

Flora and Fauna Assessment, 280 Evans Road, Cranbourne West



May 2013

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Flora and Fauna Assessment for 280 Evans Road, Cranbourne West.

May 2013

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1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by Louise Law of KLM Spatial to undertake a Flora and Fauna Assessment for 280 Evans Road Cranbourne West. Ecological information was sought in support of an application for a permit to subdivide the site and develop the proposed Rangebank Business Park.

This report details information on the flora, fauna and habitat quality of the study site by:

- reviewing existing information
- documenting new information, and
- providing recommendations to ensure the site's biodiversity values are maintained.

1.1 Project background

The scope of works proposed by Practical Ecology Pty Ltd and agreed to by Louise Law and Perfection Private included:

- the compilation of a list of all vascular plants, including an assessment of their biological significance;
- assessment of the existing vegetation and/or original Ecological Vegetation Classes found within the site, and describing different qualities of remnant and exotic vegetation;
- recording of any incidental fauna observations and general fauna habitat will be considered;
- the recording (with a handheld GPS) and mapping of any rare or threatened flora and fauna sightings made in the field ;
- assessment of habitat conditions on the site to determine the likelihood of presence for state or nationally significant flora and fauna, specifically targeting Dwarf Galaxias *Galaxiella pusilla* and Growling Grass Frog *Litoria raniformis*;
- mapping of relevant potential habitat for significant fauna and flora species; and
- consideration of potential requirements by Council/DSE for further flora and fauna surveys, based on observed values.

1.2 Aims

This report aims to:

- establish the study site's known biological values;
- document significant sites or species;
- assess all fieldwork data and information from relevant literature and databases against statutory planning requirements; and

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- provide recommendations to ensure that impacts on the site's ecological values are avoided and minimised as far as practicable.

1.3 Study site

The study site is located to the south-east of the Thompsons Road and Evans Road intersection in Cranbourne West. The site is approximately 25 ha in size and is zoned under the Planning Scheme as Urban Growth Zone, Schedule 1. A Development Contributions Plan Overlay (DCPO12) currently applies to the site, and also contains Areas of Aboriginal Cultural Heritage Sensitivity.

An existing dwelling with associated infrastructure is currently present on site, with the remainder of the site currently being used as farmland. Within the site are smaller fenced-off paddocks. A shallow drainage line runs through two of the paddocks that did not contain water during the time of inspection.

Vegetation on site consists of pasture grasses with a few indigenous rushes and herbs. There is a row of planted trees along the driveway as well as a row of Cypress trees within the paddocks. Areas of indigenous revegetation exist on the neighbouring property to the east.

To the east of the site is the Cranbourne Terminal Station. Further east and south of the site are residential developments. Housing development is in progress to the north and north-west of the site. To the west are large blocks with dwellings and areas of farmland.

The study site falls within the Gippsland Plains Bioregion (DSE 2012a).

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2. METHODS

2.1 Site assessment

An initial site assessment was undertaken by James Kidman and Austin O'Malley on Friday the 3rd of April 2013. The assessment involved:

- mapping and assessing vegetation as per DSE's Habitat Hectare methodology;
- the compilation of a list of vascular plants observed across the study site;
- the compilation of a list of vertebrate fauna observed across the study site; and
- consideration of the site's habitat values for threatened fauna and flora.

2.2 Vegetation categorisation, classification and quality

Vegetation was assessed for its categorisation according to *Victoria's Native Vegetation Management – A Framework for Action* (DNRE 2002), then it's Ecological Vegetation Class and finally, quality, as determined through Habitat Hectare assessment.

2.2.1 Vegetation categories

Vegetation in the study area was surveyed for categorisation as to the following types. These categories and their definitions are consistent with *The Guide for Assessment of Referred Planning Permit Applications* (DSE 2007, p. 10); the principle guiding document for the implementation of *Victoria's Native Vegetation Management – A Framework for Action* (DNRE 2002). They are:

- **Scattered trees:**

Defined as canopy trees within an area where at least 75% of the total understorey plant cover is weeds or non-native plants and the overall canopy cover for a group (i.e. three or more) of trees is less than 20%.

The quality or condition of areas of scattered trees does not need to be assessed.

- **Remnant vegetation**

Remnant patch definition as per DSE (DSE 2007): an area of vegetation, with or without trees, where less than 75% of the total understorey plants cover is weeds or non-native plants (bare ground is not included). That is at least 25% of the understorey cover is native; or – *a group* (i.e. three or more) of trees where the tree *canopy* cover is at least 20%.

The patch should be consistent with the remnant vegetation definition in DSE (DSE 2007) which states that native vegetation is established or has regenerated on a largely natural landform and that the plant species present are those which are expected in that vegetation community. DSE (DSE 2007) also states that “*natural landforms may have been subject to some past surface disturbance such as some clearing...but do not include man-made structures such as dam walls and quarry floors*”.

- **Degraded treeless vegetation**

Vegetation that is not a wetland, remnant patch or scattered trees is treated as degraded treeless vegetation. There are two types of degraded treeless vegetation (DSE 2010):

Minor treeless vegetation:

Minor treeless vegetation is vegetation that does not have more than 25% understorey cover that is native or contain any canopy trees. This report has referred to Minor Treeless Vegetation as Non-native Vegetation (NNV).

Modified treeless vegetation:

Modified treeless vegetation is vegetation that has more than 25% understorey cover that is native, but is now dominated by species that are unlikely to have originally dominated the site. This may include such situations as former grasslands that have had a history of cropping, and now have an extremely modified cover consisting of a few opportunistic, primary colonising native grass species generally amongst exotic species, with little other indigenous diversity.

2.2.2 Ecological Vegetation Classes

Ecological Vegetation Classes (EVCs) are a method of systematic organisation of plant communities into common types that occur in similar environmental conditions throughout Victoria. Each vegetation type is identified on the basis of its floristic composition (the plant species present), vegetation structure (woodland, grassland, saltmarsh), landform (gully, foothill, plain) and environmental characteristics (soil type, climate).

DSE EVC mapping (DSE 2012a) was accessed to assess the EVC likely to occur on the study area. EVCs were then identified in the field according to observable attributes including dominant and characteristic species consistent with the benchmark descriptions (DSE 2011).

2.2.3 Tree census and classification

Victoria's Native Vegetation Management – A Framework for Action (DNRE 2002) places canopy species trees into one of four categories. The following definitions are taken from DSE (DSE 2007) and the Port Phillip and Western Port Catchment Management Authority (PPWCMA 2006):

Very Large Old Tree (VLOT) is a tree with a Diameter at Breast Height (DBH) measured at 1.3 metres above ground, equal to or greater than 1.5 times the large tree diameter as specified in the relevant EVC benchmark.

Large Old Tree (LOT) is a tree with a DBH equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

Medium Old Tree (MOT) is a tree with a DBH equal to or greater than 0.75 of the large tree diameter in the relevant EVC benchmark, but less than the DBH for a large old tree.

Small Tree (ST) is a tree with a DBH equal to or greater than 0.25 of the large tree diameter in the relevant EVC benchmark but less than the DBH for a medium old tree.

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2.3 Flora

2.3.1 Plant taxonomy

Plant taxonomy used in this report is derived from Walsh & Stajsic (Walsh and Stajsic 2008) and/or the Victorian Flora Site Database (VFSD) (DSE 2012b)

2.3.2 Existing information

Existing database records on the Department of Sustainability and Environment's (DSE's) VFSD for a five kilometre radius around the study area was obtained from the 2011 version (DSE 2012b).

2.3.3 Flora survey

The study area was inspected on foot by James Kidman and Austin O'Malley on the 28th April 2013.

A flora species list (or defined area list) for the study site was compiled. This included incidental sightings of species outside the specific areas where these assessments were undertaken. The aim of the flora survey was to record all flora species observed during fieldwork.

The following considerations should be made with regard to the flora survey:

- the survey was undertaken during one day which did not include the optimal time for plant identification;
- time allocated to the survey permitted extensive coverage of the entire site;
- given that the site has been cleared of native vegetation in the past and contains few remnant species it is unlikely many more indigenous species than those observed occur on the site;
- due to the cryptic nature and biology of some species, such as orchid and lily species, that can only be observed for a limited period of time each year and may not be evident every year, there is some, albeit small potential, that some indigenous species are present on-site and have escaped observation; and
- Long-term cattle grazing has occurred across the site and has likely displaced many of the indigenous species over a period of many years.

2.3.4 Plant identification

Species that could not be identified in the field were recorded to the nearest possible family or genera. These were then collected as per the protocols associated with Practical Ecology's Flora and Fauna Guarantee (FFG) Act 1988 permit (No. 10004805) for the collection of plant material.

In order to assist in the identification of some flora, major features of the specimens were collected where possible, including leaves, parts of branches, fruit and/or flowers.

2.4 Fauna

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2.4.1 Fauna taxonomy

Animal taxonomy is consistent with the DSE's Atlas of Victorian Wildlife (DSE 2012c).

2.4.2 Existing information

Existing information on the DSE's Victorian Fauna Database for a five kilometre radius around the study site was obtained from the 2011 version (DSE 2012c).

2.4.3 New information

Incidental fauna observed on site were recorded and the site was inspected for potential habitat values for fauna. The habitat assessment relies upon making judgements on the suitability of habitat present within the study site for any significant species recorded on existing databases.

Potential habitat values considered include:

- old hollow-bearing trees;
- intact EVCs including the understorey strata;
- connectivity to existing reserves and other remnant vegetation;
- waterbodies, wetlands or wet depressions; and
- areas of dense groundstorey vegetation.

2.5 Potentially occurring rare or threatened species

Database information was used to determine likelihood of occurrence of rare or threatened species that occur or are predicted to occur within five kilometres of the study area. In determining this 'likelihood of occurrence' and utilisation of the study area by national or state significant flora and fauna, the following factors were considered:

- the conservation status of each species and its distribution;
- previous recordings of species in the local area;
- date of last record;
- the habitat requirements of individual species;

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- the physical attributes of the site, such as topography, geology, soils, aspect and other habitat features such as trees with hollows, the presence of rocks or boulders, logs on the ground;
- the history of land use at the study site; and
- how fragmented and modified is the environment surrounding the study site.

A basic matrix that describes the justification for the likelihood of occurrence is presented below.

Table 1. Criteria for potential occurrence of rare or threatened species

| Likelihood of occurrence | Criteria |
|--------------------------|--|
| Nil | Species known to be extinct in local area and/or absent from the site. |
| Low | Unsuitable habitat at study site; or habitat conditions intermediate and records very limited and dated; or if it were present, it is highly likely not to have been observed on site |
| Medium | Habitat conditions are intermediate, and/or optimal habitat conditions for species but local records limited or dated and/or if it were present, it is likely to have been observed on site |
| High | Optimal habitat conditions for species or species recorded at site, or intermediate habitat conditions but extensive local records and/or if it were present, it is likely have been observed on site. |

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2.5.1 Remnant vegetation

Following the determination of habitat hectare score outlined in the above process, it is possible to determine the Conservation Significance of the vegetation in question. All EVCs in each bioregion have been designated a conservation status level.

The conservation status of each EVC, published online (DSE 2011), combined with the habitat hectare score, is one method to determine the Conservation Significance of the assessed patch. This is outlined in Appendix 3 (Table 5) of *Victoria's Native Vegetation Management, A Framework for Action* (DNRE 2002).

2.5.2 Degraded Treeless Vegetation

Degraded treeless vegetation does not require a Bioregional Conservation status assessment.

2.5.3 Rare or threatened species

It is important to recognise that conservation significance for remnant vegetation not only depends on the habitat hectare score and the conservation status, but also takes into account other biodiversity attributes such as the presence of significant species. The habitat assessment for rare or threatened species uses the decision guidelines in DSE's *Native Vegetation: Guide for assessment of referred planning permit applications* (DSE 2007) in

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combination with analysis of records of species in relevant databases; scientific journal articles and reports and where possible expert advice from specialist botanists and zoologists.

2.6 Data handling and storage

2.6.1 Database entry, validation and submission

All species of flora recorded are coded using the DSE Biodiversity Information Group standards, then entered into Practical Ecology's editable version of FIS. All flora records collected during the fieldwork is submitted to DSE in electronic files for incorporation to their FIS as a part of Practical Ecology's data-sharing agreement with DSE.

On completion of the field surveys, all flora data was checked for errors, by a manual check and by using the data validation procedure in Viridans FIS software.

2.6.2 Mapping

Geographical positioning data collection in the field for the purposes of map display was carried out using a combination of a handheld GPS device, aerial photography and existing site survey plans. Determination of vegetation boundaries was undertaken using a combination of GPS data and ground-truthing with aerial photography. Due to inaccuracy with GPS data the mapping should be considered approximate only.

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3. RESULTS

3.1 Vegetation categorisation, classification and quality

3.1.1 Vegetation categorisation and Ecological Vegetation Classes

Vegetated areas of the study site consisted mostly of pasture grasses, planted Australian natives and other exotic tree and shrub species. The adjacent properties contain areas of revegetation and exotic vegetation. A small area of regenerating Swamp Scrub exists to the south of the property.

There were approximately 11 paddocks within the site that consisted primarily of exotic pasture grasses with scattered rushes (Figure 1; Map 1). Species common across the site included: *Brown-top Bent *Agrostis capillaris*, *Cape Weed *Arctotheca calendula*, *Prairie Grass *Bromus catharticus*, *Kikuyu *Cenchrus clandestinus*, *Couch *Cynodon dactylon*, *Perennial Ryegrass *Lolium perenne*, Hollow Rush *Juncus amabilis* and Pale Rush *Juncus pallidus*. These areas have been mapped as Non-native Vegetation.

Scattered *Blackberry *Rubus fruticosus* spp. agg., occurs around the perimeter of the site along the fence-line, as well as the occasional Hedge Wattle *Acacia paradoxa*, which appear to be less than 10 years old and within the road reserve to the south of the property (Figure 2).



Figure 1. Looking south-east at pasture type vegetation within paddock 1.

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Figure 2. Looking at the regenerating Hedge Wattle outside the south-east corner of the site.

Woodland revegetation on the adjacent property to the east consists of River Red-gum *Eucalyptus camaldulensis*, Silver Wattle *Acacia dealbata*, Blackwood *Acacia melanoxylon*, Burgan *Kunzea ericoides* spp. agg. and Common Tussock-grass *Poa labillardierei* (Figure 3). An area of Swampy Woodland revegetation existed to the east of the property near the north east corner of the site (Map 1). Species within this zone include: River Red-gum, Marsh Club-sedge *Bolboschoenus medianus*, Common Spike-sedge *Eleocharis acuta*, and Tussock Grass *Poa* spp.

The regenerating Swamp Scrub observed within the road reserve outside the property along its southern boundary was considered less than 10 years old and had an overall indigenous cover of less than 25%. There were a few indigenous species present that included: Swamp Paperbark *Melaleuca ericifolia*, Blackwood, Spiny-headed Mat-rush, *Lomandra longifolia*, Weeping Grass *Microlaena stipoides* var. *stipoides* and Kangaroo Grass *Themeda triandra*. Occasional Kangaroo Grass, Tussock Grass spp. and Weeping Grass also occurred along this road reserve.

This area of road reserve does not qualify for a remnant patch nor are the species that occur within this area listed for protection under the FFG Act, therefore, a permit to remove this vegetation is not required if this road reserve is to be developed.

Drainage lines within the adjacent road reserves along the property western and northern boundaries contained mostly weedy species with occasional emergent Common Reeds *Phragmites australis*. They were slashed and did not contain water at the time of assessment.

The existing EVC's would have been consistent with Swampy Riparian Woodland/Swamp Scub Mosaic and Plains Grassland/Plains Grassy Woodland Mosaic (DSE 2013a; Oates and Taranto 2001). EVC's were assigned based on the elevation, topography, soils and species present during field observations and via DSE mapping.

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Figure 3. Looking north at woodland revegetation on adjacent property to the east.



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Figure 4. Looking east at the Swampy Woodland revegetation on adjacent property to the east.



Figure 5. Looking west at the Swamp Scrub regeneration on the road reserve to the south of the site.

3.1.2 Habitat hectare assessment

Due to the absence of patches of indigenous vegetation, no Habitat Hectares Assessments were required. All vegetation on site was found to be below the threshold for remnant patch

classification and adjacent indigenous vegetation was either revegetation or regeneration less than 10 years old.

3.2 Tree census

There were no scattered indigenous trees, or indigenous trees within patches, present on site. Surrounding the house there were a number of planted indigenous, Australian native and exotic trees and shrubs (Figure 6; Figure 7). All of these plants have been planted and included; #Spotted Gum *Corymbia maculata*, Lemon-scented Gum *Corymbia citriodora* subsp. *citriodora*, Swamp Paperbark and Giant Honey-myrtle *Melaleuca armillaris* subsp. *armillaris*. There was a row of *Monterey Cypress *Cupressus macrocarpa* in the paddocks roughly in the centre of the site (Map 1). Four medium-sized (between 20–35cm DBH) Sugar Gum *Eucalyptus cladocalyx* were also located along the northern boundary.



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Figure 6. Looking west along the existing driveway.



Figure 7. Looking at the planted Melaleuca toward the house site.

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3.3 Flora

A total of 54 plant taxa were recorded in the study site during this survey, of which 6 were indigenous (10%) and 48 (90%) were introduced. Appendix 1 lists all flora species recorded within the study site. Common indigenous species found on site were Hollow Rush, Pale Rush, Dock and Common Purslane *Portulaca oleracea*.

The adjacent revegetation to the east of the site has been modified and would be unlikely to support any of the original flora of the area. Regenerating vegetation to the south of the site was slashed and modified. There were many exotic grasses within this vegetation that have outcompeted most other indigenous vegetation.

3.3.1 Potentially occurring significant species

A total of 16 rare or threatened vascular and non-vascular indigenous flora taxa have been recorded from a 5km radius search area from the centre of the site in VFSD, Appendix 2 (DSE 2012b). Of these species, two are listed as vulnerable under the EPBC Act and three are listed under the FFG Act.

Given the highly degraded nature of the site and absence of remnant vegetation in proximity to the site, there is a low likelihood that any of these listed species would occur on site or utilise it in the short to long term.

3.4 Fauna

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Fieldwork undertaken throughout the site also involved a visual assessment of fauna habitat elements; especially those suitable for significant species. The habitat observed within the site included:

- leaf litter
- wet depressions
- tree canopies (adjacent property and surrounding house and driveway)
- semi-permanent wetland areas (adjacent property)

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The site contains minimal habitat for fauna species. A number of planted trees and shrubs surrounding the house and along the driveway provide habitat for bird fauna, a number of which were seen to utilise this habitat. The few medium Sugar Gums around the perimeter provide sparse canopy and no hollows. The row of Monterey Cypress provide better nesting habitat for some bird species. A depression that runs across the paddocks may become waterlogged during wetter periods and could aid some seasonal dispersal of amphibians (Figure 8). This channel is approximately 10–15cm deep compared with ground level and no indigenous vegetation was recorded within the channel. Within the site, damp areas have become hoof trodden from cattle and would not be suitable habitat for amphibians or other fauna. Species observed during the site inspection are presented below in Table 2.

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Figure 8. Looking north-west along the drainage channel within the site.

Table 2. Incidental fauna list recorded during site visit

| Origin | Common name | Scientific name |
|--------|---------------------|---------------------------------|
| | Australian Magpie | <i>Gymnorhina tibicen</i> |
| * | Common Blackbird | <i>Turdus merula</i> |
| * | Common Myna | <i>Acridotheres tristis</i> |
| * | Common Starling | <i>Sturnus vulgaris</i> |
| * | European Skylark | <i>Alauda arvensis</i> |
| | Little Raven | <i>Corvus mellori</i> |
| | Magpie-lark | <i>Grallina cyanoleuca</i> |
| | Rainbow Lorikeet | <i>Trichoglossus haematodus</i> |
| * | Spotted Turtle-Dove | <i>Streptopelia chinensis</i> |
| | Straw-necked Ibis | <i>Threskiornis spinicollis</i> |
| | Welcome Swallow | <i>Hirundo neoxena</i> |
| | Willie Wagtail | <i>Rhipidura leucophrys</i> |

The adjacent site to the east contains a large amount of revegetation. The Swampy Woodland revegetation contained areas of semi-permanent water bodies. These areas may provide habitat during wetter periods but were dry at the time of inspection.

3.4.1 Potentially occurring significant species

Twenty five rare or threatened fauna species have been recorded within a five kilometre radius search area in the Atlas of Victorian Wildlife database (DSE 2012c).

Of the 25 significant fauna species recorded in the local area:

- two species are listed under the EPBC act;
- thirteen species are listed under the FFG act; and,
- all species are listed under the DSE Victorian Rare Or Threatened Species list.

All species were determined to have a Low likelihood of occurrence on site due to the absence of suitable habitat conditions. The revegetation on the adjacent property to the east provided more suitable habitat for fauna, however, it was considered unlikely to support threatened species.

Information on significant fauna species specifically required in the brief and requested by council is provided below.

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Growling Grass Frog *Litoria raniformis*

The Growling Grass Frog is classified as Vulnerable nationally, and Endangered in Victoria, it is also listed under the Victorian *Flora and Fauna Guarantee Act* (FFG) 1988.

Growling Grass Frogs often inhabit water bodies with a diverse assemblage of aquatic vegetation, including emergent species such as sedges (*Gahnia* spp.), submergent species such as Curly Pondweed (*Potamogeton* spp.), floating species such as Water Ribbon (*Triglochin* spp.) and filamentous algae (Hamer and Organ 2006; Heard, Robertson and Moysey 2004). The aquatic vegetation provides sites for male frogs to call from, sites for eggs to be deposited and relatively safe development, and food and shelter for tadpoles. Dense submergent vegetation is especially important to protect eggs and tadpoles from predation (Heard, Robertson and Moysey 2004). However, it is also known to occur in ditches, dams and swamps or sheltering under discarded debris near those sites (Tyler and Knight 2009). Within the Beaconsfield–Pakenham area, Growling Grass Frogs are mainly recorded at farm dams and also use drainage lines, drains and channels for dispersal (Organ 2004; Storey 2006).

The site has some potential to provide minimal transitional habitat for this species, particularly when the area is wet, in light of the presence of a drainage line within the study site. However, the presence of cattle and associated disturbance regime along and the absence of suitable vegetation would diminish the effectiveness of this channel to act as a dispersal route. The absence of records within 5km of the site may suggest that there is minimal habitat remaining for this species within the area.

Therefore this species is considered to have a low likelihood of occurrence within the site.

Dwarf Galaxias

Dwarf Galaxias *Galaxiella pusilla* are tiny freshwater fish which occur in Tasmania, South Australia and Victoria. They are listed as Vulnerable under the EPBC Act; listed under the FFG Act, and Vulnerable in Victoria (DSE 2013b).

The Dwarf Galaxias is a mid–water, free–swimming species, and the entire life cycle is completed in freshwater. Diet consists primarily of a range of tiny aquatic invertebrates and terrestrial insects that fall on the water surface (Saddler, Jackson and Hammer 2010). The species spawns in late winter–spring; eggs are attached usually on the underside of aquatic vegetation or on a hard surface such as a rock or timber. Only one year class has been observed, suggesting that the Dwarf Galaxias is an annual species (Saddler, Jackson and Hammer 2010).

The Dwarf Galaxias typically occurs in slow flowing and still, shallow, permanent and temporary, freshwater habitats such as swamps, drains and the backwaters of streams and

creeks, often (but not always) containing dense aquatic macrophytes and emergent plants (Saddler, Jackson and Hammer 2010). In larger pools, the species is usually found amongst marginal vegetation. Some wetlands where it occurs may partially or completely dry up during summer, and such wetlands rely on seasonal flooding plus linkages to other sites where the species occurs, for habitat and population replenishment (Saddler, Jackson and Hammer 2010). It is often found in association with burrowing freshwater crayfish (*Engaeus* spp.), with the crayfish burrows apparently providing refuge from predators and dry conditions. In ephemeral wetlands it is not clear if the Dwarf Galaxias is capable of aestivation over dry summer months, or if it relies on refuges such as freshwater crayfish burrows to survive until the waterbodies fill the following autumn and winter (Saddler, Jackson and Hammer 2010). The natural degree of wetland connectivity to a more permanent waterbody (such as river or creek) may also be vital to their long-term survival (Saddler, Jackson and Hammer 2010).

The Dwarf Galaxias is still widely distributed, but populations are fragmented and patchy across the landscape (Saddler, Jackson and Hammer 2010). They are more abundant in the south-east of the state, most specifically in Mornington Peninsula & Western Port areas (Allen, Midgley and Allen 2002; Museum Victoria 2006). It is likely that the species has suffered a significant decline in abundance due to habitat changes to shallow freshwater wetlands, especially wetland drainage. Major threats to the Dwarf Galaxias include wetland drainage, climate change, habitat damage through grazing and lack of regeneration, and feral fish competitors and predators (Saddler, Jackson and Hammer 2010).

Given that no suitable habitat exists on site or adjoining the property and no sightings have been recorded within 5km of the site this species is considered to have a low likelihood of occurrence within the site.

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4. RELEVANT POLICY AND LEGISLATION

The following section explores relevant policy and legislation pertaining to biodiversity from the national level through to the local level.

4.1 Environment Protection and Biodiversity Conservation (EPBC) Act 1999

The *EPBC Act 1999* applies to sites where proposed developments or projects may have a significant impact on matters of national environmental significance. There are currently no matters of national environmental significance pertaining to the subdivision and development of this site.

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4.2 Flora and Fauna Guarantee (FFG) Act 1988

The *FFG Act 1988* was legislated to ensure the continued survival of all Victorian species of flora and fauna and all Victorian communities of plants and animals. The FFG Act provides a number of ways to help achieve its objectives including:

- listing of threatened taxa, communities of flora or fauna and potentially threatening processes, and creation of Action Statements and Management Plans for all listed taxa communities of flora or fauna and processes
- declaration of a Critical Habitat if the habitat is critical for the survival of a species or a community of flora or fauna, if listed as Critical Habitat, the Minister for Environment may then make an Interim Conservation Order (ICO) to conserve the Critical Habitat
- protection of flora and fauna through listing offences such as penalties relating to not following an ICO and taking, trading in, keeping, moving or processing protected flora without a licence. Although this does not apply to taking listed flora species from private land.

The current proposal does not affect any species or communities listed under the FFG act including removal of native vegetation.

4.3 Catchment and Land Protection (CaLP) Act 1994

The study area supports three weeds that are declared noxious under the Catchment and Land Protection (CaLP) Act 1994. Plants occurring on this list are known to or have the potential to result in detrimental environmental or economic impact.

Under the CaLP Act declared noxious weeds are categorised into four groups depending on their known and potential impact and specific circumstances for each region. These categories are:

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- State Prohibited Weeds (S) are either currently absent in Victoria or are restricted enough to be eradicated. The Victorian Government is responsible for their control.
- Regionally Prohibited Weeds (P) in the Port Phillip Catchment Management Authority (CMA) area these weeds are not necessarily widespread but have the potential to become widespread. It is expected that weeds that meet this criteria can be eradicated from the region. For weeds considered to be Regionally Prohibited it is the responsibility of the land owner to control these weeds on their land but not on adjacent roadside reserves.
- Regionally Controlled Weeds (C) are usually widespread but it is important to prevent further spread. It is the responsibility of the landowner to control these weeds on their property and on adjacent roadside reserves.
- Restricted Weeds (R) include plants that pose unacceptable risk of spreading in the State or other Australian states and are considered to be a serious threat to primary production, Crown land, the environment and/or community health if they were traded in Victoria. Trade in these weeds and their propagules, either as plants, seeds or contaminants in other material is prohibited.

The following table lists the declared noxious weeds observed on site.

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Table 3. Declared noxious weeds occurring within the study area

| Scientific Name | Common Name | Control Category (Port Phillip) |
|-------------------------|---------------|------------------------------------|
| <i>*Cirsium vulgare</i> | Spear Thistle | C |
| <i>*Rosa rubiginosa</i> | Sweet Briar | C |
| <i>*Ulex europaeus</i> | Gorse | C |

The site is intended for development and will therefore reduce and displace the declared noxious weeds found on site.

4.4 Victorian Planning Provisions

Under the *Planning and Environment Act 1997*, a permit is required to remove, destroy or lop native vegetation on sites greater than 0.4 hectares. There are, however, some exemptions under clause 52.17 of all local government planning schemes.

Victorian Planning Provisions (VPPs) were introduced as part of a planning reform process in 1996 to simplify and standardise the planning process. Planning Schemes are legal instruments outlining provisions for land use, development and protection and are constructed and sourced from the VPPs. *Victoria's Native Vegetation Management: A Framework for Action* (DNRE 2002a) is also part of all Victorian Planning Schemes.

All of the trees that occur within the property have been planted or are regeneration less than 10 years old and therefore do not require a permit for removal under Victorian Planning Provisions.

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Currently, none of the vegetation across the property requires a permit to clear under the VPP's.

4.5 Victoria's Native Vegetation Management Framework (NVMF)

A principle tenet of the Native Vegetation Management Framework is the objective of retention and management of native vegetation (DNRE 2002). According to the DNRE (2002) the goal of native vegetation management in Victoria is to achieve:

A reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain.

Four individual actions to achieve the above goal are outlined in the DNRE's (2002) Framework. These are:

- active improvement of the quality of existing vegetation,
- avoidance or minimisation of further permanent losses through clearing,
- strategic increase in the cover of native vegetation through biodiverse revegetation,
- the flexibility that is required to support landholders as they move towards more sustainable land use.

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To achieve the most strategic outcome for native vegetation across Victoria the DNRE's (2002) Framework embraces a system of classification determining both the land protection and Conservation Significance of any given site. The Net Gain methodology is intended to provide a systematic approach that ensures the conservation of the majority of remnant vegetation across Victoria. The DNRE (2002) has established a three-step approach to use when applying the Net Gain process. These steps are:

- to *avoid* adverse impacts, particularly through vegetation clearance.
- if impacts cannot be avoided, to *minimise* impacts through appropriate consideration in planning processes and expert input to project design or management.
- identify appropriate *offset* options.

Upon receiving planning applications to clear vegetation, responsible authorities make assessments relative to the Conservation Significance of the site. If all the preliminary processes have been correctly applied approval may be granted.

The outcome of the Net Gain process is intended to ensure that the most significant vegetation incurs no losses (exceptions do apply) and less significant vegetation is adequately managed through commensurate offsets based on the level of significance. During the process it must be ensured that every effort has been made to avoid clearing remnant vegetation at the outset and, if clearance is unavoidable, impacts have been minimised, to avoid damaging the most significant vegetation and reduce the amount of overall vegetation cleared.

Indigenous vegetation that occurs on site is limited to sparse rushes, a number of Hedge Wattle along the fence-line and planted Swamp Paperbark along the driveway and surrounding the

house. As this vegetation does not classify as a remnant patch nor as scattered old trees there is no requirement under the framework to offset this vegetation.

Currently, no habitat for threatened species, patches of vegetation or scattered trees exist on site. Therefore, considerations under the framework regarding the 'avoid, minimise, offset' approach, have been met.

4.5.1 Application of the Framework within the site

As the first step of the Net Gain process has been implemented and has found that no loss of native vegetation is to occur on site, there is no need to offset vegetation.

4.6 Casey Planning Scheme

The property is located within the City of Casey local government area. The site is zoned Urban Growth Zone – SCHEDULE 1 (UGZS1), and subject to no overlays that affect vegetation.

All of the trees that occur within the property have been planted or are less than 10 years old and therefore do not require a permit for removal under the City of Casey Planning Scheme.

4.7 Proposed losses from development

Any vegetation and habitat removed as part of the development of the site has been considered under the relevant policy and legislation. There are no proposed losses of native vegetation under the EPBC, FFG, NVMF, the VPP's and the City of Casey Planning Scheme. Therefore, any removal of vegetation on site or the adjacent roadside reserves should not require a permit.

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5. CONCLUSION AND RECOMMENDATION

The study site and surrounds contain mostly exotic pasture grasses and weeds, with some areas of native revegetation and regeneration limited to adjacent land to the south and east. The study site itself has been used for farmland for a number of years and does not contain habitat that is likely to support rare or threatened species. Vegetation surrounding the property was also assessed as having a low likelihood of occurrence for threatened species.

The vegetation within the road reserve to the south of the property does not qualify as a remnant patch, does not include scattered trees nor is it listed under the FFG act. Therefore any future development in this area resulting in vegetation removal should not require a permit.

Adjacent the property in the north-eastern corner of the site is an area of Swampy Woodland revegetation. This area may be subject to excess sediment run-off if construction work is to occur on site.

Recommendation

If earthworks are proposed for the north east corner of the site, then the site boundary in this area should be protected using sediment barrier fencing to prevent sediment laden run-off from entering the revegetation area.

Some of the planted trees that occur on site, including; the row of Monterey Cypress, Sugar Gums, Spotted Gums and Melaleuca's, provide habitat for bird species.

Recommendation

It is preferable to retain these trees if practicable. If these trees are to be removed then it is preferable to undertake such works to avoid nesting and breeding times for bird species.

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Appendix 1. FLORA RECORDED AT STUDY SITE

Flora species recorded at study site during fieldwork on 28/04/2013. * denotes exotic species.

MONOCOTYLEDONS

Alliaceae

* *Agapanthus praecox subsp. orientalis*

Agapanthus

Cyperaceae

* *Cyperus eragrostis*

Drain Flat-sedge

Iridaceae

* *Romulea rosea*

Onion Grass

Juncaceae

Juncus amabilis

Hollow Rush

Juncus pallidus

Pale Rush

Poaceae

* *Agrostis capillaris*

Brown-top Bent

* *Bromus catharticus*

Prairie Grass

* *Cenchrus clandestinus*

Kikuyu

* *Cynodon dactylon*

Couch

* *Dactylis glomerata*

Cocksfoot

* *Digitaria sanguinalis*

Summer Grass

* *Echinochloa crus-galli*

Barnyard Grass

* *Ehrharta erecta var. erecta*

Panic Veldt-grass

* *Holcus lanatus*

Yorkshire Fog

* *Hordeum spp.*

Barley Grass

* *Lagurus ovatus*

Hare's-tail Grass

* *Lolium perenne*

Perennial Rye-grass

* *Paspalum dilatatum*

Paspalum

* *Paspalum distichum*

Water Couch

* *Phalaris aquatica*

Toowoomba Canary-grass

Phragmites australis

Common Reed

DICOTYLEDONS

Asteraceae

* *Arctotheca calendula*

Cape Weed

* *Cirsium vulgare*

Spear Thistle

* *Helminthotheca echinoides*

Ox-tongue

* *Hypochaeris radicata*

Flatweed

* *Leontodon taraxacoides subsp. taraxacoides*

Hairy Hawkbit

* *Sonchus oleraceus*

Common Sow-thistle

* *Taraxacum officinale spp. agg.*

Garden Dandelion

Brassicaceae

* *Brassica fruticulosa*

Twiggy Turnip

Caryophyllaceae

* *Stellaria media*

Chickweed

Chenopodiaceae

* *Chenopodium album*

Fat Hen

* *Chenopodium murale*

Sowbane

Fabaceae

* *Lotus uliginosus*

Greater Bird's-foot Trefoil

* *Trifolium subterraneum*

Subterranean Clover

* *Ulex europaeus*

Gorse

Geraniaceae

* *Geranium molle*

Dove's Foot

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| | |
|--|----------------------|
| Malvaceae | |
| * <i>Malva nicaeensis</i> | Mallow of Nice |
| Mimosaceae | |
| <i>Acacia paradoxa</i> | Hedge Wattle |
| Myrtaceae | |
| * <i>Corymbia citriodora</i> subsp. <i>citriodora</i> | Lemon-scented Gum |
| v # <i>Corymbia maculata</i> | Spotted Gum |
| * <i>Eucalyptus cladocalyx</i> | Sugar Gum |
| r # <i>Melaleuca armillaris</i> subsp. <i>armillaris</i> | Giant Honey-myrtle |
| # <i>Melaleuca ericifolia</i> | Swamp Paperbark |
| Plantaginaceae | |
| * <i>Plantago coronopus</i> | Buck's-horn Plantain |
| * <i>Plantago lanceolata</i> | Ribwort |
| Polygonaceae | |
| * <i>Polygonum aviculare</i> s.l. | Prostrate Knotweed |
| <i>Rumex</i> spp. | Dock |
| * <i>Rumex</i> spp. (naturalised) | Dock (naturalised) |
| Portulacaceae | |
| <i>Portulaca oleracea</i> | Common Purslane |
| Rosaceae | |
| * <i>Rosa rubiginosa</i> | Sweet Briar |
| * <i>Rubus fruticosus</i> spp. agg. | Blackberry |
| Rubiaceae | |
| * <i>Coprosma repens</i> | Mirror Bush |
| Solanaceae | |
| * <i>Lycium ferocissimum</i> | African Box-thorn |
| * <i>Solanum nigrum</i> s.l. | Black Nightshade |

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Appendix 2. SIGNIFICANT FLORA SPECIES

Significant flora species recorded within 5km of the study site (DSE 2012b).

MONOCOTYLEDONS

Cyperaceae

k *Eleocharis macbarronii*

Grey Spike-sedge

Hemerocallidaceae

r *Thelionema umbellatum*

Clustered Lily

Orchidaceae

r *Caladenia aurantiaca*

Orange-tip Finger-orchid

k *Caladenia mentiens*

Cryptic Pink-fingers

v *Pterostylis tunstallii*

Granite Greenhood

v *Thelymitra circumsepta*

Naked Sun-orchid

Poaceae

V *Amphibromus fluitans*

River Swamp Wallaby-grass

r *Austrostipa rudis subsp. australis*

Veined Spear-grass

k *Lachnagrostis perennis spp. agg.*

Perennial Blown-grass

f r *Lachnagrostis purpurea subsp. filifolia*

Purple Blown-grass

Sparganiaceae

k *Sparganium subglobosum*

Floating Bur-reed

DICOTYLEDONS

Asteraceae

v *Coronidium scorpioides 'aff. rutidolepis (Lowland Swamp*

Pale Swamp Everlasting

f e *Craspedia canens*

Grey Billy-buttons

v *Microseris scapigera s.s.*

Plains Yam-daisy

r *Senecio campylocarpus*

Floodplain Fireweed

f Vv *Xerochrysum palustre*

Swamp Everlasting

Brassicaceae

v *Cardamine paucijuga s.s.*

Annual Bitter-cress

Myrtaceae

e *Eucalyptus X studleyensis*

Studley Park Gum

r *Eucalyptus yarraensis*

Yarra Gum

r *Thryptomene calycina*

Grampians Thryptomene

Data From: Flora Information System, Viridans – 2012 – © Viridans Biological Databases

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Appendix 3. SIGNIFICANT FAUNA SPECIES

Significant fauna species recorded within 5km of the study site (DSE 2012).

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MAMMALS

Muridae

f v New Holland Mouse

Pseudomys novaehollandiae

Peramelidae

E n Southern Brown Bandicoot

Isodon obesulus obesulus

BIRDS

Accipitridae

n Spotted Harrier

Circus assimilis

f v White-bellied Sea-Eagle

Haliaeetus leucogaster

Anatidae

f e Blue-billed Duck

Oxyura australis

n Cape Barren Goose

Cereopsis novaehollandiae

Anseranatidae

f n Magpie Goose

Anseranas semipalmata

Ardeidae

f v Eastern Great Egret

Ardea modesta

f e Little Bittern

Ixobrychus minutus

Falconidae

v Black Falcon

Falco subniger

Laridae

n Pacific Gull

Larus pacificus pacificus

n Whiskered Tern

Chlidonias hybridus

Meliphagidae

f v Painted Honeyeater

Grantiella picta

Phalacrocoracidae

n Pied Cormorant

Phalacrocorax varius

Phasianidae

n Brown Quail

Coturnix ypsilophora

Pomatostomidae

f e Grey-crowned Babbler

Pomatostomus temporalis

Rallidae

f v Baillon's Crake

Porzana pusilla

f v Lewin's Rail

Lewinia pectoralis

Scolopacidae

n Eastern Curlew

Numenius madagascariensis

n Latham's Snipe

Gallinago hardwickii

Threskiornithidae

n Glossy Ibis

Plegadis falcinellus

v Royal Spoonbill

Platalea regia

REPTILES

Scincidae

f v Swamp Skink

Egernia coventryi

INSECTS

Lycaenidae

f r Large Ant Blue

Acrodipsas brisbanensis















Unknown Insect

f Ce Golden Sun Moth

Synemon plana

Data From: Victorian Fauna Database, Viridans – 2012 – © Viridans Biological Databases



| | | | | | | | |
|---|--|---|--|---------|-----------|------|-----------|
|  <p>Practical Ecology ecological restoration & consulting</p> <p>Disclaimer Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.</p> | <p>Legend</p> <ul style="list-style-type: none">  Sugar Gum  Watercourse  Fencing  Parcels  Study area  Non-native Vegetation (whole site)  Pines  Regenerating Swamp Scrub  Spotted Gum and Melaleuca  Swampy Woodland Revegetation  Woodland Revegetation | <p>Details Mapping by: Colin Broughton</p> <p>Data Source: Aerial photography courtesy of Planning Maps Online</p> | <p>Map 1. Existing Conditions 280 Evans Rd, Cranbourne West</p> <table border="1"> <tr> <td>Version</td> <td>01</td> <td>Date</td> <td>8/05/2013</td> </tr> </table> <p>   Scale 1:2,800 (Page size A3) </p> | Version | 01 | Date | 8/05/2013 |
| | | Version | 01 | Date | 8/05/2013 | | |
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