



07 November 2017

Shayne Joynson
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PO Box 207
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Our ref: 61/35058
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Dear Mr and Mrs Joynson

Lot 1 South Western Highway North Boyanup Targeted Vegetation and Flora Survey

1 Introduction

1.1 Background

Joynson Enterprises submitted an application to the Department of Environment Regulation (DER – now Department of Water and Environmental Regulation (DWER)) in April 2015 to clear native vegetation on Lot 1 on Diagram 43421, North Boyanup (CPS 6554/1). As part of ongoing assessment, the DWER identified that the application area may contain significant habitat for *Drakaea elastica*, *D. micrantha* (both listed as Threatened under the State *Wildlife Conservation Act 1950*) and the 'Banksia Woodlands of the Swan Coastal Plain (SCP)' Threatened Ecological Community (TEC) (listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*). In order to determine the current environmental impacts, the DWER has requested a survey of the application area to ascertain whether it supports rare flora and is representative of the TEC.

1.2 Scope and purpose

GHD was commissioned by Joynson Enterprises to complete a targeted vegetation and flora survey for the project. The purpose of this memorandum is to summarise the methodology of the targeted survey, and report on the outcomes of the survey, including information on the presence/absence of the Banksia Woodlands of the SCP TEC, and *Drakaea elastica* and *D. micrantha* within the survey area.

1.3 Survey area

The survey area includes the application area on Lot 1 on Diagram 43421, South Western Highway, North Boyanup in the Shire of Capel. The survey area covers 7.52 hectares (ha).

1.4 Limitations and assumptions

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

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

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of infrastructure, access tracks and vegetation. As a result, not all relevant site features and conditions may have been identified in this letter.

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2 Methodology

2.1 Field survey

GHD botanist (Angela Benkovic, SL012111) conducted a one day targeted search of the survey area on 31 October 2017. The targeted survey was undertaken with reference to the Environmental Protection Authority (EPA) Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

2.1.1 Targeted vegetation survey

Field survey methods involved a combination of sampling quadrats and relevés located in *Banksia* dominated vegetation units and traversing the survey area by foot to determine the presence of the *Banksia* TEC based on the key diagnostic characteristics, and condition and size thresholds as outlined

in *Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Department of the Environment and Energy (DEE) 2016).

Quadrats (measuring 10 m x 10 m – area of 100 m²) and relevés were located within *Banksia* dominated areas, with field data at each site recorded on a pro-forma data sheet. The vegetation condition was assessed in accordance with the vegetation condition rating scale for the South West and Interzone Botanical Provinces (EPA 2016).

Species that were well known to the survey botanist were identified in the field; all other species were collected and assigned a unique collection number to facilitate tracking. All specimens collected during the field assessment were dried and processed in accordance with the requirements of the WA Herbarium. Species were identified by the use of taxonomic literature, electronic keys and online electronic databases.

Nomenclature used in this report follows that used by the Western Australian Herbarium as reported on *FloraBase* (WA Herbarium 1998–).

2.1.2 Flora survey

The survey area was traversed by foot and involved walking transects spaced approximately 10-20 m apart in vegetated areas (considered suitable habitat) to identify individuals of *Drakaea elastica* and *D. micrantha*. A handheld GPS enabled tablet with ArcGIS software was used for accurate navigation.

2.2 Survey limitations

Survey timing, taxonomy and coverage are important considerations when determining confidence levels in the results. A discussion regarding each of these factors with respect to this targeted survey are described below.

- Timing/weather/season: The targeted survey was undertaken in October 2017. In the three months prior to the survey (Jul-Sep), the Bunbury weather recording station recorded a total of 408.2 millimetres (mm) of rainfall. This total is approximately 18% greater than the long-term average for the same period (Jul-Sep; 345.5 mm) (Bureau of Meteorology 2017).

The field survey was undertaken during October, which is the reported flowering period for *Drakaea elastica* and *D. micrantha* (WA Herbarium 1998–). Whilst, ephemeral species such as orchids are not always present in each year/season, survey timing was considered optimal for locating and identifying *Drakaea elastica* and *D. micrantha*.

- Flora determination: Vascular flora was the focus of the assessment and flora determination was undertaken by the GHD botanist in the field. The taxonomy and conservation status of the Western Australian flora is dynamic. This letter was prepared with reliance on taxonomy and conservation current at the time issuing, but it should be noted this may change.
- Completeness: The survey area was fully surveyed during the October 2017 survey and was accessed on foot. Survey intensity was considered adequate for assessing the presence of the *Banksia* TEC and locating *Drakaea elastica* and *D. micrantha*, if present.

3 Results

3.1 Vegetation type and condition

The survey area supports areas of *Banksia* Woodland, as reported by Ekologica (2012) and confirmed by GHD during the field survey. These areas are described as woodland of *Banksia attenuata* and *B. ilicifolia* (with occasional emergent *Eucalyptus marginata* and *Nuytsia floribunda*) over *Kunzea glabrescens* (\pm *Podocarpus drouynianus*) open shrubland and *Melaleuca thymoides*, *Stirlingia latifolia*, *Hypocalymma robustum*, *Calytrix fraseri*, *Macrozamia riedlei*, *Acacia pulchella* and *Jacksonia horrida* shrubland over *Adenanthos meisneri*, *Hemiandra pungens*, *Dasypogon bromeliifolius*, *Hibbertia racemosa* low shrubland over *Patersonia occidentalis*, *Hypolaena exsulca* and *Lyginia barbata* low open sedgeland (Note: in places the shrub *P. drouynianus* dominates the understorey).

The vegetation condition of the survey area was rated as *Good to Completely Degraded*, as reported by Ekologica (2012) and confirmed by GHD during the field survey. The majority of the survey area was rated between *Degraded* and *Completely Degraded*, with the remaining small areas rated as *Good*.

3.2 Conservation significant ecological communities

***Banksia* Woodlands of the SCP TEC**

The *Banksia* Woodlands of the SCP TEC is restricted to the SCP Interim Biogeographic Regionalisation of Australia (IBRA) bioregion and immediately adjacent area (DEE 2016). The ecological community typically occurs on well drained, low nutrient soils on sandplain landforms, particularly deep Bassendean and Spearwood sands and occasionally on Quindalup sands (DEE 2016).

During the field survey the *Banksia* Woodland vegetation type was assessed as **not** meeting the key diagnostic characteristics for the *Banksia* Woodlands of the SCP TEC, as outlined in DEE (2016). Specifically:

- The survey area occurs in the SCP IBRA bioregion
- The survey area occurs on sandplain landform, notably Bassendean sands
- The vegetation type has a low woodland structure and the upper sclerophyllous layer is dominated or co-dominated by *Banksia attenuata* and *B. ilicifolia*. The understorey consists of a mid to low sclerophyllous shrub layer and a herbaceous ground layer of sedges.
- However, the mapped areas do not meet the minimum condition and patch size criteria necessary to be considered as part of the TEC.

***Banksia* dominated woodlands of the SCP IBRA region PEC**

The field assessment confirmed the presence of the *Banksia* dominated woodlands of the SCP IBRA region Priority Ecological Community (PEC), listed as Priority 3 by the Department of Biodiversity, Conservation and Attractions (DBCA). This PEC differs from the TEC in that it has no minimum condition and patch size thresholds. There is 5.37 ha of the PEC present within the survey area. A breakdown of the PEC is detailed in Table 1.

Table 1 Extent of Banksia dominated woodlands of the SCP IBRA region PEC within the survey area

Vegetation type	Vegetation condition	Extent (ha)
<i>Banksia</i> woodland	Good	1.62
	Degraded	3.53
	Completely Degraded	0.22
Total		5.37

3.3 Conservation significant flora

No evidence of *Drakaea elastica* and *D. micrantha* or suitable habitat that would support *Drakaea elastica* and *D. micrantha* was recorded within the survey area during the targeted survey.

Sincerely
GHD Pty Ltd

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References

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