City of Greater Dandenong Green Wedge Management Plan

Technical Report: Environmental Values & Biodiversity

Final

Prepared for Planisphere

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Summary

Biosis Pty Ltd was commissioned by Planisphere to conduct an assessment of ecological values within the City of Greater Dandenong Green Wedge and make recommendations for the management and enhancement of biodiversity. The information n this report is intended to inform Planisphere in preparing a Management Plan for the City of Greater Dandenong Green Wedge.

Ecological values

Key ecological values identified within the study area during the reconnaissance level site inspection are as follows:

- Small areas of remnant vegetation. The most notable remnants are:
  - *North of Hutton Road (Plains Grassy Woodland identified on the BIM associated with the Keysborough Golf Course). Extent to which this vegetation is remnant versus planted is undetermined at this stage*
  - *Eumemmerring Creek east and west of Eastlink (Plains Grassland/Plains Grassy Woodland Mosaic)*
  - *Glasscocks Road (Plains Grassland/Plains Grassy Woodland Mosaic)*
  - *Bowman Redgum Reserve, corner of Hutton and Chapel Roads (Plains Grassy Woodland)*
  - *Private properties corner of Keys and Perry Roads (Plains Grassy Woodland)*
  - *Private properties between Springvale Road and Perry Road north of Mordialloc Main Drain (scattered remnant River Red Gum)*
  - *Private properties between Eastlink and Dandenong–Hastings Road south of Glasscocks Road (scattered remnant River Red-gum).*
- Scattered remnant trees
- Major waterways which traverse the Green Wedge landscape including Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc Main Drain (Creek) and Eastern Contour Drain. These have potential to support Dwarf Galaxias and Growling Grass Frog, although the status of these species in the area needs investigation.
- Eastern Treatment Plant which provides habitat for a diverse range of wetland-dependent birds, including species that are threatened in Victoria and Australia.
- Wetlands and low-lying areas subject to inundation are potential habitat for significant flora and fauna species.

Government legislation and policy

Key biodiversity legislation and government policy of relevance to any works that may occur within the Green Wedge that entail disturbance or removal of native vegetation and fauna habitat is summarised below.

Legislation / Policy	Relevant ecological feature on site	Permit / Approval required	Notes
EPBC Act	Potential or known habitat for River Swamp Wallaby-grass, Swamp Everlasting, Growling Grass Frog, Dwarf Galaxias, Yarra Pygmy Perch. The Green Wedge may support important habitat for Latham's Snipe *Gallinago hardwickii* as defined under the EPBC Act (DEWHA 2009).	Referral recommended if management works may disturb or remove habitat for species.	Targeted survey required. Works proposals should be assessed against the significant impact guidelines to determine whether a significant impact on a matter of NES is likely and whether referral is required under the EPBC Act.
FFG Act	Private land Public land	Protected Flora Permit not required for private land. Protected Flora Permit required from DEPI if any protected species or communities will be affected by future management or development proposals.	Large proportion of the Green Wedge is private land. A detailed flora assessment is needed to determine whether the Green Wedge contains small areas of FFG-listed communities (Herb-rich Plains Grassy Wetland (West Gippsland) Community or Central Gippsland Plains Grassland Community), protected flora species, listed threatened species or habitat for them.
Planning & Environment Act	Any indigenous vegetation to be cleared, subject to exemptions.	Planning permit required, including permission to lop or remove native vegetation.	Permit application needs to outline measures taken to ensure no net loss to Victoria's biodiversity (Permitted clearing of native vegetation – Biodiversity assessment guidelines; DEPI 2013).
CaLP Act	Declared noxious weeds within the Green Wedge not determined as part of this investigation. Established pest animals (European Rabbit, European Hare and Red Fox) are likely to be present.	Permit required from DEPI to transport soil/rock off-site if a property supports a State Prohibited weed.	Landowners to comply with requirements to control/eradicate

Legislation / Policy	Relevant ecological feature on site	Permit / Approval required	Notes
Water Act	Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc, Main Drain (Creek), Eastern Contour Drain.	Referral to Melbourne Water	Management of the Green Wedge may entail construction or maintenance activities that affect beds and banks of waterways, riparian vegetation or quality or quantity of water within these waterways.
Fisheries Act	Dwarf Galaxias, Yarra Pygmy Perch, Australian Grayling, *Plectrotarsus gravenhorstii* (Caddisfly)	FFG Permit or Fisheries Protected Aquatic Biota Permit approval may be required.	The FFG permit could absolve the need for a Protected Aquatic Biota Permit. For Syngnathids or FFG listed aquatic invertebrates that do not meet the definition of fish, a protected aquatic biota permit is required from the DEPI.
EPA Act (SEPP)	Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc Main Drain (Creek), Eastern Contour Drain and associated aquatic ecosystems.	In accordance with relevant SEPP guidelines (SEPP WoV; Schedule F6, Waters of port Phillip)	The SEPP requires that aquatic ecosystem values be protected. Impacts to surface water quality must not result in changes that exceed background levels and/or the water quality objectives.

Note: Guidance provided in this report does not constitute legal advice.

Proposals for future works will need to be assessed in relation to implications of relevant biodiversity legislation and policy individually.

Recommendations

Priority should be given to protecting and managing highest value areas and larger areas in preference to numerous smaller ones. Linkages should focus primarily on aquatic species and mobile canopy-dwelling native fauna species. Rehabilitation efforts should therefore focus on existing stream corridors while also being mindful that any works will need to maintain/protect existing ecological values (i.e. Dwarf Galaxias habitat).

Further survey is recommended in order to improve understanding of the ecological values within the Green Wedge and inform future management plans and enhancement works. This includes:

- Detailed vegetation assessment to resolve the extent and distribution of native vegetation and presence of significant communities to inform a Green Wedge Vegetation Management Plan.
- Targeted surveys for the Growling Grass Frog, Southern Toadlet, Dwarf Galaxias and Yarra Pygmy Perch to determine the presence/distribution of these species.
- Targeted surveys for the presence/distribution of threatened flora species.
- Detailed survey of aquatic habitats (creeks, drains, wetlands, dams).
- Detailed assessment of the distribution of high threat weeds to inform a Green Wedge Weed Management Plan.

1. Introduction

1.1 Project background

Biosis Pty Ltd was commissioned by Planisphere to conduct an assessment of ecological values within the City of Greater Dandenong Green Wedge and make recommendations for the management and enhancement of biodiversity.

This is an assessment of the ecological values based on a reconnaissance level site inspection.

The information contained in this report is intended to inform Planisphere in preparating a Management Plan for the City of Greater Dandenong Green Wedge.

1.2 Scope of assessment

The objective is to identify the ecological values of the City of Greater Dandenong Green Wedge. The tasks are identified as follows:

- Review existing databases, and any other relevant ecological surveys relating to the study area.
- Undertake a limited field assessment to ground truth key findings of the desktop assessment.
- Describe the ecological values of the study area.
- Map native vegetation and other ecological features of particular note.
- Review the implications of relevant biodiversity legislation and policy.
- Identify relevant biodiversity issues and the opportunities and constraints provided by those issues.
- Outline recommendations and management strategies for the maintenance and enhancement of biodiversity values.

1.3 Location of the study area

The Greater Dandenong Green Wedge comprises all land outside the Urban Growth Boundary within the City of Greater Dandenong and covers a total of 3,741 hectares (Figure 1). It is comprised of two areas:

- The southern section which extends approximately from Hutton/Perry/Glasscocks Road to Thompsons Road and is bounded by the Mornington Peninsula Freeway to the west and Westernport Highway to the east.
- The northern section which is centred on Clarke Road between Westall, Springvale and Heatherton Roads in Springvale South.

The study area is within the:

- Gippsland Plain Bioregion
- Bunyip River Catchment
- Management area of Melbourne Water and/or the Port Phillip and Westernport CMA
- Municipality of Greater Dandenong.

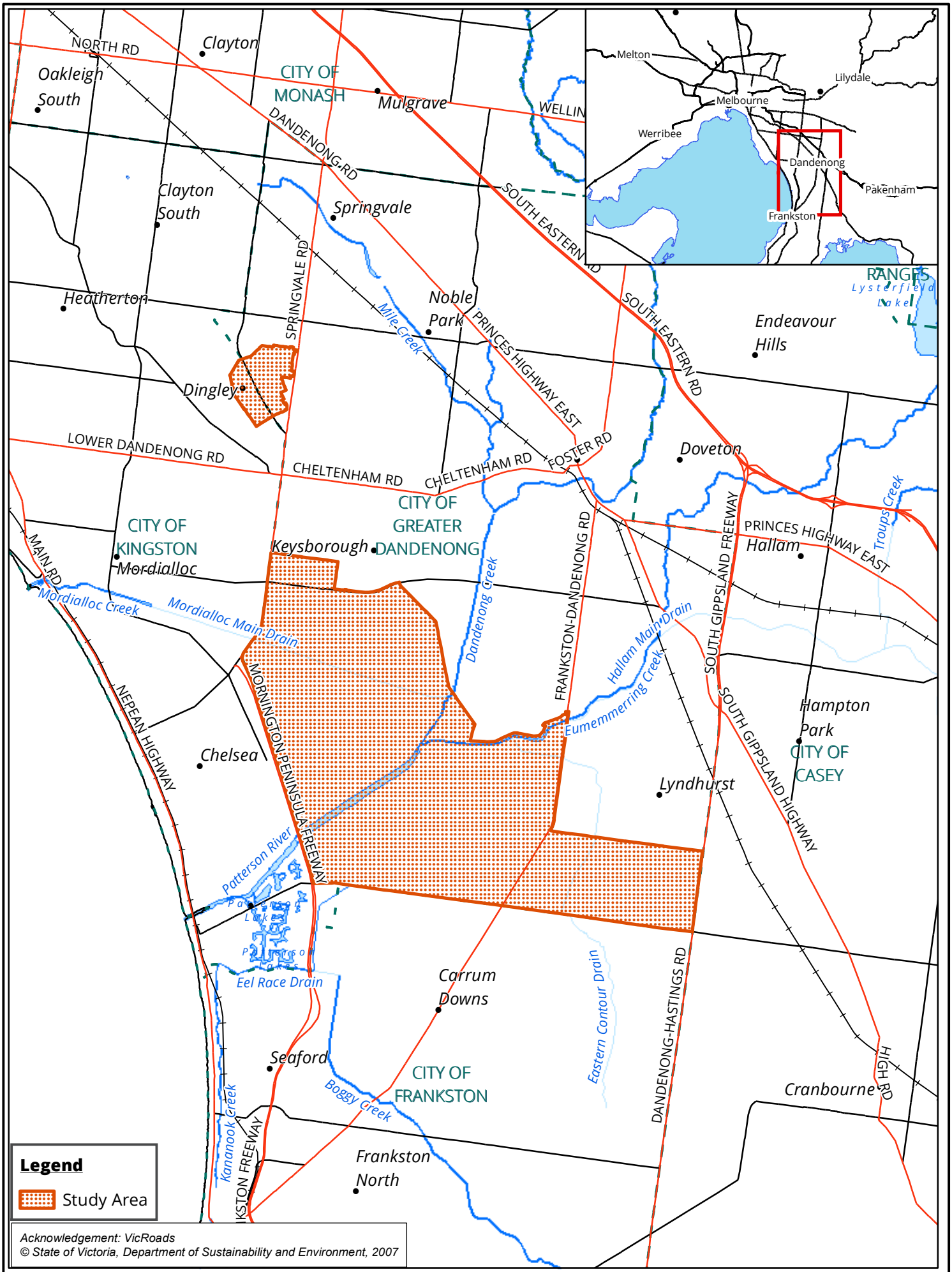


Figure 1: Location of the City of Greater Dandenong Green Wedge

Matter: 15862,
Date: 07 June 2013,
Checked by: SK, Drawn by: STF, Last edited by: sflack
Location:P:\15800s\15862\Mapping\

Scale 1:100,000 @ A4, GDA 1994 MGA Zone 55

Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Melbourne, Sydney, Wangaratta & Wollongong

2. Methods

2.1 Literature and database review

In order to provide a context for the study area, information about flora and fauna from within 5 km of the study area (the 'local area') was obtained from relevant public databases. Records from the following databases were collated and reviewed:

- Flora Information System which includes records from the Victorian Biodiversity Atlas 'VBA_FLORA25, FLORA100 & FLORA Restricted' August 2012 © The State of Victoria, Department of Environment and Primary Industries (DEPI). The contribution of the Royal Botanical Gardens Melbourne to the database is acknowledged
- Victorian Biodiversity Atlas 'VBA_FAUNA25, FAUNA100 & FAUNA Restricted' August 2012 © The State of Victoria, Department of Environment and Primary Industries
- DEPI Biodiversity Interactive Map (BIM)
- BirdLife Australia, the New Atlas of Australian Birds 1998-2012 (BA)
- Protected Matters Search Tool of the Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) for matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Other sources of biodiversity information:

- DEPI NaturePrint; accessed through the Biodiversity Interactive Map
- Local Government and Catchment Management Authority reports and planning schemes
- Aerial photography.

Reports relevant to the Green Wedge were also reviewed.

2.2 Field Assessment

The study area was inspected on 22 May 2013 to identify the ecological values present.

The presence and general condition of native vegetation and fauna habitat was observed. Incidental observations of notable weed infestations and areas of eucalypt regeneration were documented.

Classification of native vegetation is based on ecological vegetation classes (EVCs). An EVC contains one or more floristic (plant) communities, and represents a grouping of broadly similar environments. Definitions of EVCs and benchmarks (condition against which vegetation quality at the site can be compared) are as determined by DEPI.

2.3 Definitions of significance

2.3.1 Species and ecological communities

Significance of a species or community is determined by their listing as rare or threatened under Commonwealth or State legislation / policy. The sources used to categorise significance of species and communities in this report are summarised below in Table 1.

Table 1: Criteria for determining significance of species & ecological communities

Significance	
National	Listed as threatened (critically endangered, endangered, vulnerable or conservation dependent) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
State	Listed as threatened (critically endangered, endangered, vulnerable) or rare for flora species, in Victoria on a DSE Advisory List (DSE 2005a, 2013). Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (FFG Act).

Fauna species listed as near threatened or data deficient are listed in this report, however in accordance with advice from DSE these fauna species are not considered to be at the same level of risk as higher categories of threat. These species are generally not discussed in detail in this report.

2.3.2 NaturePrint (replacement for Biosites)

Areas of conservation significance were formerly documented in the DSE Biodiversity Interactive Map as Biosites ranked as significant at national, state and regional levels. DEPI have advised that the Biosite reports are obsolete and their replacement layer on the Biodiversity Interactive Map is now NaturePrint which identifies areas that contribute most to protecting a range of biodiversity values and identifies their relative contribution.

2.4 Likelihood of occurrence

The likelihood of occurrence is a broad categorisation used by Biosis to indicate the potential for a species to occur within the site: it is based on expert opinion and implies the relative value of a site for a particular species.

The likelihood of species occurring within the site is ranked as negligible, low, medium or high. The rationale for the rank assigned is provided for each species. Species which have at least medium likelihood of occurrence are given further consideration in this report.

2.5 Qualifications

Identification of ecological features of the study area has been undertaken at a broad level using aerial photograph interpretation and a brief site inspection to review on-ground as accessible and visible from public roads. As such, flora and fauna species lists were not compiled and the remnant vegetation patches have been identify based on the presence of three or more overstorey trees, regenerating eucalypts and understorey shrubs (where no overstorey trees were present). Slashed grassy roadsides may support indigenous grasses but were not inspected in detail nor was there sufficient vegetative growth to enable identification.

2.6 Legislation and policy

The implications in relation to key biodiversity legislation and policy were assessed in the context of any works that may occur within the Green Wedge that entail disturbance or removal of native vegetation and fauna habitat including:

- Matters listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); associated policy statements, significant impacts guidelines, listing advice and key threatening processes.
- Threatened taxa, communities and threatening processes listed under the *Flora & Fauna Guarantee Act 1988* (FFG Act); associated action statements and listing advice.
- Native Vegetation Management Plans prepared by Catchment Management Authorities.
- *Planning and Environment Act 1987* – specifically Clauses 12.01-2, 52.17 and 66.02 and Overlays in the relevant Planning Scheme.
- *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (DEPI 2013) incorporated under the relevant Planning Scheme
- Noxious weeds and pest animals lists under the *Catchment and Land Protection Act 1994* (CaLP Act).
- *Wildlife Act 1975* and associated Regulations.
- *Fisheries Act 1995.*
- *Water Act 1989.*
- *Environment Protection Act 1971*: State Environmental Protection Policy (Waters of Victoria) 2003.

2.7 Mapping

Mapping was conducted using aerial photo interpretation. The accuracy of this mapping is therefore dependent on the limitations of aerial photo rectification and registration.

Mapping has been produced using a Geographic Information System (GIS). Electronic GIS files which contain our flora and fauna spatial data are available to incorporate into design concept plans. However this mapping may not be sufficiently precise for detailed design purposes.

3. Ecological features of the Dandenong Green Wedge

The ecological features of the Green Wedge study area are described below and mapped in Figure 2. Note the location of these features is based on aerial photograph interpretation and views from vantage points on public roads. On this basis, some features e.g. trees, patches of remnant vegetation (particularly any grassy wetland areas) may not be identified on the figure.

A list of significant species recorded or predicted to occur in the local area is provided in Appendix 1 (flora) and Appendix 2 (fauna), along with an assessment of the likelihood of the species occurring within the study area. Unless of particular note, these species are not discussed further.

3.1 Vegetation & fauna habitat

The area now known as the City of Greater Dandenong Green Wedge once supported nine EVCs: Damp Sands Herb-rich Woodland, Heathy Woodland, Grassy Woodland, Creekline Grassy Woodland, Plains Grassy Wetland, Plains Grassland, Plains Grassy Woodland, Swamp Scrub and Swampy Riparian Woodland (1750 mapping on the DEPI Biodiversity Interactive Map).

The vegetation and fauna habitat throughout the majority of the Green Wedge has since been highly modified for agricultural land use. Most of the area has therefore been significantly modified and supports predominantly introduced vegetation that is of limited value for native fauna. There are small areas of native vegetation and scattered trees that remain. Numerous waterways/drains traverse the landscape and many dams and wetlands have been constructed. These features are described below:

3.1.2 Remnant vegetation

Small remnant patches of various EVCs occur within the Dandenong Green Wedge. Most of these areas are associated with road reserves (and in some cases extend into private properties immediately adjacent) and drains. The areas of remnant vegetation are identified primarily by the presence of the defining eucalypt species (River Red-gum *Eucalyptus camalduensis*, Manna Gum *E. viminalis* and Swamp Gum *E. ovata*) or Swamp Paperbark *Melaleuca ericifolia*. Detailed assessment of remnant vegetation has not been undertaken to confirm the species diversity and abundance (particularly the understorey), EVC, extent of patches as defined by the Biodiversity Assessment Guidelines (DEPI 2013) or the condition of these areas.

The most notable remnants of native vegetation are:

- North of Hutton Road (Plains Grassy Woodland identified on the BIM associated with the Keysborough Golf Course). The extent to which this vegetation is remnant versus planted is undetermined at this stage.
- Eumemmerring Creek east and west of Eastlink (Plains Grassland/Plains Grassy Woodland Mosaic)
- Glasscocks Road (Plains Grassland/Plains Grassy Woodland Mosaic) (Plate 1).
- Bowman Redgum Reserve, corner of Hutton and Chapel Roads (Plains Grassy Woodland).
- Private properties corner of Keys and Perry Roads (Plains Grassy Woodland).
- Private properties between Springvale Road and Perry Road north of Mordialloc Main Drain (scattered remnant River Red Gum).
- Private properties between Eastlink and Dandenong–Hastings Road south of Glasscocks Road (scattered remnant River Red Gum).

Plate 1: Glasscocks Road – Plains Grassy Woodland

The Perry Road and Taylors Road road reserves need further investigation for the extent and distribution of remnant vegetation patches. As viewed from public roads, they appear to support a scattered mixture of eucalypts, acacias with a primarily exotic understorey (predominantly Gorse in the case of Perry Road).

Small pockets of Swamp Scrub are associated with drainage lines within the Green Wedge (Plate 2).

There may be other small patches of remnant vegetation that could not be detected or confirmed through aerial photograph interpretation or by the limited access available via public roads.

It is possible some of the low-lying areas, particularly those subject to less intensive land use, may support Plains Grassy Wetland. Detailed assessment is required to determine the presence and extent of this EVC.

3.1.3 Scattered remnant trees

Much of the River Red-gum dominated remnant vegetation now consists of scattered trees surrounded by exotic pasture, mown lawn or market garden (Plate 3). The most notable areas of scattered trees are:

- Between Springvale Road and Perry Road north of Mordialloc Main Drain
- Between Eastlink and Dandenong – Hastings Road south of Glasscocks Road.

These trees provide a foraging and nesting resource for mobile fauna species including bats, birds and possums. Many contain hollows for hollow-dwelling species. There are numerous dead standing trees that still provide hollows and perching resources for fauna.

While some trees are in good health, others have died or are in decline.

Plate 2: McMahens Road drain, Swamp Scrub

Plate 3: Scattered remnant trees in agricultural landscape (note lack of recruitment)

3.1.4 Waterbodies

Waterways

A number of waterways traverse the Green Wedge landscape including Eumemmerring Creek, Dandenong Creek (Plate 4), Patterson River, Eastern Contour Drain (Plate 5) and Mordialloc Main Drain (Creek) (Plate 6).

Most of these have been created using levee banks which preclude connectivity with the surrounding landscape and therefore limit their capacity to be a source for aquatic fauna to colonise nearby farm dams or wetlands.

The waterways vary from open channels with minimal vegetative cover to tall, dense reed beds. Their levee banks support predominantly introduced vegetation dominated by grasses that are generally maintained through slashing. Eucalypts, wattles and other shrubs (including Gorse *Ulex europaeus*) are scattered along sections of these waterways. In some areas these native species are likely to comprise patches of remnant vegetation (Swampy Riparian Woodland and Swamp Scrub).

These drains provide habitat for frogs and may facilitate their movement through the area. Those drains that support fringing vegetation, such as Eumemmerring Creek, may facilitate the movement of more elusive birds such as crakes and rails.

Dwarf Galaxias has been recorded from Dandenong Creek and Hallam Main Drain. Yarra Pygmy Perch has been recorded from Dandenong Creek. Both of these species have the potential to occur in all connected waterways throughout the Green Wedge.

The Living Links – Corridors of Connectivity project has considered the environmental, social, cultural and recreational values of several creeks and drains which flow through the Dandenong Green Wedge. These are:

- Eumemmering Creek: a corridor classified as having a social purpose.
- Dandenong Creek: a corridor classified as having an environmental, social, recreational and cultural purpose.
- Mordialloc Creek (Main Drain): a corridor identified as having an environmental, recreational and cultural purpose.
- Patterson River: a corridor classified as having an environmental, recreational and cultural purpose.

Plate 4: Confluence of Dandenong Creek and Eumemmering Creek **Plate 5:** Eastern Contour Drain

Plate 6: Mordialloc Main Drain

Plate 7: Ephemeral drain

Minor watercourses (primarily artificial drains) occur throughout the Green Wedge. Most are artificial and likely to be ephemeral in nature (Plate 7). Some of the watercourses support narrow strips of paperbark and reeds which have potential to meet the definition of native vegetation patches.

Wetlands

Numerous wetlands occur within the Green Wedge, particularly in association with the Eastern Treatment Plant. There are many small wetlands and farm dams throughout the study area which range in degree of vegetation cover. Larger dams and lakes tend to provide open expanses of water and may or may not be fringed with vegetation. Low-lying areas within the landscape (e.g. Plate 8) provide additional wetland habitat when inundated.

Plate 8: Ephemeral wetland

Plate 9: Created wetland in retarding basin adjacent Hallam Main Drain

3.1.5 Planted vegetation

The most prominent areas of planted vegetation are located within the Eastern Treatment Plant, Keysborough Gold Course, and along some road reserves and gardens in the vicinity of houses (Plate 9). Most of these plantings are comprised of a mixture of native, non-indigenous tree and shrub species which

enhance the foraging and shelter opportunities for local fauna by providing tree and shrub cover in an otherwise largely open environment.

3.1.6 Eastern Treatment Plant

The area on which the Eastern Treatment Plant is located has been converted into a series of treatment ponds and associated drains and infrastructure. By virtue of their purpose, these ponds are in various stages of inundation and therefore provide habitat for a diverse range of wetland-dependent birds, including species that are threatened in Victoria and Australia (VBA, BA, Biosis Research 2004).

3.1.7 Agriculture and other land uses

These land uses comprise the majority of the Green Wedge the study area. As such the majority of the Green Wedge has been substantially modified and is of negligible habitat value except for common native and introduced fauna species (Plate 9).

Plate 9: Rural land use with scattered remnant trees

3.2 Landscape context

The Dandenong Green Wedge is located between industrial and residential areas in the suburbs of south-eastern Melbourne. Its context in an urban environment and extent of removal and modification of vegetation mean that existing habitat linkages are limited.

NaturePrint identifies small areas that make medium to high contributions to biodiversity within the Green Wedge. These areas are largely associated with remnant patches and scattered remnant trees, but may also include planted vegetation.

In a broad context the woodland remnants and scattered trees provide a sparse, widely dispersed overstorey linkage from north-west to south-east for highly mobile species, namely birds and bats. For less mobile or understorey dependent fauna or flora species with poor dispersal capabilities there are no distinct habitat linkages within the Green Wedge landscape as the vegetation is discontinuous and limited in extent and in most instances the understorey is modified or entirely introduced.

Watercourses provide aquatic linkages through the landscape and may support threatened amphibian and fish species.

The Eastern Treatment Plant is a major water-body complex and core area of habitat for waterbirds in the eastern suburbs of Melbourne.

3.3 Significant species and ecological communities

3.3.1 EPBC Act, FFG Act & DSE Advisory listed species

Lists of significant species recorded or predicted to occur within 5 km of the Green Wedge are provided in Appendix 1 (flora) and Appendix 2 (fauna). An assessment of the likelihood of these species occurring in the Green Wedge and an indication of where within the study area (i.e. which habitats or features of relevance to the species) is included.

Areas of greatest value for significant species within the study area are:

- Eastern Treatment Plant
- Major watercourses: Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc Main Drain (Creek), Eastern Contour Drain
- Remnant woodland vegetation and scattered trees
- Wetlands (artificial and natural), particularly those which are densely vegetated or develop mud flats when drying out
- Low-lying swampy areas.

3.3.2 Significant ecological communities

Six ecological communities that are endangered in the Gippsland Plain Bioregion are modeled to occur or to have occurred within the Green Wedge:

- Grassy Woodland (EVC 175)
- Creekline Grassy Woodland (EVC 68)
- Plains Grassy Woodland (EVC 55)
- Swampy Riparian Woodland (EVC 83)
- Swamp Scrub (EVC 53)
- Plains Grassy Wetland (EVC 125)

There is some potential for small areas of Herb-rich Plains Grassy Wetland (West Gippsland) Community or Central Gippsland Plains Grassland Community listed under the FFG Act to occur within the Green Wedge.

A detailed flora assessment is needed to determine the presence and distribution of significant vegetation communities within the Green Wedge.

3.4 Current threats and management issues

3.4.2 Weed and pest animals species

Pockets of Gorse are notable within the study area, particularly along the unconstructed Perry Road reserve and in adjacent paddocks, and within paddocks east of the unconstructed Taylors Road reserve. Blackberry *Rubus fruticosus* thickets are apparent along many of the minor drainage lines. These are incidental observations of more notable weed infestations made during the brief site inspection. A more detailed assessment of the distribution of weeds is needed to more definitively characterise the threats and management constraints associated with weeds throughout the Green Wedge.

Pest animals within the Green Wedge include European Rabbit *Oryctolagus cuniculus*, Red Fox *Vulpes vulpes*, and European Hare *Lepus europeaus*. These are all 'established invasive animals' defined under the Catchment and Land Protection Act 1994 as widespread, established and beyond eradication from the whole of Victoria.

3.4.3 Land use conflicts

Current land use practices have directly impacted upon water quality in the Dandenong Creek catchment. Water quality in the lower Dandenong Creek catchment is considered moderate to poor due to urban, industrial and agricultural land uses and consequential inputs to surface water run-off (Melbourne Water 2007). This may have ongoing implications for water quality associated within the Green Wedge.

Application of herbicides, pesticides and/or fertilisers adjacent to remnant vegetation and scattered trees has the potential to be impacting on species diversity and plant health.

Grazing and/or slashing restrict the regeneration prospects for remnant trees, although such regimes assist in minimising biomass accumulation and may be considered as a necessary fire management tool.

Hydrological changes as a result of human activity, particularly drain construction, may be affecting the health of River Red Gums within the Green Wedge. Large numbers of dead scattered trees were noted; the cause/s for this decline should be investigated.

3.4.4 Cinnamon fungus

Cinnamon Fungus *Phytophthora cinnamomi* is an introduced water-borne fungus that attacks the root systems of susceptible native plants thereby threatening some plant species, the ecosystems of which they form part, and the animals that depend on them (DSE 2008). The pathogen is widely dispersed within Victoria and there is as yet no means of eradicating it in the field.

It is unknown whether Cinnamon Fungus occurs in the Green Wedge however there are records further south on the Mornington Peninsula (E. Fogarty, pers. comm.).

'Dieback caused by the root-rot fungus *Phytophthora cinnamomi*' was listed on 16 July 2000 as a Key Threatening Process under the EPBC Act. This formal recognition has led to nationally coordinated efforts to curb its impact.

There are also two Potentially Threatening Processes listed under the FFG Act in relation to Cinnamon Fungus:

- 'The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority'.
- 'Use of *Phytophthora*-infected gravel in construction of roads, bridges and reservoirs'.

A strategy for the management of Cinnamon Fungus on public land was prepared by DSE (2008) with the primary focus on protecting important biodiversity and other assets on public land.

Soil testing should be undertaken to determine the presence of Cinnamon Fungus within the Green Wedge prior to any earthworks so that an appropriate management plan can be implemented.

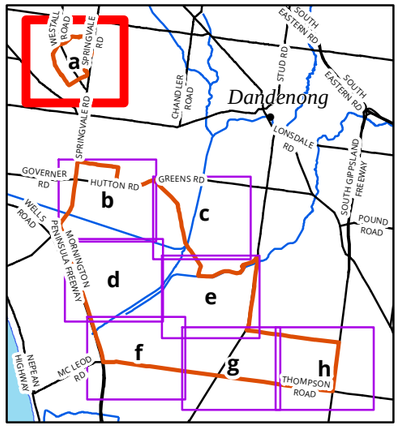
3.4.5 Coastal Acid Sulfate Soils

Acid sulfate soils occur naturally in coastal and inland settings. These soils contain metal sulphide minerals which, if drained, excavated or exposed to air, can react to oxygen and water and form sulphuric acid. Acid sulfate soil disturbance has environmental, health, engineering, social and economic impacts (DSE 2010).

The Department of Environment and Primary Industries consider parts of the Green Wedge west of Eastlink to be a prospective site for coastal acid sulfate soils (Rampant et al. 2003).

In 2010 the Victorian Best Practice guidelines for Assessing and Managing Coastal Acid Sulfate Soils was released (DSE 2010). The Guidelines assist decision makers to identify the risks associated with sulfate soils, site investigation requirements and considerations for an appropriate management plan.

Soil testing should be undertaken to determine the potential for acid sulfate soils prior to any earthworks that may be required as part of management and enhancement of the Green Wedge.



Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 a: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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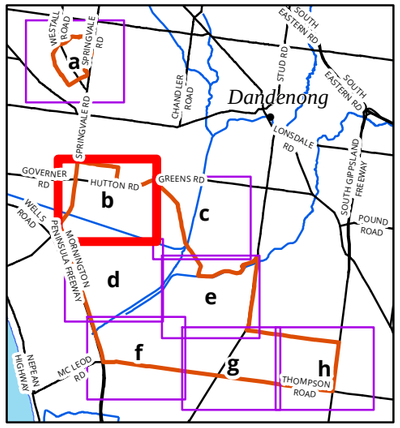

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 b: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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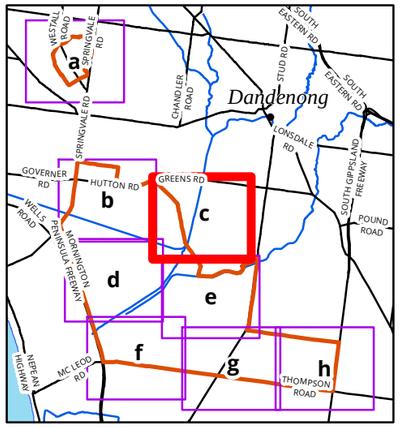

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 c: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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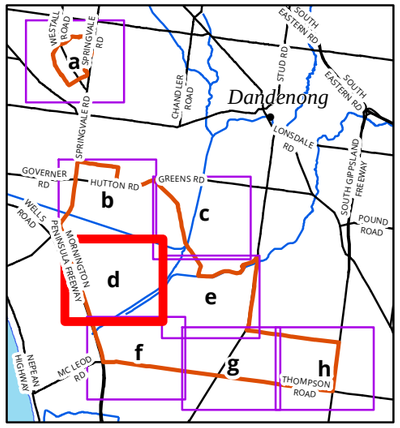

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 d: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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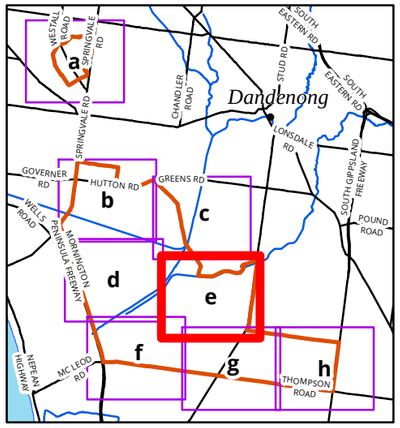

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 e: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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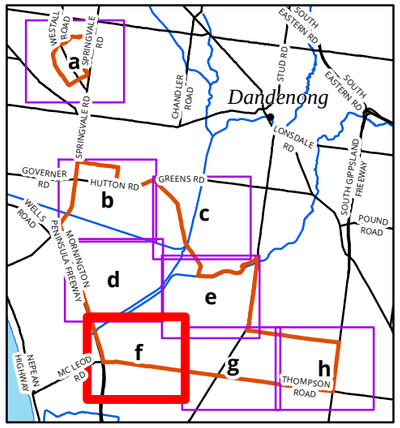

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 f: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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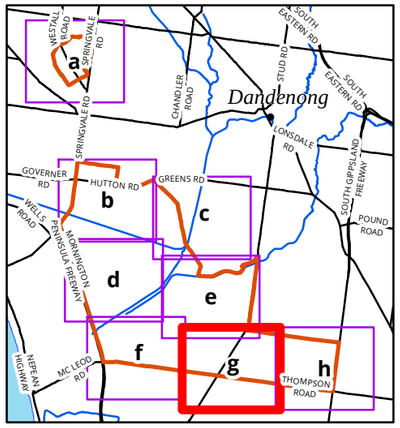

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 g: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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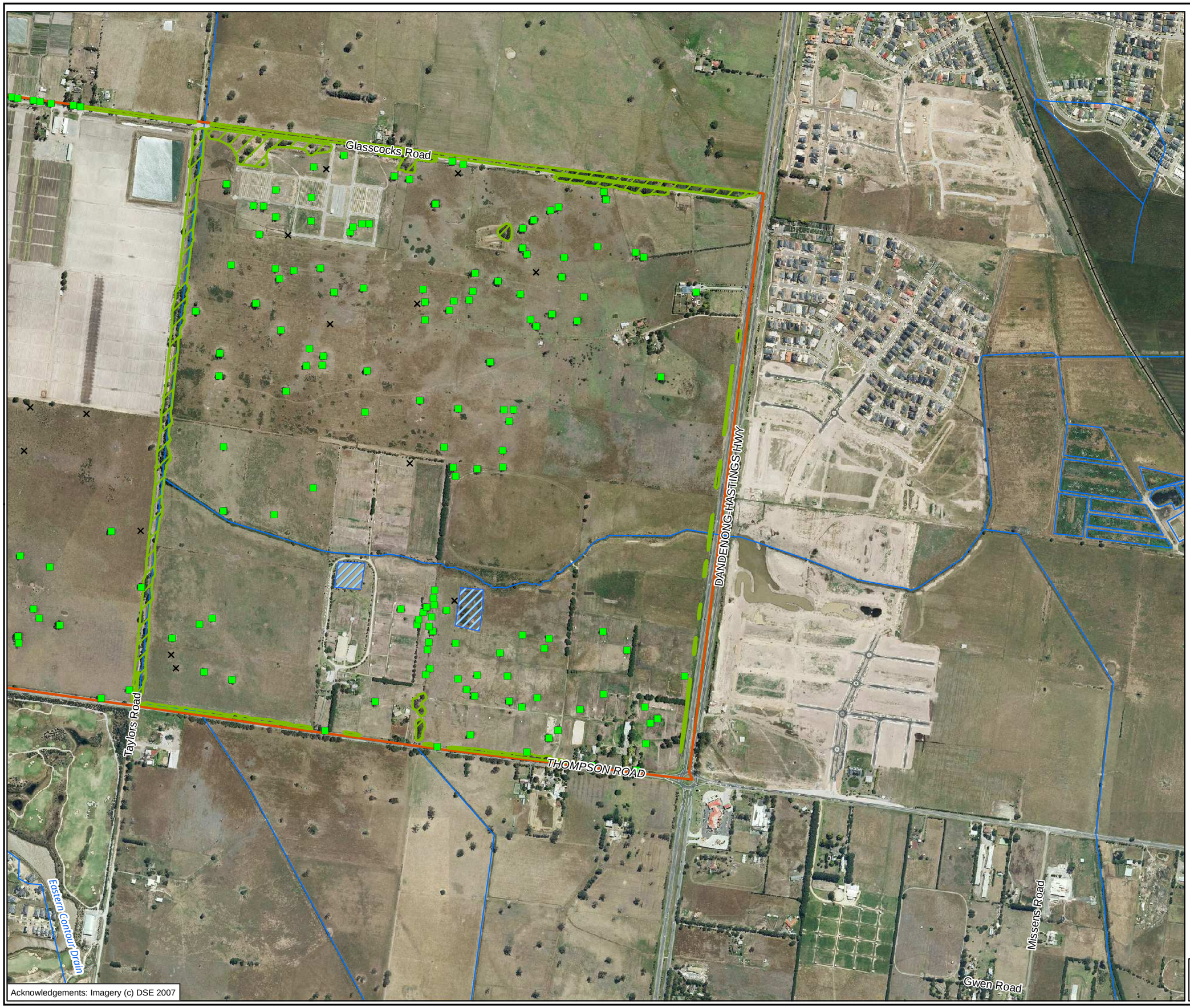

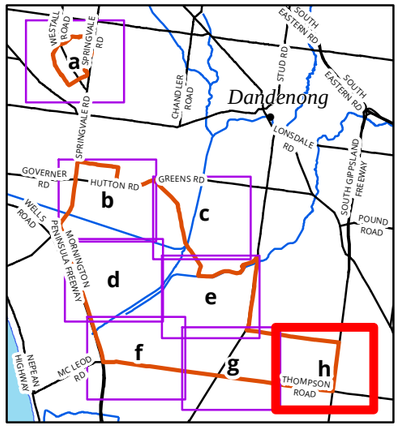

Legend

- Remnant tree
- Dead tree
- Remnant vegetation
- Wetland areas or waterbodies
- Study Area
- Lake or dam
- Watercourse

Figure 2 h: Ecological features of the Dandenong Green Wedge

0 100 200 300 400 500

Metres

Scale: 1:10,000 @ A3

Coordinate System: GDA 1994 MGA Zone 55

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4. Biodiversity Legislation and Government Policy

This section outlines key biodiversity legislation and government policy and provides an indication of possible implications associated with any works that may occur within the Green Wedge that entail disturbance or removal of native vegetation and fauna habitat. Proposals for future works will need to be assessed in relation to implications of relevant biodiversity legislation and policy individually.

Where available, links to further information are provided. This section does not describe the legislation and policy in detail and guidance provided here does not constitute legal advice.

4.1 Commonwealth

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (NES) protected under the Act.

Link for further information including a guide to the referral process is available at:
http://www.environment.gov.au/epbc/index.html

Matters of National Environmental Significance relevant to the Green Wedge are summarised in Table 2. .

Table 2: EPBC Act Matters of National Environmental Significance relevant to the Green Wedge

Matter of NES	Dandenong Green Wedge specifics
Threatened species and ecological communities	Thirty-one flora and fauna species have been recorded or predicted to occur in the Green Wedge. The likelihood of these species occurring in the study area is assessed in Appendix 1 (flora) and Appendix 2 (fauna). Species considered to have a medium or higher likelihood of occurrence are: River Swamp Wallaby-grass, Swamp Everlasting, Growling Grass Frog, Dwarf Galaxias and Yarra Pygmy Perch. Aquatic / wetland habitats are therefore the most important ecological features of the Green Wedge for EPBC listed species.
Migratory species	Fifty-eight migratory species have been recorded or predicted to occur in the Green Wedge search area (Appendix 3). The Green Wedge may support important habitat for Latham's Snipe *Gallinago hardwickii* as defined under the EPBC Act (DEWHA 2009). Many of the other species have been recorded (at the Eastern Treatment Plant or adjacent Waterways Estate) or would be expected to use the study area on occasions, and some of them may do so regularly. However the Green Wedge does not provide important habitat for an ecologically significant proportion of any of these species.
Wetlands of international importance (Ramsar sites)	The Green Wedge is identified as being within 10 km of one Ramsar site: Edithvale-Seaford Wetlands. The Green Wedge does not drain directly into the Edithvale-Seaford Wetlands Ramsar site, but may have intermittent connection during flooding.

Any future works within the Green Wedge should be evaluated against the criteria outlined in the relevant *Significant Impact Guidelines* in order to determine whether significant impact on a Matter of National Environmental Significance would result from the proposed action. Further investigations to determine the current status of populations of Growling Grass Frog, Dwarf Galaxias and Yarra Pygmy Perch would be needed to inform this process. In instances where a significant impact is not considered likely, the proponent for the works (e.g. Melbourne Water, Council) may still choose to refer the proposed action to the Australian Government Minister for the Environment to determine whether the action requires approval under the EPBC Act.

4.2 State

4.2.1 Flora and Fauna Guarantee Act 1988 (FFG Act)

The FFG Act is the key piece of Victorian legislation for the conservation of threatened species and communities and for the management of potentially threatening processes. Under the FFG Act a permit is required from DEPI to 'take' protected flora species from public land. A permit is generally not required for removal of protected flora from private land. Authorisation under the FFG Act is required to collect, kill, injure or disturb listed fish.

Link for further information: http://www.dse.vic.gov.au/plants-and-animals/native-plants-and-animals/threatened-species-and-communities/flora-and-fauna-guarantee-act

The land is mostly privately owned, is not declared 'critical habitat' for the purposes of the FFG Act and the any flora species would not be being taken for the purpose of commercial sale. Therefore a protected flora permit would not be required, however the presence of rare or threatened flora and habitat for threatened fauna will be considered by the Responsible Authority in determining its response to an application for vegetation clearance under Clause 52.17 (see below).

Parts of the study area are public land. A protected flora permit from DEPI would be required if any protected flora species or flora community will be affected by any future management or development proposals within the Green Wedge.

A detailed flora assessment is needed to determine whether the Green Wedge contains small areas of FFG-listed communities (Herb-rich Plains Grassy Wetland (West Gippsland) Community or Central Gippsland Plains Grassland Community), protected flora species, listed threatened species or habitat for them.

4.2.2 Catchment and Land Protection Act 1994 (CaLP Act)

The CaLP Act identifies and classifies certain species as noxious weeds or pest animals, and provides a system of controls on noxious species.

Declared noxious weeds within the Green Wedge have not been determined as part of this investigation.

Established pest animals (European Rabbit, European Hare and Red Fox) are likely to be present.

Landowners within the Green Wedge must take all reasonable steps to eradicate regionally prohibited weeds; prevent the growth and spread of regionally controlled weeds; and prevent the spread of, and as far as possible eradicate, established pest animals. The State is responsible for eradicating State prohibited weeds from all land in Victoria.

Link for further information: http://www.dpi.vic.gov.au/agriculture/pests-diseases-and-weeds/protecting-victoria-pest-animals-weeds/legislation,-policy-and-permits/legislation

4.2.3 Planning and Environment Act 1987 (incl. Planning Schemes)

The *Planning and Environment Act 1987* controls the planning and development of land in Victoria, and provides for the development of planning schemes for all municipalities. As part of the planning process regard needs to be given to Action Statements that have been produced under the FFG Act.

Should removal of native vegetation be required within the Dandenong Green Wedge then controls and permit requirements contained within the City of Greater Dandenong Planning Scheme in relation to native vegetation removal will become relevant. The Planning Scheme defines 'native vegetation' as "Plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses" (Clause 72).

Reforms to the native vegetation permitted clearing regulations occurred in May 2013. These reforms include amendments to clauses in the Victorian Planning Provisions in all planning schemes in Victoria. For more information on these reforms refer to www.depi.vic.gov.au/nativevegetation.

Clause 12.01-2 of the State Planning Policy Framework (Native Vegetation Management) requires a no net loss in the contribution made by native vegetation to Victoria's biodiversity, and planning must consider as relevant *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (DEPI 2013). These Guidelines replace *Victoria's Native Vegetation Management – A Framework for Action* (DNRE 2002) and the requirement for net gain in the extent and quality of native vegetation.

Clause 52.17 requires a planning permit to remove, destroy or lop native vegetation including dead native vegetation. However this does not apply to exemptions identified in the table to Clause 52.17-6; specific native vegetation or a specific area as specified in a schedule to Clause 52.17.

If a permit to remove native vegetation is granted under Clause 52.17 a native vegetation offset is required in accordance with the Biodiversity Assessment Guidelines (DEPI 2013).

Clause 57 protects metropolitan green wedge land from uses and development that would diminish its agricultural, environmental, cultural heritage, conservation, landscape natural resource or recreation values. Development is largely prohibited within the green wedge. A list of prohibited land use is provided in the table to Clause 57.01-1.

Under Clause 66.02-2 DEPI is the referral authority for applications to remove native vegetation that is:

- more than 0.5 ha in area
- in Location C on the native vegetation location risk map in the Biodiversity Assessment Guidelines
- 15 or more scattered trees
- any scattered tree in Location B of the risk map in the Biodiversity Assessment Guidelines
- a site to which a property vegetation plan applies
- located on Crown land which is occupied or managed by the responsible authority.

Environmental Significance Overlay Schedule 3 covers the Eastern Treatment Plant buffer zone in the southern portion of the Dandenong Green Wedge. A permit is not required to remove, destroy or lop any vegetation.

4.2.4 Biodiversity assessment guidelines

The *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (DEPI 2013) guide how impacts on biodiversity should be considered when assessing an application for a permit to remove, lop or destroy native vegetation. The Guidelines constitute an incorporated document for the purpose of Clause 81.01 of the Victoria Planning Provisions and are incorporated into all planning schemes in Victoria.

Link for further information: http://www.dse.vic.gov.au/land-management/land/native-vegetation-home

Should the removal of native vegetation be required within the Green Wedge, an application will need to be made under clause 52.17 of the Planning Scheme to remove, destroy or lop native vegetation. Within the application it must be explain (Clause 52.17-3) the steps that have been taken to:

- Avoid the removal of vegetation that makes a significant contribution to Victoria's biodiversity, where possible.
- Minimise the removal of native vegetation that makes a significant contribution to Victoria's biodiversity through appropriate consideration in project design and management.
- Appropriately offset the loss of native vegetation, if required, to achieve a 'no net loss' in accordance with the Biodiversity Assessment Guidelines (DEPI 2013).

An assessment that establishes the extent, distribution and condition of native vegetation within the Green Wedge and the contribution that native vegetation makes to Victoria's biodiversity will be required in order to apply the risk-based approach to managing native vegetation as set out in *Permitted clearing of native vegetation – Biodiversity assessment guidelines*.

4.2.5 Wildlife Act 1975 and associated Regulations

The *Wildlife Act 1975* (Wildlife Act) is the primary piece of legislation in Victoria providing for protection and management of wildlife. The Wildlife Act does not apply to fish, as defined under the *Fisheries Act 1995*.

The Wildlife Regulations 2002 prescribe penalties for persons who wilfully damage, disturb or destroy any wildlife habitat without appropriate authorisation. DEPI advise that a planning permit (under the planning scheme) constitutes appropriate authorisation and therefore the habitat protection provisions under the Wildlife Regulations 2002 are not applicable once a planning permit has been granted for a given project.

4.2.6 Fisheries Act 1995

The Fisheries Act 1995 provides a legislative frame work for the regulation, management and conservation of Victorian fisheries including aquatic habitats.

A person must not take, injure, damage, destroy or release any protected aquatic biota. Protected aquatic biota includes all species of the family Syngnathidae (seahorses, sea dragons and pipefish), and any fish or aquatic invertebrate or community that is listed under the FFG Act.

Protected aquatic biota that may be impacted upon by management and development works within the Green Wedge include:

- Dwarf Galaxias
- Yarra Pygmy Perch
- Australian Grayling
- *Plectrotarsus gravenhorstii* (Caddisfly).

The potential for protected aquatic biota as listed above, to be injured, damaged or destroyed is cannot be completely discounted. Where there may be impacts to FFG-listed fish or communities, an FFG permit is required from DEPI.

The FFG permit could absolve the need for a Protected Aquatic Biota Permit. For Syngnathids or FFG listed aquatic invertebrates that do not meet the definition of fish, a protected aquatic biota permit is required from the DEPI.

4.2.7 Water Act 1989

The primary purpose of the *Water Act 1989* is to provide a framework for the allocation and management of surface water and groundwater throughout Victoria. It provides a principal mechanism for maintenance of ecosystem functions including those of aquatic ecosystems. Under By-Laws created by the relevant Authority under the Act, the authorities regulate the works within and in the vicinity of waterways. In Melbourne Water's management area this applies to all waterways with a catchment area of 60 ha or more. These waterways are deemed to be Melbourne Water assets, while all smaller watercourses are deemed the responsibility of the local government.

Management of the Green Wedge may entail construction or maintenance activities that affect beds and banks of waterways, riparian vegetation or quality or quantity of water in Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc Main Drain (Creek), Eastern Contour Drain, wetlands (natural or artificial) and ephemeral drainage lines. Such works will require a permit from Melbourne Water.

For works within Melbourne Water's management area that entail provision of new drainage infrastructure (e.g. residential or industrial subdivisions), approval for works on waterways is covered under the Agreement process set out in the Land Development Manual http://ldm.melbournewater.com.au/content/introduction/introduction.asp.

4.2.8 Environment Protection Act 1970: State Environmental Protection Policy (Waters of Victoria) 2003

The Environment Protection Act underpins the State Environmental Protection Policy (SEPP) - Waters of Victoria which provides a legal framework for the protection and rehabilitation of Victoria's surface water environments.

Management of the Green Wedge may entail works that directly and/or indirectly impact upon Eumemmerring Creek, Dandenong Creek, Patterson River, Mordialloc Main Drain (Creek), Eastern Contour Drain and the associated aquatic ecosystems. The SEPP requires that aquatic ecosystem values be protected. Environmental quality objectives and indicators are defined to protect beneficial uses (i.e. the uses and values of the water environment) and an attainment program provides guidance on protection of the beneficial uses. Impacts to surface water quality must not result in changes that exceed background levels and/or the water quality objectives.

Link to further information: http://www.epa.vic.gov.au/water/epa/wov.asp.

4.2.9 Regional Catchment Strategy and River Health Strategy

State Planning Policy Framework Clause 14.02-1 (Catchment planning and management) states that planning must consider as relevant, Regional Catchment Strategies (RCS) and any associated implementation plan or strategy including any regional river health and wetland strategies.

Strategies of relevance to the study area are the:

- *Port Phillip and Westernport Regional Catchment Strategy.* Port Phillip & Westernport Catchment Management Authority 2004 (PPWCMA 2004).
- *Port Phillip and Western Port Regional River Health Strategy.* Dandenong Catchment. Melbourne Water (2007).

These documents provide recommendations on the protection of existing high-value rivers and creeks that are in good condition and strategic improvement of other rivers and creeks.

5. Recommendations

This section provides an outline of opportunities for management and/or enhancement of the ecological values within the Dandenong Green Wedge. Priority should be given to managing highest value areas and retaining larger areas in preference to numerous smaller ones. Further survey is recommended in order to improve understanding of the ecological values within the Green Wedge and inform future management and enhancement works. Much of the existing data has been collected over a long period of time and doesn't provide a current picture of the environmental values present. While the existing data does provide a useful guide to the ecological values present, any development will need to evaluate the biodiversity implications of any physical impacts.

The study area provides a broad area of agricultural open space within the broader developed urban area of Melbourne. In that context it does not provide specific habitat corridor values in that it doesn't directly link larger remnants of natural habitat. However it does provide a stepping stone for more mobile fauna such as migratory birds and remnant habitat for aquatic species which are more dependant on habitat structure and function rather than the occurrence of indigenous vegetation. Enhancement of drainage corridors to provide this habitat structure (i.e. an array of permanent and seasonally flooded wetlands rather than a well drained landscape which holds water infrequently) for these species, provides a high priority for biodiversity enhancement. Establishing areas of native vegetation in association with this habitat also provides opportunities for more common indigenous species which are also locally endangered within this degraded environment.

The proposed changes to the planning process evaluating biodiversity values identify much of the green wedge as "Location A". This would often result in any vegetation loss being assessed by DEPI under a "low risk" pathway (DEPI 2013). This requires a minimal, if any, formal assessment of biodiversity values and general approval of such applications. Protection for any locally endangered values will therefore large fall to the City of Greater Dandenong through the application of local planning controls.

Table 3: Recommendations

	Action	Rationale
Targeted survey	Undertake targeted surveys for the Growling Grass Frog, Southern Toadlet, Dwarf Galaxias and Yarra Pygmy Perch to determine the presence/distribution of these species.	The results of these surveys will enable conservation activities, including the establishment of linkages, to be targeted towards key areas for species and inform protection, retention and ongoing management of critical areas.
	Undertake targeted surveys for the presence/distribution of threatened flora species.	The results of these surveys will enable conservation activities, including the establishment of linkages, to be targeted towards key areas for species.
	Undertake detailed flora survey of remnant vegetation.	This will allow extent and description of the vegetation to be more definitive and inform management or enhancement objectives for those areas.

	Action	Rationale
	Undertake detailed survey of aquatic habitats (creeks, drains, wetlands, dams).	To identify suitable habitat for threatened species. This will inform protection, retention and ongoing management of critical areas and proposed enhancement strategies for aquatic habitats in the Green Wedge.
	Undertake detailed assessment of the distribution of high threat weeds.	An understanding of the type and distribution of weeds is necessary in order to devise a strategy for weed management for the Green Wedge.
Protection measures	Protect key values (including waterways) by retaining the ecological features and including appropriate buffers.	Protection of key ecological values is the primary measure to minimise impacts to biodiversity values within the Green Wedge.
	Coordinate works in the Dandenong Green Wedge with the Kingston Green Wedge and the Living Links project by the Port Phillip and Westernport Catchment Management Authority.	
	Apply planning scheme overlay controls to those areas identified as having ecological value, including wetlands, buffer areas and strategic habitat links.	
	Apply planning scheme controls to protect and encourage appropriate revegetation along areas designated for wildlife corridors.	
	Investigate the use of native vegetation offsets from elsewhere within the City of Greater Dandenong to establish permanently protected areas of native vegetation.	
	Undertake soil testing to determine the potential for acid sulfate soils prior to any earthworks that may be required as part of management and enhancement of the Green Wedge.	Coastal Acid Sulfate Soils (CASS) Guidelines assist with identifying the risks associated with sulfate soils, site investigation requirements and considerations for an appropriate CASS management plan.
	Soil testing for Cinnamon Fungus	This is important for any works adjacent to or within remnant vegetation.
Enhancement measures	Evaluate the feasibility of creating or enhancing habitat linkages.	Future linkage opportunities are limited based on the ecological context of the Green Wedge area. Watercourses, remnant vegetation patches and

	Action	Rationale
		scattered trees are the resources on which any future habitat linkages will need to be based. Linkages should focus primarily on aquatic species and mobile canopy-dwelling native fauna species. The small size and distribution of remnant vegetation makes establishment of extensive woodland habitat links difficult.
	Facilitate natural regeneration of remnant vegetation.	Fencing of areas adjacent to existing patches or scattered trees will facilitate regeneration of overstorey trees in particular. Understorey plants will be dependent on the condition of each area and presence of seed sources. It is important to note that natural regeneration through the exclusion of slashing or grazing activity entails biomass management.
	Undertake revegetation in association with weed management to improve connectivity.	A strategy for revegetation will need to be devised following detailed vegetation and weed assessments.
	Work with the Carrum nursery and Green links nursery to establish and source plants for revegetation of private and public land.	These nurseries propagate indigenous vegetation for the sand-belt region of Melbourne and can therefore facilitate the use of locally indigenous species in plantings within the Green Wedge.
	Identify areas where wetland/s could be developed specifically as fauna habitat.	Wetland creation should occur offline (adjacent to watercourses) rather than online. Melbourne Water has developed design guidelines for constructed wetlands (Melbourne Water 2010).
	Design retarding basin to provide beneficial outcomes for threatened species.	The Melbourne Water retarding basins planned for the Green Wedge (Planisphere 2013) may provide important habitat function for local flora and fauna by increasing the amount of wetland habitat available in the area. These should incorporate appropriate design considerations to provide beneficial outcomes for threatened species. Existing constructed wetlands upstream of the Green Wedge in the Dandenong Creek catchment at Scoresby consist of broad shallow basins creating ideal breeding habitat for exotic species such Eastern Gambusia and Carp.

	Action	Rationale
		Constructed wetlands should be managed and designed to enhance habitat values for native fish and amphibians and to reduce the impacts of exotic species.
	Investigate the need and feasibility for release of significant species Dwarf Galaxias and Growling Grass Frog that have declined or no longer occur in the area.	Re-introduction of threatened species is a complicated process that requires approvals at the state and federal levels. It is important to first determine why the species have declined or no longer occur in the area.
Management plans	Prepare Vegetation Management Plans for specific areas/reserves identified following completion of targeted surveys for rare or threatened plant species.	The Plans should include revegetation, weed management and monitoring actions, and be focused on an objective to increase fauna habitat and establish linkages between reserves. Vegetation management targets can be set within the Plan that focus on remnants and revegetation at key sites (review every 5 years).
	Develop a Weed Management Plan	A Weed Management Plan will help to ensure the ecological values of the Green Wedge remnants are protected from invasive species.
	Prepare a Habitat Links Strategy that defines the locations, species and methods for establishing a network of native fauna habitat.	Need to first clearly define what aiming to link and evaluate feasibility of achieving linkage.
Ongoing monitoring	Ongoing monitoring of vegetation and threatened species.	Ongoing monitoring will enable the outcomes of management to be monitored and facilitate an adaptive management process.

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Appendices

Appendix 1: Significant Flora

The following table includes a list of the significant flora species that have potential to occur within the study area. The list of species is sourced from the Victorian Flora Information System and the Protected Matters Search Tool (DSEWPaC; accessed on 21.05.13).

Notes to table:

EPBC Act: CR - Critically Endangered EN - Endangered VU - Vulnerable	**DSE 2005a:** e - endangered v - vulnerable r - rare
# - Native species outside natural range	**FFG Act:** L - listed as threatened under FFG Act P - protected under the FFG Act (public land only)

Table A1. Significant flora species recorded / predicted to occur within 5 km of the study area.

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
National Significance									
Amphibromus fluitans	River Swamp Wallaby-grass	VU			1998	PMST	Swampy areas, mainly along the Murray River between Wodonga and Echuca with scattered records from southern Victoria.	Medium	There are records of this species at Parkdale and Chelsea and the species has been planted within the Waterways Estate adjacent to the Green Wedge. There is suitable swampy habitat.
Dianella amoena	Matted Flax-lily	EN	e	L	-	PMST	Lowland grassland and grassy woodland, on well-drained to seasonally waterlogged fertile sandy loam soils to heavy cracking clays.	Negligible	There are no records of this species within 5 km of the Green Wedge. Matted Flax-lily has been planted within the Waterways Estate adjacent to the Green Wedge.
Euphrasia collina subsp. *muelleri*	Purple Eyebright	EN	e	L	1903		Grasslands and grassy woodlands; few populations are known to still	Negligible	Species has not been recorded within or surrounding the area

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							exist.		since 1903.
Glycine latrobeana	Clover Glycine	VU	v	L	-	PMST	Grasslands and grassy woodlands, particularly those dominated by *Themeda triandra*.	Negligible	This species has not been recorded within 5 km of the Green Wedge.
Prasophyllum frenchii	Maroon Leek-orchid	EN	e	L	-	PMST	Grassland and grassy woodland environments on sandy or black clay loam soils, which are generally damp but well drained.	Low	This species has not been recorded within 5 km of the Green Wedge.
Thelymitra epipactoides	Metallic Sun-orchid	EN	e	L	-	PMST	Moist or dry sandy loams or loamy sands, primarily in coastal heaths, grasslands and woodlands, but also in similar communities at drier inland sites.	Negligible	This species has not been recorded within 5 km of the Green Wedge.
Xerochrysum palustre	Swamp Everlasting	VU	v	L	2005	PMST	Sedge-swamps and shallow freshwater marshes and swamps in lowlands, on black cracking clay soils.	Indeterminate without further survey	The Green Wedge has been substantially modified but there may be small areas within which this species could be persisting. This species has been

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
									planted along Mordialloc Creek and within the Waterways Estate to the west of the Green Wedge.
State Significant									
Caladenia aurantiaca	Orange-tip Finger-orchid		r		1971		Lowland forest and heathy woodlands, typically near the coast.	Negligible	No suitable habitat.
Cardamine paucijuga s.s.	Annual Bitter-cress		v		1998		Moist forests and riparian habitats	Negligible	No suitable habitat.
Coronidium scorpioides 'aff. *rutidolepis* (Lowland Swamp)	Pale Swamp Everlasting		v		2001		Moist sites in open forests and woodlands.	Indeterminate without further survey	Species has been recorded in the Parkdale-Mordialloc area west of the Green Wedge and has been planted within the adjacent Waterways Estate.
Corymbia maculata#	Spotted Gum		v		2009		In Victoria, naturally confined to a small population near Mt Tara in	Negligible	Outside natural range.

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							the east of the State.		
Craspedia canens	Grey Billy-buttons		e	L	1993		Low altitude grasslands between Cranbourne and Traralgon.	Low	Nearest recorded near Carrum Downs. Has been planted within the adjacent Waterways Estate.
Eucalyptus X *studleyensis*	Studley Park Gum		e		2009		Habitat requirements are likely to be similar to those of *E. camaldulensis* and *E. ovata*, as it a hybrid of these two species.	Medium	Hybrids occur in nearby areas .
Eucalyptus yarraensis	Yarra Gum		r		2005		Valley flats and along stream on soils subject to periodic inundation or waterlogging.	Negligible	Outside range.
Geranium sp. 3	Pale-flower Crane's-bill		r		2007		Grasslands and dry woodlands.	Low	There is a record of this species along Mordialloc Creek within 5 km of the Green Wedge. It is likely this species was planted as part of revegetation works for the adjacent Waterways Estate.

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Lachnagrostis punicea subsp. *filifolia*	Purple Blown-grass		r	L	2001		Wet marshes and slightly saline swamps and depressions, on heavy soils away from the coast.	Indeterminate without further survey	May be small wetland areas within which this species could be persisting.
Microseris scapigera s.s.	Plains Yam-daisy		v		1993		Damp depressions in grasslands, woodlands, stream banks, alpine herbfields and around the margins of saline lakes and flats.	Indeterminate without further survey	May be small wetland areas within which this species could be persisting.
Philydrum lanuginosum	Woolly Waterlily		v		2007		Shallow, freshwater swamps; likely to be extinct in the areas recorded for Melbourne pre-1900.	Indeterminate without further survey	May be small wetland areas within which this species could be persisting.
Pterostylis tunstallii	Granite Greenhood		v		1960		Lowland and foothill forests, often on and around the base of large granite boulders.	Negligible	No suitable habitat.
Ranunculus amplus	Lacey River Buttercup		r		2005		Shallow margins of freshwater swamps, billabongs and dams.	Indeterminate without further survey	Potential wetland habitat.
Senecio glomeratus subsp. *longifructus*	Annual Fireweed		r		2007		Areas adjacent to streams, swamps and saline flats.	Indeterminate without further survey	May be small wetland areas within which this species could be persisting.

Scientific name	Common name	Conservation Status			Most recent database record	Other records	Habitat description	Likely occurrence in Dandenong Green Wedge	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Thelionema umbellatum	Clustered Lily		r		1988		Sandy, often poorly drained soils of heathy woodlands and heathlands.	Negligible	No suitable habitat.
Thryptomene calycina#	Grampians Thryptomene		r		1981		Low-nutrient, sandy or gravelly soils often in rocky areas in heathy woodland vegetation. Commonly cultivated and records near Melbourne are naturalisations.	Negligible	Outside natural range.

Appendix 2: Significant Fauna

The following table includes a list of the significant fauna species that have potential to occur within the study area. The list of species is sourced from the Victorian Biodiversity Atlas, Birds Australia database and the Protected Matters Search Tool (DSEWPaC; accessed on 21.05.13).

Notes to tables:

EPBC Act: EX - Extinct CR - Critically Endangered EN - Endangered VU - Vulnerable CD - Conservation dependent	**DSE 2007a:** ex - extinct cr - critically endangered en - endangered vu - vulnerable nt - near threatened dd - data deficient rx - regionally extinct
	FFG Act: L - listed as threatened under FFG Act

Fauna species in these tables are listed in alphabetical order within their taxonomic group.

Table A2. Significant fauna species recorded, or predicted to occur, within 5 km of the study area.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Mammals									
Cercartetus nanus	Eastern Pygmy-possum		nt		1887		Occurs throughout south-eastern Australia in a variety of vegetation communities including subalpine woodland, wet forest, Box Ironbark Forest, coast scrub, heathy woodland and subalpine heath. Floristic diversity thought to be an important determinant of habitat quality.	Negligible	Locally extinct.
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN	nt	L	1992	PMST	Typically occurs in heathland, shrubland, heathy forest and woodland habitat across southern Victoria. Previously recorded on the outskirts of Stawell and also known from within the Grampians National Park.	Negligible	Locally extinct.
Potorous tridactylus tridactylus	Long-nosed Potoroo	VU	nt	L	-	PMST	Six populations of Long-nosed Potoroo occur in Victoria within a range of habitats from open forests to heathy woodlands. The majority of their habitat are dominated by Eucalypts.	Negligible	Locally extinct.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Pseudomys fumeus	Smoky Mouse	EN	en	L	-	PMST	Disjunct Victorian distribution with populations in the Snowfields, Eastern Highlands, East Gippsland, Otway Range and the Grampians. Recorded from a variety of vegetation communities ranging form coastal heath and heathy woodland in East Gippsland to subalpine heath and dry forest. The understorey vegetation is typically dominated by heathy shrubs, with seeds and berries providing an important food resource.	Negligible	Not known to occur in local area. No suitable habitat.
Pseudomys novaehollandiae	New Holland Mouse	VU	vu	L	-	PMST	Inhabits a variety of habitats along the coast of south-eastern Australia, including coastal heath, heathy woodland and coastal scrub habitats with a high density of leguminous ground plants.	Negligible	Locally extinct.
Pteropus poliocephalus	Grey-headed Flying-fox	VU	vu	L	1937	PMST	Utilises a wide range of habitats from lowland rainforest in East Gippsland and coastal Stringybark forests to agricultural land and suburban gardens, with permanently established colonies in Melbourne, Geelong and	High	Could use remnant and planted trees and shrubs when fruiting or flowering. Could occur anywhere in Green Wedge with suitable food plants. No daytime

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							Mallacoota.		roost sites known in local area.
Birds									
Accipiter novaehollandiae	Grey Goshawk		vu	L	1990		Favours tall, wet forests in gullies but can occur in woodlands, dry forests, wooded farmlands and suburban parks. Relies on mature forests for breeding.	Low	Individuals may occasionally visit remnant woodland and isolated trees. Unlikely to support resident birds.
Actitis hypoleucos	Common Sandpiper		vu		2012		Migrates to Australia from Eurasia in August where it inhabits a wide variety of coastal and inland wetlands with muddy margins before departing north in March.	High	Likely to occur within the Eastern Treatment Plant. Small numbers may also use muddy margins of wetlands, low-lying areas or large dams elsewhere within the Green Wedge.
Anas rhynchotis	Australasian Shoveler		vu		2012		Prefers large, permanent lakes and swamps with deep water, stable conditions and abundant aquatic vegetation. Less commonly recorded in small or shallow waters, such as billabongs, sewage ponds, freshwater rivers and densely vegetated farm dams. Forages in	High (recorded)	Previously recorded within the Eastern Treatment Plant (VBA, BA). Could occur in any large waterbody elsewhere within the Green Wedge.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							open water but nests in densely vegetated freshwater wetlands, where fringing vegetation may be an important habitat feature.		
Anseranas semipalmata	Magpie Goose		nt	L	2012		Uses aquatic and terrestrial habitat, although most activity occurs on wetlands such as those associated with flood plains. Historically occurring in south-eastern Australia, however, loss of wetland habitats meant the species became extinct in Victoria in the early 1900s. Re-introduction attempts have had mixed results.	High (recorded)	Previously recorded within the Eastern Treatment Plant (VBA, BA). Also recorded in adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in large wetlands and in open pasture (particularly lower-lying areas) within the Green Wedge.
Anthochaera phrygia	Regent Honeyeater	EN	cr	L	1976	PMST	Inhabits dry woodlands and forests dominated by Box Ironbark eucalypts. Distribution currently restricted to the Chiltern - Mt Pilot National Park in north-eastern Victoria following severe range contraction and population decline.	Negligible	No suitable habitat. Functionally extinct in southern Victoria.
Ardea intermedia	Intermediate Egret		en	L	2012		Breeds in flooded or fringing trees alongside wetlands.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA) and in the

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
									Waterways Estate adjacent to the Green Wedge (D. Cook, pers. comm.). May occur in larger waterbodies within the Green Wedge.
Ardea modesta	Eastern Great Egret		vu	L	2012	PMST	Usually found in terrestrial wetland, estuarine and wet grassland habitats particularly permanent well-vegetated water bodies but also use freshwater meadows, channels and larger dams. Forages by wading on shallow open water, generally avoiding dry or deeply flooded areas preferring moist, low-lying, poorly drained pasture, especially near hollows and ditches and where tussocks of long grass are present. Uses estuarine mudflats as summer-autumn or drought refuges.	High (recorded)	Recorded foraging along roadside drain during site investigation. Previously recorded within the Eastern Treatment Plant (VBA, BA) and also within the adjacent Waterways Estate (D. Cook, pers. comm.). Waterbodies throughout Green Wedge provide foraging habitat for Eastern Great Egret.
Arenaria interpres	Ruddy Turnstone		vu		1982		Mainly found on coastal beaches and exposed reefs and rock platforms.	Negligible	No suitable habitat.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Aythya australis	Hardhead		vu		2012		A mainly aquatic species preferring large, deep freshwater environments with abundant aquatic vegetation, including slow moving areas of rivers. Also occurs in brackish wetlands and can be found in deep dams and water storage ponds. Occasionally in estuarine and littoral habitats such as saltpans, coastal lagoons and sheltered inshore waters. Avoids main streams or rivers, except in calm reaches where aquatic flora is developed.	High (recorded)	Previously recorded within the Eastern Treatment Plant (VBA, BA) and also within the adjacent Waterways Estate (D. Cook, pers. comm.). Could also occur in any large waterbody elsewhere within the Green Wedge.
Biziura lobata	Musk Duck		vu		2012		A largely aquatic species preferring deep water on large, permanent swamps, lakes and estuaries with abundant aquatic vegetation. Often occurs in areas of dense vegetated cover within a wetland. Less commonly recorded in small or shallow waters, such as billabongs, sewage ponds, freshwater rivers and densely vegetated farm dams.	High (recorded)	Previously recorded within the Eastern Treatment Plant (Biosis Research 2004, VBA, BA) and also within the adjacent Waterways Estate (D. Cook, pers. comm.). Could also occur on large, open dams elsewhere within the Green Wedge.
Botaurus	Australasian	EN	en	L	2011	PMST	Occurs in wetlands with tall, dense	High	Recorded in the Eastern

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
poiciloptilus	Bittern						vegetation where it forages in shallow water at the edges of pools or waterways. Prefers permanent freshwater habitats, particularly when dominated by sedges, rushes and reeds.	(recorded)	Treatment Plant (VBA, BA) and the adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any large waterbody within the Green Wedge, particularly those dominated by sedges, rushes and reeds.
Burhinus grallarius	Bush Stone-curlew		en	L	2009		This species generally occurs in open woodland habitats, including mallee and mulga, which have a sparse layer of small shrubs, grass and litter. The species is mostly restricted to low rainfall areas in the north central and western regions of Victoria.	Negligible	Functionally extinct in southern Victoria.
Calidris alba	Sanderling		nt		2010		Summer migrants to Victoria, with some non-breeding individuals remaining over winter. The species is typically found on sandy beaches and foraging among piles of seaweed.	Low	Wetlands/dams within Green Wedge generally unsuitable.
Calidris canutus	Red Knot		en		2009		This non-breeding migrant typically occurs on intertidal mudflats,	Medium	May occur in the lagoons of Eastern

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							sandflats and sandy beaches of sheltered coasts, and a range of other coastal and near-coastal environments such as lakes, lagoons, pools and pans, and recorded on sewage ponds and saltworks; inland lakes and swamps are less commonly used.		Treatment Plan and, to a lesser extent, other large waterbodies within the Green Wedge.
Calidris ferruginea	Curlew Sandpiper		en		2012		Typically occurs on intertidal mudflats and beaches in sheltered coastal areas. Less often recorded in a range of other coastal and near-coastal environments such as lakes and dams.	High (recorded)	Recorded in the Eastern Treatment Plant (Biosis Research 2004, VBA, BA). Small numbers may also use muddy margins of wetlands, low-lying areas or large dams elsewhere within the Green Wedge.
Calidris melanotos	Pectoral Sandpiper		nt		2012		Occurs in a variety of wetland habitats with fringing mudflats including bays, coastal lagoons, lakes, swamps, creeks, inundated grasslands, saltmarshes and artificial wetlands. Mostly recorded from Port Phillip Bay and Murray River Valley region.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA). Small numbers may also use muddy margins of wetlands, low-lying areas or large dams elsewhere within the Green Wedge.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Calidris subminuta	Long-toed Stint		nt		2008		Occurs on a variety of terrestrial freshwater or brackish wetlands such as lakes, swamps, river floodplains, streams, lagoons, sewage ponds and reservoirs. The species is commonly observed on muddy fringes of drying ephemeral lakes and swamps. It is less commonly found on tidal estuaries, saline lakes, salt ponds and bore swamps.	High	May occur in the lagoons of Eastern Treatment Plant and muddy margins of wetlands, low-lying areas or large dams elsewhere within the Green Wedge.
Ceyx azureus	Azure Kingfisher		nt		2003		Azure Kingfishers are found in association with well vegetated freshwater wetlands and slow-flowing creeks and rivers, including artificial wetlands and drains, of open riverine or swamp forest or woodland environments and occasionally among mangroves in sheltered coastal areas. They usually perch in shady, overhanging vegetation, nest in burrows tunnelled into banks above the floodline and generally forage by plunge-diving from a perch into the water body.	Medium	May occur in remnant woodland patches, scattered trees and planted vegetation associated with watercourses within the Green Wedge.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Chalcites osculans	Black-eared Cuckoo		nt		2007		Typically occupies open vegetation communities such as open eucalypt woodlands and shrublands in lower rainfall areas. In Victoria, mainly found north of the Great Dividing Range and in Western Victoria.	Medium	Individuals may occasionally visit remnant woodland and scattered trees within the Green Wedge.
Chlidonias hybrida	Whiskered Tern		nt		2012		A breeding migrant to Australia from September to March where it occurs in wetlands, lakes, swamps, rivers, and other water bodies with submerged and emergent vegetation such as grasses, sedges, reeds and rushes. Rarely recorded along rivers or creeks.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA) and the adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any large waterbody within the Green Wedge, particularly those with emergent vegetation.
Chlidonias leucopterus	White-winged Black Tern		nt		2012		A seasonal migrant that occurs in coastal, subcoastal and terrestrial wetlands including bays, estuaries, swamps and floodplains. Majority of records in Victoria are from the Gippsland Lakes and the western shoreline of Port Phillip Bay.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA). Could use other large waterbodies within the Green Wedge.
Circus assimilis	Spotted Harrier		nt		2011		Inhabits open and wooded country of inland and sub-inland Australia, where they hunt over flat or	High	Individuals may occasionally forage in pasture and wooded

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							undulating country with low vegetation cover. Most common over the Murray Valley with occasional visits to coastal Victoria.		areas throughout the Green Wedge.
Egretta garzetta	Little Egret		en	L	2012		Occupies a wide range of wetlands and typically prefers the shallows of wetlands for foraging activities. Occasionally they will forage in small waterways or wet grassland areas.	High	May occur in wetlands within the Green Wedge and occasionally along waterways or low-lying pasture areas.
Excalfactoria chinensis	King Quail		en	L	1800		The species has a preference for wet heath environments where they feed and nest on the ground, but have also been recorded in coastal heath. The current range of this species in Victoria is not known but it is likely to be severely restricted.	Negligible	Locally extinct.
Falco subniger	Black Falcon		vu		2009		Primarily occurs in arid and semi-arid zones in the north, north-west and west of Victoria, though can be forced into more coastal areas by droughts and subsequent food shortages. Occurs in woodlands, open country and around terrestrial wetlands areas, including rivers and	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA) and the adjacent Waterways Estate (VBA record). Individuals may occasionally forage in pasture and wooded areas throughout the

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							creeks. Hunts mostly over open plains and undulating land with large tracts of low vegetation.		Green Wedge.
Gallinago hardwickii	Latham's Snipe		nt		2012	PMST	A migrant to Australia from July to April occurring in a wide variety of permanent and ephemeral wetlands. Prefers open freshwater wetlands with nearby cover, but also recorded on the edges of creeks and rivers, river-pools and floodplains. Forages in soft mud at edge of wetlands and roosts in a variety of vegetation around wetlands including tussock grasslands, reeds and rushes, tea-tree scrub, woodlands and forests.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA) and adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any wetland, areas of tall, damp pasture or along creeks and drains throughout the Green Wedge. Area may support an important population as defined under the EPBC Act.
Gelochelidon nilotica	Gull-billed Tern		en	L	2005		Usually occurs on shallow terrestrial wetlands, less often using sheltered embayments, estuaries, tidal mudflats and beaches. In Australia mainly breeds in inland areas following major flooding events.	Medium	Small numbers may occur within the Eastern Treatment Plant or larger waterbodies within the Green Wedge.
Geopelia cuneata	Diamond Dove		nt	L	2009		Is found in small flocks in grassy woodlands, semi-arid grasslands, spinifex and dry scrub areas. The	Negligible	Does not naturally occur in southern Victoria. Record likely to

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							species is rarely found far from water and is also known to inhabit open riparian woodlands.		be an aviary escapee.
Grantiella picta	Painted Honeyeater		vu	L	1981		A migratory species that breeds in southern Australia, it occupies dry open woodlands and forests located on the inland foothills of the Great Diving Range. Typically forages for fruit and nectar in mistletoes and in tree canopies.	Low	Rarely recorded in southern Victoria. Habitat generally unsuitable.
Grus rubicunda	Brolga		vu	L	2009		Prefers shallow marshland areas, usually less than 50 cm deep with emergent vegetation. Most commonly found in south-west Victoria, the Northern Plains and associated parts of the Murray River. Feeds predominantly on wetland plants, but also forages in crops and pasture.	Low	Locally very rare and unlikely to be found within the Green Wedge.
Haliaeetus leucogaster	White-bellied Sea-Eagle		vu	L	2011	PMST	Occurs in marine habitats and terrestrial wetlands along or near coastal areas in eastern Victoria, particularly around large open wetlands such as deep freshwater swamps, lakes, reservoirs and billabongs. Uses tall trees in or	High	Although this species may fly over the Green Wedge on rare occasions, particularly the Eastern Treatment Plant where it has been previously recorded, it

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							near water for breeding.		is unlikely to be resident or use the Green Wedge regularly.
Halobaena caerulea	Blue Petrel	VU			1890		A marine species, usually pelagic but sometimes observed over shallow waters. A regular visitor to southern Australian waters.	Negligible.	No suitable habitat.
Hirundapus caudacutus	White-throated Needletail		vu		1999	PMST	An almost exclusively aerial species within Australia, occurring over most types of habitat, particularly wooded areas. Less often seen over open farm paddocks but has been recorded in vineyards flying between the rows of trees.	High	May be occasionally seen flying over the Green Wedge.
Hydroprogne caspia	Caspian Tern		nt	L	2012		Occurs on exposed ocean beaches or in sheltered coastal embayments including harbours, lagoons, inlets, estuaries and river deltas usually with sandy or muddy margins and breeds in a variety of coastal habitats including banks, ridges and beaches of sand and shell, often in open or among low or sparse vegetation.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA. BA) and the adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any large waterbody within the Green Wedge.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Ixobrychus minutus dubius	Little Bittern		en	L	2011		Inhabits terrestrial wetlands, preferably with dense emergent vegetation.	High	Main drain/creeks and waterbodies with dense emergent vegetation support high quality habitat for this species.
Larus pacificus	Pacific Gull		nt	I	2012		Occurs along sandy and, less often, rocky coasts usually in areas protected from ocean swells, such as bays estuaries and lagoons. Breeds in a variety of coastal habitats including rocky outcrops, small hillocks, ridges, sides of cliffs and sometimes low-lying beaches. Sometimes occur up to 10 kilometres inland, especially at rubbish tips and wetlands.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA) and adjacent Waterways Estate (D. Cook, pers. comm.). Likely to occur in any large waterbody within the Green Wedge.
Lathamus discolor	Swift Parrot	EN	en	L	2005	PMST	Migrates to south-east mainland Australia during the winter months where it prefers dry, open eucalypt forests and woodlands, especially Box Ironbark Forest in north-central Victoria. Has also been recorded in urban parks, gardens, street trees and golf courses with flowering ornamental trees and shrubs.	Low	Individuals may occasionally forage within the wooded areas (planted and remnant) as they migrate between Tasmania and north-central Victoria.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Leipoa ocellata	Malleefowl	VU	en	L	-	PMST	Occur mainly in semi-arid mallee habitats; in Victoria this type of habitat is largely restricted to the north-west area of the State. Malleefowl are sedentary birds that establish home ranges within which they forage on the ground in leaf litter and low vegetation and nest in distinctive mounds constructed with light soil and leaf litter.	Negligible	Outside natural range. No suitable habitat.
Lewinia pectoralis	Lewin's Rail		vu	L	2011		Inhabits densely vegetated wetlands, including swamps, farm dams, saltmarshes, lakes and small pools that can range from fresh to saline water. May also use riverine forest.	High	Recorded within the Eastern Treatment Plant. Densely vegetated waterbodies within the Green Wedge provide habitat for this species.
Limosa limosa	Black-tailed Godwit		vu		2005		Primarily occurs in coastal environments such as bays, estuaries and lagoons with large intertidal mudflats or sandflats; occasionally found on rocky coasts or coral islets. Black-tailed Godwits have also been recorded in shallow and sparsely vegetated, near-	High	Recorded within the Eastern Treatment Plant. Other waterbodies within the Green Wedge less likely to be used by this species.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							coastal, wetlands; and less commonly inland in the environs of shallow, freshwater and saline lakes, swamps, dams and bore-overflows.		
Lophochroa leadbeateri	Major Mitchell's Cockatoo		vu	L	1979		Open, sparsely timbered grassland, farmland with scattered trees, open scrubland including Mulga, Callitris and Casuarina woodlands and tree-lined watercourses.	Negligible	Does not naturally occur in southern Victoria. Record likely to be an aviary escapee.
Macronectes giganteus	Southern Giant-Petrel	EN	vu	L	2011		An opportunist scavenger and predator, adults of this species are present all year round at Antarctic breeding colonies, from where immature birds disperse, some as far north as subtropical areas.	Negligible	No suitable habitat.
Macronectes halli	Northern Giant-Petrel	VU	nt	L	2006		Breeds in coastal habitats on subantarctic islands. Dispersal movements of juveniles are poorly known but have been observed along temperate coastal areas of Australia, Africa, South America and New Zealand. Often seen around sewer outfalls or seal and penguin colonies.	Negligible	No suitable habitat.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Melanodryas cucullata	Hooded Robin		nt	L	1981		Occupies a range of open woodlands including those dominated by Eucalypts, Acacias and Callitris with an understorey of smaller trees, shrubs and grasses.	Negligible	Locally extinct.
Neophema chrysogaster	Orange-bellied Parrot	CR	cr	L	1986		Annual migrant to coastal Victoria from breeding grounds in south-west Tasmania, appearing from approximately March to October. Forages on coastal or near-coastal areas such as saltmarshes, coastal dunes, pastures, shrublands, estuaries, islands, beaches and moorlands.	Negligible	No suitable habitat.
Ninox strenua	Powerful Owl		vu	L	1995		Prefers tall open sclerophyll forest and woodlands and requires large, hollow-bearing eucalypts for breeding. While the species has been recorded from a wide range of woodland habitats, preferred habitat typically contains a dense understorey and suitable roost trees with a dense canopy cover. The species is more commonly associated with large tracts of continuous forest, but will	Low	Potential rare visitor, particularly dispersing birds. Green Wedge unlikely to support resident birds.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							sometimes occur in more fragmented landscapes, including suburban parklands though rarely, if ever, breeds in these areas.		
Numenius madagascariensis	Eastern Curlew		vu		2001		A migratory bird arriving in Australia from Russia and China from August and departing around February. Occurs in a variety of sheltered coastal habitats including harbours, inlets and coastal lagoons, usually with large sand flats or intertidal mudflats with seagrass. Occasionally observed on coastal rock platforms.	High (recorded)	Recorded in the Eastern Treatment Plant (VBA, BA). Individuals may occasionally use larger waterbodies elsewhere within the Green Wedge.
Numenius phaeopus	Whimbrel		vu		1977		Whimbrels are summer migrants to Victoria where they are typically found in coastal environments foraging in mudflats, sandy shores and the crevices of rock platforms. The species is rarely recorded inland.	High	Likely to occur in the Eastern Treatment Plant. Individuals may occasionally use larger waterbodies elsewhere within the Green Wedge.
Nycticorax caledonicus hillii	Nankeen Night Heron		nt		2012		Occurs in a variety of estuarine and terrestrial wetlands where it forages on the margins in shallow still or slow-moving water or exposed banks, mudflats and swamp	High	Recorded in the adjacent Waterways Estate (D. Cook, pers. comm.). Also recorded by Biosis during surveys

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							vegetation of these environments. Also uses wet meadows and pastures, urban wetlands and ponds and preferring wetland areas with swampy fringing vegetation and nearby trees for roosting.		to the north-east of the Green Wedge (D. Gilmore, pers. comm.). Could occur in any large waterbody within the Green Wedge, particularly those with fringing vegetation.
Oxyura australis	Blue-billed Duck		en	L	2012		A largely aquatic species preferring deep, large permanent wetlands with stable conditions and abundant aquatic vegetation, including Melaleuca swamps. Occurs less commonly on river frontages, billabongs and flooded depressions. It is a secretive bird, rarely venturing far from dense vegetative cover in wetland areas.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA) and the adjacent Waterways Estate (D. Cook. Pers. comm.). May also occur on large, open dams elsewhere within the Green Wedge.
Pachyptila turtur	Fairy Prion		vu		2010		This marine waterbird can be found from sub-Antarctic to subtropical waters in the southern hemisphere, mostly occurring over continental shelves and slopes, and rarely coming close to shore except at breeding islands and during rough weather.	Negligible	No suitable habitat.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Pelagodroma marina	White-faced Storm-Petrel		vu		1980		White-Faced Storm-Petrels have breeding colonies on Mud and South Channel Islands in Port Phillip Bay. In Victoria they feed off the coast in pelagic and inshore waters.	Negligible	No suitable habitat.
Pelecanoides urinatrix	Common Diving-Petrel		nt		1985		The Common Diving-Petrel occurs in inshore and pelagic waters off the Victorian coast and breeds on coastal islands.	Negligible	No suitable habitat.
Pezoporus wallicus	Ground Parrot		en	L	1854		Mainly found in heathland, sedgeland or buttongrass plains providing medium to dense cover.	Negligible	Locally extinct. No suitable habitat.
Phalacrocorax fuscescens	Black-faced Cormorant		nt		1994		Occurs in marine and estuarine habitats and forages over inshore waters and reefs, rarely entering small inlets or bays. Roost on islands, offshore rocks, sandbanks and jetties.	Negligible	No suitable habitat.
Phalacrocorax varius	Pied Cormorant		nt		2012		Mainly inhabits marine environments and coastal waters including beaches, coastal lagoons, estuaries and rock platforms. Also found in terrestrial wetlands with open expanses of permanent water including rivers, inland lakes and	High (recorded)	Recorded in the Eastern Treatment Plant (VBA) and the adjacent Waterways Estate (D. Cook, pers. comm,). Could occur in any large waterbody within the

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							billabongs. Breeds and roosts in trees or bushes along the edges of water body, as well as on artificial structures such as pylons.		Green Wedge.
Platalea regia	Royal Spoonbill		nt		2012		Often seen around permanent and ephemeral waters in the arid interior of east Australia foraging in shallow waters. Prefers terrestrial wetlands and wet grassland areas, particularly large expanses of water such as lakes, swamps or lagoons. Also utilises rivers for its feeding activities and has regularly been recorded in coastal habitats such as estuaries, inlets and intertidal mudflats.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA) and the adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any waterbody, particularly wetlands or inundated pasture), within the Green Wedge.
Plegadis falcinellus	Glossy Ibis		nt		2012		Usually found foraging in wet pasture environments and low lying wetland areas. This species is only rarely recorded in Victoria. Prefers freshwater wetlands especially permanent or ephemeral water bodies on floodplains but also found in sheltered coastal environments.	High	Small numbers could occur in wetlands or wet pasture within the Green Wedge.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
Pluvialis fulva	Pacific Golden Plover		vu		2005		A migratory shorebird that usually occurs in small flocks and occupies a range of coastal habitats including mudflats, sandflats rocky shores and saltmarsh.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). Habitat generally unsuitable elsewhere within the Green Wedge.
Pluvialis squatarola	Grey Plover		en		1977		Summer migrant to Australia, habitat includes mudflats, saltmarsh, tidal reefs and estuaries.	Low	Habitat generally unsuitable.
Polytelis anthopeplus	Regent Parrot	VU	vu	L	2008		In southeast Australia they are found in riparian or littoral River Red Gum forests, adjacent Black Box woodlands, Belah woodlands and in nearby open mallee woodland or shrubland.	Negligible	Outside range. Aviary escape.
Pomatostomus temporalis	Grey-crowned Babbler		en	L	2002		Typically occupies open forests and woodlands north of the Great Dividing Range including dry forests and woodlands, acacia scrub, wooded farmlands and roadside trees. Occurs in breeding groups that seldom remain in southern areas of Victoria.	Negligible	Locally extinct.
Porzana pusilla	Baillon's Crake		vu	L	2012		Occurs in a variety of densely vegetated terrestrial and coastal	High	Recorded in Eastern Treatment Plant and

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							wetlands including billabongs, swamps, creeks and rivers, including freshwater, brackish and saline environments. Occasionally recorded in grassed or vegetated areas (parks, gardens, golf courses) and marine environments (saltmarshes, coastal dunes and mudflats).		the adjacent Waterways Estate (D. Cook, pers. comm.). Could occur in any densely vegetated waterbody within the Green Wedge.
Rostratula australis	Australian Painted Snipe	EN	cr	L	2012	PMST	Generally found in shallow, terrestrial freshwater wetlands with rank, emergent tussocks of grass, sedges and rushes. Australian Painted Snipe can occur in well vegetated lakes, swamps, inundated pasture, saltmarsh and dams.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). May occasionally use shallow, well-vegetated wetlands within the Green Wedge.
Stagonopleura guttata	Diamond Firetail		nt	L	1999		Occurs mostly in the lowlands and foothills in the north of Victoria. It has specific habitat requirements, which include grassy woodlands with tree cover for refuge and an undisturbed ground layer with grasses.	Negligible	Locally extinct.
Sterna striata	White-fronted		nt		2010		Regular migrant from March to October, where it can be found in	Low	Habitat generally

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
	Tern						Victoria's offshore waters, bays, reefs and Islands.		unsuitable.
Sternula albifrons	Little Tern		vu	L	1975		Mostly recorded in sheltered coastal environments, including bays, lagoons and estuaries. Nests on sandy substrates containing much shell-grit, which provides good camouflage for their eggs.	Negligible	Habitat unsuitable.
Sternula nereis	Fairy Tern	VU	en	L	1975	PMST	Inhabit coastal environments including intertidal mudflats, sand flats and beaches. Nests above high-water mark on sandy shell-grit beaches.	Negligible	Habitat unsuitable.
Stictonetta naevosa	Freckled Duck		en	L	2012		Usually found on densely vegetated freshwater wetlands. During dry conditions the birds move from ephemeral wetlands to large areas of permanent open water, particularly lakes and reservoirs.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). May also use vegetated wetlands or large, open waterbodies elsewhere within the Green Wedge.
Thalassarche cauta	Shy Albatross	EN	vu	L	1994		A marine pelagic species inhabiting sub-Antarctic and subtropical waters, spending the majority of their time at sea. Occasionally it is	Negligible	No suitable habitat.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							observed in continental shelf waters in bays and harbours.		
Thalassarche melanophris	Black-browed Albatross	VU	vu	I	1994		Breeds in Antarctic and sub-Antarctic islands, but commonly occurs in pelagic waters off the coast of Victoria.	Negligible	No suitable habitat.
Todiramphus pyrrhopygius	Red-backed Kingfisher		nt		1993		A migratory and nomadic species occurring in sparse inland woodlands and scrublands, often far from water. Habitat includes gibber, spinifex and other grasslands, tree-lined dry watercourses and grassy tropical woodlands.	Low	Habitat generally unsuitable.
Tringa brevipes	Grey-tailed Tattler		cr	L	1987		Summer migrant to coastal Australia it occurs in estuaries, tidal mudflats, mangroves, wave-washed rocks and reefs and shallow river margins coastal and inland.	Low	Habitat generally unsuitable.
Tringa glareola	Wood Sandpiper		vu		2011		Inhabits well vegetated shallow freshwater wetlands with emergent aquatic plants and dense fringing vegetation. This species is a migratory species from Eurasia with only a small number reaching	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). Could use well vegetated waterbodies elsewhere within the Green

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							Australia.		Wedge.
Tringa nebularia	Common Greenshank		vu		2012		Occur on a variety of inland wetlands and sheltered coastal habitats typically with large mudflats. Frequent permanent or ephemeral terrestrial wetlands including lakes, dams, creeks and sewage farms.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). Small numbers may occasionally occur in larger waterbodies elsewhere within the Green Wedge.
Tringa stagnatilis	Marsh Sandpiper		vu		2012		Found in permanent or ephemeral wetlands including swamps and inundated floodplains, also regularly at sewage farms and saltworks.	High (recorded)	Recorded within the Eastern Treatment Plant (VBA, BA). Small numbers may occasionally occur in larger waterbodies elsewhere within the Green Wedge.
Turnix pyrrhothorax	Red-chested Button-quail		vu	L	2000		Primarily found in grasslands and grassy woodlands of temperate and tropical Australia. Though rarely recorded in south-eastern Australia, it can occur in irrigated pastures and crops but prefers dense, damp grasslands with little or no tree cover, or woodland areas with	Low	Habitat generally unsuitable. Rare vagrant to southern Victoria.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							dense grass		
Xenus cinereus	Terek Sandpiper		en	L	2001		Mainly found on saline intertidal mudflats in sheltered estuaries, embayments, harbours and lagoons.	Medium	May occur within the Eastern Treatment Plant. Habitat generally unsuitable elsewhere within the Green Wedge.
Reptiles									
Chelodina longicollis	Common Long-necked Turtle		dd		2006		Commonly occurs in lentic wetlands, lakes and dams but also in flowing (lotic) systems. Relatively resistant to desiccation and thus able to disperse over land to seek out more permanent waterbodies. Found associated with coarse woody debris (snags) and dense fringing macrophytes (reeds and rushes).	Medium	Widespread and locally abundant species commonly encountered in urban Melbourne. May be present in all creeks and rivers on site and potentially in isolated dams and wetlands within the Green Wedge not being dependant on flow connection with major drainages.
Varanus varius	Lace Goanna		en		1977		Occurs in variety of wooded habitats, including woodlands. Shelters in hollow trunks, limbs and	Negligible	Locally extinct.

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							logs.		
Frogs									
Litoria raniformis	Growling Grass Frog	VU	en	L	1990	PMST	Occupies a variety of permanent and semi-permanent water bodies generally containing abundant submerged and emergent vegetation, within lowland grasslands, woodlands and open forests.	Medium	Current status of the Growling Grass Frog within the Green Wedge unknown. In 2002 the species was translocated from a quarry in Oakleigh South to the Waterways Estate immediately to the west of the Green Wedge. Growling Grass Frog has not been recorded in Waterways since 2006 despite several surveys. The species may now be locally extinct. Occurrence of Growling Grass Frogs in waterways and dams/wetlands cannot be discounted as they may have extended their range from the

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
									Waterways Estate into nearby waterways. Further survey required to establish if the species is present in the Green Wedge.
Pseudophryne semimarmorata	Southern Toadlet		vu		1990		Occupies a variety of habitats in south-eastern Australia, such as open forests, lowland woodlands and heathlands where adults shelter beneath leaf litter and other debris in moist soaks and depressions.	Medium	Habitat substantially modified throughout Green Wedge. May occur in ephemeral wetlands. Further survey required to establish if the species is present in the Green Wedge.
Fishes									
Galaxiella pusilla	Dwarf Galaxias	VU	en	L	2005	PMST	Occurs in relatively shallow still or slow flowing water bodies including streams, wetlands, drains, that in many instances are ephemeral and partially dry up over summer. Typically requires abundant marginal and aquatic vegetation.	Medium	Several records exist from the Hallam Main Drain. Not recorded during fish survey of the Mordialloc Creek catchment west of Springvale Road (McGuckin 2006). Waterbodies within the Green Wedge have the

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
									potential to support this species. Further survey required to establish if the species is present in the Green Wedge.
Nannoperca obscura	Yarra Pygmy Perch	VU	vu	L	1982	PMST	A freshwater, non-migratory fish preferring heavily vegetated, slow flowing or still aquatic habitats but also known to occur in tiny semi-permanent habitats.	Medium	Suitable habitat exists within the Green Wedge although most recent record is from 1982.
Prototroctes maraena	Australian Grayling	VU	vu	L	-	PMST	A diadromous species which spends most of its life in freshwater within rivers and large creeks. Juveniles inhabit estuaries and coastal seas. Adults occur in freshwater habitats, typically rivers and streams with cool, clear waters and gravel substrates, but occasionally also in turbid waters.	Low	Habitat generally unsuitable.
Invertebrates									
Plectrotarsus gravenhorstii	Caddisfly		vu		1915		The aquatic stage of the species is known to inhabit shallow, densely vegetated waterways and swamplands. In Victoria the species	Low	Suitable habitat occurs within the Green Wedge. The time since the last database

Scientific name	Common name	Conservation status			Most recent database record	Other records	Habitat description	Likely occurrence in Study area	Rationale for likelihood ranking
		EPBC	DSE	FFG					
							is most common in waterways of and around Melbourne, with nine of the existing 15 records occurring within 50 km of the CBD.		record most likely represents lack of survey effort however given the long term water quality of the lower Dandenong Creek catchment within the Green Wedge being rated 'poor' (MW 2007) due to urban, industrial and agricultural inputs the likelihood of occurrence is considered low.
Synemon plana	Golden Sun Moth	CR	cr	L	-	PMST	This medium-sized diurnal moth inhabits grassy woodlands and grasslands. Once thought to be a specialised species inhabiting grasslands dominated by Wallaby-grasses, it is now recognised that this species can occur in exotic grasslands dominated by Chilean Needle Grass *Nassella neesiana*.	Negligible	No suitable habitat.

Appendix 3: Migratory species (EPBC Act listed)

Table A3. Migratory fauna species recorded or predicted to occur within 5 km of the study area.

Scientific Name	Common Name	Most recent record
Birds		
Acrocephalus stentoreus	Clamorous Reed Warbler	2012
Actitis hypoleucos	Common Sandpiper	2012
Anas clypeata	Northern Shoveler	2003
Anthochaera phrygia	Regent Honeyeater	1976
Apus pacificus	Fork-tailed Swift	2008
Ardea modesta	Eastern Great Egret	2012
Ardenna tenuirostris	Short-tailed Shearwater	2010
Arenaria interpres	Ruddy Turnstone	1982
Branta canadensis	Canadian Goose	2008
Bubulcus ibis	Cattle Egret	2012
Calidris acuminata	Sharp-tailed Sandpiper	2012
Calidris alba	Sanderling	2010
Calidris canutus	Red Knot	2009
Calidris ferruginea	Curlew Sandpiper	2012
Calidris melanotos	Pectoral Sandpiper	2012
Calidris ruficollis	Red-necked Stint	2012
Calidris subminuta	Long-toed Stint	2008
Charadrius bicinctus	Double-banded Plover	2012
Chlidonias leucopterus	White-winged Black Tern	2012

Scientific Name	Common Name	Most recent record
Gallinago hardwickii	Latham's Snipe	2012
Haliaeetus leucogaster	White-bellied Sea-Eagle	2011
Hirundapus caudacutus	White-throated Needletail	1999
Hydroprogne caspia	Caspian Tern	2012
Leipoa ocellata	Malleefowl	-
Lewinia pectoralis	Lewin's Rail	2011
Limosa lapponica	Bar-tailed Godwit	2009
Limosa limosa	Black-tailed Godwit	2005
Macronectes giganteus	Southern Giant-Petrel	2011
Macronectes halli	Northern Giant-Petrel	2006
Merops ornatus	Rainbow Bee-eater	1978
Monarcha melanopsis	Black-faced Monarch	2007
Motacilla flava	Yellow Wagtail	2006
Myiagra cyanoleuca	Satin Flycatcher	2008
Neophema chrysogaster	Orange-bellied Parrot	1986
Numenius madagascariensis	Eastern Curlew	2001
Numenius minutus	Little Curlew	1990
Numenius phaeopus	Whimbrel	1977
Onychoprion anaethetus	Bridled Tern	1998
Pandion cristatus	Eastern Osprey	-
Phalaropus lobatus	Red-necked Phalarope	2006
Philomachus pugnax	Ruff	1987
Plegadis falcinellus	Glossy Ibis	2012
Pluvialis fulva	Pacific Golden Plover	2005

Scientific Name	Common Name	Most recent record
Pluvialis squatarola	Grey Plover	1977
Rhipidura rufifrons	Rufous Fantail	2008
Rostratula australis	Australian Painted Snipe	2012
Stercorarius parasiticus	Arctic Jaeger	1976
Sterna hirundo	Common Tern	2010
Sternula albifrons	Little Tern	1975
Thalassarche cauta	Shy Albatross	1994
Thalassarche melanophris	Black-browed Albatross	1994
Tringa brevipes	Grey-tailed Tattler	1987
Tringa glareola	Wood Sandpiper	2011
Tringa nebularia	Common Greenshank	2012
Tringa stagnatilis	Marsh Sandpiper	2012
Tryngites subruficollis	Buff-breasted Sandpiper	1984
Xenus cinereus	Terek Sandpiper	2001