



Main Roads Western Australia
Mitchell Freeway Extension Hester Avenue to Romeo Road
Targeted Flora Survey

March 2020

Table of contents

| | | |
|-----|---|---|
| 1. | Introduction..... | 2 |
| 1.1 | Project background | 2 |
| 1.2 | Purpose of this report..... | 2 |
| 1.3 | Survey area..... | 2 |
| 1.4 | Scope of works | 3 |
| 1.5 | Report limitations and assumptions..... | 3 |
| 2. | Methodology..... | 4 |
| 2.1 | Desktop review | 4 |
| 2.2 | Targeted flora..... | 4 |
| 2.3 | Field survey..... | 6 |
| 3. | Results | 8 |
| 4. | References | 9 |

Table index

| | | |
|---------|---|---|
| Table 1 | Flora taxa identified as potentially occurring within the survey area | 4 |
|---------|---|---|

Appendices

Appendix A – Figures

1. Introduction

1.1 Project background

Main Roads Western Australia (Main Roads) proposes to extend Mitchell Freeway north from Hester Avenue to Romeo Road, including an upgrade to Wanneroo Road from Dunstan Road to Triana Road (the Project).

Mitchell Freeway is the main arterial road that connects the northern suburban areas with Perth's central business district. The freeway currently terminates at Hester Avenue. Perth's northern suburbs have experienced continuing strong growth, with the population of Yanchep, Alkimos and Eglinton forecast to reach 118,000 by 2031¹.

The Project will extend the Mitchell Freeway a further 5.6 kilometres (km) from Hester Avenue to Romeo Road, as well as upgrading Wanneroo Road to a dual carriageway for 5.5 km from Dunstan Road to Triana Road. The Project will improve accessibility, travel times and road safety as well as sustaining jobs and enabling regional development in Perth's northern suburbs.

To inform the Project design and approval, GHD Pty Ltd (GHD) was commissioned to undertake a biological assessment and targeted Black Cockatoo habitat assessment of the proposed Project footprint and an extended survey area (for local context) in spring 2018.

Main Roads is seeking state based Native Vegetation Clearing Permits under the *Environmental Protection Act 1986* for areas of the Project footprint that are not covered by the MRS boundary specified under MS629.

1.2 Purpose of this report

GHD was commissioned by Main Roads to undertake a targeted flora survey for conservation significant flora for the Project footprint that occurs outside of MS629.

The outcome of the assessment will be used to supplement the survey findings from 2018 and to assist in the corporate and statutory environmental assessment and approvals process. The purpose of this report is to document the methods and results of the targeted flora survey for conservation significant flora. The results of the survey may assist in the preparation of a Clearing Impact Assessment and Vegetation Management Plan and may be used in State or Commonwealth approval documentation.

1.3 Survey area

The survey area for this assessment includes the proposed road corridors for the Mitchell Freeway extension and Wanneroo Road upgrade that occurs outside the MRS boundary specified under MS629. The survey area is approximately 70 hectares, as shown on Figure 1, Appendix A.

The targeted flora survey area encompasses part of the detailed survey area and extended survey area previously surveyed for the Mitchell Freeway extension project in 2018 (GHD 2019).

¹ <https://www.mediastatements.wa.gov.au/Pages/McGowan/2019/03/Mitchell-Freeway-extension-to-Romeo-Road-to-start-next-year.aspx>

1.4 Scope of works

The scope of works for the targeted flora survey included the following:

- Conduct a targeted survey for conservation significant flora, based on the spring 2018 biological survey data (GHD 2019), desktop likelihood of occurrence and habitat availability
- Where populations are identified, survey and map extent of populations to determine number and habitat area for each population. Shapefiles to be provided with point data indicating the number of plants identified at each point. If more than 100 individuals, the edges of the population boundary will be mapped and provided as a shapefiles. If the populations extends outside the survey area, the survey will map the extent of the population
- Provide number of individual plants and total number of populations in Western Australia, for any Threatened and Priority flora recorded, where such data is available. All threatened flora to be mapped with a differential GPS
- A concise report (this document) on the findings of the survey.

1.5 Report limitations and assumptions

This report has been prepared by GHD for Main Roads and may only be used and relied on by Main Roads for the purpose agreed between GHD and the Main Roads as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Main Roads arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report (including species listings). GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on information obtained from specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Site conditions may change after the date of the field survey. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

2. Methodology

2.1 Desktop review

Prior to commencement of the targeted flora survey, a review of the spring 2018 biological assessment report for the Mitchell Freeway Extension Hester Avenue to Romeo Road (GHD 2019) was undertaken to identify conservation significant flora likely to occur within the survey area and assist in survey design.

A follow-up desktop assessment of the Project area was completed by GHD (2020) prior to the 2019 field survey to verify the 2018 desktop assessment and to identify any changes to listed conservation significant flora.

Desktop searches included a review of the following databases:

- The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool
- The Department of Biodiversity Conservation and Attractions (DBCA) *NatureMap*
- The DBCA Threatened (Declared Rare) and Priority Flora (TPFL) database and the WA Herbarium database (WAHERB) for Threatened flora listed under the *Biodiversity Conservation Act 2016* (BC Act).

2.2 Targeted flora

Desktop searches identified the presence/potential presence of 26 conservation significant flora taxa within a 5 km radius of the Mitchell Freeway extension Project area (GHD 2019, GHD 2020). A likelihood of occurrence assessment based on survey effort in spring 2018, habitat requirements and known records in the area concluded six taxa are known to occur within the Project area, one taxa is likely to occur and four taxa may possibly occur. The remaining species are considered unlikely or highly unlikely to occur within the Project area. One of the species considered possible to occur is a type of moss. The collection of non-vascular flora species is outside of the survey scope and therefore excluded from the targeted assessment.

The ten taxa, including their reported flowering periods, which are the focus of this significant flora targeted survey are listed in Table 1. Of the species previously recorded within the Mitchell Freeway extension Project area (GHD 2019), none had been recorded from within the targeted flora survey area (current survey).

Table 1 Flora taxa identified as potentially occurring within the survey area

| Taxon | Status | Description | Flowering time (WA Herbarium 1998-, DotEE 2019) | Likelihood of occurrence |
|-------------------------|------------|--|---|---|
| <i>Acacia benthamii</i> | Priority 2 | Shrub, ca 1 m high, flowers yellow. Occurs in sand, typically on limestone breakaways. | August to September. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |

| Taxon | Status | Description | Flowering time (WA Herbarium 1998-, DotEE 2019) | Likelihood of occurrence |
|--|------------|---|---|---|
| <i>Baeckea</i> sp. Limestone (N. Gibson & M.N, Lyons 1425) | Priority 1 | Compact shrub 1.2 (1.6) high with pink, pale-pink to white flowers. Grey sand, yellow sand with limestone outcropping. On hills. | Potentially September-December. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |
| <i>Conostylis bracteata</i> | Priority 3 | Rhizomatous, tufted or shortly proliferous perennial, grass-like or herb, 0.2-0.45 m high. Flowers yellow. Occurs in sand, limestone on consolidated sand dunes. | August to September. | Suitable habitat present within the survey area. |
| <i>Conostylis pauciflora</i> subsp. <i>euryrhipis</i> | Priority 4 | Rhizomatous, stoloniferous perennial, grass-like or herb, 0.06-0.18 m high. Flowers yellow. White, grey or yellow sand on consolidated dunes. | August to October. | Suitable habitat within the survey area. |
| <i>Hibbertia spicata</i> subsp. <i>leptotheca</i> | Priority 3 | Erect or spreading shrub, 0.2-0.5 m high. Flowers yellow. Occurs on sand near-coastal limestone ridges, outcrops and cliffs. | July to October. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |
| <i>Jacksonia sericea</i> | Priority 4 | Low spreading shrub, to 0.6 m high. Flowers orange. Calcareous and sandy soils. | Usually December or January to February. | Suitable habitat within the survey area. |
| <i>Leucopogon</i> sp. Yanchep (M. Hislop 1986) | Priority 3 | Erect shrub, 0/15-1 m high, to 0.6 m wide. Flowers white/pink. Light grey-yellow sand, brown loam, limestone, laterite, granite. Coastal plain, breakaways, valley slopes, low hills. | April to June or September. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |
| <i>Leucopogon maritimus</i> | Priority 1 | Low spreading shrub up to 40 cm tall. Flowers white. Pale yellow to white-grey sand, upper slopes of coastal dunes, limestone. | April-May and August. | Suitable habitat within the survey area. |

| Taxon | Status | Description | Flowering time (WA Herbarium 1998-, DotEE 2019) | Likelihood of occurrence |
|----------------------------|------------|---|---|---|
| <i>Pimelea calcicola</i> | Priority 3 | Erect to spreading shrub, 0.2-1 m high. Flowers pink. Sand. Coastal limestone ridges. | September to November. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |
| <i>Stylidium maritimum</i> | Priority 3 | Caespitose perennial, herb, 0.3-0.7 m high. Flowers white/purple. Sand over limestone. Dune slopes and flats. Coastal heath and shrubland, open Banksia woodland. | September to November. | Species was recorded in the Mitchell Freeway Extension Project area (GHD 2019). |

2.3 Field survey

2.3.1 Sampling method

GHD ecologist Erin Lynch (flora licence no. SL012374) and botanist Sarah Flemington (flora licence no. FB62000202) completed a targeted flora assessment of the survey area between 7 - 9 October 2019. The field survey timing generally coincided with the most suitable period to identify the flora listed in Table 1.

The reported flowering period for most of the targeted species is September/October with the exception of two species; *Jacksonia sericea* (usually December or January/February) and *Leucopogon maritimus* (April-May, August). *Leucopogon maritimus* would present identifiable features without flowers. *Jacksonia sericea* has previously been recorded within the Project area (GHD 2014) but was not recorded during the 2018 surveys. *Jacksonia sericea* and the more commonly occurring *J. calcicola* are closely related species that are known to intergrade in the northern Perth suburbs (M. Hislop pers comm. 9 Nov. 2018). *Jacksonia calcicola* is a common and dominant component of the understorey throughout the Project area, particularly in association with the *Banksia* woodlands and mixed heathlands. Given the complexity of distinguishing the two species it is considered *Jacksonia sericea* is likely to occur within the survey area and extended survey area however its occurrence may be isolated (GHD 2019). *Jackson calcicola* is known to flower in January to February/April/June/September or November to December.

Based on the significant flora to be targeted, vegetation mapping completed for the Project and previous survey results and effort, GHD employed a sampling method involving walking traverses spaced approximately 30 to 50 metres (m) apart in areas of native vegetation. If significant flora were recorded, more fine scale transects and meandering would be employed. If significant flora were identified, the location and number of plants present were recorded using handheld GPS units.

As the purpose of the targeted flora survey was to search for and record significant flora taxa, additional information along each traverse such as descriptive location, landform, aspect, soils and vegetation condition was not recorded. This information has already been captured for the biological survey area as part of detailed vegetation and flora surveys completed and reported on by GHD (2019).

The survey methodology employed by GHD was undertaken with reference to the Environmental Protection Authority (EPA) *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

2.3.2 Field survey limitations

The survey area was entirely accessible and was adequately accessed by foot. The area has been subjected to historical disturbance events (e.g. clearing, tracks, fencing); however, these disturbances did not impact the survey.

Adequate resources were employed during the field survey with two experienced ecologist/botanists and four person days spent undertaking the survey.

3. Results

No Threatened or Priority Flora were identified within the survey area during the field survey. This outcome is consistent with the spring 2018 biological survey (GHD 2019).

4. References

Environmental Protection Authority (EPA) 2016, *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, Perth, Environmental Protection Authority.

GHD Pty Ltd (GHD) 2019, *Mitchell Freeway Extension Hester Avenue to Romeo Road Biological Survey*, unpublished report prepared for main Roads Western Australia.

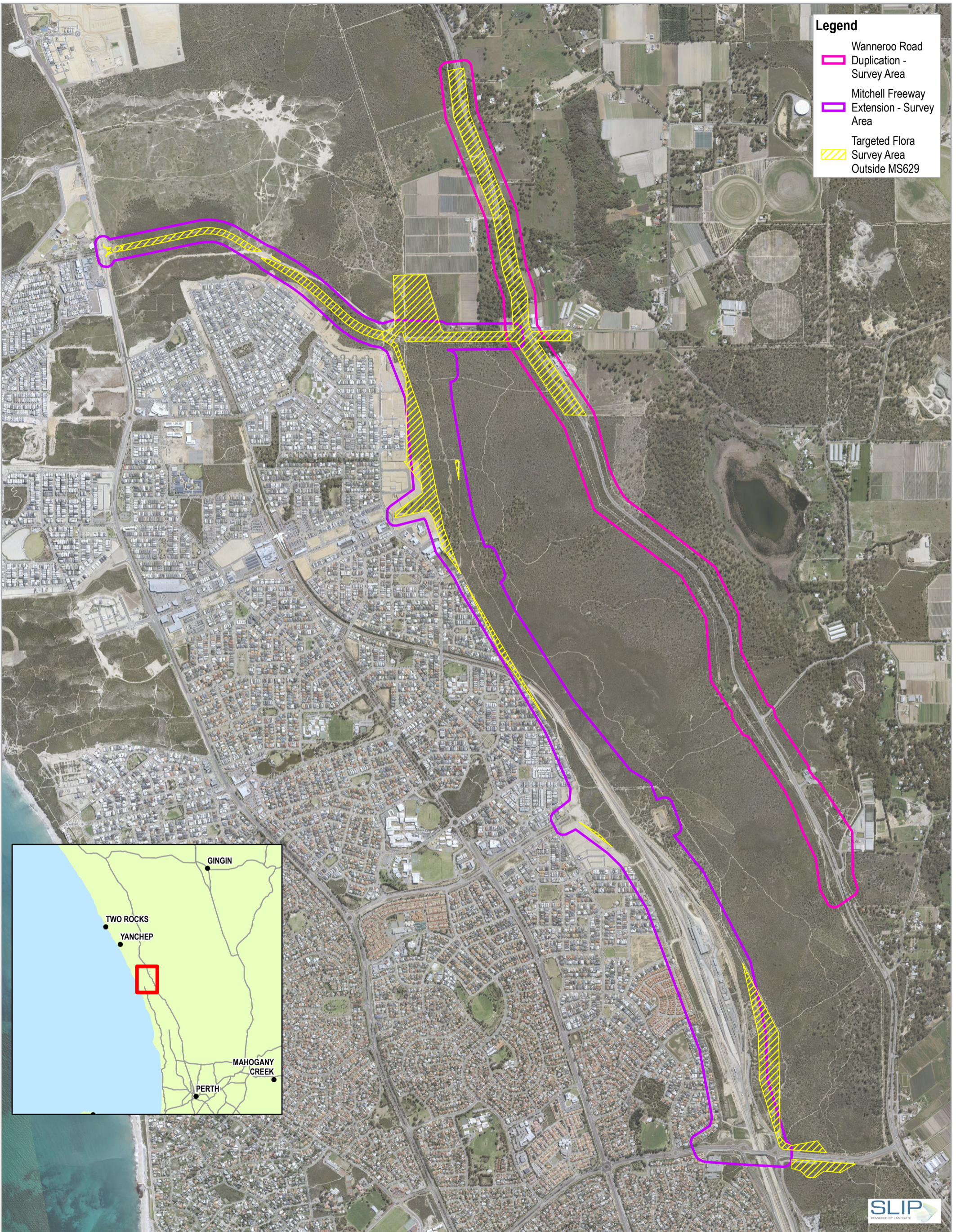
GHD Pty Ltd (GHD) 2020, *Mitchell Freeway Extension Hester Avenue to Romeo Road Desktop Assessment Memorandum*, unpublished report prepared for main Roads Western Australia.

Western Australian (WA) herbarium 1998-, *Florabase – the Western Australian Flora*, Department of Biodiversity, Conservation and Attractions, retrieved September 2019, from <http://florabase.dpaw.wa.gov.au/>.

Appendices

Appendix A – Figures

Figure 1 Survey area



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