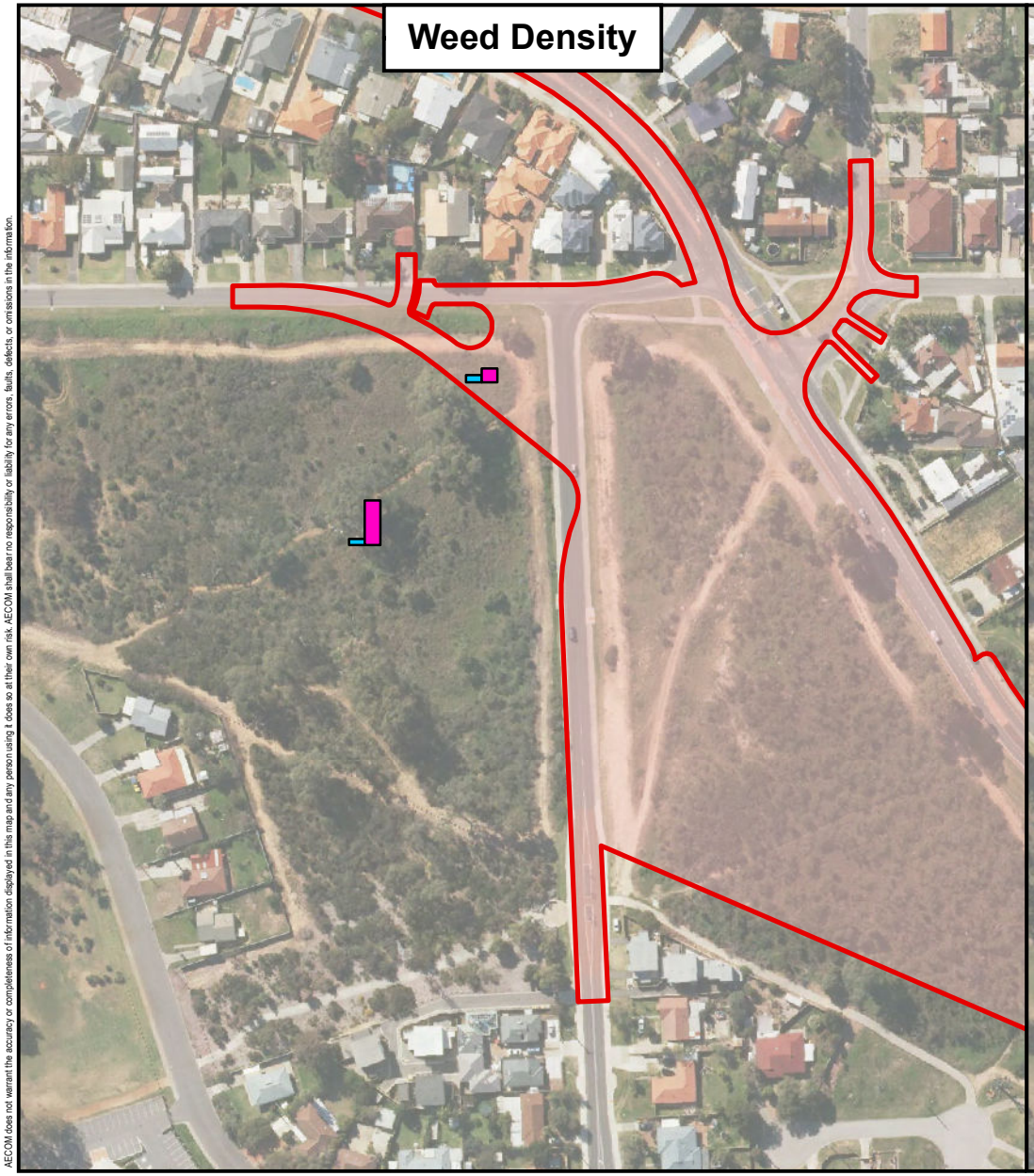

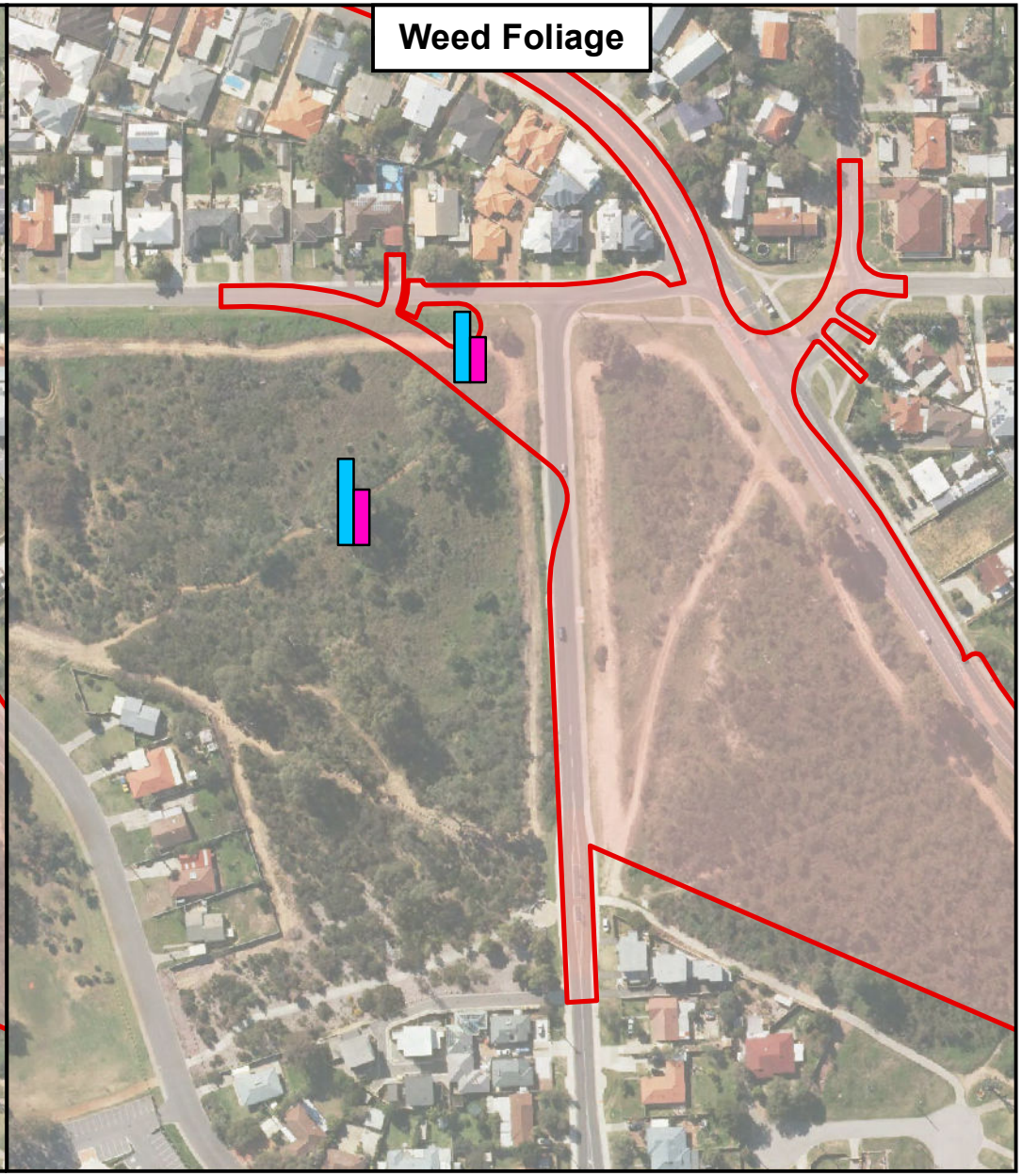

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Metropolitan Road Improvement Alliance

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DATUM GDA 1994, PROJECTION MGA ZONE 50

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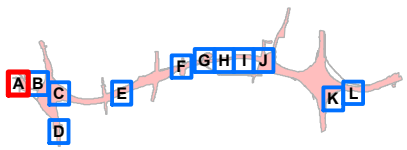

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13A

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig13_WeedChange.mxd (fotheringhamd)

A4 size

PROJECT ID 60550185
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Metropolitan Road Improvement Alliance

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DATUM GDA 1994, PROJECTION MGA ZONE 50

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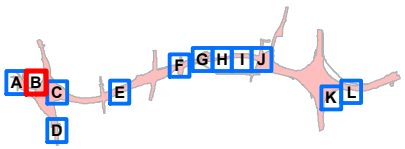

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13B

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig13_WeedChange.mxd (fotheringhamd)

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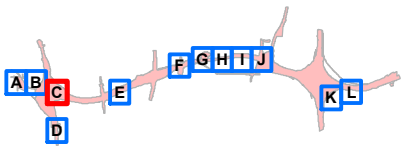

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13C

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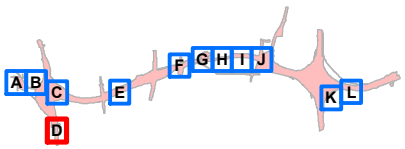

Data sources:

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13D

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig13_WeedChange.mxd (fotheringhamd)

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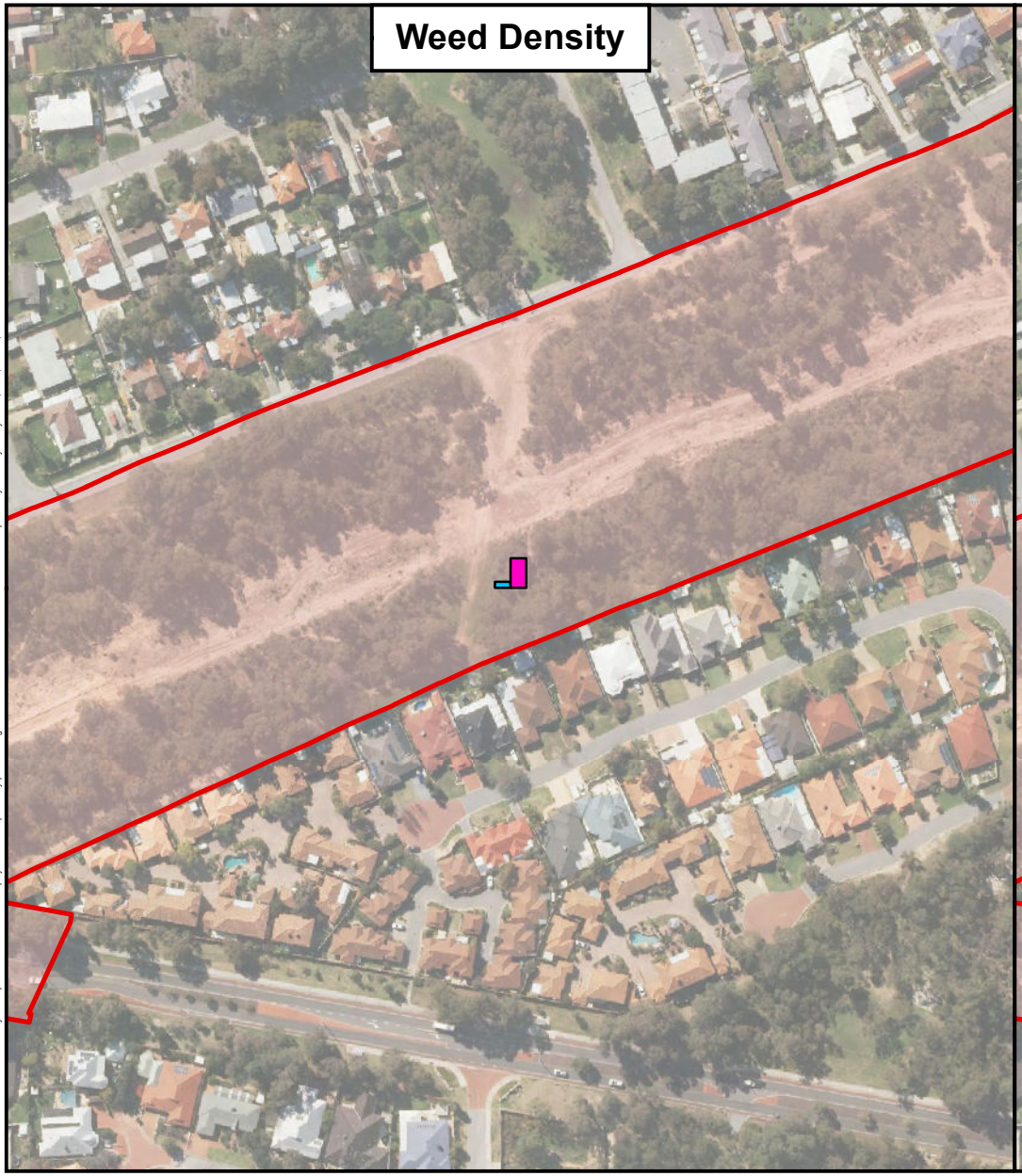

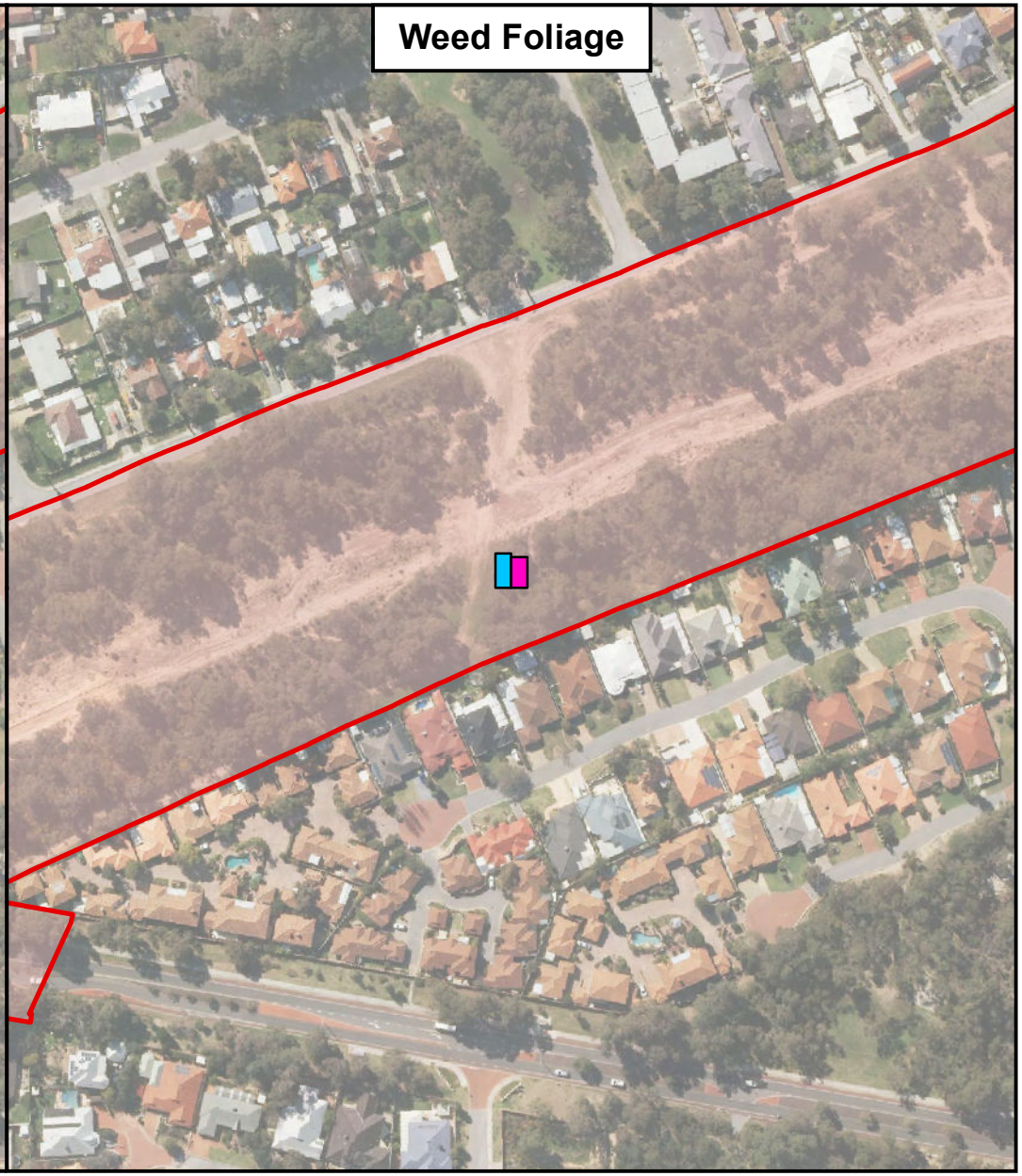

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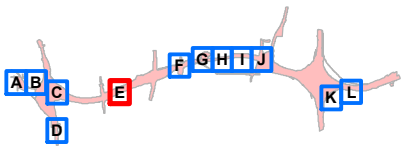

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Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13E

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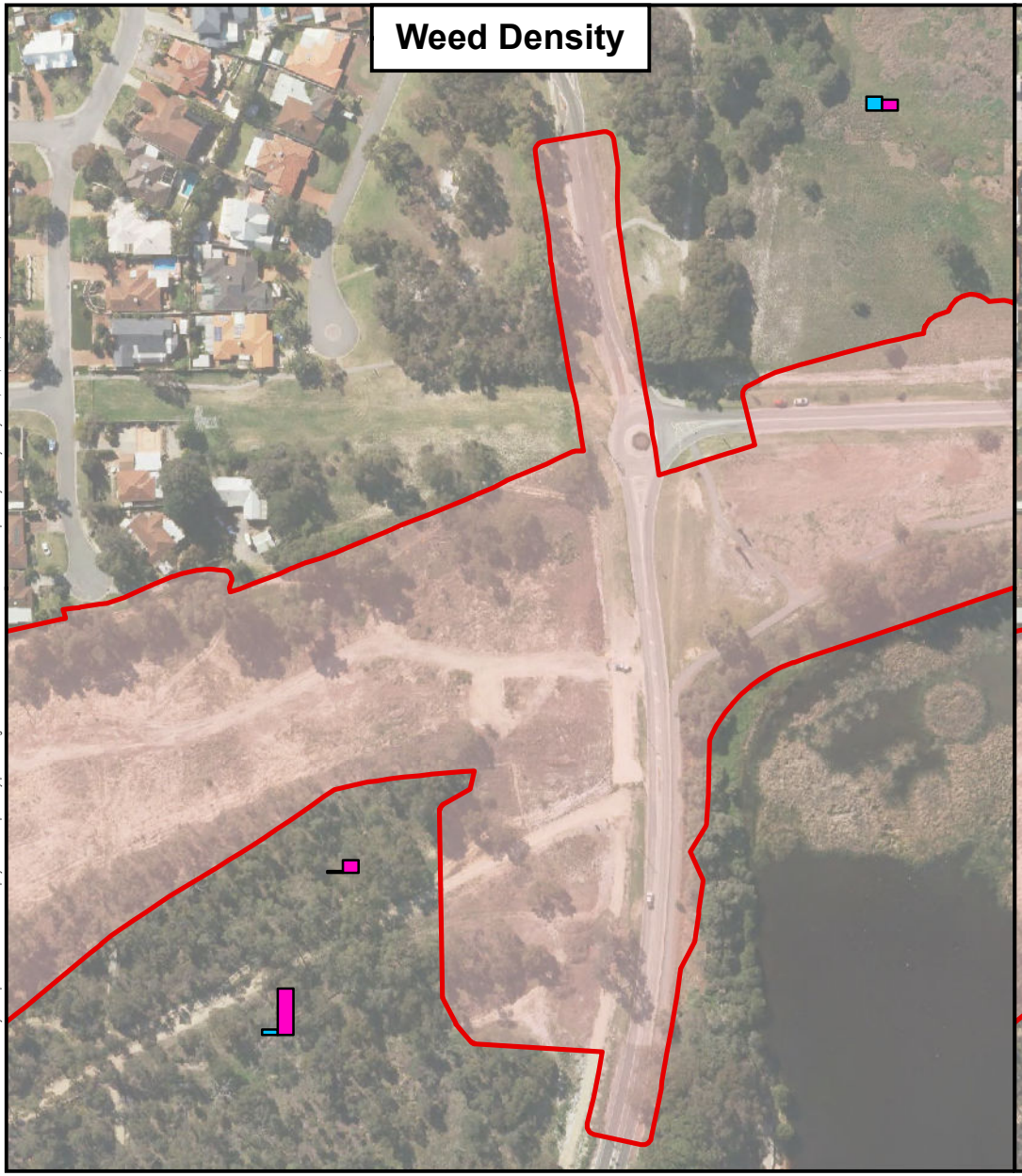

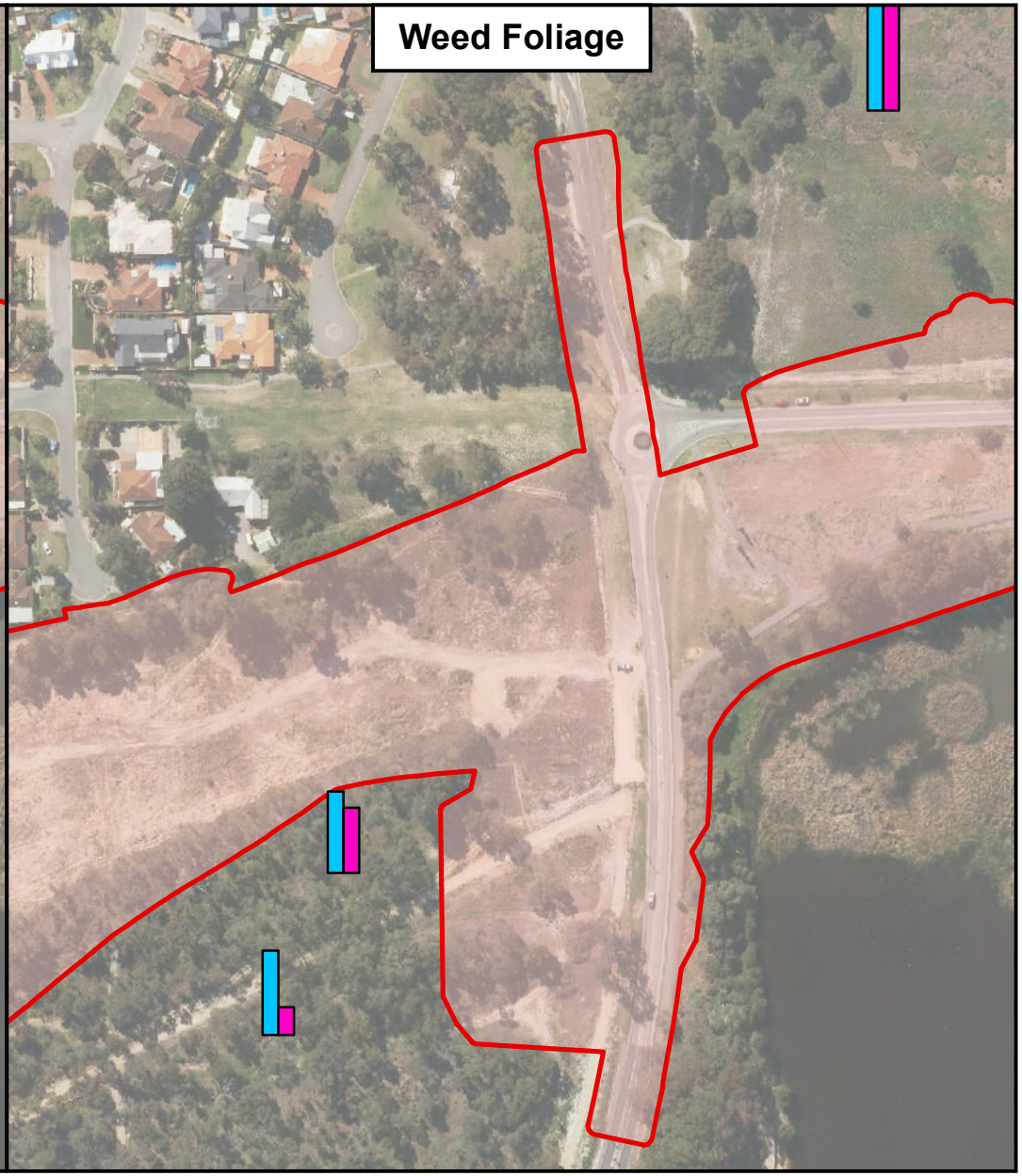

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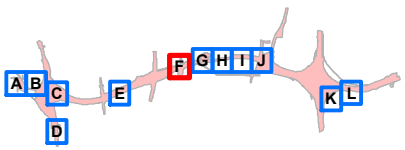

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13F

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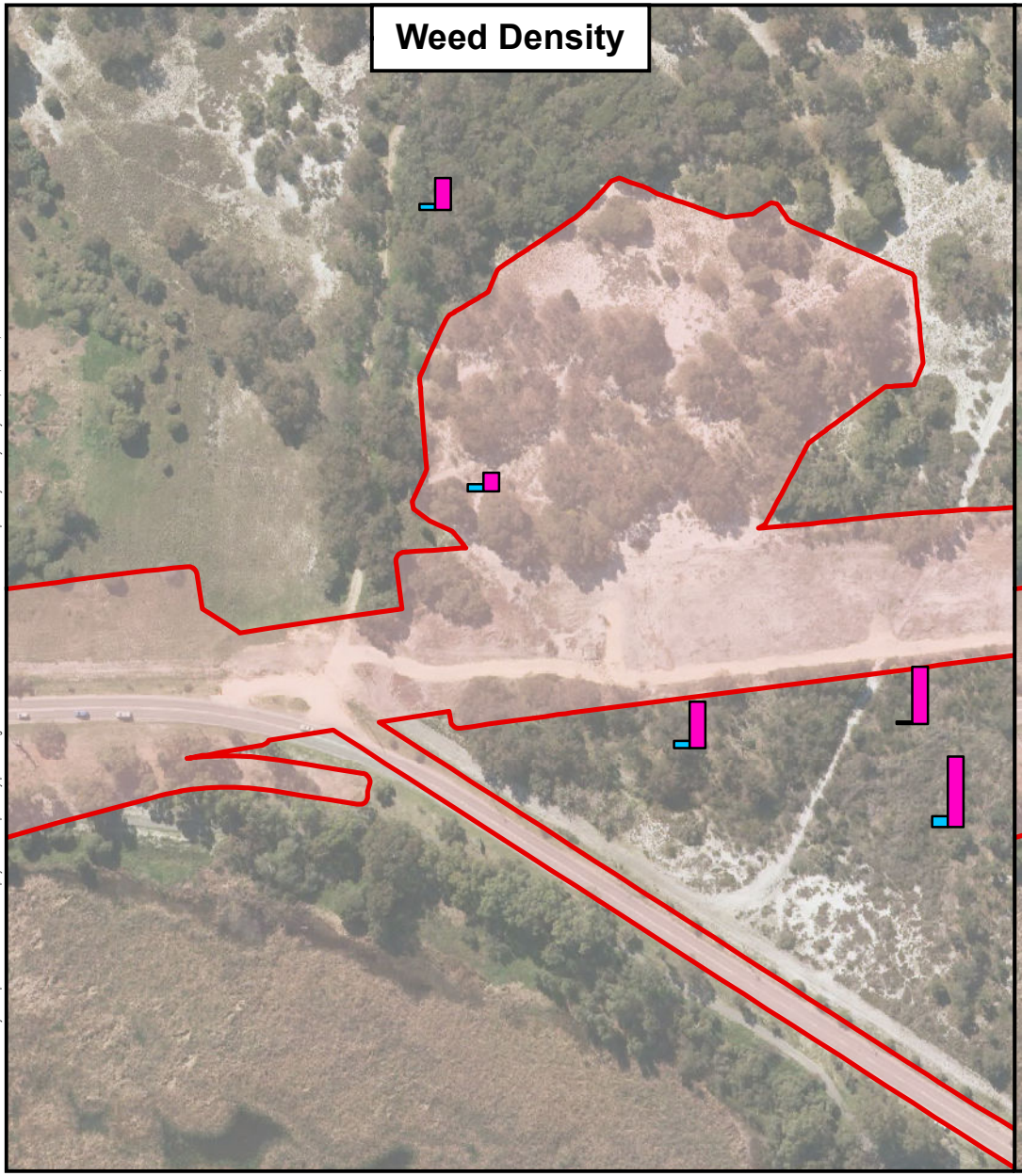

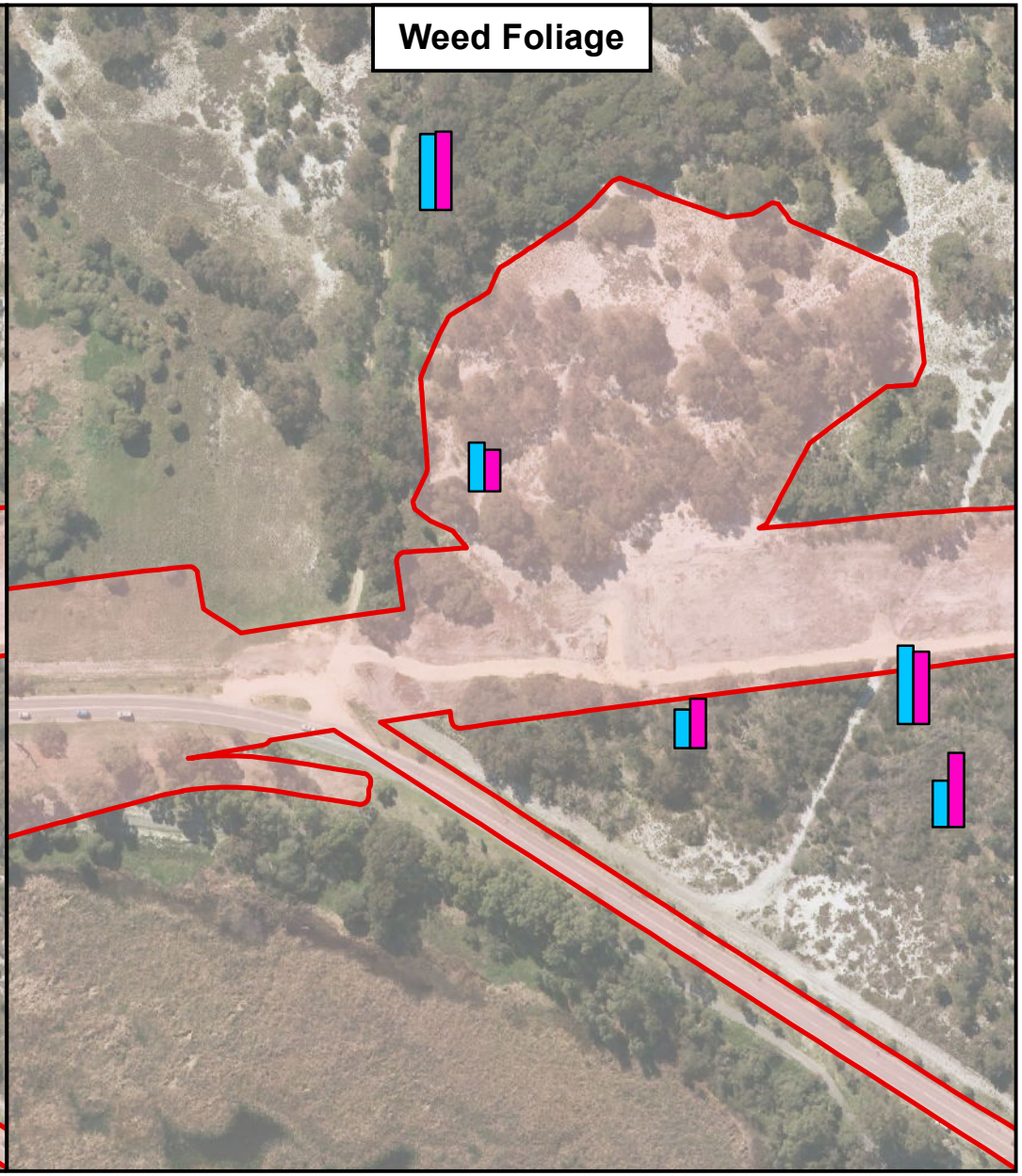

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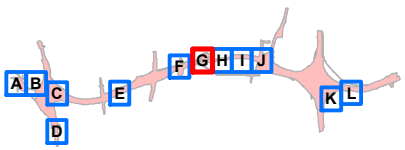

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13G

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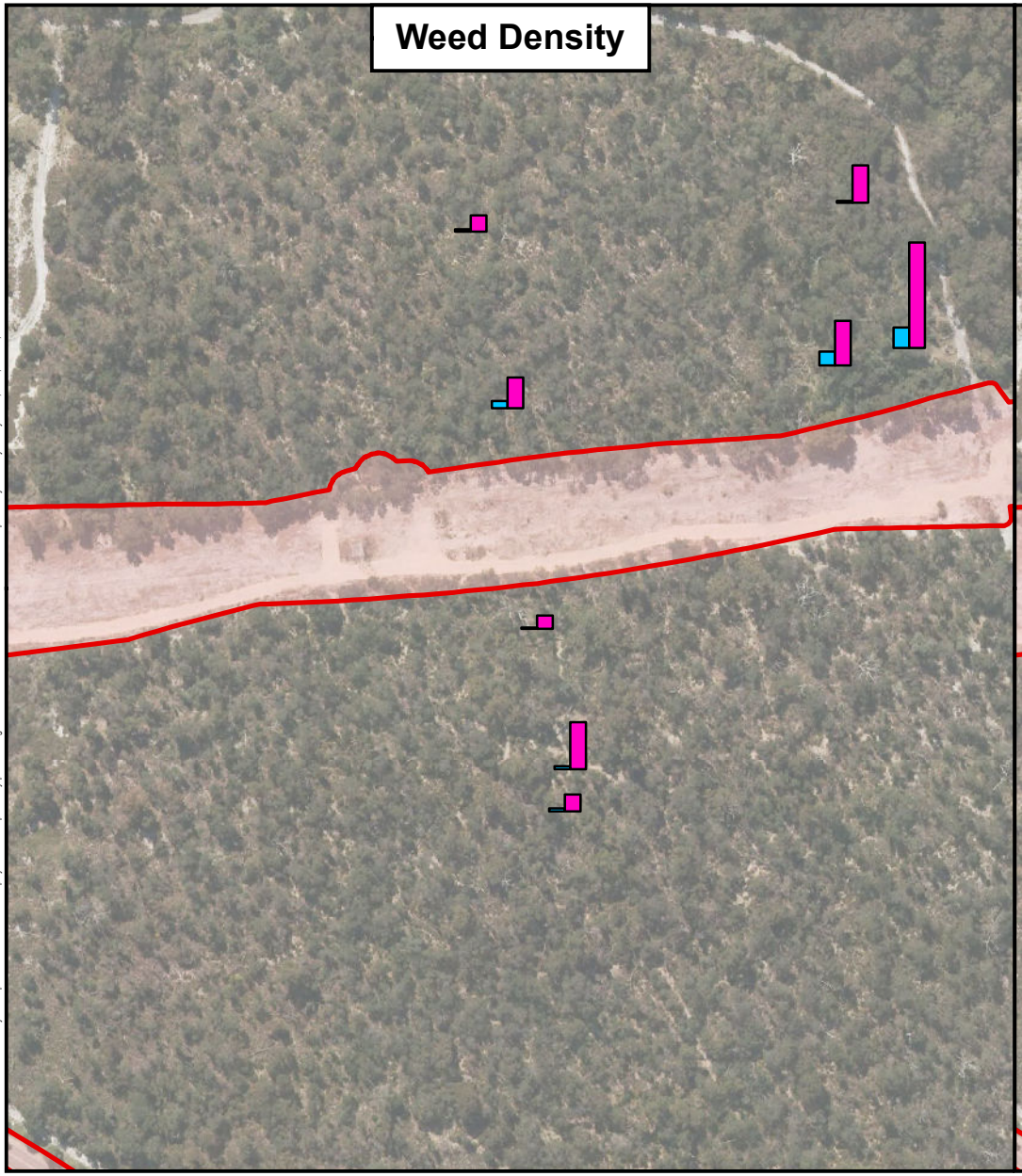

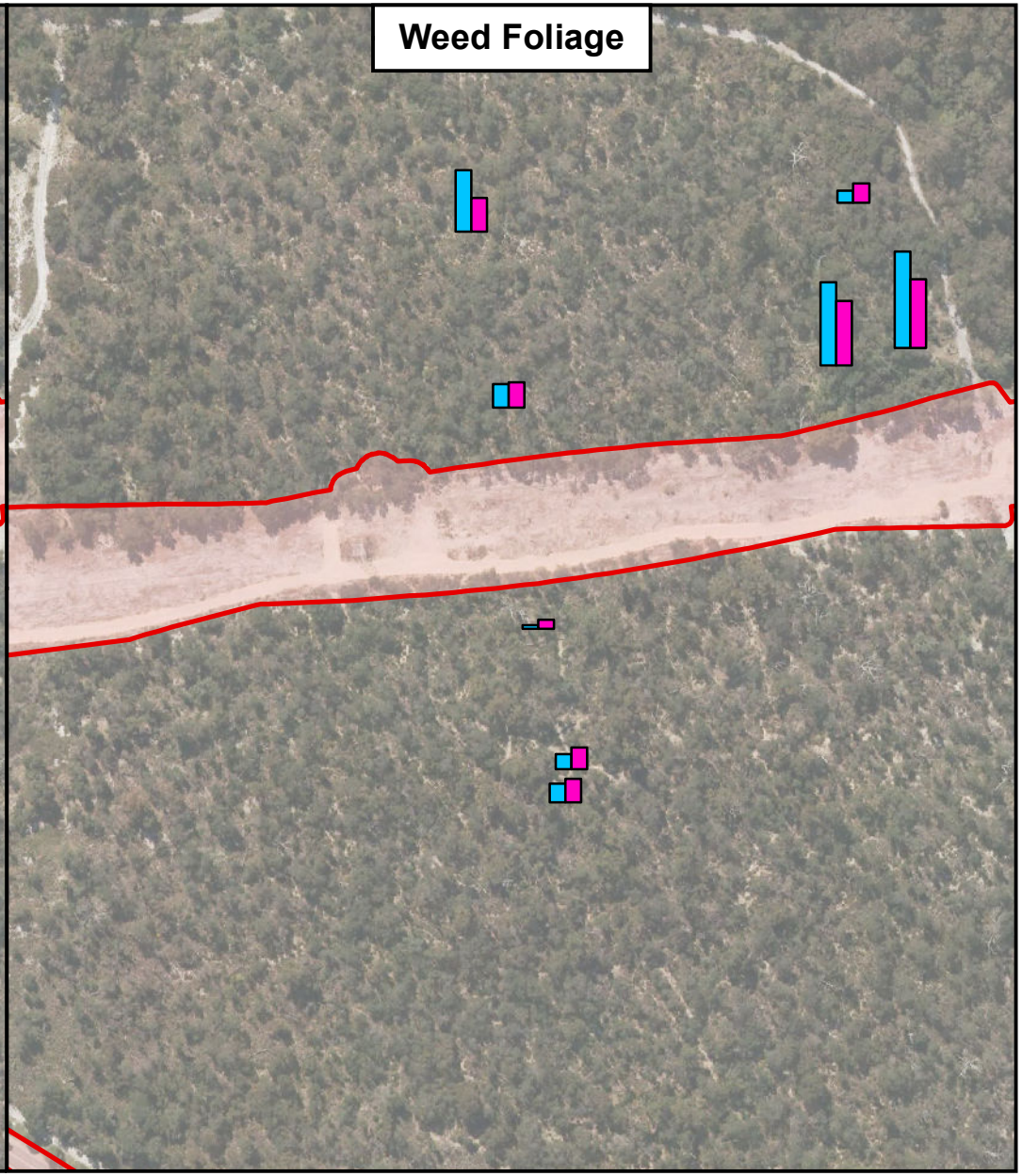

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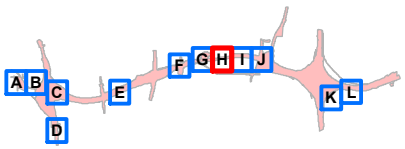

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Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2010).

Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure

13H

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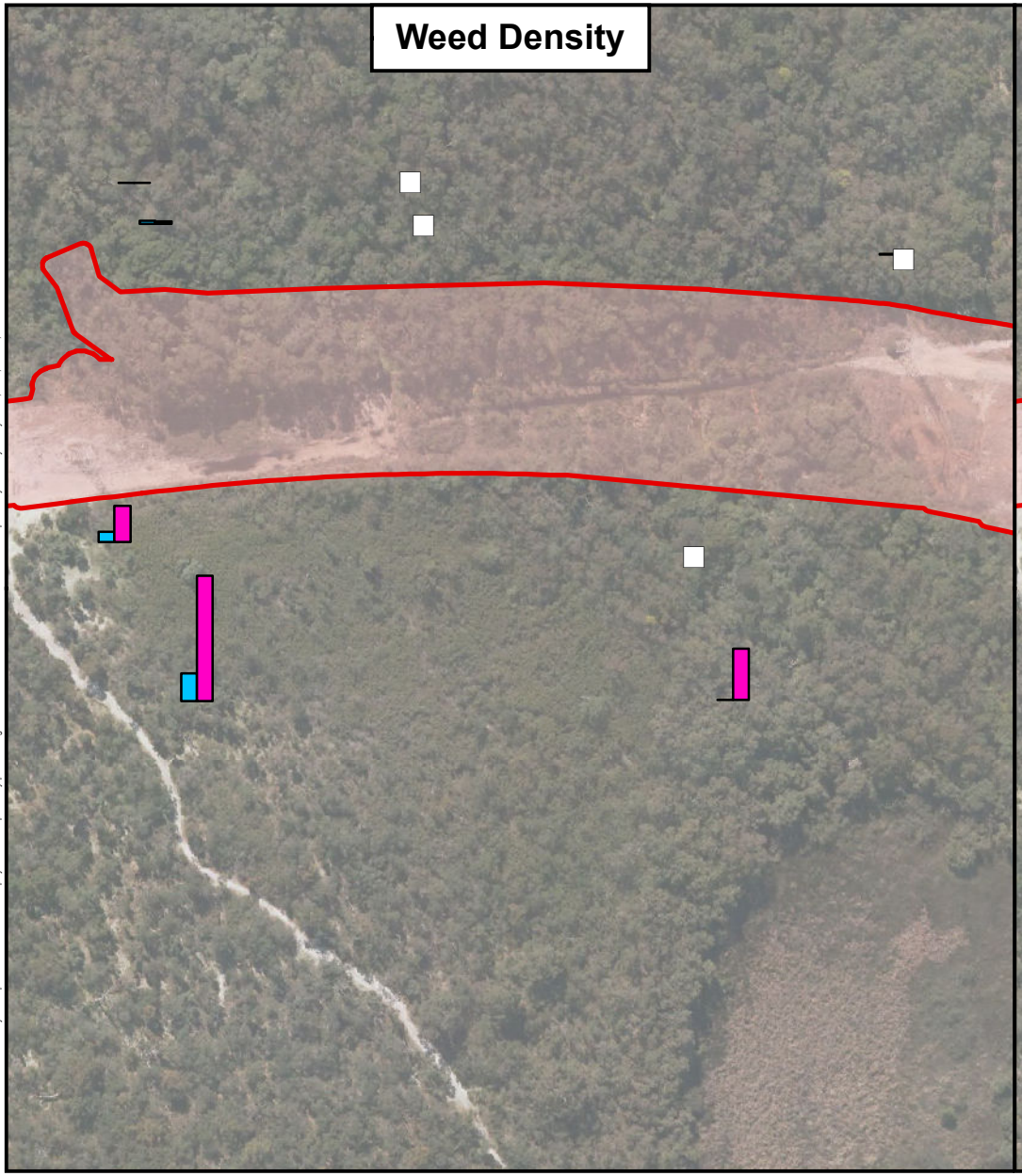

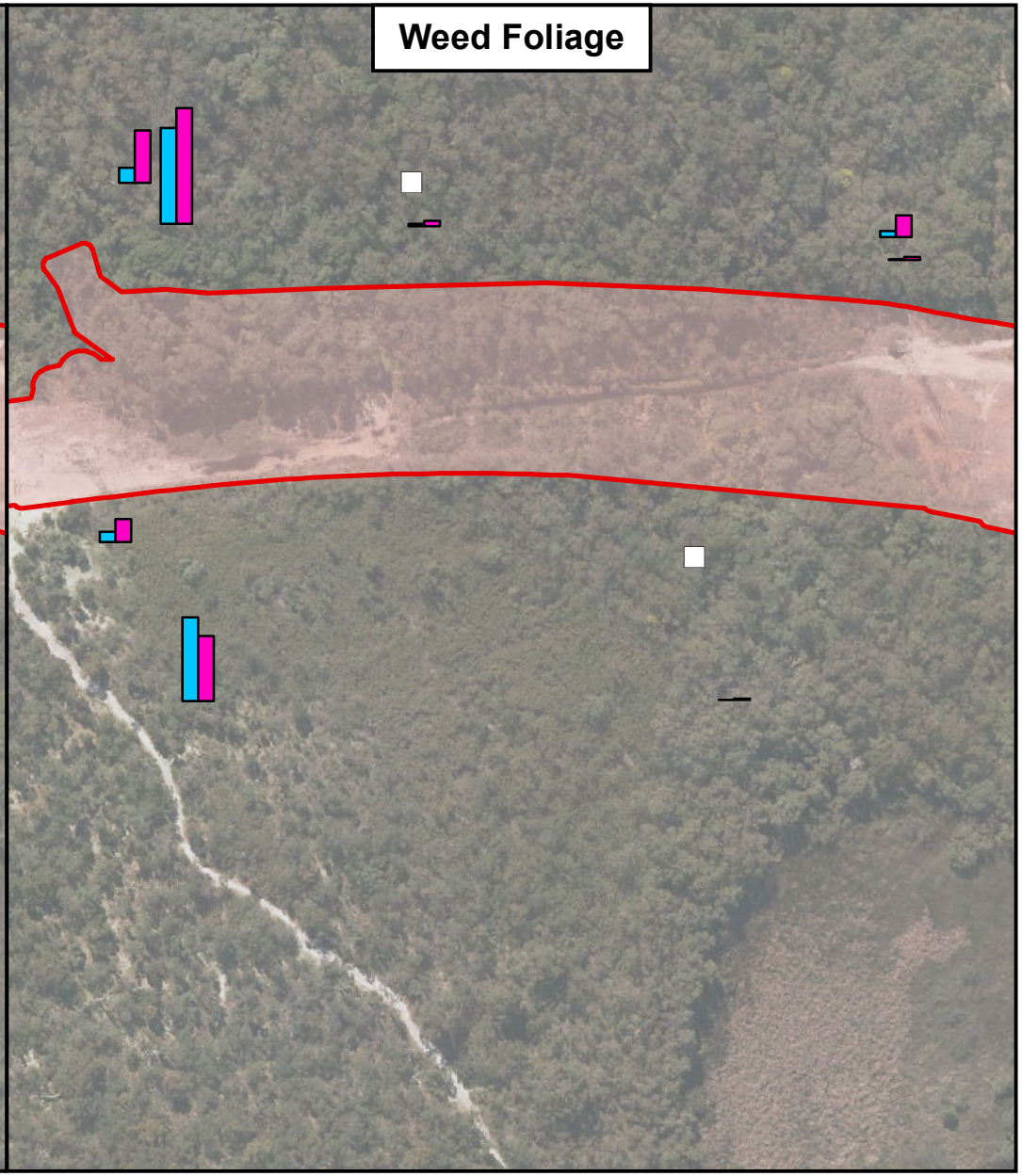

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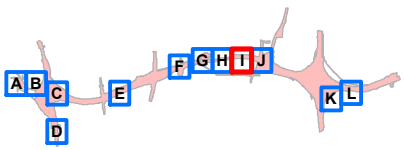

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13I

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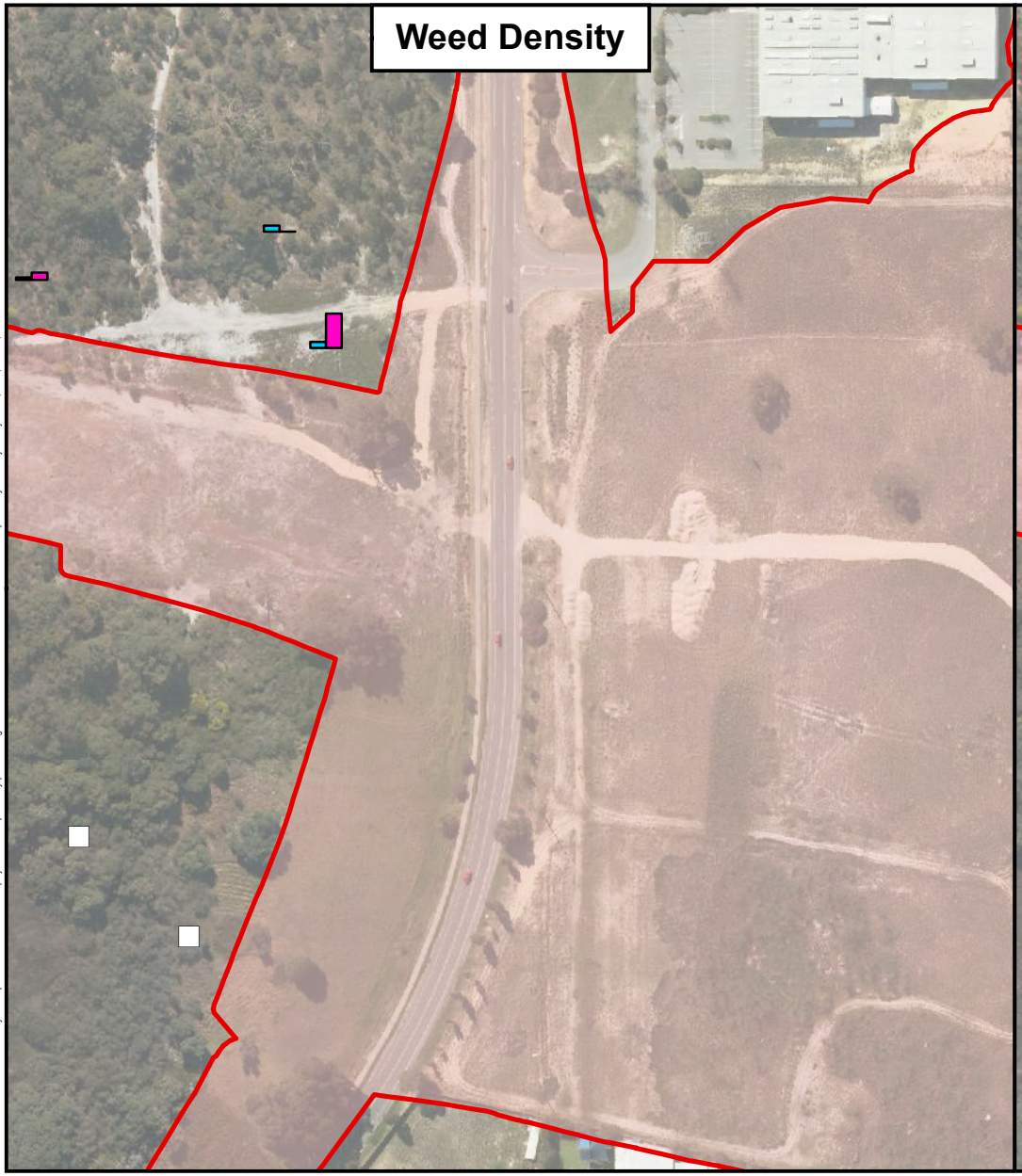

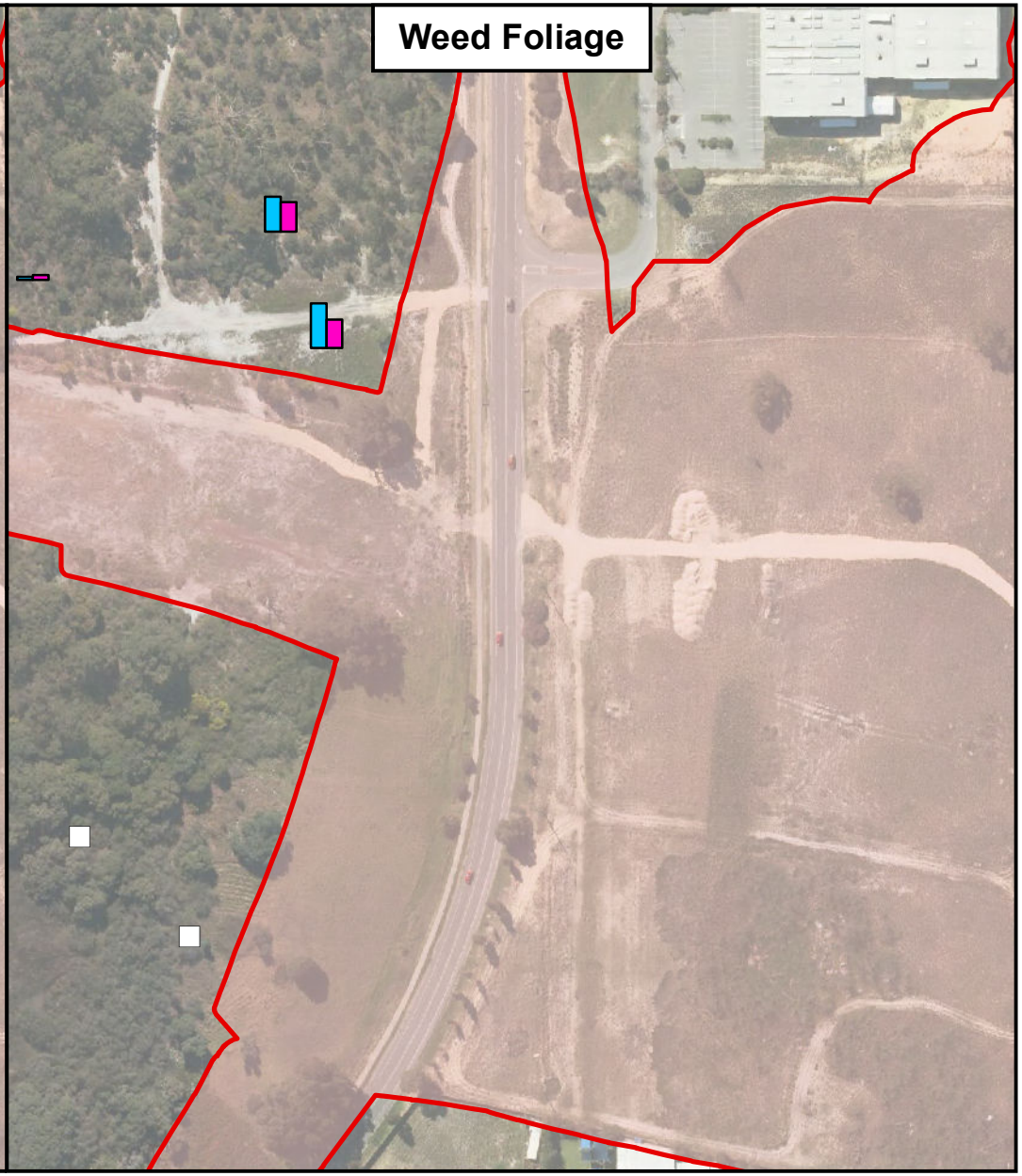

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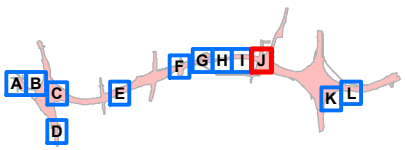

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13J

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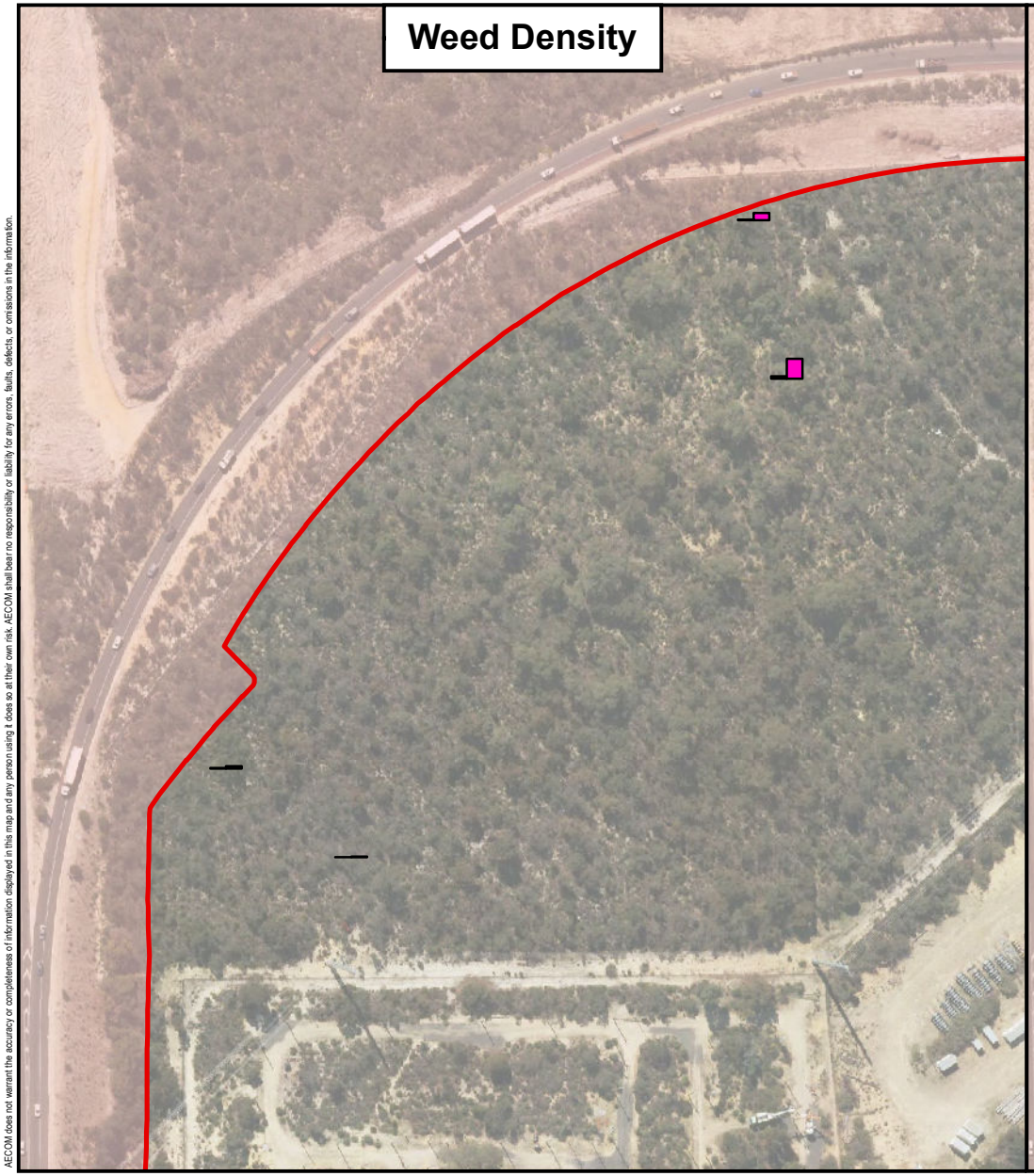

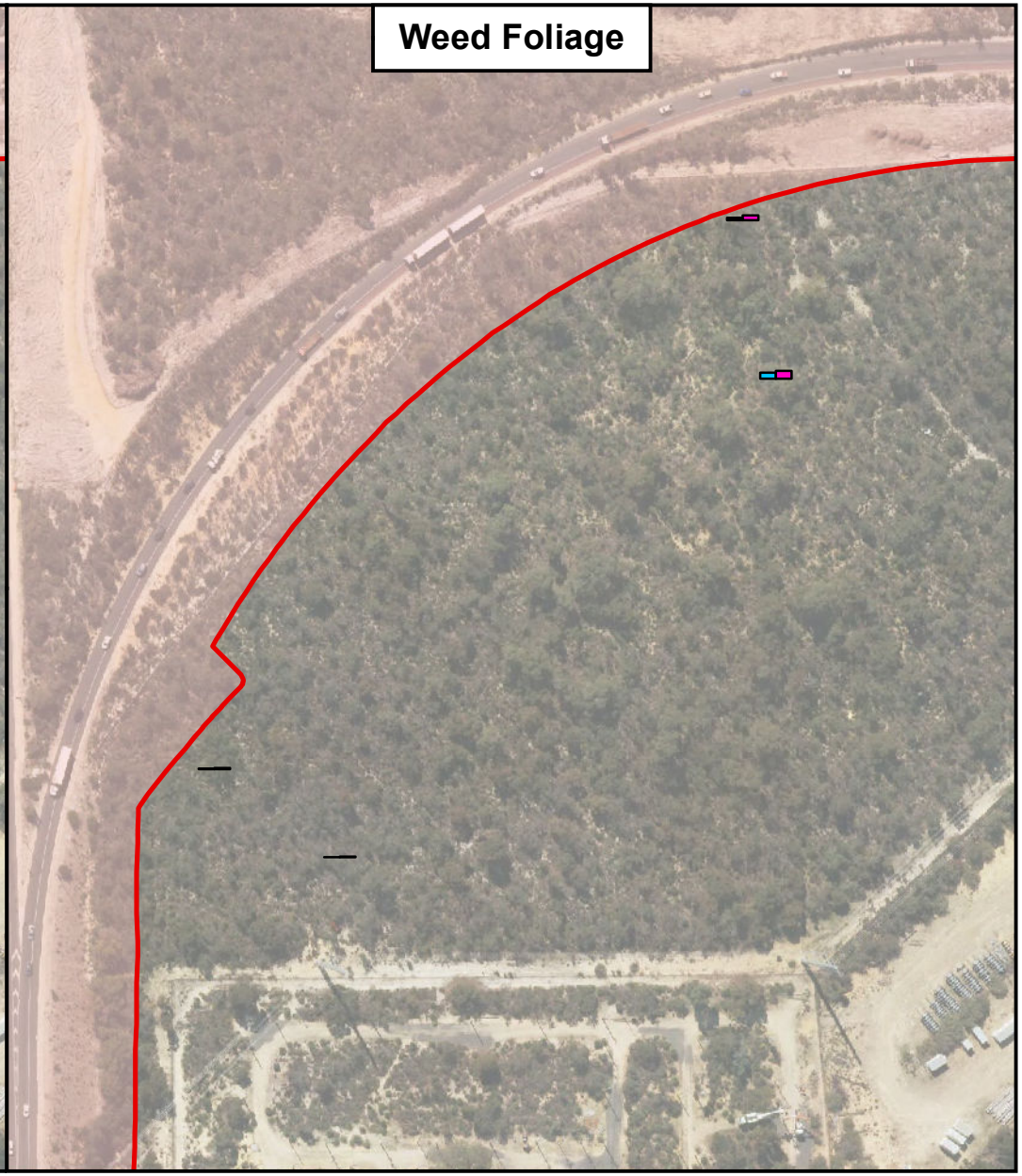

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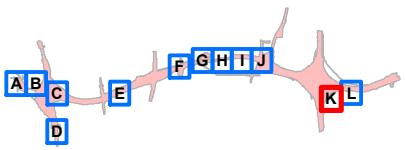

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13K

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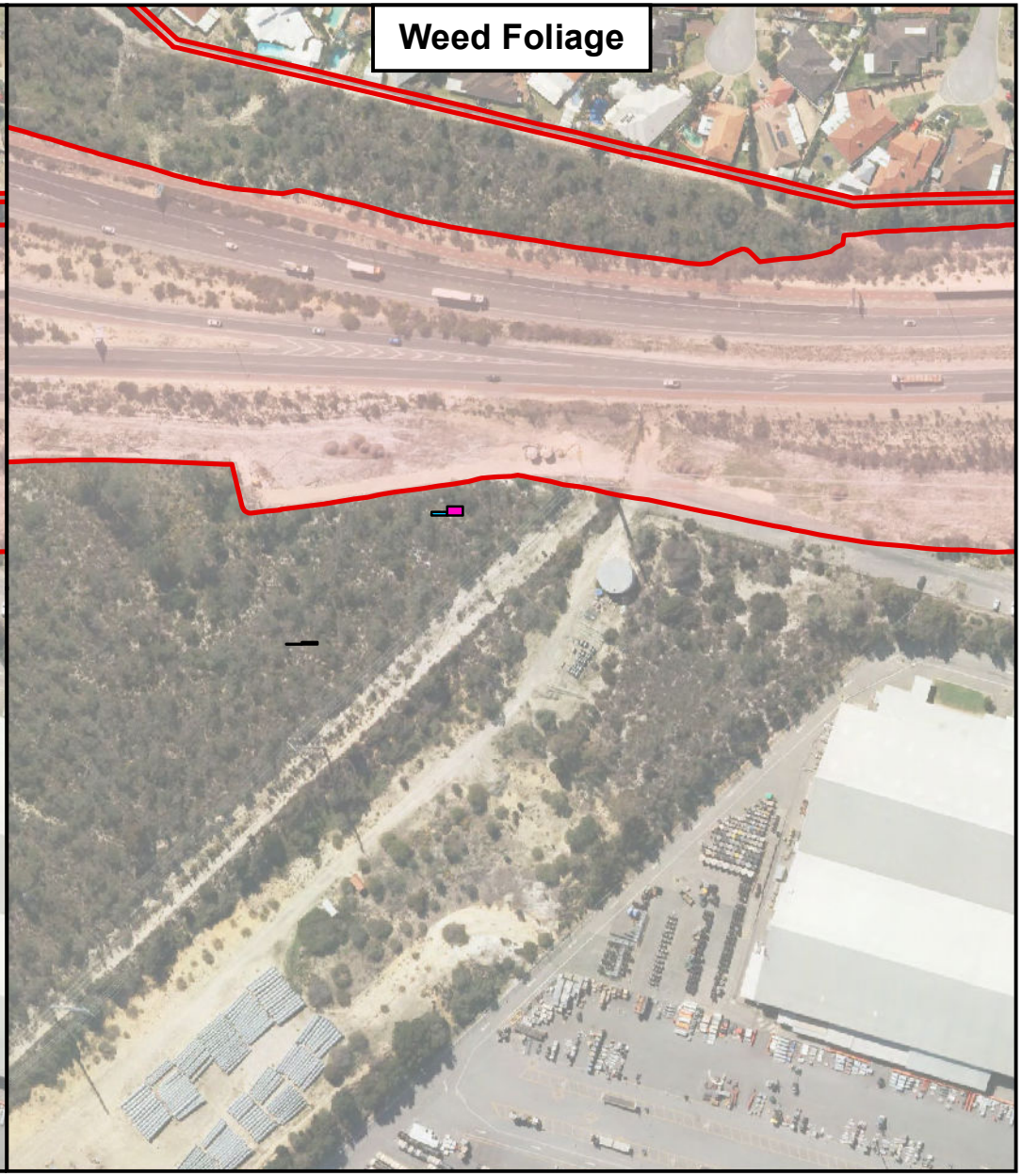

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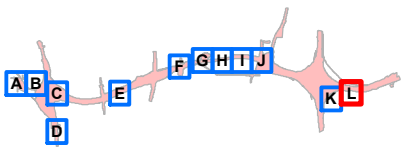

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Weed Change Over Time

Main Roads Western Australia

Vegetation Condition Monitoring Event 3
Roe Highway Rehabilitation Project

Figure
13L

Map Document: G:\Client_Data\MRIA\01_Building Roe 8\02_MXDs\20180226_QuadratFigures2017\Fig13_WeedChange.mxd (fotheringhamd)

A4 size

Appendix A

Buffer and Reference Quadrat Relationship

Appendix A – Buffer and Reference Quadrat Relationship

Vegetation Community[1]	Abbreviation	Quadrats
BaTs	BT1	B38, R37
	BT2	B40, R39
BiSiH	BS	B24, R23
BXpW	BX1	B06, R05
	BX2	B22, R21
CcBKgS	CBK1	B14, R13
	CBK2	B20, R19
CcXpDdS	CXD	B36, R35
CcXpMrS	CXM	B41, R42
EgXpS	EX1	B32, R31
	EX2	B34, R33
EmApS	EA	B27, R27
EmKgS	EmK	B16, R17
ErCtS	EC	B18, R17
ErMpAfS	EMA1	B10, R09
	EMA2	B12, R11
ErMpH	EM1	B02, R01
	EM2	B04, R03
EtKgS	EtK	B26, R25
JfKgE	JK	B30, R29
MpBaS	MB	B48, R49
MpKgS	MK	B08, R07
ErCtS	No associated buffer quadrat, located on fringe of wetland	R47[2]
MpBaS	No associated buffer quadrat, located on fringe of wetland	R46[2]
CcXpMrS	No reference quadrat, not close to any other quadrats	B43
BaNfW	No associated reference quadrat, located on fringe of community isolated to within the Project Area.	B44
ErMpGeS	No associated reference quadrat, supports Priority species. Located on fringe of community isolated to within the Project Area.	B45

1. Sourced from South Metro Connect (2011)

2. Not included in monitoring event 2 due to inundation

Appendix B

Species List by Family for Monitoring Event 1 and 2

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
Aizoaceae					
	*	*Carpobrotus edulis*	x	x	x
Anacardiaceae					
	*	*Schinus terebinthifolius*	x		
Anarthriaceae					
		Lyginia imberbis	x	x	x
Apiaceae					
		Apium annuum	x	x	x
		Eryngium pinnatifidum	x	x	x
		Pentapeltis peltigera		x	
		Xanthosia huegelii	x		
Araceae					
	*	*Zantedeschia aethiopica*	x	x	x
Araliaceae					
		Trachymene pilosa	x	x	x
Asparagaceae					
	*	*Asparagus asparagoides*			x
	*	*Lachenalia reflexa*	x	x	x
		Laxmannia squarrosa	x	x	x
		Lomandra ?caespitosa	x		
		Lomandra caespitosa	x	x	x
		Lomandra sp.		x	
		Lomandra hermaphrodita		x	x
		Lomandra maritima	x	x	x
		Lomandra micrantha		x	x
		Lomandra nigricans		x	x
		Lomandra sonderi		x	x
		Lomandra suaveolens	x	x	x
		Sowerbaea laxiflora	x	x	
		Thysanotus manglesianus	x	x	x
		Thysanotus patersonii	x	x	x
		Thysanotus sp.	x		
		Thysanotus sparteus	x		
		Thysanotus thyrsoideus	x		
Asphodelaceae					
	*	*Trachyandra divaricata*	x	x	
Asteraceae					
	*	*Arctotheca calendula*	x	x	x
	*	*Carduus pycnocephalus*		x	
	*	*Conyza bonariensis*		x	
		Cotula australis	x		
	*	*Gazania linearis*	x	x	x
	*	*Hypochaeris glabra*	x	x	x
	*	*Ixiolaena viscosa*	x	x	x
	*	*Lactuca serriola*	x		
	*	*Monoculus monstrosus*		x	
		Podolepis gracilis	x	x	x
		Podotheca angustifolia	x	x	
		Poranthera microphylla	x		
		Quinetia urvillei	x	x	
		Siloxerus humifusus	x	x	x
		Senecio sp.		x	
	*	*Sonchus asper*	x	x	x
	*	*Sonchus oleraceus*	x	x	
	*	*Sonchus* sp.		x	x

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
	*	*Trifolium scabrum*		x	
	*	*Ursinia anthemoides*	x	x	x
Campanulaceae					
		Lobelia anceps	x		
	*	*Wahlenbergia capensis*	x	x	x
		Wahlenbergia sp.		x	
Caryophyllaceae					
	*	*Cerastium glomeratum*		x	
		Petrorhagia dubia		x	x
	*	*Sagina maritima*		x	
	*	*Silene gallica*	x	x	x
	*	*Silene gallica* var. *gallica*		x	x
	*	*Stellaria media*		x	x
Casuarinaceae					
		Allocasuarina fraseriana	x	x	x
		Allocasuarina humilis	x	x	x
Celastraceae					
		Tripterococcus sp.		x	
		Tripterococcus brunonis		x	
Centrolepidaceae					
		Centrolepis polygyna	x	x	
Colchicaceae					
		Burchardia congesta	x	x	x
Commelinaceae					
		Cartonema philydroides		x	x
Convolvulaceae					
	*	*Ipomoea cairica*			x
Crassulaceae					
		Crassula colorata var. *colorata*	x	x	x
		Crassula decumbens	x	x	x
		Cycnogeton huegelii	x		
Cyperaceae					
		?Lepidosperma longitudinale		x	x
		Baumea articulata	x	x	x
		Baumea juncea	x	x	x
		Baumea sp.	x		
		Baumea preissii			x
	*	*Cyperus polystachyos*			x
		Cyperaceae sp.		x	
		Isolepis marginata	x	x	x
		Lepidosperma ?calcicola	x		
		Lepidosperma ?leptostachyum		x	
		Lepidosperma calcicola	x	x	x
		Lepidosperma leptostachyum	x	x	x
		Lepidosperma pubisquameum	x	x	x
		Lepidosperma squamatum	x	x	
		Mesomelaena pseudostygia	x	x	x
		Schoenus clandestinus	x	x	x
		Schoenus curvifolius	x	x	x
		Schoenus grandiflorus	x	x	
		Schoenus subfascicularis	x	x	x
		Tetraria octandra	x	x	x
	P2	*Tetraria* sp. Chandala (G.J. Keighery 17055)	x	x	x

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
Dasypogonaceae					
		Calectasia sp.		x	x
		Dasypogon bromeliifolius	x	x	x
Dennstaedtiaceae					
		Pteridium esculentum	x	x	x
Dillenaceae					
		Hibbertia aurea	x		
		Hibbertia cuneiformis		x	x
		Hibbertia huegelii	x	x	x
		Hibbertia hypericoides	x	x	x
		Hibbertia racemosa	x	x	x
		Hibbertia subvaginata	x	x	
Droseraceae					
		Drosera erythrorhiza		x	
		Drosera menziesii	x	x	x
		Drosera pachyrhiza		x	
		Drosera paleacea subsp. *paleacea*	x	x	x
		Drosera pallida			x
		Drosera porrecta	x	x	x
		Drosera sp. climbing		x	
Ericaceae					
		Astroloma ciliatum		x	x
		Brachyloma preissii	x	x	x
		Conostephium pendulum	x	x	x
		Leucopogon australis	x	x	x
		Leucopogon conostephioides	x	x	x
		Leucopogon propinquus	x	x	x
		Leucopogon sp.		x	x
Euphorbiaceae					
	*	*Euphorbia peplus*	x	x	x
	*	*Euphorbia terracina*	x	x	x
		Monotaxis grandiflora	x	x	x
		Monotaxis occidentalis		x	
Fabaceae					
		Acacia barbinervis			x
		Acacia cyclops	x	x	x
	*	*Acacia longifolia*	x	x	x
		Acacia pulchella var. *glaberrima*	x	x	x
		Acacia rostellifera	x	x	x
		Acacia saligna		x	
		Acacia sp.		x	x
		Acacia willdenowiana	x	x	x
		Bossiaea eriocarpa	x	x	x
		Daviesia decurrens	x		
		Daviesia divarcata		x	
		Daviesia hakeoides			x
		Daviesia nudiflora	x	x	x
		Daviesia triflora	x	x	x
		Fabaceae sp.		x	x
		Gompholobium tomentosum	x	x	x
		Gonocarpus pithyoides	x		
		Hardenbergia comptoniana	x	x	x
		Hovea pungens	x	x	x
		Hovea trisperma	x	x	x

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
		Hybanthus calycinus	x		
		Isotropis cuneifolia subsp. *cuneifolia*	x	x	x
		Jacksonia furcellata	x	x	x
Fabaceae	P3	*Jacksonia gracillima*	x	x	x
cont.		*Kennedia prostrata*	x	x	x
		Kennedia sp.		x	
	*	*Lotus angustissimus*	x	x	x
	*	*Lupinus cosentinii*	x	x	x
		Pultenaea reticulata	x	x	x
	*	*Trifolium arvense*	x	x	x
	*	*Trifolium arvense* var. *arvense*		x	
	*	*Trifolium campestre*	x	x	x
		Triglochin trichophora	x		
	*	*Vicia sativa*	x	x	
Geraniaceae					
	*	*Geranium molle*	x	x	x
	*	*Pelargonium capitatum*	x	x	x
Goodeniaceae					
		Dampiera linearis	x	x	x
	P3	*Dampiera triloba*	x	x	x
		Lechenaultia linarioides	x	x	x
		Scaevola canescens	x	x	x
Haemodoraceae					
		Anigozanthos manglesii	x	x	x
		Anigozanthus humilis		x	x
		Conostylis aculeata subsp. *aculeata*	x	x	x
		Conostylis aurea			x
		Conostylis juncea	x	x	x
		Conostylis setigera subsp. *setigera*	x	x	x
		Haemodorum laxum		x	x
		Phlebocarya ciliata	x	x	x
Hemerocallidaceae					
		Caesia micrantha	x	x	x
		Dianella revoluta var. *divaricata*	x	x	x
		Tricoryne elatior			x
		Tricoryne tenella	x	x	x
Iridaceae					
	*	*Freesia alba x leichtlinii*	x	x	x
	*	*Gladiolus caryophyllaceus*	x	x	x
	*	*Ixia maculata*	x		
		Patersonia occidentalis	x	x	x
	*	*Romulea rosea*	x	x	x
Juncaceae					
		Juncus pallidus	x		
Lamiaceae					
		Hemiandra pungens	x	x	x
Lauraceae					
		Cassytha flava	x	x	x
		Cassytha racemosa	x	x	x
		Cassytha sp.	x	x	x
Loganiaceae					
		Phyllangium divergens	x	x	x
		Phyllangium paradoxum		x	x
Loranthaceae					
		Nuytsia floribunda	x	x	x

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
Malvaceae					
	*	*Malva parviflora*	x		
Moraceae					
	*	*Ficus carica*	x	x	x
Myrtaceae					
		Astartea scoparia	x	x	x
		Beaufortia elegans	x	x	x
		Calytrix flavescens	x	x	x
		Corymbia calophylla	x	x	x
		Eremaea pauciflora	x	x	x
		Eucalyptus gomphocephala	x	x	x
		Eucalyptus marginata	x	x	x
		Eucalyptus rudis subsp. *rudis*	x	x	x
		Eucalyptus sp.	x	x	
		Eucalyptus todtiana	x	x	x
		Hypocalymma robustum	x	x	x
		Kunzea glabrescens	x	x	x
		Melaleuca preissiana	x	x	x
		Melaleuca rhaphiophylla	x	x	x
		Melaleuca systena		x	x
		Melaleuca teretifolia	x		
		Melaleuca thymoides	x	x	x
		Regelia inops	x	x	x
		Scholtzia involucrata	x	x	x
		Taxandria linearifolia	x	x	x
Oleaceae					
	*	*Olea europaea*	x	x	x
Orchidaceae					
		Caladenia arenicola	x	x	
		Caladenia flava	x	x	x
		Caladenia latifolia	x	x	
		Caladenia sp.		x	x
	*	*Disa bracteata*	x	x	x
	*	*Dischisma capitatum*	x		
		Diuris corymbosa			x
		Diuris magnifica	x	x	
		Diuris sp.		x	x
		Eriochilus dilatatus	x		
		Microtis media	x	x	x
		Orchidaceae sp		x	x
		Pterotylis sp.		x	x
		Pyrorchis nigricans	x	x	x
		Thelymitra graminea	x	x	
Orobanchaceae					
	*	*Orobanche minor*	x	x	x
	*	*Parentucellia latifolia*		x	x
	*	*Paspalum dilatatum*	x		
Oxalidaceae					
	*	*Oxalis pes-caprae*	x	x	x
Papaveraceae					
	*	*Fumaria capreolata*	x	x	x
	*	*Fumaria* sp.		x	
Phyllanthaceae					
		Phyllanthus calycinus	x	x	x

Appendix B - Species List by Family for ME1, ME2 and ME3

Family		Taxon	ME1	ME2	ME3
Poaceae					
	*	*Aira cupaniana*	x	x	x
		Amphipogon amphipogonoides		x	x
		Amphipogon turbinatus	x	x	
		Aristida holathera		x	x
		Austrostipa compressa		x	
		Austrostipa semibarbata	x	x	x
	*	*Avena barbata*	x	x	x
	*	*Briza maxima*	x	x	x
	*	*Briza minor*	x	x	x
	*	*Bromus diandrus*	x	x	x
	*	*Cenchrus clandestinus*	x	x	
	*	*Cynodon dactylon*	x	x	x
	*	*Ehrharta calycina*	x	x	x
	*	*Ehrharta longiflora*	x	x	x
	*	*Erodium botrys*		x	x
	*	*Erodium cicutarium*	x	x	x
	*	*Holcus lanatus*	x		
	*	*Lagurus ovatus*	x	x	x
	*	*Lolium rigidum*	x	x	x
	*	*Vulpia myuros*	x	x	x
	*	*Vulpia* sp.		x	
Polygonaceae					
		Muehlenbeckia adpressa	x	x	x
Portulacaceae					
		Calandrinia corrigioloides	x		
		Calandrinia granulifera	x	x	
		Calandrinia tholiformis	x	x	
Primulaceae					
	*	*Lysimachia arvensis*	x	x	x
Proteaceae					
		Banksia attenuata	x	x	x
		Banksia dallanneyi var. *dallanneyi*	x	x	x
		Banksia grandis	x	x	x
		Banksia ilicifolia	x	x	x
		Banksia littoralis	x	x	x
		Banksia menziesii	x	x	x
		Banksia sp.		x	
		Hakea prostrata	x	x	x
		Persoonia saccata		x	x
		Petrophile linearis	x	x	x
	*	*Petrorhagia dubia*		x	x
		Stirlingia latifolia	x	x	x
		Xylomelum occidentale	x	x	x
Restionaceae					
		Alexgeorgea nitens		x	x
		Desmocladus asper	x	x	x
		Desmocladus flexuosus	x	x	x
		Lepidobolus preissianus subsp. *preissianus*			x
Rubiaceae			x	x	
	*	*Galium murale*	x	x	x
		Opercularia echinocephala		x	x
		Opercularia vaginata	x	x	x
Rutaceae					
		Philotheca spicata	x		

Appendix B - Species List by Family for ME1, ME2 and ME3

Family	Taxon	ME1	ME2	ME3
Scrophulariaceae				
*	*Dischisma capitatum*		x	x
Stylidiaceae				
	Levenhookia pusilla		x	x
	Levenhookia stipitata		x	x
	Stylidium brunonianum	x	x	x
	Stylidium piliferum	x	x	x
	Stylidium repens	x	x	x
	Stylidium schoenoides	x		
Thymelaeaceae				
	Pimelea rosea subsp. *rosea*	x	x	x
Xanthorrhoea				
	Chamaescilla corymbosa	x	x	x
	Xanthorrhoea brunonis	x	x	x
	Xanthorrhoea preissii	x	x	x
	Xanthorrhoea sp.		x	
Zamiaceae				
	Macrozamia fraseri	x	x	x
	Macrozamia riedlei		x	x

Appendix C

Trigger Assessment

Community BiSiH (abbreviated to BS)

Quadrat	B24		
Parameter	ME1	ME2	ME3
Species richness	2	3	2
Native density /m2	0.16	4.27	0.15
Native foliage	25.10	30.50	5.00
Weed density	4.73	107.25	113.75
Weed foliage	78.10	80.40	72.00
Soil moisture	3.90	4.10	3.30

ME	Indicators (n)	Decline	No Change	Improved
ME2	1	0	0	1
ME3	1	1	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	OK
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	OK
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	OK	Exceeded

Quadrat	R23		
Parameter	ME1	ME2	ME3
Species richness	2	2	5
Native density/m2	10.70	17.25	0.77
Native foliage	65.10	40.05	49.00
Weed density	21.69	79.25	140.75
Weed foliage	46.40	83.15	74.00
Soil moisture	2.40	4.70	4.90

ME	Indicators total	Decline	No Change	Improved
ME2	1	1	0	0
ME3	1	1	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	Exceeded	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community BaTs (abbreviated to BT1)

Quadrat	B38		
Parameter	ME1	ME2	ME3
Species richness	39	56	48
Native density/m2	7.66	25.41	26.87
Native foliage	59.00	74.60	67.2
Weed density	1.10	5.75	5.0
Weed foliage	0.50	1.02	1.20
Soil moisture	2.60	3.30	1.20

ME	Indicators (n)	Decline	No Change	Improved
ME2	6	2	1	3
ME3	6	2	3	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	OK	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Lower	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R37		
Parameter	ME1	ME2	ME3
Species richness	43	54	48
Native density	5.37	24.74	33.31
Native foliage/m2	53.00	59.30	57.3
Weed density	0.27	5.50	0.75
Weed foliage	0.20	0.60	0.40
Soil moisture	1.80	2.90	1.50

ME	Indicators total	Decline	No Change	Improved
ME2	8	4	2	2
ME3	8	3	3	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community BaTs (abbreviated to BT2)

Quadrat	B40		
Parameter	ME1	ME2	ME3
Species richness	34	47	36
Native density/m2	4.28	20.70	16.99
Native foliage	96.80	58.70	62.00
Weed density	3.54	35.25	25.50
Weed foliage	3.40	6.60	8.50
Soil moisture	2.30	2.60	3.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	9	4	3	2
ME3	9	3	3	3

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R39		
Parameter	ME1	ME2	ME3
Species richness	36	49	38
Native density/m2	5.55	25.64	15.84
Native foliage	58.40	57.10	58.40
Weed density	3.66	26.00	30.00
Weed foliage	0.60	2.70	2.40
Soil moisture	2.30	3.10	1.70

ME	Indicators total	Decline	No Change	Improved
ME2	8	2	3	3
ME3	8	3	3	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community BXpW (abbreviated to BX1)

Quadrat	B06		
Parameter	ME1	ME2	ME3
Species richness	16	24	22
Native density/m2	1.98	12.25	7.99
Native foliage	77.80	100.51	108.90
Weed density	13.59	49.25	61.00
Weed foliage	23.50	17.28	25.50
Soil moisture	2.70	3.50	1.20

ME	Indicators (n)	Decline	No Change	Improved
ME2	5	1	2	2
ME3	5	1	1	3

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	OK
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R05		
Parameter	ME1	ME2	ME3
Species richness	16	22	18
Native density/m2	1.08	7.55	8.01
Native foliage	35.90	32.50	67.40
Weed density	4.53	47.05	32.27
Weed foliage	60.70	48.69	33.60
Soil moisture	2.90	3.80	1.00

ME	Indicators total	Decline	No Change	Improved
ME2	5	3	1	2
ME3	5	1	3	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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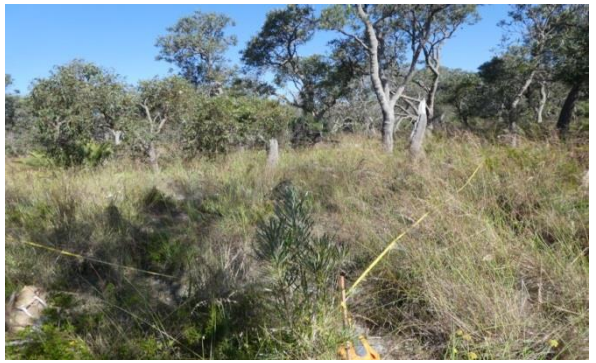

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Community BXpW (abbreviated to BX2)

Quadrat	B22		
Parameter	ME1	ME2	ME3
Species richness	26	34	29
Native density/m2	4.10	10.10	12.59
Native foliage	71.60	77.47	72.10
Weed density	1.47	14.00	25.50
Weed foliage	3.50	0.79	8.90
Soil moisture	3.10	3.10	1.30

ME	Indicators (n)	Decline	No Change	Improved
ME2	5	3	0	2
ME3	5	3	1	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	OK
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	OK	Exceeded
Trigger 3: W foliage /reference	Exceeded	OK

Quadrat	R21		
Parameter	ME1	ME2	ME3
Species richness	28	32	28
Native density/m2	25.35	19.03	19.29
Native foliage	86.90	52.04	95.10
Weed density	5.79	16.50	25.50
Weed foliage	18.50	5.79	8.90
Soil moisture	4.00	4.10	0.00

ME	Indicators total	Decline	No Change	Improved
ME2	8	3	4	1
ME3	8	1	5	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	Exceeded
Trigger 3: W foliage /reference		

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Community CcBKgS (abbreviated to CBK1)

Quadrat	B14		
Parameter	ME1	ME2	ME3
Species richness	12	17	18
Native density/m2	0.74	6.85	8.63
Native foliage	76.30	95.30	84.60
Weed density	0.11	4.26	0.51
Weed foliage	6.20	20.50	22.00
Soil moisture	5.40	23.20	4.90

ME	Indicators (n)	Decline	No Change	Improved
ME2	6	1	3	2
ME3	6	4	1	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R13		
Parameter	ME1	ME2	ME3
Species richness	8	11	10
Native density/m2	0.70	2.25	2.86
Native foliage	120.30	81.30	75.20
Weed density	0.16	0.54	0.00
Weed foliage	0.40	1.41	3.10
Soil moisture	4.20	21.00	5.90

ME	Indicators total	Decline	No Change	Improved
ME2	4	2	1	1
ME3	4	3	0	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	OK
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community CcBKgS (abbreviated to CBK2)

Quadrat	B20		
Parameter	ME1	ME2	ME3
Species richness	7	7	9
Native density/m2	3.28	23.03	8.27
Native foliage	91.40	82.81	19.20
Weed density	20.08	39.50	71.75
Weed foliage	10.20	12.52	22.60
Soil moisture	2.70	3.30	0.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	2	1	1	0
ME3	2	1	1	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	Exceeded	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R19		
Parameter	ME1	ME2	ME3
Species richness	10	10	8
Native density/m2	1.61	1.92	0.08
Native foliage	31.70	45.30	48.30
Weed density	54.79	133.26	250.75
Weed foliage	83.30	56.44	64.80
Soil moisture	2.40	2.50	3.50

ME	Indicators total	Decline	No Change	Improved
ME2	3	0	0	3
ME3	3	0	1	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community CcXpDdS (abbreviated to CXD)

Quadrat	B36		
Parameter	ME1	ME2	ME3
Species richness	13	14	14
Native density/m2	0.26	1.98	2.98
Native foliage	34.60	35.88	53.00
Weed density	3.52	31.00	25.25
Weed foliage	81.20	81.03	64.90
Soil moisture	3.30	3.00	3.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	6	3	1	2
ME3	6	2	4	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R35		
Parameter	ME1	ME2	ME3
Species richness	8	11	13
Native density/m2	0.18	1.11	2.98
Native foliage	50.40	48.29	53.20
Weed density	10.23	49.51	91.50
Weed foliage	83.90	62.27	27.70
Soil moisture	3.30	3.20	3.10

ME	Indicators total	Decline	No Change	Improved
ME2	3	2	1	0
ME3	3	3	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	Exceeded	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community CcXpMrS (abbreviated to CXM)

Quadrat	B41		
Parameter	ME1	ME2	ME3
Species richness	24	27	21
Native density/m2	5.40	10.65	11.70
Native foliage	57.81	40.61	36.80
Weed density	3.80	49.25	35.50
Weed foliage	9.00	14.70	17.60
Soil moisture	3.40	3.50	1.90

ME	Indicators (n)	Decline	No Change	Improved
ME2	5	2	1	2
ME3	5	3	0	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R42		
Parameter	ME1	ME2	ME3
Species richness	19	21	27
Native density/m2	2.15	6.86	3.41
Native foliage	36.10	32.90	54.90
Weed density	4.71	65.25	24.75
Weed foliage	21.60	17.50	14.90
Soil moisture	2.70	3.90	2.20

ME	Indicators total	Decline	No Change	Improved
ME2	5	2	0	3
ME3	5	3	1	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community EmApS (abbreviated to EA)

Quadrat	B28		
Parameter	ME1	ME2	ME3
Species richness	12	14	13
Native density/m2	0.34	0.56	2.39
Native foliage	34.30	73.21	53.6
Weed density	24.89	39.75	55.00
Weed foliage	31.70	27.52	30.20
Soil moisture	2.50	4.10	1.40

ME	Indicators (n)	Decline	No Change	Improved
ME2	6	2	2	2
ME3	6	4	2	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	OK	Exceeded

Quadrat	R27		
Parameter	ME1	ME2	ME3
Species richness	22	24	23
Native density/m2	1.19	18.19	7.60
Native foliage	55.50	73.78	56.60
Weed density	12.16	50.25	51.75
Weed foliage	20.80	25.94	25.5
Soil moisture	3.20	3.40	2.20

ME	Indicators total	Decline	No Change	Improved
ME2	6	2	2	2
ME3	6	4	1	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community ErCtS (abbreviated to EC)

Quadrat	B18		
Parameter	ME1	ME2	ME3
Species richness	10	14	14
Native density/m2	11.67	9.33	52.52
Native foliage	125.20	124.64	124.3
Weed density	0.05	0.00	0.00
Weed foliage	0.10	0.50	0.00
Soil moisture	20.00	21.70	26.10

ME	Indicators (n)	Decline	No Change	Improved
ME2	7	3	3	1
ME3	7	3	3	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	OK
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	OK	Exceeded
Trigger 3: W density /reference	OK	OK
Trigger 3: W foliage /baseline	Exceeded	OK
Trigger 3: W foliage /reference	OK	Exceeded

Quadrat	R17		
Parameter	ME1	ME2	ME3
Species richness	11	12	11
Native density/m2	16.52	31.08	23.07
Native foliage	157.30	172.40	149.80
Weed density	0.04	0.00	101.37
Weed foliage	0.10	0.50	1.00
Soil moisture	20.00	24.80	16.20

ME	Indicators total	Decline	No Change	Improved
ME2	6	3	1	2
ME3	6	2	3	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	OK	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community ErMpH (abbreviated to EM1)

Quadrat	B02		
Parameter	ME1	ME2	ME3
Species richness	4	2	2
Native density/m2	0.07	0.06	0.04
Native foliage	1.00	0.90	31
Weed density	30.78	62.25	187.50
Weed foliage	107.20	105.60	96.10
Soil moisture	16.00	22.20	7.50

ME	Indicators (n)	Decline	No Change	Improved
ME2	0	0	0	0
ME3	0	0	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference	OK	Exceeded
Trigger 2: Plant health	NA	NA
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R01		
Parameter	ME1	ME2	ME3
Species richness	3	2	2
Native density/m2	0.08	0.26	0.75
Native foliage	0.30	0.20	1.00
Weed density	28.20	42.00	22.25
Weed foliage	125.00	111.51	107.10
Soil moisture	17.00	22.60	14.70

ME	Indicators total	Decline	No Change	Improved
ME2	0	0	0	0
ME3	0	0	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	NA	NA
Trigger 3: W density /baseline	Exceeded	OK
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community ErMpH (abbreviated to EM2)

Quadrat	B04		
Parameter	ME1	ME2	ME3
Species richness	7	7	5
Native density/m2	0.20	0.59	0.41
Native foliage	95.60	85.65	89.50
Weed density	14.76	18.01	37.02
Weed foliage	48.70	60.13	41.30
Soil moisture	2.60	3.20	4.50

ME	Indicators (n)	Decline	No Change	Improved
ME2	5	0	4	1
ME3	5	2	2	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R03		
Parameter	ME1	ME2	ME3
Species richness	5	4	4
Native density/m2	0.72	0.28	0.71
Native foliage	79.20	78.05	34.00
Weed density	11.62	66.55	63.02
Weed foliage	75.50	79.33	77.90
Soil moisture	2.70	4.40	3.7

ME	Indicators total	Decline	No Change	Improved
ME2	3	1	2	0
ME3	3	3	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	OK
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	Exceeded	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community ErMpAfS (abbreviated to EMA1)

Quadrat	B10		
Parameter	ME1	ME2	ME3
Species richness	3	4	3
Native density/m2	3.12	0.84	1.42
Native foliage	87.00	112.01	115.00
Weed density	6.07	18.56	5.06
Weed foliage	95.00	130.00	115.00
Soil moisture	23.00	0.00	0.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	3	1	1	1
ME3	3	1	1	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	OK
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	OK
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R09		
Parameter	ME1	ME2	ME3
Species richness	8	7	6
Native density/m2	4.73	73.32	125.32
Native foliage	121.20	104.00	148.00
Weed density	0.40	0.96	0.46
Weed foliage	15.00	30.00	52.00
Soil moisture	55.00	0.00	0.00

ME	Indicators total	Decline	No Change	Improved
ME2	6	2	0	3
ME3	3	2	1	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community ErMpAfS (abbreviated to EMA2)

Quadrat	B12		
Parameter	ME1	ME2	ME3
Species richness	9	10	9
Native density/m2	11.18	36.62	62.65
Native foliage	168.30	249.24	214.3
Weed density	0.17	0.40	0.00
Weed foliage	2.20	7.20	5.00
Soil moisture	23.00	0.00	0.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	6	1	0	5
ME3	6	1	4	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	OK
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R11		
Parameter	ME1	ME2	ME3
Species richness	7	7	7
Native density/m2	15.07	36.80	98.83
Native foliage	156.00	136.00	158.00
Weed density	0.15	0.02	0.00
Weed foliage	0.20	2.50	0.00
Soil moisture	23.00	0.00	0.00

ME	Indicators total	Decline	No Change	Improved
ME2	6	3	2	1
ME3	6	3	2	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	OK	OK
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	OK
Trigger 3: W foliage /reference		

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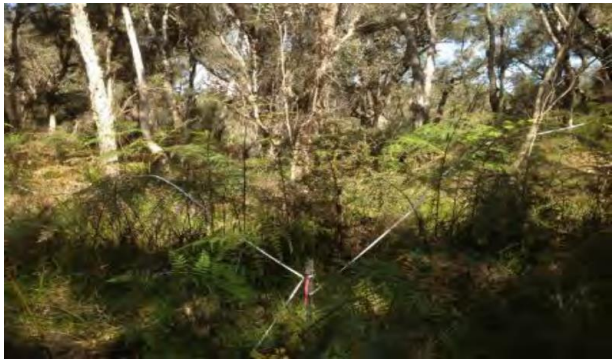

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Community EmKgS (abbreviated to EmK)

Quadrat	B16		
Parameter	ME1	ME2	ME3
Species richness	2	3	2
Native density/m2	1.50	13.00	1.75
Native foliage	0.20	4.31	0.13
Weed density	11.60	138.00	68.50
Weed foliage	44.30	115.62	28.20
Soil moisture	3.50	3.20	2.40

ME	Indicators (n)	Decline	No Change	Improved
ME2	0	0	0	0
ME3	0	0	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	NA	NA
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	Exceeded	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R15		
Parameter	ME1	ME2	ME3
Species richness	8	16	9
Native density/m2	0.86	30.87	9.87
Native foliage	20.60	39.62	36.6
Weed density	11.69	123.25	0.04
Weed foliage	34.70	4.40	29.30
Soil moisture	2.70	3.80	3.00

ME	Indicators total	Decline	No Change	Improved
ME2	2	0	1	1
ME3	2	1	1	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	Exceed
Trigger 3: W density /baseline	Exceeded	OK
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community EtKgS (abbreviated to EtK)

Quadrat	B26		
Parameter	ME1	ME2	ME3
Species richness	4	4	4
Native density/m2	0.15	0.16	0.08
Native foliage	42.20	62.10	44.20
Weed density	14.19	103.80	92.59
Weed foliage	38.40	100.17	49.10
Soil moisture	3.40	3.10	2.80

ME	Indicators (n)	Decline	No Change	Improved
ME2	2	1	0	1
ME3	2	1	1	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	OK	Exceeded

Quadrat	R25		
Parameter	ME1	ME2	ME3
Species richness	3	1	4
Native density/m2	2.15	1.25	29.25
Native foliage	15.20	75.00	35.90
Weed density	6.27	142.00	94.25
Weed foliage	15.10	95.31	22.00
Soil moisture	2.40	3.80	1.00

ME	Indicators total	Decline	No Change	Improved
ME2	1	0	0	1
ME3	1	0	0	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

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Community EgXpS (abbreviated to EX1)

Quadrat	B32		
Parameter	ME1	ME2	ME3
Species richness	15	15	13
Native density/m2	1.32	3.13	7.49
Native foliage	84.90	83.40	69.30
Weed density	17.14	95.50	73.00
Weed foliage	23.01	82.70	47.2
Soil moisture	2.90	3.10	1.70

ME	Indicators (n)	Decline	No Change	Improved
ME2	4	1	0	3
ME3	4	3	1	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R31		
Parameter	ME1	ME2	ME3
Species richness	19	25	22
Native density/m2	12.45	46.92	27.74
Native foliage	33.10	25.90	32.55
Weed density	8.49	87.01	58.75
Weed foliage	18.50	15.10	22.00
Soil moisture	3.20	4.80	1.00

ME	Indicators total	Decline	No Change	Improved
ME2	3	2	1	0
ME3	3	1	2	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference		
Trigger 2: Plant health	Exceeded	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	Exceeded
Trigger 3: W foliage /reference		

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Community EgXpS2 (abbreviated to EX2)

Quadrat	B34		
Parameter	ME1	ME2	ME3
Species richness	2	4	3
Native density/m2	0.37	1.79	2.01
Native foliage	20.00	35.30	40.5
Weed density	15.08	28.75	27.75
Weed foliage	70.40	106.80	45.5
Soil moisture	1.70	2.00	2.4

ME	Indicators (n)	Decline	No Change	Improved
ME2	2	0	0	2
ME3	2	0	0	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference	Exceeded	Exceeded
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	OK
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R33		
Parameter	ME1	ME2	ME3
Species richness	6	8	7
Native density/m2	.41	2.82	12.06
Native foliage	9.30	8.50	13.7
Weed density	11.39	71.50	89
Weed foliage	85.90	91.30	54.9
Soil moisture	3.50	4.70	1.7

ME	Indicators total	Decline	No Change	Improved
ME2	2	0	2	0
ME3	2	1	0	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	Exceeded	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference		

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Community JfKgE (abbreviated to JK)

Quadrat	B30		
Parameter	ME1	ME2	ME3
Species richness	1	0	Not monitored
Native density/m2	0.60		
Native foliage	0.10	0.00	
Weed density	7.77	148.81	
Weed foliage	76.60	90.92	
Soil moisture	3.50	0.00	

ME	Indicators (n)	Decline	No Change	Improved
ME2	0	0	0	0
ME3	Not monitored			

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Not monitored
Trigger 1: N density /reference	Exceeded	
Trigger 1: N foliage /baseline	Exceeded	
Trigger 1: N foliage /reference	OK	
Trigger 2: Plant health	NA	
Trigger 3: W density /baseline	Exceeded	
Trigger 3: W density /reference	Exceeded	
Trigger 3: W foliage /baseline	Exceeded	
Trigger 3: W foliage /reference	Exceeded	

Quadrat	R29		
Parameter	ME1	ME2	ME3
Species richness	1	0	Not monitored
Native density/m2	1.00		
Native foliage	0.10		
Weed density	4.76	72.00	
Weed foliage	72.40	82.78	
Soil moisture	3.50	0.00	

ME	Indicators total	Decline	No Change	Improved
ME2	0	0	0	0
ME3	Not monitored			

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Not monitored
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	
Trigger 1: N foliage /reference		
Trigger 2: Plant health	NA	
Trigger 3: W density /baseline	Exceeded	
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	
Trigger 3: W foliage /reference		

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Community MpBaS (abbreviated to MB)

Quadrat	B48		
Parameter	ME1	ME2	ME3
Species richness	35	45	40
Native density/m2	3.25	20.74	13.94
Native foliage	76.61	54.50	55.41
Weed density	1.23	36.76	14.00
Weed foliage	2.40	7.60	4.70
Soil moisture	2.10	2.80	1.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	8	4	3	1
ME3	8	6	2	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	OK	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	OK	Exceeded
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	Exceeded	Exceeded

Quadrat	R49		
Parameter	ME1	ME2	ME3
Species richness	24	34	45
Native density/m2	2.13	29.59	10.85
Native foliage	68.40	44.10	44.40
Weed density	5.67	75.00	40.50
Weed foliage	5.90	5.22	7.70
Soil moisture	1.60	2.70	2.30

ME	Indicators total	Decline	No Change	Improved
ME2	7	3	2	2
ME3	7	5	1	1

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	OK	Exceeded
Trigger 3: W foliage /reference		

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Community MpKgS (abbreviated to MK)

Quadrat	B08		
Parameter	ME1	ME2	ME3
Species richness	7	10	7
Native density/m2	0.21	0.47	1.68
Native foliage	76.30	95.93	45.30
Weed density	27.56	85.75	88.5
Weed foliage	82.30	72.58	64.00
Soil moisture	2.30	4.10	3.10

ME	Indicators (n)	Decline	No Change	Improved
ME2	3	1	0	2
ME3	3	1	2	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	Exceeded	Exceeded
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	OK	Exceeded
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	Exceeded	Exceeded
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	OK	Exceeded

Quadrat	R07		
Parameter	ME1	ME2	ME3
Species richness	12	10	10
Native density/m2	1.23	8.60	6.34
Native foliage	62.40	81.00	79.50
Weed density	4.17	37.75	75.25
Weed foliage	12.40	22.63	19.20
Soil moisture	2.60	3.40	2.40

ME	Indicators total	Decline	No Change	Improved
ME2	6	1	0	5
ME3	6	3	1	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference		
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference		
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference		
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference		

2015

2016

2017

2015

2016

2017

Community CcXpMrS

Quadrat	B43		
Parameter	**ME1**	**ME2**	**ME3**
Species richness	18	18	18
Native density/m2	0.97	2.46	2.49
Native foliage	82.70	82.56	106.20
Weed density	12.30	37.00	60.00
Weed foliage	34.60	36.85	30.70
Soil moisture	3.00	3.70	1.50

ME	Indicators (n)	Decline	No Change	Improved
ME2	7	2	1	4
ME3	7	1	6	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	NA	NA
Trigger 1: N foliage /baseline	OK	Exceeded
Trigger 1: N foliage /reference	NA	NA
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	NA	NA
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	NA	NA

2015

2016

2017

Community BaNfW

Quadrat	B44		
Parameter	**ME1**	**ME2**	**ME3**
Species richness	6	4	2
Native density/m2	1.54	1.56	7.55
Native foliage	20.50	30.54	20.20
Weed density	41.44	99.75	210.50
Weed foliage	96.30	72.18	68.60
Soil moisture	2.40	3.60	2.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	1	0	0	1
ME3	1	1	0	0

Trigger	ME2	ME3
Trigger 1: N density /baseline	OK	Exceeded
Trigger 1: N density /reference	NA	NA
Trigger 1: N foliage /baseline	Exceeded	OK
Trigger 1: N foliage /reference	NA	NA
Trigger 2: Plant health	OK	Exceeded
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	NA	NA
Trigger 3: W foliage /baseline	OK	OK
Trigger 3: W foliage /reference	NA	NA

2015

2016

2017

Community ErMpGeS

Quadrat	B45		
Parameter	**ME1**	**ME2**	**ME3**
Species richness	17	31	22
Native density/m2	5.09	16.54	18.50
Native foliage	43.10	70.60	60.20
Weed density	4.43	32.50	14.25
Weed foliage	2.70	10.70	4.90
Soil moisture	2.40	3.80	4.00

ME	Indicators (n)	Decline	No Change	Improved
ME2	5	1	1	3
ME3	5	0	3	2

Trigger	ME2	ME3
Trigger 1: N density /baseline	Exceeded	Exceeded
Trigger 1: N density /reference	NA	NA
Trigger 1: N foliage /baseline	Exceeded	Exceeded
Trigger 1: N foliage /reference	NA	NA
Trigger 2: Plant health	OK	OK
Trigger 3: W density /baseline	Exceeded	Exceeded
Trigger 3: W density /reference	NA	NA
Trigger 3: W foliage /baseline	Exceeded	Exceeded
Trigger 3: W foliage /reference	NA	NA

2015

2016

2017

Appendix D

Quadrat Details

Appendix D – Quadrat Details

1.1 Legend

- Each quadrat shows the complete species list as recorded in ME1, ME2 and ME3.
- All numerical data such asheight, foliage, plants/m2 and sub-quadrat data represents ME3 results
- 1A: sub-quadrat 1 adults, 1J: sub-quadrat 1 juveniles etc.
- Height is in centimetres (cm)
- Foliage is in percentage
- Count shows method of data collection, 100m^2 are counts taken within the quadrat, 4m^2 are counts taken within four sub-quadrats
- Plants that have no data under plants/m^2 were not recorded in 2017

Quadrat B02	Easting: 389051	Northing: 6449770	Date: 01/11//2017
Condition: Completely degraded		**Vegetation Type and Habitat**: ErMpH, Flat	
Comments: Repegged in 2016 and again in 2017. Likely to have moved. Juncus and Euc sp. are likely to have died off as evident from empty bags.			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Banksia littoralis	50	1	100m2	0.02								
Eucalyptus sp.	40											
Juncus pallidus	90											
Melaleuca preissiana	50	30	100m2	0.02								
*Avena barbata**	100	5	4m2	8	30		1				1	
*Bromus diandrus**	60	50	4m2	150	200		200				200	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
*Cenchrus clandestinus**	50											
*Euphorbia terracina**	50											
*Hypochaeris glabra**	30											
*Malva parviflora**	50											
*Sonchus oleraceus**	50											
*Vicia sativa**	50	15	4m2	3.75			7				8	
*Cynodon dactylon**	20	25	4m2	25					100			
*Carduus pycnocephalus**	Cl											
*Cyperus polystachyos**	80	0.1	4m2	0.25			1					
*Ipomoea cairica**	Cl	1	4m2	0.5			2					

Quadrat: B04	Easting: 389264	Northing: 6449788	Date: 31/10/2017
Condition: Degraded		**Vegetation Type and Habitat**: ErMpH, Flat	
Comments: Repegged in 2016 and 2017. Likely to have moved. Hibbertia racemosa was not recorded, likely to have meant H. cuneiformis.			

Taxon	Height (cm)	H 16	H 17	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia cyclops	70	70	70	0.3	100m2	0.01								
Caladenia latifolia	40	40												
Corymbia calophylla	1200	1200	1200	85	100m2	0.13								
Dianella revoluta var. divaricata	40	40	40	0.1	100m2	0.02								
Hibbertia cuneiformis				4	100m2	0.25								
Hibbertia racemosa	150													
Macrozamia fraseri	20	20												
Microtis media	40	40	40	0.1										
Avena barbata*				1	4m2	1.25					5			
Bromus diandrus*	40	40	40	0.5	4m2	1			4					
Hypochaeris glabra*				1	4m2	7.5	30							
Acacia longifolia*	300	300	300	8	100m2	0.02								
Briza maxima*	30	30	30	0.2										
Carpobrotus edulis*	20	20	20	20	4m2	2.75	4		7					
Disa bracteata*	20	20	20	2	4m2	3.75					15			
Ehrharta calycina*	50	50	50	5	4m2	5.25	9				6		6	
Ehrharta longiflora*	40	40	40	1	4m2	5					20			
Gladiolus caryophyllaceus*	40	40												
Lachenalia reflexa*	20	20	20	2	4m2	8.75		12					23	

Taxon	Height (cm)	H 16	H 17	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Romulea rosea*	20	20												
Zantedeschia aethiopica*	20	20	20	0.5										
Wahlenbergia capensis*	10			0.1	4m2	1.75	7							

Quadrat: B06	Easting: 389626	Northing: 6449817	Date: 01/11/2017
Condition: Very Good		**Vegetation Type and Habitat**: BXpW, Flat	
Comments: Repegged in 2016 and 2017. Likely to have moved slightly. Lots of Hibbertia hypericoides so count is estimate only. Daviesia decurrens is actually Daviesia triflora.			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	120	8	100m2	0.33			2				2	
Apium annuum	5	7	4m2	0.25	1							
Austrostipa compressa												
Banksia attenuata	700	30	100m2	0.04								
Banksia menziesii	600	12	100m2	0.01								
Briza maxima*	40	2	4m2	18.75	20				50		5	
Briza minor*	20											
Burchardia congesta	60	0.2	4m2	1	2						2	
Carpobrotus edulis*	20											
Daviesia decurrens	50											
Daviesia triflora		1	100m2	0.02								
Desmocladus flexuosus	30	1.5										
Disa bracteata*												
Ehrharta calycina*	100	18	4m2	4.5	3		7		5		3	
Ehrharta longiflora*	40											
Gladiolus caryophyllaceus*	100											
Gompholobium tomentosum		0.3	100m2	0.01								
Hardenbergia comptoniana	100	1	4m2	0.25								1

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Hibbertia hypericoides	60	40	4m2	1.25	1		1		1		2	
Hypocalymma robustum		1	100m2	0.02								
Hypochaeris glabra*	10	5	4m2	37.5	50		70		30			
Kunzea glabrescens	180	0.5	4m2	0.75						3		
Lepidosperma pubisquameum	40	0.5										
Leucopogon conostephioides												
Lomandra caespitosa	30	0.2	4m2	0.25							1	
Macrozamia fraseri		0.3										
Mesomelaena pseudostygia	40	1										
Microtis media		0.7										
Patersonia occidentalis	40	1	100m2	0.01								
Petrophile linearis	30	0.4	100m2	0.04								
Sonchus oleraceus*												
Stirlingia latifolia	50											
Stylidium brunonianum												
Thysanotus patersonii	20	0.1	4m2	0.25							1	
Trachymene pilosa	20	0.2	4m2	3.5	4				10			
Xanthorrhoea preissii		2	100m2	0.01								
Zantedeschia aethiopica*	40	0.5	4m2	0.25								1

Quadrat: B08	Easting: 389741	Northing: 6449832	Date: 31/10/2017
Condition: Degraded		**Vegetation Type and Habitat**: MpKgS, Flat	
Comments: Repegged in 2016 and 2017. Quadrat likely to have moved over time.			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Avena barbata*	100											
Banksia attenuata	700											
Banksia ilicifolia	800	15	100m2	0.02								
Banksia littoralis	700	14	100m2	0.02								
Bossiaea eriocarpa												
Briza maxima*	40	2	4m2	2.75	5		6					
Briza minor*	15	1										
Burchardia congesta	50											
Chamaescilla corymbosa	10	0.2	4m2	1.25	4				1			
Cotula australis	10											
Dasypogon bromeliifolius	30	2										
Desmocladus flexuosus		0.1	4m2	0.25	1							
Disa bracteata*	10											
Ehrharta longiflora*	40	8	4m2	16.25	2		2		50		2	9
Hibbertia hypericoides	40	8	100m2	0.14								
Hovea trisperma												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Hypochaeris glabra*	20	5	4m2	14.25	5		2		20		30	
Melaleuca thymoides												
Nuytsia floribunda	500	6										
Vulpia myuros*	10	8	4m2	25							100	
Zantedeschia aethiopica*	60	40	4m2	30.25	12	50	7	18	2	20	12	

Quadrat: B10	Easting: 389856	Northing: 6449882	Date: 24/11/2017
Condition: Degraded (changed from Good, minimal native species present except in overstorey)		**Vegetation Type and Habitat**: ErMpAfS, Swamp	
Comments: Some big Melaleucas were multi-trunked and counted as one individual. Couple of dead Melaleuca trunks. Could not count Arum Lily (too numerous) or Pteridium			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Baumea articulata												
Eucalyptus rudis subsp. rudis	800	10	100m2	0.03								
Melaleuca preissiana	1600	80	100m2	0.14								
Pteridium esculentum	180	25	4m2	1.25			4		1			
Zantedeschia aethiopica*	110	75	4m2	5	8		3		2		7	
Ficus carica*	600	40	100m2	0.06								

Quadrat: B12	Easting: 389951	Northing: 6449881	Date: 24/11/2017
Condition: Very Good (changed from Excellent due to presence of Arum Lily)		**Vegetation Type and Habitat**: ErMpAfS, Swamp	
Comments: Exact counts for trees and Leucopogon. Estimates for Baumea, Tetraria and Pteridium. Couple of dead Melaleuca trees.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Lepidosperma longitudinale	100	50	4m2	37.5	100		30		10		10	
Banksia littoralis	200	6	100m2	0.08								
Baumea sp.	80											
Eucalyptus rudis subsp. rudis	1500	40	100m2	0.06								
Leucopogon australis	150	18	100m2	0.15								
Melaleuca preissiana	1000	40	100m2	0.11								
Microtis media	30											
Patersonia occidentalis	50	0.1	4m2	0.25	1							
Pteridium esculentum	200	30	4m2	1.5	3		1		2			
Taxandria linearifolia	150	0.2										
Tetraria sp. Chandala (G.J. Keighery 17055) (P2)	80	30	4m2	23	7		50		20		15	
Zantedeschia aethiopica*	70	5										
Cynodon dactylon*	30											
Holcus lanatus*	30											

Quadrat: B14	Easting: 390116	Northing: 6449871	Date: 31/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: CcBKgS, Flat	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia longifolia*	400	20	100m2	0.01								
Aira cupaniana*	10	0.1										
Banksia attenuata	600											
Banksia littoralis	600	6	100m2	0.01								
Caladenia flava	10	0.2										
Caladenia sp.	10	0.1	4m2	0.75							3	
Carpobrotus edulis*	20	0.3	4m2	0.25					1			
Corymbia calophylla	1200	50	100m2	0.28								
Dasypogon bromeliifolius	30	2	4m2	6.25			25					
Dianella revoluta var. divaricata	50	1	100m2	0.01								
Drosera pallida	1	0.1	4m2	0.75							3	
Ehrharta calycina*	60	1										
Euphorbia terracina*	40	0.1	4m2	0.25							1	
Haemodoraceae sp.	4											
Hibbertia cuneiformis	150	4	100m2	0.12								
Hibbertia racemosa	150											
Hypocalymma robustum	40	0.5										
Hypochaeris glabra*		0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Kunzea glabrescens	180	4	100m2	0.03								
Lepidosperma calcicola	40	4	4m2	0.25			1					
Lepidosperma pubisquameum	40	0.5										
Macrozamia fraseri	150	3	100m2	0.13						6		
Microtis media	20	0.1										
Pentapeltis peltigera	3											
Pterostylis sp.	10	0.1										
Pultenaea reticulata	150	2	100m2	0.02								
Thysanotus patersonii	50											
Vulpia myuros*	10	0.1										
Xanthorrhoea preissii	80	7	100m2	0.03								
Zantedeschia aethiopica*	20	0.3										

Quadrat: B16	Easting: 390270	Northing: 6449838	Date: 31/10/2017
Condition: Completely degraded		**Vegetation Type and Habitat**: EmKgS, Flat	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia sp.	7											
Aira cupaniana*	10											
Avena barbata*	60	0.2	4m2	1.25					5			
Briza maxima*	10											

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Bromus diandrus*	30	0.5	4m2	1					4			
Carpobrotus edulis*	20	20	4m2	5.25	4		7		6		4	
Centrolepis polygyna	10											
Crassula colorata var. colorata	10	0.1	4m2	1.75	7							
Dischisma capitatum*		0.1	4m2	1.5							6	
Ehrharta longiflora*	20	0.1										
Euphorbia peplus*	10	0.1	4m2	16.25			5		60			
Fabaceae sp.	3	0.03										
Hypochaeris glabra*	10	5	4m2	24.25	60		11		18		8	
Romulea rosea*		0.1	4m2	1.25	3						2	
Sonchus oleraceus*	25											
Trifolium campestre*	6	0.1	4m2	0.25					1			
Vulpia myuros*	10	2	4m2	17.5	30		40					

Quadrat: B18	Easting: 390045	Northing: 6449765	Date: 7/11/2016
Condition: Excellent		**Vegetation Type and Habitat**: ErCtS, Seasonally wet swamp	
Comments: Evidence of digging by animal.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Lepidosperma longitudinale	100	5	4m2	20.5			2		30		50	
Acacia saligna												
Astartea scoparia	150	3	100m2	0.03								
Banksia littoralis	1000	0.5	100m2	0.01								
Baumea preissii	50	75	4m2	30.75	15		2		100		6	
Baumea sp.	100											
Cassytha racemosa	50	1	4m2	0.25							1	
Cyperaceae sp.	120											
Dampiera triloba (P3)	50	8										
Eucalyptus rudis subsp. rudis	1200	8	100m2	0.07								
Hibbertia cuneiformis	40	0.3	100m2	0.01								
Kunzea glabrescens	100	0.5	4m2	0.25							1	
Leucopogon australis	100	5	100m2	0.08								
Melaleuca preissiana	800	5	100m2	0.01								
Pteridium esculentum		2	4m2	0.25	1							
Taxandria linearifolia	160	10	100m2	0.06								
Tetraria sp. Chandala (G.J. Keighery 17055) (P2)	40	1	4m2	0.25							1	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Xanthorrhoea sp.												
Zantedeschia aethiopica*	70											

Quadrat: B20	Easting: 389842	Northing: 6449770	Date: 31/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: CcBKgS, Flat	
Comments: Original NE and SE pegs intact. Other pegs replaced (in open area).			
Pegs replaced in 2016?: Partial			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Banksia attenuata	20	0.5	100m2	0.01								
Caladenia sp.	10	0.1										
Cassytha flava	200	0.2										
Chamaescilla corymbosa	5	1	4m2	0.75					3			
Crassula colorata var. colorata	200											
Crassula decumbens	10	0.3	4m2	3.75	5						10	
Dasypogon bromeliifolius	30	5										
Kunzea glabrescens	400	7	4m2	3.5		1	10		3			
Nuytsia floribunda	700	5	100m2	0.01								
Trachymene pilosa	4	0.1	4m2	0.25					1			
Hypochaeris glabra*	10	5	4m2	20.5	25		4		3		50	
Ehrharta calycina*	100	0.5	4m2	1.25	5							
Ehrharta longiflora*	20	0.1										
Zantedeschia aethiopica*	30	2										
Vulpia myuros*	10	15	4m2	50	100						100	

Quadrat: B22	Easting: 389636	Northing: 6449740	Date: 01/11/2017
Condition: Very Good		**Vegetation Type and Habitat**: BXpW, Flat	
Comments: New pegs installed.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	120	2										
Aira cupaniana*	10	0.1										
Anigozanthus humilis	30	0.1										
Apium annuum	5	0.1	4m2	2.5	10							
Austrostipa compressa	10											
Banksia attenuata	500	10	100m2	0.04								
Banksia menziesii	400	3	100m2	0.02								
Bossiaea eriocarpa	40											
Brachyloma preissii	10											
Briza maxima*	40	5	4m2	18.75	50		20				5	
Briza minor*	15	0.1	4m2	0.75	3							
Burchardia congesta	50	0.3	4m2	5.5	11						11	
Calandrinia corrigioloides	10											
Conostylis aculeata subsp. aculeata	300											
Dasypogon bromeliifolius	30											
Desmocladus flexuosus	30	2	4m2	0.75			2				1	
Drosera menziesii	40	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Drosera porrecta	20	1	4m2	1.5	3						3	
Ehrharta calycina*	80	3	4m2	1.75	5		2					
Ehrharta longiflora*	40											
Eucalyptus marginata	600	10										
Gladiolus caryophyllaceus*	100	0.2	4m2	0.5				2				
Gompholobium tomentosum	40	1	4m2	0.5			1	1				
Hardenbergia comptoniana	70	0.2										
Hibbertia hypericoides	60	30	4m2	0.75	1				1		1	
Hovea trisperma		0.2										
Hypocalymma robustum	50	0.5										
Hypochaeris glabra*		0.5	4m2	3.75	15							
Isotropis cuneifolia subsp. cuneifolia	15	0.1	4m2	0.75			3					
Lepidosperma pubisquameum	50	0.5										
Levenhookia stipitata	5	0.1										
Lomandra caespitosa	10	0.5										
Mesomelaena pseudostygia	60	2										
Microtis media												
Monotaxis occidentalis	7											
Opercularia vaginata	10	0.2										
Patersonia occidentalis	30	2										
Petrophile linearis	40	0.2										
Pimelea rosea subsp. rosea	30	0.3										
Poranthera microphylla	4											

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Pterostylis sp.	20	0.1										
Quinetia urvillei	10											
Sowerbaea laxiflora												
Stylidium repens	20	0.5										
Tetraria octandra	30	1	4m2	0.25	1							
Thysanotus manglesianus												
Trachymene pilosa	10	0.1										
Wahlenbergia sp.												
Xanthorrhoea preissii	150	4	100m2	0.03								
Zantedeschia aethiopica*	10											

Quadrat: B24	Easting: 389414	Northing: 6449706	Date: 01/11/2017
Condition: Degraded		**Vegetation Type and Habitat**: BiSiH, Flat	
Comments: Pegs intact. Many dead sticks/bushes in quadrat			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Carpobrotus edulis*	10	1										
Cartonema philydroides	15	5										
Dianella revoluta var. divaricata	50											
Ehrharta longiflora*	40	50	4m2	100	100		100		100		100	
Hypochaeris glabra*	20	6	4m2	13	13		9				30	
Kunzea glabrescens	350		100m2	0.15					11			
Vulpia myuros*	10	10										
Zantedeschia aethiopica*	50	5	4m2	0.75			1		2			

Quadrat: B26	Easting: 389336	Northing: 6449698	Date: 01/11/2017
Condition: Degraded		**Vegetation Type and Habitat**: EtKgS, Flat	
Comments: Barely any native understorey. Might have missed Lechenaultia species. There was no Fumaria sp.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Avena barbata*	100	1										
Bromus diandrus*	30	5	4m2	1.75			7					
Carpobrotus edulis*	20	28	4m2	0.25			1					
Dianella revoluta var. divaricata	50	0.2	100m2	0.02								
Ehrharta longiflora*	30	10	4m2	71.25	30		5		50		200	
Eucalyptus rudis subsp. rudis	1400	40	100m2	0.01								
Euphorbia peplus*	20	2	4m2	17.5			40		30			
Fumaria capreolata*	30											
Hypochaeris glabra*	20	1	4m2	1.75			1		6			
Kunzea glabrescens	200	3	100m2	0.02								
Lachenalia reflexa*	20											
Muehlenbeckia adpressa	30	1	100m2	0.03								
Sonchus oleraceus*	5	0.1										
Zantedeschia aethiopica*	50	2	100m2	0.09								

Quadrat: B28	Easting: 386615	Northing: 6448430	Date: 3/11/2016
Condition: Good		**Vegetation Type and Habitat**: EmApS, Upper-slope	
Comments: Photo from NW corner			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	H 16	H 17	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	100	100	100	1	100m2	0.01								
Avena barbata*	100			5	4m2	1			3				1	
Banksia attenuata	500	500	500	25	100m2	0.01								
Banksia menziesii	500	500	500	3	100m2	0.01								
Briza maxima*	40	40	40	6	4m2	8.75	3		10		20		2	
Conostylis aculeata subsp. aculeata														
Conostylis aurea	15			0.2										
Daviesia hakeoides	120			10	100m2	0.11								
Daviesia triflora	120	120												
Ehrharta calycina*	80	80	80	10	4m2	6	2		6		6		10	
Eucalyptus marginata	200	200	200	1	100m2	0.01								
Gazania linearis*	40	40	40		4m2	3							5	7
Gladiolus caryophyllaceus*	100	100	100	0.2	4m2	0.5			2					
Gompholobium tomentosum	50	50	50	1	100m2	0.07	1							
Hibbertia hypericoides	50	50	50	2	100m2	0.01								
Hypochaeris glabra*	20	20	20	1	4m2	4.25	14				2		1	
Jacksonia furcellata	200	200	200	7	100m2	0.14								
Lagurus ovatus*	25			1										

Taxon	Height (cm)	H 16	H 17	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lepidosperma leptostachyum	30		30	0.1										
Lomandra caespitosa	30	30	30	0.3	4m2	2							8	
Lupinus cosentinii*	50	50	50	0.2	4m2	0.5					2			
Macrozamia fraseri	100	100	100	2	100m2	0.01								
Oxalis pes-caprae*	30	30	30	2	4m2	3.75			7		8			
Parentucellia latifolia*	5			0.1										
Pelargonium capitatum*	40	40	40	3	4m2	7.5		13	1	16				
Romulea rosea*	8			0.1	4m2	9.75	20		15				4	
Silene gallica var. gallica*	6			0.1	4m2	0.5					2			
Sonchus oleraceus*	5				4m2	0.5					2			
Thysanotus manglesianus	30	30												
Trifolium campestre*	10	10	10	1	4m2	0.25							1	
Ursinia anthemoides*	50	50	50	0.5	4m2	8.75	2				30		3	
Xanthorrhoea preissii	150	150	150	1	100m2	0.01								

Quadrat: B30	Easting: 386675	Northing: 6448517	Date: 3/11/2016
Condition: Completely degraded		**Vegetation Type and Habitat**: JfKgE, Mid-slope	
Comments: Quadrat re-pegged, may have moved			
Pegs replaced in 2016?: Yes			
2017 Comments: not monitored			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Crassula colorata var. colorata	10											
Avena barbata*	100											
Bromus diandrus*	50											
Hypochaeris glabra*	20											
Ehrharta calycina*	100											
Romulea rosea*												
Cynodon dactylon*	20											
Lupinus cosentinii*	50											
Pelargonium capitatum*	40											
Ursinia anthemoides*	40											
Lagurus ovatus*	50											
Lolium rigidum*	50											
Trachyandra divaricata*	30											
Trifolium arvense var. arvense**	7											
Trifolium scabrum**												

Quadrat: B32	Easting: 386284	Northing: 6449248	Date: 21/10/2016
Condition: Good		**Vegetation Type and Habitat**: EgXpS, Mid-slope	
Comments:			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	20	1	100m2	0.02								
Aira cupaniana*	10	0.1										
Allocasuarina fraseriana	50	0.3	100m2	0.02								
Avena barbata*	80	1	4m2	1			4					
Briza maxima*	40	2	4m2	2.5			10					
Briza minor*	40											
Burchardia congesta	50	0.1										
Caesia micrantha	50											
Corymbia calophylla	50											
Ehrharta calycina*	60	25	4m2	5.25	5		6		4		6	
Ehrharta longiflora*	40											
Eucalyptus marginata	800	40	100m2	0.03		1						
Euphorbia terracina*	50	2	4m2	1.75							7	
Freesia alba x leichtlinii*	20	5	4m2	13.75			5				50	
Fumaria capreolata*	40											
Gompholobium tomentosum	10	6	4m2	3.75	14				1			
Hakea prostrata	20	0.5	4m2	0.25							1	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Hardenbergia comptoniana	50	4	4m2	0.5	1						1	
Hypochaeris glabra*	40	1	4m2	2.25	3						6	
Kennedia prostrata	10	5										
Lagurus ovatus*	50	6	4m2	12.5					20		30	
Lolium rigidum*	50	0.5										
Lomandra caespitosa	20	0.2	4m2	2.75	3		8					
Lupinus cosentinii*	50	2	4m2	0.75			1				2	
Macrozamia fraseri	120	2	100m2	0.05								
Microtis media	15	0.1										
Monoculus monstrosus*	40											
Opercularia echinocephala		0.1										
Oxalis pes-caprae*	30	0.5										
Parentucellia latifolia*		0.1										
Petrorhagia dubia*			4m2	3					12			
Poaceae sp.*												
Podolepis gracilis												
Romulea rosea*	10	0.1										
Silene gallica var. gallica*	40	0.2										
Sonchus asper*		0.2										
Sonchus oleraceus*			4m2	0.25		1						
Sowerbaea laxiflora	50											
Thysanotus manglesianus												
Trifolium campestre*	20	1	4m2	28.25	5		4		100		4	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Ursinia anthemoides*	50	0.5	4m2	1.75	2		1				4	
Xanthorrhoea preissii	200	10	100m2	0.12								

Quadrat: B34	Easting: 385901	Northing: 9449410	Date: 21/10/2016
Condition: Degraded		**Vegetation Type and Habitat**: EgXpS, Upper-slope	
Comments: Counts are estimate. Quadrat limited to weeds and grasses (also weeds).			
Pegs replaced in 2016?: Partial			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia rostellifera	100	20	4m2	2	2		1		5			
Asteraceae sp.												
Austrostipa semibarbata	60	0.5										
Avena barbata*	100	4	4m2	1							4	
Bromus diandrus*	50	8	4m2	5					10		10	
Ehrharta calycina*	80	20	4m2	4			6		5		5	
Ehrharta longiflora*	50		4m2	0.75	3							
Erodium botrys*	8	0.1										
Eucalyptus gomphocephala	1800	20	100m2	0.01								
Euphorbia terracina*	50	3	4m2	1.5	1		2		2		1	
Freesia alba x leichtlinii*	20	2	4m2	1.5			3		3			
Lagurus ovatus*	10	0.5	4m2	0.25			1					
Lolium rigidum*	40	0.5	4m2	5.5	2						20	
Lupinus cosentinii*	60	2	4m2	1.75					6		1	
Oxalis pes-caprae*	30	1	4m2	1.5	1		5					
Pelargonium capitatum*	60	3	4m2	0.5	2							
Sonchus asper*	5	0.2										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Sonchus oleraceus*	5	0.1										
Trifolium campestre*	4	0.1	4m2	3.75							15	
Vicia sativa*	50	1	4m2	0.75	3							

Quadrat: B36	Easting: 388799	Northing: 6449546	Date: 3/11/2016
Condition: Degraded (changed from Good, mostly weeds)		**Vegetation Type and Habitat**: CcXpDdS, Mid-slope	
Comments: Watsonia meriana located just outside quadrat			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Avena barbata*		1										
Banksia grandis	500	6	100m2	0.01								
Briza maxima*	40	1	4m2	10							40	
Bromus diandrus*		1										
Burchardia congesta	60	0.1	4m2	0.75	2						1	
Corymbia calophylla	1000	35	100m2	0.08								1
Desmocladus asper	30	0.2	4m2	1.75	7							
Dianella revoluta var. divaricata	50	0.3	100m2	0.01								
Ehrharta calycina*	80	60	4m2	9.5	10		6		10		12	
Ehrharta longiflora*												
Eucalyptus marginata	200	2	100m2	0.04								
Euphorbia terracina*		0.5										
Gladiolus caryophyllaceus*	100	0.2	4m2	0.25					1			
Hardenbergia comptoniana	100	0.5										
Hibbertia hypericoides	50	2	100m2	0.01								
Hypochaeris glabra*		0.5										
Jacksonia furcellata	200	1.5	100m2	0.01								

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lomandra caespitosa	40	0.1	4m2	0.25							1	
Lomandra maritima	40											
Macrozamia fraseri	140	2	100m2	0.05								
Mesomelaena pseudostygia	50	1	100m2	0.01								
Romulea rosea*	8	0.1										
Scaevola canescens	5	0.3	100m2	0.01								
Sonchus oleraceus*	5	0.1										
Tetraria octandra	40	2										
Vicia sativa*	40	0.5	4m2	5.5		4	5	6	1	3	3	

Quadrat: B38	Easting: 391491	Northing: 6449001	Date: 25/07/2017
Condition: Excellent		**Vegetation Type and Habitat**: BaTs, Mid-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Calectasia sp.	20	0.1	4m2	0.75					1	2		
?Tripterococcus sp.												
Acacia barbinervis	30	0.1										
Acacia pulchella var. glaberrima		0.5	100m2	0.05	1				1	2	1	
Aira cupaniana*	20	0.2	4m2	1			4					
Alexgeorgea nitens	20	0.1										
Amphipogon turbinatus	40											
Anigozanthos manglesii	70	0.2										
Banksia dallanneyi var. dallanneyi	30	0.3	4m2	0.25			1					
Banksia menziesii	500	0.5	100m2	0.01	1							
Beaufortia elegans	150	20	100m2	0.21	4				6			
Bossiaea eriocarpa	40	0.1										
Brachyloma preissii	80	2	100m2	0.03								
Briza maxima*	30	0.5	4m2	3.5			6		8			
Bromus diandrus*												
Burchardia congesta	50	0.1	4m2	2					2		6	
Caesia micrantha		0.1	4m2	0.25	1							

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Caladenia sp.		0.1										
Calytrix flavescens	40	3	4m2	2					8			
Cassytha sp.		0.1	4m2	0.25							1	
Chamaescilla corymbosa	10	0.3	4m2	4.5	6		12					
Conostephium pendulum	50	1										
Conostylis aculeata subsp. aculeata	30	0.2										
Conostylis setigera subsp. setigera	20	0.2	4m2	0.25							1	
Crassula colorata var. colorata												
Dampiera linearis	30	0.3										
Dasypogon bromeliifolius	40	1	4m2	0.5							2	
Daviesia decurrens	50											
Daviesia nudiflora	80	1	100m2	0.01								
Desmocladus flexuosus	30	0.2	4m2	0.5					2			
Drosera menziesii												
Ehrharta calycina*	70	0.1										
Eriochilus dilatatus	30											
Geranium sp.*												
Gladiolus caryophyllaceus*	100	0.2	4m2	0.5					2			
Gompholobium tomentosum	40	1	4m2	0.5			1	1				
Hibbertia hypericoides	50	20	4m2	0.75	1		2					
Hibbertia racemosa												
Hovea trisperma	40	0.3	4m2	0.25					1			
Hypocalymma robustum	60	0.5	4m2	0.25							1	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Hypochaeris glabra*		0.1										
Isolepis marginata												
Lepidosperma calcicola	20	0.3										
Lepidosperma pubisquameum	30	0.2										
Lomandra hermaphrodita	10	0.1	4m2	0.25					1			
Lomandra maritima	30											
Lyginia imberbis	40	1	4m2	0.75			2				1	
Macrozamia fraseri												
Melaleuca thymoides	60	1										
Mesomelaena pseudostygia	30	0.5	4m2	0.75					3			
Monotaxis grandiflora	20	0.2	4m2	4							16	
Petrophile linearis	40	0.2										
Philotheca spicata	50											
Phlebocarya ciliata	30											
Phyllangium divergens	10	0.1	4m2	2			2		6			
Phyllangium paradoxum												
Podotheca angustifolia												
Pyrorchis nigricans	10	1	4m2	0.75	3							
Schoenus curvifolius	30	0.5	4m2	0.5							2	
Siloxerus humifusus	1	0.2										
Sonchus asper*	10											
Stirlingia latifolia	50	1										
Stylidium brunonianum	40	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Stylidium piliferum	40	0.1										
Stylidium repens	10	0.3										
Thysanotus patersonii	70		4m2	0.25							1	
Trachymene pilosa	10	0.1	4m2	3.75			15					
Tricoryne elatior	30		4m2	0.25					1			
Ursinia anthemoides*	5	0.1										
Xanthorrhoea brunonis	80		100m2	0.14								
Xanthorrhoea preissii	200	7	100m2	0.17								

Quadrat: B40	Easting: 391933	Northing: 6449197	Date: 27/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: BaTs, Upper-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	100	0.5	100m2	0.05								
Aira cupaniana*			4m2	0.5							2	
Allocasuarina humilis	150	6	100m2	0.09								
Amphipogon turbinatus	40	3	4m2	0.75							3	
Anigozanthos manglesii	60	0.1										
Apium annuum												
Aristida holathera		0.1	4m2	0.25							1	
Banksia attenuata	600	10	100m2	0.04								
Banksia menziesii	500	6	100m2	0.01								
Beaufortia elegans	120	1										
Bossiaea eriocarpa	40	0.3	4m2	0.25							1	
Briza maxima*		1	4m2	2.5	5		1				4	
Burchardia congesta	50	0.5	4m2	5.5					10		12	
Calandrinia tholiformis	10											
Calytrix flavescens	50	1	4m2	1.75	1		3				3	
Centrolepis polygyna												
Conostephium pendulum	40	0.2	4m2	0.25			1					
Conostylis aculeata subsp. aculeata	40	0.2										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Conostylis setigera subsp. setigera	30	0.2										
Crassula colorata var. colorata												
Dasypogon bromeliifolius	50	3										
Desmocladus flexuosus	30	3	4m2	0.5			2					
Drosera sp. climbing												
Ehrharta calycina*	90	0.5	4m2	0.75			1		2			
Ehrharta longiflora*			4m2	0.75	3							
Eremaea pauciflora	50	2	4m2	0.75					3			
Freesia alba x leichtlinii*	20											
Galium murale*												
Gladiolus caryophyllaceus*	80	0.1	4m2	0.25							1	
Gompholobium tomentosum	50	0.2										
Hemiandra pungens	20	0.7										
Hibbertia hypericoides	50	10	4m2	0.25					1			
Hybanthus calycinus	30											
Hypocalymma robustum		0.1	100m2	0.02								
Hypochaeris glabra*	10	5	4m2	13.75	1		4		30		20	
Isolepis marginata												
Jacksonia furcellata	200	0.5	100m2	0.02								
Kunzea glabrescens		0.3	4m2	0.5					2			
Laxmannia squarrosa	10											
Leucopogon conostephioides	30	1										
Lomandra maritima												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lomandra nigricans	20	0.1										
Lomandra suaveolens	20	0.1	4m2	0.25					1			
Lyginia imberbis	40	2	4m2	1			4					
Lysimachia arvensis*	10	0.2										
Melaleuca systena	150	2	4m2	1.5							6	
Melaleuca thymoides	150											
Microtis media												
Monotaxis occidentalis												
Nuytsia floribunda	600	1	100m2	0.01								
Petrophile linearis	30	0.3	4m2	0.25	1							
Phyllangium divergens	10	0.1										
Phyllangium paradoxum		0.1	4m2	0.25							1	
Podotheca angustifolia	10											
Pyrorchis nigricans		0.1										
Sonchus asper*	40	1	4m2	0.5			2					
Sonchus oleraceus*		0.1										
Stirlingia latifolia	60	6	4m2	1		4					0	
Stylidium repens		0.2	4m2	0.25							1	
Thysanotus patersonii	80											
Thysanotus thyrsoideus	20											
Trachymene pilosa	10	0.1	4m2	1.5			2				4	
Ursinia anthemoides*	40	0.5	4m2	6.25	16		1		5		3	
Wahlenbergia capensis*		0.1	4m2	0.25							1	

Quadrat: B41	Easting: 386640	Northing: 6449183	Date: 21/10/2016
Condition: Good		**Vegetation Type and Habitat**: CcXpMrS, Upper-slope	
Comments: Re-pegged. May have shifted.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Allocasuarina fraseriana	600	0.5	100m2	0.03								
Avena barbata*		0.1										
Banksia attenuata	40	10	100m2	0.04								
Briza maxima*	50	1	4m2	12.5	15		5				30	
Burchardia congesta	50	0.2	4m2	0.5	2							
Caladenia arenicola	30											
Chamaescilla corymbosa												
Conostylis aculeata subsp. aculeata	50	0.2										
Daviesia triflora	50	0.1										
Dianella revoluta var. divaricata	30											
Drosera menziesii												
Drosera porrecta	70											
Drosera sp. climbing												
Ehrharta calycina*	40	6	4m2	1			4					
Eryngium pinnatifidum	20	0.1										
Freesia alba x leichtlinii*	100	2	4m2	9.5	8		23		2		5	
Gladiolus caryophyllaceus*	50	0.1	4m2	0.25			1					

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Gompholobium tomentosum	150	2	4m2	2	4				1		1	2
Hardenbergia comptoniana	30											
Hovea trisperma	20	0.2										
Hypochaeris glabra*	10	1	4m2	0.75	2		1					
Isotropis cuneifolia subsp. cuneifolia	200	0.2	4m2	1.25					3		2	
Jacksonia furcellata	10	3	100m2	0.09								
Kennedia prostrata	40	0.3										
Lagurus ovatus*	40	4	4m2	0.25	1							
Lepidosperma pubisquameum												
Leucopogon sp.	10	0.5	100m2	0.01								
Levenhookia pusilla	4		4m2	0.5			2					
Lomandra ?caespitosa	30											
Lomandra caespitosa	20	0.5	4m2	1.75			2		3		2	
Lomandra hermaphrodita	15	0.2	4m2	4.5	1				6		11	
Lomandra maritima	50	0.5	4m2	0.5	2							
Lomandra suaveolens												
Mesomelaena pseudostygia	20	3	100m2	0.03	1							
Orobanche minor*	30											
Oxalis pes-caprae*	50											
Pelargonium capitatum*	30	0.4	4m2	2					1			7
Petrophile linearis	30	0.2	100m2	0.02								
Pimelea rosea subsp. rosea	40											
Podolepis gracilis	5	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Romulea rosea*	5	0.5	4m2	3							12	
Silene gallica var. gallica*	5	0.1	4m2	1	2		2					
Sonchus oleraceus*	5	0.1										
Sowerbaea laxiflora	50											
Thysanotus manglesianus												
Thysanotus sparteus	50											
Trifolium campestre*	20	0.3										
Ursinia anthemoides*	40	2	4m2	5.25	2		5		14			
Xanthorrhoea brunonis	50		4m2	0.25							1	
Xanthorrhoea preissii	200	15	100m2	0.23								

Quadrat: B43	Easting: 387781	Northing: 6449167	Date: 3/11/2016
Condition: Good		**Vegetation Type and Habitat**: CcXpMrS, Upper-slope	
Comments: NE and SE pegs missing. Did not replace as along track.			
Pegs replaced in 2016?: Partial			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Arctotheca calendula*	10	0.1										
Avena barbata*	100	4	4m2	6			4		20			
Banksia attenuata	400	3	100m2	0.01								
Bossiaea eriocarpa	40	1	100m2	0.01								
Briza maxima*	40	10	4m2	25.25			100				1	
Bromus diandrus*	50	1										
Burchardia congesta	80	0.2										
Cenchrus clandestinus*												
Conostylis aculeata subsp. aculeata	30	0.2										
Corymbia calophylla	1500	35	100m2	0.01		1		2				
Daviesia nudiflora	180	3	100m2	0.01								
Desmocladus asper	50	1										
Dianella revoluta var. divaricata	50	0.2	100m2	0.01								
Ehrharta calycina*	80	8	4m2	2.25	8		1					
Ehrharta longiflora*	40		4m2	0.75							3	
Eucalyptus marginata	1000	20	100m2	0.13								1
Euphorbia terracina*	30	0.5										
Freesia alba x leichtlinii*	30	2	4m2	12.75			11		10		30	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Fumaria capreolata*												
Gompholobium tomentosum	50	0.5	4m2	0.25			1					
Hardenbergia comptoniana	90	3	4m2	1.5	1				2		3	
Hibbertia hypericoides	50	25	100m2	0.2								
Hypocalymma robustum	50	1										
Ixia maculata*	50											
Kennedia prostrata			4m2	0.25			1					
Lupinus cosentinii*	50	0.2	4m2	0.25	1							
Microtis media	30	0.1										
Oxalis pes-caprae*	30	0.2	4m2	5.25	1				20			
Romulea rosea*	8	0.2										
Thysanotus patersonii	50											
Trifolium campestre*	4		4m2	3.25	12		1					
Ursinia anthemoides*	6	0.5	4m2	0.75			3					
Vicia sativa*	30	4	4m2	3.5	2		2	3	2		5	
Xanthorrhoea brunonis	60		100m2	0.04								
Xanthorrhoea preissii	200	10	100m2	0.05								
Xylomelum occidentale	200	3	100m2	0.02								

Quadrat: B44	Easting: 389767	Northing: 6449838	Date: 31/10/2017
Condition: Degraded		**Vegetation Type and Habitat**: BaNfW, Flat	
Comments: Pegs not located, new pegs installed.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Arctotheca calendula*	20	2	4m2	2			6		2			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Briza minor*	20	1	4m2	1	4							
Cotula australis	5											
Crassula colorata var. colorata	10	0.2	4m2	7.5	30							
Crassula decumbens	10											
Ehrharta longiflora*	70	25	4m2	41.5	100		50		8		8	
Galium murale*	10											
Geranium molle*	30											
Hypochaeris glabra*	20	10	4m2	80	100		100		80		40	
Isolepis marginata	10											
Lachenalia reflexa*	5	0.1	4m2	0.25	1							
Macrozamia fraseri												
Microtis media												
Nuytsia floribunda	600	20	100m2	0.05								
Orobanche minor*												
Quinetia urvillei	10											
Stellaria media*	15	0.5	4m2	7.75	30				1			
Vulpia myuros*	20	10	4m2	75	100						200	
Zantedeschia aethiopica*	80	20	4m2	3	2	2	1		1	3	3	

Quadrat: B45	Easting: 390167	Northing: 6449862	Date: 31/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: ErMpGeS, Flat	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia sp.		0.1	100m2	0								
Aira cupaniana*	10	0.1										
Alexgeorgea nitens	20	0.1										
Avena barbata*	40											
Banksia ilicifolia	900	10	100m2	0.02								
Banksia sp.												
Briza maxima*	30	1										
Caladenia sp.		0.1										
Carpobrotus edulis*	20	0.1										
Centrolepis polygyna												
Chamaescilla corymbosa												
Crassula colorata var. colorata	10	0.1										
Dasypogon bromeliifolius	40	2	4m2	3	1		3		8			
Desmocladus asper	20	3	4m2	7.5	30							
Disa bracteata*	20											
Drosera paleacea subsp. paleacea	1	0.1	4m2	4							16	
Ehrharta calycina*	80	0.5	4m2	0.5			2					
Ehrharta longiflora*	100	0.1	4m2	0.5	2							

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Eucalyptus rudis subsp. rudis	150	1	100m2	0.01								
Fumaria sp.*	15											
Gladiolus caryophyllaceus*	70		4m2	0.5	1				1			
Gompholobium tomentosum	40	1										
Hibbertia cuneiformis	30	0.3										
Hibbertia racemosa	80											
Hypochaeris glabra*	20	2	4m2	7	13		4		3		8	
Isolepis marginata												
Isotropis cuneifolia subsp. cuneifolia		0.1										
Jacksonia gracillima (P3)	70	1	100m2	0.01								
Kunzea glabrescens	300	30	100m2	0.16								
Lepidosperma calcicola	40	0.5	4m2	0.75					3			
Leucopogon conostephioides	40											
Macrozamia riedlei	20	0.1	4m2	0.25			1					
Microtis media	30											
Pelargonium capitatum*	20											
Petrophile linearis	30	0.2	100m2	0.02								
Phlebocarya ciliata	30											
Pimelea rosea subsp. rosea	40	0.3	4m2	0.25			1					
Quinetia urvillei	10											
Scholtzia involucrata	30	5										
Siloxerus humifusus	2	0.1	4m2	2.25							9	
Thysanotus manglesianus												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Trachymene pilosa	5	0.1	4m2	0.25	1							
Vulpia myuros*	10	1	4m2	5.5					2		20	
Xanthorrhoea preissii	200	5	100m2	0.03								
Zantedeschia aethiopica*	40	0.1	4m2	0.25			1					

Quadrat: B48	Easting: 391676	Northing: 6449194	Date: 27/10/2017
Condition: Excellent		**Vegetation Type and Habitat**: MpBaS, Mid-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	50	1	100m2	0.05								
Allocasuarina humilis	140	2	100m2	0.02								
Anigozanthos manglesii	30	0.5	100m2	0.06								
Aristida holathera												
Banksia attenuata	500	4	100m2	0.09								
Banksia dallanneyi var. dallanneyi	10	0.1										
Banksia menziesii	600	7	100m2	0.02								
Beaufortia elegans	80	1										
Bossiaea eriocarpa	30	0.2	4m2	0.25	1							
Brachyloma preissii	70	1	100m2	0.01								
Briza maxima*	30	0.1										
Briza minor*		0.1										
Burchardia congesta	100	0.2	4m2	1.75			3		4			
Caesia micrantha	30											
Caladenia sp.												
Calandrinia granulifera												
Conostephium pendulum	50	4	4m2	0.5			2					
Conostylis setigera subsp. setigera	20	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Dasypogon bromeliifolius	40	1	4m2	1							4	
Diuris corymbosa	15	0.2										
Drosera menziesii	50		4m2	0.25			1					
Ehrharta calycina*	80	3										
Ehrharta longiflora*	40		4m2	0.5			2					
Fabaceae sp.												
Gladiolus caryophyllaceus*	100	0.2	4m2	0.5	1		1					
Gompholobium tomentosum	50	1	4m2	0.5			1				1	
Hemiandra pungens	20	2	100m2	0.02	1		1					
Hibbertia huegelii	40	0.3	100m2	0.01								
Hibbertia hypericoides	50	15	4m2	1			2		1		1	
Hibbertia racemosa	40	1	100m2	0.01								
Hibbertia subvaginata	40											
Hovea pungens	20	0.1										
Hypocalymma robustum	50	1										
Hypochaeris glabra*		1	4m2	12.5	30		20					
Jacksonia furcellata	200	0.4	100m2	0.02								
Kunzea glabrescens	250	0.3	100m2	0.01							1	
Laxmannia squarrosa	20	0.2										
Leucopogon conostephioides	30	0.2	4m2	0.25	1							
Levenhookia pusilla												
Lomandra hermaphrodita	20	0.1										
Lomandra maritima	20											

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lomandra sonderii		0.1										
Lyginia imberbis	50	2	4m2	0.25							1	
Mesomelaena pseudostygia	50	1	4m2	0.5					2			
Nuytsia floribunda	100	0.5	100m2	0.01								
Orchidaceae sp.	10	0.1	4m2	0.75								3
Patersonia occidentalis	30	1										
Petrophile linearis	40	0.3	100m2	0.02								
Phyllangium divergens		0.01										
Regelia inops	140	2	4m2	0.25							1	
Sonchus asper*	40	0.1										
Stylidium brunonianum	40											
Stylidium repens	10	0.2	4m2	0.25	1							
Thysanotus patersonii		0.1	4m2	0.25	1							
Trachymene pilosa	10	0.2	4m2	5.75	1		20		2			
Ursinia anthemoides*	40	0.2	4m2	0.5	1		1					
Wahlenbergia capensis*												
Xanthorrhoea preissii	150	4	100m2	0.09								

Quadrat: R01	Easting: 388988	Northing: 6449814	Date: 3/11/2016
Condition: Completely degraded		**Vegetation Type and Habitat**: ErMpH, Flat	
Comments: Pegs not located, new pegs installed.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Avena barbata*	50	20	4m2	3					1		11	
Banksia littoralis	40											
Bromus diandrus*	50	50	4m2	2	2				5		1	
Cenchrus clandestinus*	30											
Ehrharta calycina*	100	30	4m2	3	5		7					
Eryngium pinnatifidum	30		4m2	0.75			3					
Eucalyptus sp.	30											
Hypochaeris glabra*	30	5	4m2	10					40			
Lotus angustissimus*		1	4m2	1.25			5					
Melaleuca preissiana	50	1										
Sonchus oleraceus*	5	0.1	4m2	2			8					
Tetraria octandra												
Vicia sativa*	10	1	4m2	1			3	1				

Quadrat: R03	Easting: 389247	Northing: 6449887	Date: 8/11/2016
Condition: Degraded		**Vegetation Type and Habitat**: ErMpH, Flat	
Comments: Pegs intact.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Avena barbata*	100	1	4m2	0.25	1							
Bromus diandrus*												
Dianella revoluta var. divaricata	40											
Ehrharta longiflora*	40	60	4m2	56.75	20		100		100		7	
Eucalyptus rudis subsp. rudis	1400	3	100m2	0.01						1		
Euphorbia peplus*	10	5										
Fumaria capreolata*	30	10	4m2	4.5	7		2				9	
Hypochaeris glabra*	30											
Ipomoea cairica			4m2	0.5					1		1	
Lactuca serriola*	40											
Melaleuca preissiana	600	70	100m2	0.19								
Muehlenbeckia adpressa	40	1	100m2	0.01								
Olea europaea	50											
Olea europaea*	50	0.2	100m2	0.01								
Oxalis pes-caprae*	30											
Pelargonium capitatum*	50	0.2	100m2	0.01								
Sonchus oleraceus*	40	1	4m2	0.5					1		1	
Vicia sativa*												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Zantedeschia aethiopica*	80	0.5	4m2	1				3			1	

Quadrat: R05	Easting: 389613	Northing: 6449879	Date: 01/11/2017
Condition: Good to Degraded		**Vegetation Type and Habitat**: BXpW, Flat	
Comments: Pegs not located, new pegs installed.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	160	2	100m2	0.02								
Banksia attenuata	800	20	100m2	0.03								
Briza maxima*	40	3	4m2	7.5	30							
Briza minor*												
Burchardia congesta	70	0.1	4m2	1			3		1			
Carpobrotus edulis*	20	1	100m2	0.02					2			
Crassula colorata var. colorata	4	0.1	4m2	0.5	2							
Crassula decumbens	10											
Desmocladus flexuosus	30	2	4m2	2.75	8		2				1	
Drosera menziesii												
Ehrharta calycina*	100	25	4m2	5	7		7				6	
Ehrharta longiflora*	30											
Eucalyptus marginata	400	18	100m2	0.01								
Gladiolus caryophyllaceus*	100	0.1										
Gompholobium tomentosum	30	0.4										
Hardenbergia comptoniana	200	2	100m2	0.05								
Hibbertia huegelii												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Hibbertia hypericoides	50	15	100m2	0.3								
Hypocalymma robustum	50	1	100m2	0.02								
Hypochaeris glabra*	20	3	4m2	19.5	20		50				8	
Lepidosperma pubisquameum	40	0.2	4m2	1			4					
Macrozamia fraseri	140	2	100m2	0.01								
Mesomelaena pseudostygia	50	2	4m2	0.25	1							
Microtis media												
Patersonia occidentalis	40	0.5	100m2	0.01								
Petrophile linearis	30	0.2	100m2	0.02								
Pimelea rosea subsp. rosea	120	0.2	100m2	0.02								
Stirlingia latifolia	40	1.5	100m2	0.02								
Thysanotus manglesianus												
Trachymene pilosa	5	0.2	4m2	2	6						2	
Vulpia myuros*	10	0.5										
Zantedeschia aethiopica*	50	1	4m2	0.25					1			

Quadrat: R07	Easting: 389747	Northing: 6449889	Date: 31/10/2017
Condition: Good		**Vegetation Type and Habitat**: MpKgS, Flat	
Comments: Pegs not located, new pegs installed. Difficult to tell where pegs should have been from photograph. Quadrat likely to have moved			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Aira cupaniana*	10	0.5										
Banksia attenuata	600	15	100m2	0.02								
Banksia menziesii	700	20	100m2	0.03								
Briza maxima*	40	0.5										
Briza minor*	20	0.5										
Cotula australis	10											
Dasypogon bromeliifolius	50	15	4m2	6	22		2					
Desmocladus flexuosus	30	1										
Ehrharta longiflora*	50	2	4m2	1.25					5			
Euphorbia peplus*	30	0.1	4m2	1			4					
Galium murale*	10	0.1										
Hibbertia cuneiformis	60	2	100m2	0.04								
Hibbertia hypericoides	60	8	100m2	0.08								
Hypochaeris glabra*	10	5	4m2	33.75			5		100		30	
Ixiolaena viscosa	20											
Ixiolaena viscosa*	20	0.1	4m2	2					1		7	
Kunzea glabrescens	350	10	100m2	0.07								

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lepidosperma pubisquameum	30	0.5										
Leucopogon conostephioides	30											
Macrozamia fraseri	200	3	100m2	0.04								
Schinus terebinthifolius*	40											
Sonchus asper*	5	0.1	4m2	0.25					1			
Stellaria media*	5	0.3	4m2	23.75	15				50		30	
Thysanotus manglesianus	100											
Xanthorrhoea preissii	150	5	100m2	0.06								
Zantedeschia aethiopica*	60	10	4m2	13.25	3	24	3		1	20	2	

Quadrat: R09	Easting: 389848	Northing: 6449896	Date: 24/11/2017
Condition: Good		**Vegetation Type and Habitat**: ErMpAfS, Flat	
Comments: Difficult to count sedges accurately. Estimates taken.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Lepidosperma longitudinale	100	50	4m2	82.5	100		100		30		100	
Banksia littoralis	250											
Baumea articulata	200	50	4m2	27					8		100	
Baumea juncea	100	20	4m2	15	20				40			
Baumea sp.	80											
Eucalyptus rudis subsp. rudis	1000	5	100m2	0.06								
Ficus carica*	700	50	100m2	0.21								
Lobelia anceps	100											
Melaleuca preissiana	900	8	100m2	0.01								
Pteridium esculentum	180	15	4m2	0.75	3							
Zantedeschia aethiopica*	80	2	4m2	0.25			1					

Quadrat: R11	Easting: 389945	Northing: 6449896	Date: 24/11/2017
Condition: Excellent		**Vegetation Type and Habitat**: ErMpAfS, Swamp	
Comments: Wet ground.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Lepidosperma longitudinale	100	80	4m2	80	100		100		100		20	
Banksia littoralis	500	5										
Baumea articulata	150	20	4m2	7.5	9		6		10		5	
Baumea sp.	100											
Cynodon dactylon*	100											
Eucalyptus rudis subsp. rudis	1200	25	100m2	0.07								
Melaleuca rhaphiophylla	1000	18	100m2	0.01								
Pteridium esculentum	150	8	4m2	8.25					3		30	
Taxandria linearifolia	400											
Tetraria sp. Chandala (G.J. Keighery 17055) (P2)	80	2	4m2	3					12			
Zantedeschia aethiopica*	70											

Quadrat: R13	Easting: 390119	Northing: 6449869	Date: 31/10/2017
Condition: Excellent		**Vegetation Type and Habitat**: CcBKgS, Flat	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia longifolia*	150	2	100m2	0.04								
Asteraceae sp.	5		4m2	0.25	1							
Caladenia sp.												
Corymbia calophylla	1200	25	100m2	0.04								
Ehrharta calycina*	70	0.1										
Eucalyptus marginata	3	3	100m2	0.01								
Eucalyptus sp.												
Hibbertia cuneiformis	2	2	4m2	1.25							1	4
Hibbertia racemosa	150											
Hypochaeris glabra*	10	0.5										
Kunzea glabrescens	350	35	100m2	0.07								
Lepidosperma ?calcicola	40											
Lomandra sp.	15	0.1	4m2	0.5			2					
Macrozamia fraseri	100	5	100m2	0.04								
Macrozamia riedlei	50		4m2	0.25								1
Thelymitra graminea	30											
Thysanotus patersonii	70	0.1	4m2	0.25	1							
Xanthorrhoea preissii	100	5	100m2	0.2								

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Zantedeschia aethiopica*	40	0.5										

Quadrat: R15	Easting: 390254	Northing: 6449879	Date: 19/10/2016
Condition: Degraded		**Vegetation Type and Habitat**: EmKgS, Flat	
Comments: Repegged. May have shifted.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia sp.	5	0.1										
Aira cupaniana*	10											
Allocasuarina fraseriana	400	3	100m2	0.04								
Arctotheca calendula*	10	0.1	4m2	0.5			2					
Avena barbata*	40											
Banksia menziesii	400	30	100m2	0.04								
Banksia sp.	15											
Briza maxima*	30											
Caladenia flava	10	0.1										
Caladenia sp.	5		4m2	0.25		1						
Calandrinia granulifera	5											
Carpobrotus edulis*	20	3										
Centrolepis polygyna	10											
Cerastium glomeratum*												
Crassula colorata var. colorata	10	0.1	4m2	9.5	30				6		2	
Dianella revoluta var. divaricata	40	0.2	100m2	0.02								
Disa bracteata*	20	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Dischisma capitatum*												
Drosera pachyrhiza	7											
Ehrharta calycina*	50											
Ehrharta longiflora*	40	8	100m2	0.06			5		2		6	
Eucalyptus todtiana	100	3	100m2	0.02								
Euphorbia peplus*	10	0.5	4m2	13.25	2		25		26			
Freesia alba x leichtlinii*	15	0.1										
Galium murale*	10	0.1	4m2	4.25	6		11					
Geranium molle*	10											
Hibbertia cuneiformis												
Hypochaeris glabra*	10	2	100m2	0.06			30		8		8	
Isolepis marginata	5											
Lachenalia reflexa*	10	0.1	4m2	1.75					2		5	
Microtis media	30	0.1										
Poaceae sp.												
Romulea rosea*	12	0.1	4m2	1.5			6					
Silene gallica*	12	0.1										
Siloxerus humifusus	7											
Sonchus oleraceus*	20	0.1										
Trifolium campestre*	15											
Vulpia myuros*	20	15	4m2	80			200		20		100	
Zantedeschia aethiopica*	10											

Quadrat: R17	Easting: 390059	Northing: 6449715	Date: 7/11/2016
Condition: Very Good (changed from Excellent due to presence of Arum Lily)		**Vegetation Type and Habitat**: ErCtS, Flat	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Lepidosperma longitudinale	100	10	4m2	15	15		30		10		5	
Astartea scoparia	200	0.3	100m2	0.01								
Baumea juncea	80	2	4m2	1.25	2		2		1			
Baumea sp.	70											
Corymbia calophylla	1200	10	100m2	0.01								
Cyperaceae sp.												
Dampiera triloba (P3)	50		4m2	1.25	5							
Eucalyptus rudis subsp. rudis	1300	20	100m2	0.05								
Hardenbergia comptoniana	150	5	4m2	0.25					1			
Leucopogon australis	50	1	4m2	0.25	1							
Macrozamia fraseri	50	0.5	4m2	0.25					1			
Pteridium esculentum	180	100	4m2	3.5	7		3		4			
Tetraria sp. Chandala (G.J. Keighery 17055) (P2)	40	1	4m2	1.25	3						2	
Xanthorrhoea preissii	40											
Zantedeschia aethiopica*	50	1										

Quadrat: R19	Easting: 389871	Northing: 6449714	Date: 31/10/2017
Condition: Degraded (changed from Good, minimal native species present)		**Vegetation Type and Habitat**: CcBKgS, Flat	
Comments: Pegs not located, new pegs installed. Rethink Freightlink sign found at location. Asparagus asparagoides surrounding plot.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Asparagus asparagoides*	10	0.1										
Avena barbata*	80	2										
Banksia menziesii	700	20	100m2	0.01								
Briza maxima*	30	5										
Briza minor*		0.2	4m2	0.25	1							
Bromus diandrus*		0.5										
Crassula colorata var. colorata	10	0.1										
Dasypogon bromeliifolius	30	0.5										
Disa bracteata*												
Diuris magnifica	50											
Ehrharta calycina*	100	35	4m2	1.5			1		5			
Ehrharta longiflora*	40	0.5										
Euphorbia peplus*	10	0.2										
Galium murale*												
Gladiolus caryophyllaceus*	100	0.1										
Hibbertia hypericoides	30	0.5	100m2	0.01								
Hypochaeris glabra*	10	8	4m2	65	50		100		50		60	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lepidosperma squamatum	50											
Lotus angustissimus*	10											
Microtis media	50	0.1										
Nuytsia floribunda	700	25	100m2	0.04								
Sonchus asper*												
Sonchus oleraceus*	50	0.2										
Trachymene pilosa	10	0.1										
Vulpia myuros*	10	5	4m2	175	200		200		200		100	
Xanthorrhoea preissii	150	2	100m2	0.02								
Zantedeschia aethiopica*	50	8	4m2	9	8	16	11		1			

Quadrat: R21	Easting: 389646	Northing: 6449681	Date: 24/11/2017
Condition: Very Good (changed from Good)		**Vegetation Type and Habitat**: BXpW, Flat	
Comments: Pegs not located, new pegs installed. Photo not taken from original waypoint. Reecorded Brachyloma and Xanthorrhoea just outside quadrat. The location of Quadrat therefore likely to have moved slightly.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	150	2	100m2	0.05				2				
Aira cupaniana*		0.1										
Apium annuum	5											
Banksia attenuata	600	10	100m2	0.13								
Banksia menziesii	600	15	100m2	0.03								
Bossiaea eriocarpa	40	1										
Brachyloma preissii	30	0.2	100m2	0.01								
Briza maxima*	40	8	4m2	29.25	15		2				100	
Burchardia congesta	60	0.2	4m2	4.5	2		2		4		10	
Caladenia flava	20	0.3	4m2	0.75			1				2	
Carpobrotus edulis*	20	9	4m2	0.25					1			
Chamaescilla corymbosa	30	0.1	4m2	0.25							1	
Conostylis aculeata subsp. aculeata	30	0.1										
Daviesia divarcata												
Desmocladus flexuosus	30	3	4m2	6.25	6		18		1			
Dianella revoluta var. divaricata	70	0.2										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Disa bracteata*	30	0.1										
Drosera porrecta	30	2	4m2	3.25	3		5				5	
Ehrharta calycina*	50	5	4m2	1	3		1					
Ehrharta longiflora*	40											
Eucalyptus marginata	900	20	100m2	0.02								
Gladiolus caryophyllaceus*	80	0.3										
Gompholobium tomentosum	30	0.5	4m2	0.5							2	
Hardenbergia comptoniana	60											
Hibbertia hypericoides	50	30	4m2	1.5	1		2		2		1	
Hypocalymma robustum	50	2	4m2	0.25							1	
Hypochaeris glabra*	10	1	4m2	3			12					
Isotropis cuneifolia subsp. cuneifolia	20	0.1										
Kennedia prostrata	10	0.1										
Lepidosperma calcicola	40											
Lepidosperma leptostachyum		0.2	4m2	0.25			1					
Lepidosperma pubisquameum	40	0.2	4m2	0.5					2			
Lomandra maritima		0.1										
Macrozamia fraseri	160	2	100m2	0.03								
Mesomelaena pseudostygia	50	2										
Microtis media		0.3	4m2	0.5			2					
Monotaxis occidentalis	7											
Opercularia vaginata		0.3	4m2	0.5	2							
Petrophile linearis	30											

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Pimelea rosea subsp. rosea		1	100m2	0.02								
Sonchus oleraceus*												
Tetraria octandra	30	2										
Trachymene pilosa	10	0.2										
Xanthorrhoea preissii	160											
Zantedeschia aethiopica*	10	0.1										

Quadrat: R23	Easting: 389426	Northing: 6449670	Date: 01/11/2017
Condition: Good		**Vegetation Type and Habitat**: BiSiH, Flat	
Comments: Pegs intact. SW corner replaced. Could not find Galium murale. Grasses all dead. Access from eastern side of Kunzea thicket.			
Pegs replaced in 2016?: Partial			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Astartea scoparia	139	1	4m2	0.5			2					
Banksia attenuata	50	0.5	100m2	0.01								
Banksia menziesii	600	8										
Carpobrotus edulis*	20											
Crassula colorata var. colorata	10											
Ehrharta calycina*	80											
Ehrharta longiflora*	40	70	4m2	137.5	200		50		100		200	
Galium murale*	10											
Hypochaeris glabra*	10	2	4m2	2.5							10	
Kunzea glabrescens	350	30	4m2	0.25	1							
Nuytsia floribunda		10	100m2	0.01								
Vulpia myuros*	10											
Zantedeschia aethiopica*	50	2	4m2	0.75			1		2			

Quadrat: R25	Easting: 389648	Northing: 6449690	Date: 01/11/2017
Condition: Degraded		**Vegetation Type and Habitat**: EtKgS, Flat	
Comments: New GPS coordinates. 2015 photograph of old location. Could only locate one peg. Three dead Euc. sp.			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Carpobrotus edulis*	30	2										
Crassula colorata var. colorata	10	0.2	4m2	25.5	2						100	
Dianella revoluta var. divaricata	50											
Ehrharta calycina*	60	10	4m2	1	3				1			
Ehrharta longiflora*	40											
Euphorbia peplus*												
Hypochaeris glabra*	20	2	4m2	33.25			30		3		100	
Kunzea glabrescens	200	30	4m2	2.25								9
Melaleuca preissiana	400	5										
Sonchus oleraceus*												
Trachymene pilosa	5	0.7	4m2	1.5							6	
Vulpia myuros*	20	8	4m2	60			200		10		30	
Zantedeschia aethiopica*												

Quadrat: R27	Easting: 386588	Northing: 6448426	Date: 3/11/2016
Condition: Good		**Vegetation Type and Habitat**: EmApS, Upper-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	180	3	100m2	0.04								
Banksia attenuata	500	8	100m2	0.06								
Banksia menziesii	500	4	100m2	0.01								
Briza maxima*	40	5	4m2	17	20		20		8		20	
Briza minor*	15	0.5										
Burchardia congesta	50	0.1										
Caladenia flava	5	0.1										
Chamaescilla corymbosa	20	0.1	4m2	0.25	1							
Conostylis aculeata subsp. aculeata	30											
Conostylis aurea	30	0.2	4m2	3.25							13	
Crassula colorata var. colorata												
Daviesia triflora	50	1	100m2	0.03								
Desmocladus flexuosus	30	2.5										
Dianella revoluta var. divaricata	50	0.3	100m2	0.02								
Drosera porrecta	30	0.5	4m2	1.25	4		1					
Ehrharta calycina*	80	10	4m2	4.25	3		2		5		7	
Eucalyptus marginata	500	10	100m2	0.02								

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Gladiolus caryophyllaceus*	80	0.2	4m2	2.5	2		5		2		1	
Gompholobium tomentosum	50	1	4m2	0.5	1	1						
Hardenbergia comptoniana	50	1										
Hypochaeris glabra*	20	1	4m2	12	15		2		18		13	
Isotropis cuneifolia subsp. cuneifolia	20	0.1										
Lagurus ovatus*	40	5	4m2	8.75							35	
Laxmannia squarrosa	20											
Lepidosperma leptostachyum	40											
Leucopogon propinquus	40	0.3	100m2	0.01								
Lolium rigidum*	40											
Lomandra caespitosa	30	2	4m2	0.75	1		1				1	
Lomandra green lvg1068 ht 30 prob leptostach	30											
Lomandra hermaphrodita	40		4m2	0.5							2	
Lupinus cosentinii*	30	0.2	4m2	0.25							1	
Macrozamia riedlei			100m2	0.01								
Mesomelaena pseudostygia	50	4	100m2	0.07								
Opercularia vaginata	30	0.1	4m2	0.5			2					
Parentucellia latifolia*	8	0.2	4m2	2.25	3				4		2	
Romulea rosea*	8	0.2	4m2	0.75	1		2					
Silene gallica var. gallica*	8	0.1	4m2	1.25					5			
Sonchus oleraceus*	5	0.1										
Sowerbaea laxiflora	40											
Thysanotus manglesianus	50	0.3	4m2	0.25			1					

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Trifolium campestre*	30	2	4m2	0.75							3	
Ursinia anthemoides*	40	1	4m2	2	8							
Xanthorrhoea preissii	200	18	100m2	0.08								

Quadrat: R29	Easting: 386684	Northing: 6448510	Date: 3/11/2016
Condition: Completely degraded		**Vegetation Type and Habitat**: JfKgE, Mid-slope	
Comments: Very weedy site. Pegs were intact.			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Crassula colorata var. colorata	10											
Avena barbata*	100											
Hypochaeris glabra*	20											
Ehrharta calycina*	100											
Romulea rosea*	20											
Cynodon dactylon*	20											
Gazania linearis*	40											
Lupinus cosentinii*	40											
Ursinia anthemoides*	40											
Lagurus ovatus*	30											
Lolium rigidum*	40											
Orobanche minor*	8											
Trifolium arvense var. arvense**	7											
Monoculus monstrosus*	15											

Quadrat: R31	Easting: 386242	Northing: 6449300	Date: 25/10/2017
Condition: Good		**Vegetation Type and Habitat**: EgXpS, Upper-slope	
Comments: Pegs not located, new pegs installed. Photo taken two steps behind peg			
Pegs replaced in 2016?: Yes			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
?Vulpia sp.*												
Acacia pulchella var. glaberrima	20	0.6	100m2	0.15						1		
Aira cupaniana*	10											
Allocasuarina fraseriana	400	2	100m2	0.02								
Avena barbata*	100	0.2										
Banksia menziesii	400	3	100m2	0.01								
Briza maxima*	40	2	4m2	4.5	3		5				10	
Briza minor*	30	0.2										
Bromus diandrus*	50											
Burchardia congesta	50	0.1										
Corymbia calophylla	40											
Crassula colorata var. colorata	3	0.1	4m2	0.25	1							
Desmocladus asper	30	1										
Dianella revoluta var. divaricata	40	0.2	100m2	0.01	1							
Dischisma capitatum*	10											
Drosera pachyrhiza												
Drosera sp. climbing												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Ehrharta calycina*	80	7	4m2	3.75	5		4		6			
Eryngium pinnatifidum	40											
Eucalyptus marginata	20	0.25	100m2	0.01								
Eucalyptus sp.												
Freesia alba x leichtlinii*	20	1	4m2	0.25	1							
Fumaria capreolata*	30											
Gladiolus caryophyllaceus*	70	0.3	4m2	0.75			1				2	
Gompholobium tomentosum	30	2	4m2	1.75			4				3	
Hakea prostrata	20		100m2	0.01				3				
Hardenbergia comptoniana	100	4	4m2	0.75	2				1			
Hovea trisperma	20	0.1										
Hypochaeris glabra*	20	0.2	4m2	1.25							5	
Isotropis cuneifolia subsp. cuneifolia	30	0.1	4m2	3	7		5					
Kennedia sp.												
Lagurus ovatus*	40	8	4m2	23.25	30		10		50		3	
Laxmannia squarrosa												
Lepidosperma calcicola	30	0.5										
Lomandra caespitosa	20	0.5	4m2	4.75	8		9				2	
Lomandra hermaphrodita	20	0.5	4m2	1.25							5	
Lomandra suaveolens	20											
Lupinus cosentinii*	50											
Macrozamia fraseri	80	1.5	100m2	0.03								
Mesomelaena pseudostygia	50	3	100m2	0.04					1			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Oxalis pes-caprae*	20	0.2	4m2	0.25					1			
Parentucellia latifolia*	8	0.1										
Pelargonium capitatum*	20	0.1										
Pimelea rosea subsp. rosea	30	2	4m2	1					4			
Podolepis gracilis	20	0.1	4m2	10							40	
Romulea rosea*	20	0.1										
Schoenus clandestinus	10	1	4m2	4.5			2				16	
Silene gallica var. gallica*	40	0.1	4m2	11.25	13		2				30	
Silene gallica*	40											
Sowerbaea laxiflora	30											
Thysanotus manglesianus	20											
Thysanotus sp.	20											
Trifolium arvense*	20	0.5										
Trifolium campestre*	20	1	4m2	5.75			3		20			
Ursinia anthemoides*	50	1	4m2	7.75					30		1	
Xanthorrhoea preissii	200	10	100m2	0.21	1							

Quadrat: R33	Easting: 385860	Northing: 6449353	Date: 21/10/2016
Condition: Degraded		**Vegetation Type and Habitat**: EgXpS, Upper-slope	
Comments: Counts estimated			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia rostellifera	200	12	4m2	11.75	2	1	3		41			
Avena barbata*	70	3	4m2	4.5					4		14	
Briza maxima*	40	5										
Bromus diandrus*	40	1	4m2	2.5	2				5		3	
Caesia micrantha												
Dianella revoluta var. divaricata	50	0.1	100m2	0.03								
Ehrharta calycina*	80	25	4m2	2.5	6		4					
Ehrharta longiflora*	50											
Erodium cicutarium*	20	0.1	4m2	0.5			1	1				
Eucalyptus gomphocephala	10	0.1	100m2	0.01								
Euphorbia peplus*	20	0.5	4m2	3.75	15							
Euphorbia terracina*	60	3	4m2	6			1		23			
Freesia alba x leichtlinii*	20	2	4m2	12.5	4		1		30		15	
Fumaria capreolata*												
Hardenbergia comptoniana	200	0.5										
Hypochaeris glabra*	20	0.5	4m2	10	30		10					
Lagurus ovatus*	40	10	4m2	40	40		100		20			
Lechenaultia linarioides	50		100m2	0.01								

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lolium rigidum*	30	0.2	4m2	2.5					10			
Lupinus cosentinii*	60	1	4m2	0.75	2				1			
Oxalis pes-caprae*	20	1	4m2	0.25							1	
Pelargonium capitatum*	50	1.5										
Sonchus oleraceus*	30	0.1	4m2	0.25							1	
Sowerbaea laxiflora												
Tricoryne tenella	50	1	4m2	0.25			1					
Trifolium campestre*	5	0.5										
Ursinia anthemoides*	40	0.5	4m2	3	5		7					
Wahlenbergia capensis*												
Xanthorrhoea preissii	300		100m2	0.01								

Quadrat: R35	Easting: 388775	Northing: 6449489	Date: 01/11/2017
Condition: Good		**Vegetation Type and Habitat**: CcXpDdS, Mid-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia longifolia*	50											
Arctotheca calendula*												
Avena barbata*	80											
Banksia attenuata	700	35	100m2	0.01								
Briza maxima*	40											
Bromus diandrus*	40											
Burchardia congesta	60	0.1	4m2	0.25							1	
Caesia micrantha	20	0.3	100m2	0.01								
Conyza bonariensis*												
Crassula colorata var. colorata	5	0.1	4m2	5			20					
Dianella revoluta var. divaricata	50											
Diuris sp.	5	0.1	4m2	0.25							1	
Ehrharta calycina*	80	5	4m2	1			4					
Ehrharta longiflora*	40											
Erodium cicutarium*	10											
Euphorbia peplus*	10	3	4m2	8.5	1		3				30	
Euphorbia terracina*		6	4m2	1.25							5	
Gladiolus caryophyllaceus*	100	0.2	4m2	0.25					1			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Haemodorum laxum	80	0.1	100m2	0.02								
Hardenbergia comptoniana	70	2										
Hypochaeris glabra*	30	8	4m2	51.25	50		100		50		5	
Jacksonia furcellata	200	3	100m2	0.01								
Lagurus ovatus*	40											
Lepidosperma calcicola	40	2	100m2	0.03								
Lepidosperma leptostachyum	30	0.5										
Lupinus consentinii*	10	2										
Lysimachia arvensis*	10	0.1										
Macrozamia fraseri	150	4	100m2	0.03								
Orobanche minor*	10	0.1										
Oxalis pes-caprae*	30	0.5										
Romulea rosea*	10	1	4m2	18.5			24		50			
Sonchus oleraceus*	5	0.1	4m2	0.5		1			1			
Tetraria octandra		1										
Trifolium campestre*	5	0.2										
Vicia sativa*	10	1	4m2	0.25							1	
Wahlenbergia capensis*	8	0.5	4m2	10			20		20			
Xanthorrhoea brunonis	100	5	4m2	0.25	1							

Quadrat: R37	Easting: 391535	Northing: 6448970	Date: 20/10/2016
Condition: Excellent		**Vegetation Type and Habitat**: BaTs, Mid-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	100		100m2	0.17			3			1		
Acacia willdenowiana	40	0.1	4m2	0.25							1	
Aira cupaniana*	10	0.1										
Allocasuarina humilis	100	1	100m2	0.02								
Amphipogon turbinatus	50	0.5										
Astroloma ciliatum		0.1										
Banksia attenuata	500	8	100m2	0.05							1	
Banksia menziesii	400	4	100m2	0.01								
Bossiaea eriocarpa	30	0.2	4m2	0.25					1			
Briza maxima*	20	0.1	4m2	0.5			1				1	
Burchardia congesta	60	0.2	4m2	2			2		3		3	
Caesia micrantha	50											
Caladenia flava	30	0.1	4m2	0.25			1					
Calandrinia granulifera												
Calytrix flavescens	40	2	4m2	6.75	1		22		3		1	
Cassytha flava		0.5										
Cassytha sp.	40											

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Chamaescilla corymbosa	30	0.3										
Conostephium pendulum	40	2										
Conostylis aculeata subsp. aculeata	30	0.2	4m2	0.5			2					
Conostylis juncea	30	0.2										
Conostylis setigera subsp. setigera	30	0.4	4m2	0.5	1		1					
Dampiera linearis	20	1	4m2	2.25	7		1				1	
Dasypogon bromeliifolius		0.2	4m2	2.75	1		7		3			
Desmocladus flexuosus	30		4m2	1.75			4		2		1	
Drosera erythrorhiza												
Drosera menziesii	50											
Drosera pachyrhiza												
Gladiolus caryophyllaceus*	100	0.1	4m2	0.25							1	
Gompholobium tomentosum	50	0.5	4m2	0.25							1	
Gonocarpus pithyoides	30											
Hibbertia hypericoides	40	3	4m2	0.25					1			
Hovea trisperma	50	0.5	4m2	2.25	5				2		2	
Hypocalymma robustum	70	0.2										
Hypochaeris glabra*												
Isotropis cuneifolia subsp. cuneifolia		0.1										
Jacksonia furcellata	100	1	4m2	0.25	1							
Kennedia prostrata			4m2	0.25					1			
Lepidosperma pubisquameum	40	1	4m2	0.25							1	
Leucopogon conostephioides		0.2	4m2	0.25	1							

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lomandra hermaphrodita	25	0.3	4m2	1			2		1		1	
Lomandra micrantha	25	0.5										
Lomandra suaveolens	20	0.1										
Lyginia imberbis	50	1.5	4m2	0.5			2					
Melaleuca thymoides	130	4										
Mesomelaena pseudostygia	30	0.3										
Opercularia vaginata	40	0.1	4m2	0.75	2						1	
Orchidaceae sp												
Patersonia occidentalis	40	2	4m2	2.75	1						10	
Persoonia saccata	40											
Petrophile linearis	50	0.1	4m2	0.25			1					
Phlebocarya ciliata	40	0.3										
Phyllangium divergens	10		4m2	0.25							1	
Podotheca angustifolia												
Pterostylis sp.	2											
Regelia inops	140	12	4m2	1			1				1	2
Schoenus curvifolius	30	1	4m2	0.25	1							
Schoenus subfascicularis	40	0.1	4m2	1.5	6							
Siloxerus humifusus												
Sonchus oleraceus*		0.1										
Stirlingia latifolia	50	1	4m2	0.25			1					
Stylidium piliferum												
Stylidium repens	10	0.2	4m2	0.25							1	

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Stylidium schoenoides	30											
Thysanotus patersonii	50	0.1										
Trachymene pilosa	10	0.2	4m2	3.25							13	
Xanthorrhoea preissii	200	6	100m2	0.06						2		

Quadrat: R39	Easting: 391882	Northing: 6449152	Date: 27/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: BaTs, Upper-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia pulchella var. glaberrima	140	2	100m2	0.18								
Acacia willdenowiana												
Allocasuarina humilis	150	3	100m2	0.05								
Amphipogon amphipogonoides												
Amphipogon turbinatus	40	4	4m2	3.25	3		1		1		8	
Anigozanthos manglesii	70	0.3	4m2	0.25						1		
Aristida holathera												
Banksia attenuata	600	5	100m2	0.05								
Banksia menziesii	500	5	100m2	0.04								
Beaufortia elegans	150	5	4m2	0.5					2			
Bossiaea eriocarpa	40	0.1										
Briza maxima*	40	1	4m2	12.5	8		20		2		20	
Burchardia congesta	50	0.1	4m2	3.75			5				10	
Caladenia sp.												
Calytrix flavescens	50	0.2										
Conostephium pendulum	30	0.5										
Conostylis aculeata subsp. aculeata	30	0.3										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Conostylis setigera subsp. setigera	30	0.2	4m2	0.5	2							
Crassula colorata var. colorata	10	0.1	4m2	1.5	6							
Dasypogon bromeliifolius	25	0.2										
Desmocladus flexuosus	30	0.2	4m2	0.25							1	
Disa bracteata*												
Diuris sp.												
Drosera menziesii	50	0.1										
Ehrharta calycina*	100	0.5	4m2	1			2				2	
Eremaea pauciflora	100											
Gladiolus caryophyllaceus*	60	0.3										
Gompholobium tomentosum	50	0.5	4m2	0.25			1					
Hibbertia aurea	30											
Hibbertia huegelii	20	0.2	100m2	0.01			1					
Hibbertia hypericoides	50	15	4m2	0.25			1					
Hibbertia subvaginata	30											
Hypocalymma robustum	40	1										
Hypochaeris glabra*	10	0.2	4m2	7	3		25					
Isolepis marginata	5											
Jacksonia furcellata	150	0.2										
Laxmannia squarrosa	10											
Leucopogon conostephioides	40	0.5										
Levenhookia pusilla	5											
Lomandra hermaphrodita	10	0.1										

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Lomandra maritima	20	0.2	4m2	0.25					1			
Lomandra preissii	20	0.1										
Lyginia imberbis	50	2	4m2	0.5	2							
Lysimachia arvensis*	5	0.1										
Mesomelaena pseudostygia	40	3	4m2	1.25	4				1			
Nuytsia floribunda												
Orchidaceae sp.		0.1										
Patersonia occidentalis	40	1.5										
Petrophile linearis	30	0.1										
Petrorhagia dubia*	8	0.1	4m2	0.25	1							
Phyllangium divergens												
Phyllangium paradoxum												
Regelia inops	120	2	100m2	0.01								
Schoenus clandestinus	5	0.2										
Scholtzia involucrata		3	4m2	0.25	1							
Siloxerus humifusus												
Sonchus asper*												
Stirlingia latifolia	50	2	4m2	1.5	2		1				3	
Stylidium brunonianum	50	0.1										
Stylidium piliferum	30	0.1	4m2	0.5			2					
Stylidium repens	10	0.1										
Trachymene pilosa	10	0.1	4m2	0.75	2		1					
Tripterococcus brunonis												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Ursinia anthemoides*	40	0.2	4m2	9.25	30		2		5			
Wahlenbergia capensis*	30											
Xanthosia huegelii	20											
Zantedeschia aethiopica*												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia willdenowiana	20	0.2	4m2	0.5					2			
Aira cupaniana*	10	0.5										
Allocasuarina fraseriana	600	25	100m2	0.01								

Avena barbata*	100	0.5										
Briza minor*												
Bromus diandrus*												
Burchardia congesta		0.1										
Conostylis aculeata subsp. aculeata	20											
Conostylis aurea	15	1										
Crassula colorata var. colorata	5	0.1										
Daviesia triflora												
Dianella revoluta var. divaricata	50											
Ehrharta calycina*	70	8	4m2	3	5		1		1		5	
Eucalyptus marginata	600	4	100m2	0.02						3		
Freesia alba x leichtlinii*	20	0.5	4m2	1			3		1			
Galium murale*	20	0.1	4m2	0.75					2	1		
Gladiolus caryophyllaceus*	70	0.1										
Gompholobium tomentosum	50	1.5	4m2	0.75					1		2	
Hakea prostrata	400	0.5	100m2	0.01								
Hovea pungens												
Hypochaeris glabra*		1	4m2	5.5	5				2		15	
Isolepis marginata	8	0.3	4m2	1.5			6					
Kennedia prostrata												
Lagurus ovatus*	40	1	4m2	7.5							30	
Laxmannia squarrosa												
Lomandra ?caespitosa	30											
Lomandra caespitosa	30	1										

Lomandra maritima		0.5										
Lomandra micrantha	20	0.5										
Lupinus cosentinii*	50											
Lyginia imberbis	60	2	4m2	0.25			1					
Macrozamia fraseri	100	2	100m2	0.03								
Mesomelaena pseudostygia	50	4	4m2	0.25					1			
Oxalis pes-caprae*		0.5										
Pelargonium capitatum*	30	1										
Petrorhagia dubia*	8	0.1										
Pimelea rosea subsp. rosea	30	0.2										
Podolepis gracilis	20											
Quinetia urvillei	10											
Romulea rosea*	10	0.2										
Schoenus clandestinus	10	4										
Silene gallica var. gallica*	30	0.2	4m2	0.25			1					
Silene gallica*	0											
Sonchus sp.*	5	0.1	4m2	0.25							1	
Sowerbaea laxiflora	50											
Stirlingia latifolia	50											
Tetraria octandra	40											
Trifolium campestre*	20	1	4m2	4.5	8		3		4		3	
Ursinia anthemoides*	40											
Wahlenbergia capensis*	5	0.1	4m2	2			8					
Xanthorrhoea preissii	250	8	100m2	0.09		3		2		4		

Quadrat: R42	Easting: 386617	Northing: 6449181	Date: 11/01/17
Condition: Good		**Vegetation Type and Habitat**: CcXpMrS, Upper-slope	
Comments: Re-pegged. May have shifted.			
Pegs replaced in 2016?: Yes			

Quadrat: R46	Easting: 390184	Northing: 6449666	Date: NA
Condition: Very Good		**Vegetation Type and Habitat**: MpBaS, Swamp	
Comments: Inundated. Could not access			
Pegs replaced in 2016?: NA			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Baumea articulata	180											
Baumea sp.	120											
Cycnogeton huegelii	50											
Melaleuca rhaphiophylla	900											
Melaleuca teretifolia	400											

Quadrat: R47	Easting: 390222	Northing: 6449631	Date: NA
Condition: Good		**Vegetation Type and Habitat**: ErCtS, Swamp	
Comments: Inundated. Could not access. No pegs located.			
Pegs replaced in 2016?: NA			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Baumea sp.	150											
Cycnogeton huegelii	70											
Ficus carica*	140											
Melaleuca teretifolia	400											
Paspalum dilatatum*	120											
Zantedeschia aethiopica*	70											

Quadrat: R49	Easting: 391688	Northing: 6449138	Date: 27/10/2017
Condition: Very Good		**Vegetation Type and Habitat**: MpBaS, Upper-slope	
Comments:			
Pegs replaced in 2016?: No			

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Acacia willdenowiana	60		4m2	0.25	1							
Allocasuarina humilis	100	1										
Anigozanthos manglesii	80	0.3	4m2	0.75							3	
Austrostipa semibarbata	50	0.1	4m2	0.25	1							
Avena barbata*	60	0.5	4m2	0.75			2		1			
Banksia attenuata	200	2	100m2	0.04								
Briza maxima*	30	1	4m2	10					20		20	
Bromus diandrus*	40	0.1	4m2	0.25					1			
Caladenia sp.												
Calandrinia granulifera												
Centrolepis polygyna	10											
Conostylis aculeata subsp. aculeata	40	2										
Crassula colorata var. colorata												
Daviesia triflora	60	2	100m2	0.03								
Desmocladus flexuosus	30	1	4m2	3.75			11				4	
Ehrharta calycina*	70	0.5	4m2	2	3		5					
Ehrharta longiflora		0.1	4m2	1.5	1				5			
Ehrharta longiflora*												
Eucalyptus gomphocephala	1000	15	100m2	0.03								
Eucalyptus marginata	800	2	100m2	0.04								
Fumaria sp.*	4											
Geranium molle*	5	0.1	4m2	0.5								2
Gladiolus caryophyllaceus*	100	0.2	4m2	0.75	3							

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Gompholobium tomentosum	50	1										
Hardenbergia comptoniana	60	0.2										
Hibbertia hypericoides	60	1	100m2	0.02								
Hibbertia subvaginata	30											
Hovea pungens	50	1	4m2	0.5	1				1			
Hypochaeris glabra*	20	1	4m2	6	5				1		18	
Isolepis marginata												
Jacksonia furcellata	100	0.2	100m2	0.03								
Kennedia prostrata	10	0.5	100m2	0.03								
Lepidobolus preissianus subsp. preissianus	20	0.1										
Lysimachia arvensis*	20	2	4m2	13.5	28		10		7		9	
Macrozamia fraseri	180	4	100m2	0.04								
Parentucellia latifolia*												
Pelargonium capitatum*	40	1										
Persoonia saccata		0.2	100m2	0.01								
Petrorhagia dubia*												
Phyllanthus calycinus	40	1	100m2	0.02								
Podotheca angustifolia												
Pterostylis sp.	15											
Romulea rosea*												
Scaevola canescens	30	1	4m2	0.5					1		1	
Schoenus grandiflorus	60											
Senecio sp.												

Taxon	Height (cm)	Foliage (%)	Count	Plants/m2	1A	1J	2A	2J	3A	3J	4A	4J
Silene gallica var. gallica*												
Sonchus asper*	30	1	4m2	5.5	2		7		5		8	
Sonchus oleraceus*		0.1										
Tetraria octandra		3	4m2	1.25	5							
Thysanotus patersonii	30											
Trachymene pilosa		0.2	4m2	1.75	4		2		1			
Trifolium campestre*	10											
Triglochin trichophora	10											
Ursinia anthemoides*	40	0.2	4m2	1.25					3		2	
Wahlenbergia capensis*												
Xanthorrhoea preissii	180	5.5	100m2	0.06