INTERIM REPORT
ROBINSONS AND MIDDLE ROADS, TRUGANINA
FLORA AND VEGETATION ASSESSMENT

Marksx Group Pty Ltd

BRETT LANE & ASSOCIATES PTY LTD
Ecological Research & Management
605 Nicholson Street, North Carlton
P O Box 592, North Carlton, Vic. 3054
Ph. (03) 9387 5008
Fax. (03) 9387 6115

September 2007

Report No. 7136 (1.0)

CONTENTS

LIST OF TABLES

APPENDICES

1. INTRODUCTION

Brett Lane & Associates Pty Ltd was commissioned by the Marksx Group Pty Ltd to undertake a flora and fauna assessment of a parcel of land located south-west of the corner of Robinsons and Middle Roads, Truganina, on the western periphery of Melbourne. The aim of the assessment was to ascertain the extent and nature of any native vegetation and fauna habitat on the land and to determine the application of relevant biodiversity legislation and policies in relation to the proposed rezoning of the land in a planning scheme amendment. In addition, targeted surveys for threatened flora species were undertaken and a tile grid survey for the Striped Legless Lizard was initiated.

This report is an interim report and presents results to 15th September 2007.

1.1. Scope of the investigation

The scope for this investigation included the tasks described below.

- Review of existing information (e.g. DSE's Flora Information System and Atlas of Victorian Wildlife; EPBC Act Protected Matters Search Tool);
- A site survey was undertaken involving:
    - Assessment of the nature, extent and quality of native vegetation;
    - Habitat-hectare assessments of native vegetation remnants;
    - Assessment of the nature and extent of fauna habitats on the site;
    - A rock-rolling search for any rare reptile species;
    - Compilation of lists of flora and fauna species found or likely to occur on the site; and
    - Evaluation of the likelihood of occurrence of threatened flora and fauna on the site;
- Maps have been prepared of the site showing any significant features and remnant vegetation.
- This interim report has been prepared at the request of the Marksx Group and it includes the following:
    - A statement of the methods used and sources of information for the investigation, including any limitations, where applicable;
    - The results of the survey and review of existing information, documenting the flora and fauna of the site;
    - Preliminary discussion of the implications of the findings for the proposed use of the land, specifically addressing relevant legislative and policy requirements.

Further discussion of the implications and any recommendations for meeting the requirements of legislative and policy controls will be provided in the final report, once the results of all investigations are available.

1.2. Report outline and investigation team

This interim report and the results of the investigation are divided into the following sections:

Section 2 describes the sources of information and the methods used for the site assessment.

Section 3 presents the investigation results, in particular assessments of vegetation and habitat condition.

Section 4 describes the conservation significance of the study area.

Section 5 discusses the implications of the findings to date under applicable legislation and planning policy.

This investigation was undertaken by a team from Brett Lane & Associates Pty Ltd, comprising Peter Lansley (Zoologist), Davide Coppolino (Botanist) and Brett Lane (Principal Consultant).

2. ASSESSMENT METHODOLOGY AND SOURCES OF INFORMATION

This section of the report identifies the sources of information and methodology used to assess flora and fauna in this assessment. Only vertebrate fauna and vascular plants were considered during this assessment.

2.1. Existing Information

Existing information on flora and fauna utilised as part of this investigation is described below. In this report, *search region* refers to the wider region checked for existing records of significant species and communities, and *study area* refers to the subject land.

2.1.1. EPBC Act Protected Matters Search Tool

The EPBC Act Protected Matters Search Tool (DEWR 2007) was used to generate a list of nationally protected matters of environmental significance (including threatened flora, fauna and ecological communities) in the study area to a radius of 10 kilometres from the approximate centre point of the study area at coordinates 37° 47' 52"S latitude and 144° 44' 03"E longitude.

2.1.2. Flora

Flora records from the Viridans Flora Information System (FIS), a public database administered by the Department of Sustainability and Environment were obtained. These listed all plant species, including rare and threatened plants, found in a search area within a radius of 5 kilometres from the approximate centre point of the study area at coordinates 37° 47' 52"S latitude and 144° 44' 03"E longitude. Prior to the field inspection, these lists were reviewed to ascertain which threatened flora species have previously been recorded in the search area.

Plant taxonomy used throughout this report follows FIS standards.

2.1.3. Ecological Vegetation Classes

Native vegetation mapping in the form of extant and pre-1750 (pre-European settlement) vegetation mapping was reviewed to determine the types of native vegetation likely to be encountered in the field. Information on Ecological Vegetation Classes was obtained from relevant previous ecological studies and state-wide EVC mapping. These sources included:

- Relevant EVC benchmarks for the Victorian Volcanic Plains bioregion[1] (DSE 2007a); and
- Online Biodiversity Interactive Maps (DSE 2007b).

[1] A bioregion is defined as "a geographic region that captures the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values". In general bioregions reflect underlying environmental features of the landscape (DNRE 1997).

2.1.4. Fauna

A list of the fauna of the area was obtained from the Viridans Victorian Fauna Database (also known as the Atlas of Victorian Wildlife - AVW), a public database administered by the DSE. The search area for this list was within a radius of 5 kilometres of the study area from an approximate central point of the study area, 37° 47' 52"S latitude and 144° 44' 03"E longitude.

Fauna taxonomy used throughout this report follows Atlas of Victorian Wildlife (AVW) standards.

2.2. Field Methodology

2.2.1. Botanical and native vegetation assessment

The vegetation field assessment was conducted on 7th and 10th August 2007. During the assessment, the study area was surveyed by walking transects throughout.

Incidental records of flora species were made based on random intuitive sampling methods. A compiled list of flora species recorded is provided in Appendix 1. Mapping of remnant vegetation and ecosystems was undertaken using a handheld Global Positioning System (GPS).

Areas containing native vegetation subject to the state's Native Vegetation Management Framework (DNRE 2002), referred to herein as the 'Framework', were assessed using the Habitat Hectare method prescribed by the Department of Sustainability and Environment and mapped using a handheld GPS and aerial photography interpretation, where available.

A further site survey was undertaken to search for threatened species, in particular the Spiny Rice-flower (*Pimelea spinescens*). During this survey, areas that had not been subjected to frequent plowing and that supported indigenous vegetation were inspected for the presence of the Spiny Rice-flower and any other threatened vascular plant species.

Transects spaced four metres apart in low-health vegetation and two metres apart in higher-health vegetation were walked and the species was searched for thoroughly. Low-health vegetation included areas almost exclusively comprising senescent tussock grasses. This vegetation included high amounts of compacted, accumulated organic litter and a relatively low cover of exotic flora. Threatened species such as the Spiny Rice-flower were assumed to be more conspicuous in this type of vegetation, thus allowing for greater spacing between transects (as described above). Higher-health vegetation included a number of indigenous forb species, Serrated Tussock and Spanish Artichoke which obscured other species, thus warranting closely-spaced transects.

2.2.2. Defining vegetation

Vegetation is recognised in three different categories during botanical field investigations. These categories are based on the general rules of intactness used for categorising vegetation throughout Victoria (DNRE 2002; DSE 2007c). These vegetation categories are as follows:

1. **Remnant patch -** Patches of remnant native vegetation, including wetlands, composed of indigenous plant species **considered part of a clearly definable Ecological Vegetation Class (EVC).** Such vegetation includes remnant vegetation with the following attributes:
    a. Indigenous understorey vegetation comprising greater than 25% of the understorey vegetation cover; and/or
    b. Three or more canopy trees with at least 20% canopy cover.
2. **Scattered trees** – Areas with indigenous trees whose canopy cover is less than 20% and with less than 25% indigenous understorey vegetation composition.
3. **Degraded treeless vegetation –** All vegetation that is not categorised as a remnant patch or scattered trees. This category includes the following vegetation descriptions:
    - Treeless vegetation with less than 25% indigenous species composition; or
    - Treeless vegetation that has greater than 25% indigenous species composition but is dominated by opportunistic native species which were unlikely to have been dominant prior to a disturbance event (e.g. cropping).

2.2.3. Assessing the quality of vegetation

The different approaches applied to assess and quantify the condition and quality of vegetation belonging to these vegetation categories are outlined below.

Assessing a remnant patch

Remnant patch vegetation is assessed in the field using the formal methodology for assessing vegetation and habitat quality developed as part of *Victoria's Native Vegetation Management – a Framework for Action*, referred to herein as "the Framework" (DNRE 2002). This methodology is known as habitat scoring or Habitat Hectare assessment (Parkes, Newell and Cheal 2003; DSE 2004). The Habitat Hectare methodology provides a quantitative measure of vegetation quality, which ultimately assists in defining the values of remnant native vegetation and guiding offsets (compensation) if native vegetation is to be removed.

Assessing scattered trees

Scattered indigenous trees do not constitute a remnant patch and therefore do not qualify for habitat hectare assessment. Scattered indigenous trees are counted and their diameter recorded at 1.3 metres above ground level (DBH). The size class of scattered trees is assessed based on the trunk diameter in comparison to the relevant benchmark diameter for a large old tree.

Degraded treeless vegetation

Degraded treeless vegetation is considered to be of minimal habitat or botanical value and therefore no assessment of quality is undertaken in accordance with Department of Sustainability guidelines (DSE 2007c).

2.2.4. Fauna

The field survey was undertaken on 7th August 2007 during fine mild and mostly sunny but windy winter conditions. The ambient temperature ranged from around 12 °C to 16 °C and the wind was a fresh northerly. The diurnal (daytime) conditions were suitable for detecting most fauna species likely to be present in the study area.

A number of techniques were used to detect fauna species inhabiting the study area, including:

- Incidental searches for mammal scats, tracks and signs (e.g. diggings, signs of feeding and nests/burrows) (no mammal trapping was undertaken);
- Rolling of rocks, logs and debris for reptiles and mammals. A total sample of 92 rocks, four old fence posts or logs and one piece of corrugated iron was rolled and checked for reptiles and small mammals during the field visit;
- Active bird observation during the day;
- General searches for reptiles and frogs (no pitfall trapping was undertaken).

Fauna habitat types were characterised on the site and are described in Section 3.4.1. Quality of fauna habitat was assessed based on the criteria detailed below. These criteria have been modified to suit particular vegetation types, such as treeless environments, as necessary. Three quality categories were used, as described below.

Low: Many fauna habitat elements in low quality remnants have been lost, including old-growth trees (eg. due to past timber harvesting) and fallen timber, and tree canopies are often highly fragmented. Remnants may be severely weed-invaded and possess few native structural and floristic components. Habitat linkages with other remnant ecosystems in the landscape have usually been removed by extensive past clearing.

Moderate: Some fauna habitat components are often missing (i.e. vegetation disturbed, old-growth trees, fallen timber), although linkages with other remnant habitats in the landscape are usually intact.

High: Fauna habitat components are usually all present (i.e. vegetation intact, old-growth trees and fallen timber) and habitat linkages to other remnant ecosystems in the landscape are intact.

2.3. Limitations

The flora and fauna field assessment was undertaken in winter during fine and mild but windy conditions.

The timing of the survey was considered sufficient to detect most native plant genera and communities present, and for a determination of the likelihood of occurrence of most rare and threatened species within the study area.

The build up of organic litter and senescence of grasses in the study area made identification of grasses difficult due to a lack of characteristic feature used for identification. The state of this vegetation, possibly a result of drought and lack of frequent fire, may also mean that other species (including listed threatened species) where present but only as root stock, below the soil surface. More suitable conditions (e.g. appropriate fire regime and weather) may have resulted in more accurate results.

Daytime conditions were sub-optimal for detecting fauna species likely to occur in the study area due to strong winds which limit bird observations, especially detecting calls. However, most species present during the survey would have been detected. Some migratory species of bird would have been absent, and most frogs and reptiles were hard to detect because of their inactivity in the season of the survey. However, a targeted tile grid survey for the Striped Legless-lizard was initiated and the results of this will be available later in the year.

Flora and fauna field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species and short survey duration. Rare or cryptic species are often missed in short surveys. Wherever appropriate, a precautionary approach has been adopted in the discussion of implications. That is, where insufficient evidence is available on the occurrence or likelihood of occurrence of a species, it is assumed that it could be in an area of habitat, if suitable, and the implications under legislation and policy are considered accordingly.

3. RESULTS

This section describes the site and presents information on the flora and fauna of the study area based on the review of existing information and the field investigations. Flora and fauna are considered separately. A flora species list is currently being compiled. A fauna species list with scientific names is provided in Appendix 1.

3.1. Site description

The study area is situated on the western edge of industrial development in Ravenhall, some 20 km west of Melbourne. The study area under investigation is approximately 80 hectares in area and is located on the southern side of Middle Road, and to the west of Robinsons Road. To the east the land comprises industrial or warehouse estates, both existing and under construction, while to the north, land use comprises the Metropolitan Remand Centre at the eastern end and cultivated land in the west. To the south the land has been cultivated and is grazed by cattle in the east and in the west this land supports remnant mixed pasture of similar character to the western part of the current study area. Abutting the north-east corner of the study area is land owned by VicRoads as part of the Deer Park bypass of the Western Freeway. The topography of the study area is flat.

The majority of the study area comprised exotic grassland that has been cultivated. Remnant Ecological Vegetation Class Plains Grassland (EVC 132_61), exists on about 14 ha of land in the western half of the study area. The ground layer was dominated by Kangaroo Grass, and, while it has been grazed by sheep until recently, retained good tussock structure in places. Some exotic weeds and grasses had invaded this section, particularly Spanish Artichoke and Serrated Tussock. Scattered African Box-thorn appeared to have been killed off or had otherwise died. One mature planted Sugar Gum and one sapling were found in the north-central section of the study area.

The study area is situated within the Victorian Volcanic Plain bioregion and is under the jurisdiction of the Port Phillip and Westernport Catchment Management Authority. The local planning authority is the Shire of Melton. The area under investigation is currently zoned Rural in the Melton Planning Scheme, and is proposed to be rezoned Industrial. There are no overlays relevant to flora or fauna in the local planning scheme covering the study area.

3.2. Flora species

A flora species list from the field survey is yet to be compiled.

Flora Information System records and the EPBC Act Protected Matters Search Tool indicated that within region, 20 species of state or national conservation significance do or may occur. Analysis of the likelihood of occurrence of state threatened species will be provided in the final report.

A targeted survey for the Spiny Rice-flower and other threatened species was undertaken. This survey failed to detect any threatened flora species within areas of intact native grassland.

3.3. Ecological Vegetation Classes

Pre–1750 Ecological Vegetation Class (EVC) mapping produced by the Department of Sustainability and Environment indicates that the study area supported Plains Grassy Woodland (EVC 55) and Plains Grassland (EVC 132) prior to European settlement.

The approximate extent of intact native vegetation will be presented in a detailed map, including habitat zones, that is currently in preparation.

Plains Grassland is endangered in the Victorian Volcanic Plain bioregion. The benchmark for Plains Grassland (EVC 132_62) describes this vegetation as "treeless vegetation less than 1 metre tall dominated by largely graminoid [grass and grass-like] and herb life forms but may have originally contained scattered woody plants. [This EVC] occupies more freely draining red loamy basalt-derived soils and occasionally lighter sedimentary soils in areas receiving at least 500 mm annual rainfall."

This EVC occurred in a number of habitat zones in the western half of the site. The quality was considered generally low due to the presence of extensive dead grassy areas. The reason for the death of grasses is not known but may be due to recent application of herbicide by boom-spraying, as evidenced by missed strips between apparent spray-lines that supported intact Plains Grassland.

A rocky area through the centre of the western part of the site did not show the same extent of dead grasses. Here, native vegetation, although intact, was significantly invaded by Spanish Artichoke.

3.4. Fauna

This section describes the fauna habitat features of the study area and the fauna species recorded or likely to occur.

Based on the field assessment and the review of existing information, the study area is known or likely to support 74 species of terrestrial vertebrate fauna, including 7 species of mammals (four introduced), 53 species of birds (10 introduced), 10 species of reptile and four species of frog. One species of threatened invertebrate is also predicted to occur. These species are listed in Appendix 2 with scientific names.

During daytime observations on 7th August 2007 the following species were directly observed:

- Common Blue-tongued Lizard (1 juvenile);
- Spotted Marsh Frog (three individuals under rocks);
- Sixteen common bird species, listed in Appendix 2.

3.4.1. Habitat Assessment

The land under investigation supports two habitat types. These include:

- Plains grassland; and,
- Exotic pasture.

The extent, characteristics and quality of these habitats are discussed below in more detail.

Plains grassland

This habitat type occurred over the part of the western half of the study area, and it was dominated by wallaby grasses. This habitat comprised uncultivated native grasslands typical of the Victorian Volcanic Plain bioregion, however the habitat had been grazed by sheep until recently. There was also evidence for the removal of large rocks, some over 1 metre in diameter, leaving holes in the ground.

Dominant plants over most of the area were Kangaroo Grass, which retained good tussock structure in parts of the remnant. Some weeds and exotic grasses such as Serrated Tussock and Spanish Artichoke were also present. Some scattered dead African Boxthorn provide limited cover and perches for common birds, terrestrial mammals and reptiles. The habitat has some connectivity with similar mixed native grassland and surface rock that extends for some distance to the west of the study area and may therefore support similar species to those in the study area.

This habitat type, although now surrounded on three sides by modified habitats such as exotic pasture or industrial development retains structural diversity and a moderate sized patch of Kangaroo Grass that could be expected to support two listed threatened fauna species – the Striped Legless Lizard and Fat-tailed Dunnart. Other fauna would consist of common agricultural landscape species of birds (native and exotic), mammals, frogs and reptiles. This habitat was considered to be of moderate quality for fauna.

Exotic pasture

The mature Sugar Gum could provide useful perching, roosting and foraging sites for birds of prey, parrots, cockatoos, ravens and magpies; there is a row of planted Sugar Gums nearby along Middle Road which could draw such birds into the area, however connectivity with other areas containing trees was poor.

This habitat is completely modified and consists mainly almost entirely of exotic grasses such as Rye-grass and Chilean Needle-grass. Parts of the ground surface had recently been ploughed and evidence of rock collection in the form of rock piles were scattered across the study area. Due to significant modification from original vegetation and removal of structural elements such as most of the surface rock, many ground-foraging reptiles and small mammals would not have been present and this habitat was considered to be of low quality for fauna.

3.4.2. Mammals

A total of 7 species of mammals occurs or is likely to occur within the study area based on AVW records and the site assessment (Appendix 2). This total includes four introduced species (see Appendix 2). No mammal species was recorded during the assessment.

The site was considered to potentially provide suitable habitat one species of listed near threatened mammal (DSE 2003), the **Fat-tailed Dunnart**. This species inhabits sparse native grasslands, usually with shelter such as rocks and logs (Menkhorst 1995). Six records exist for the search region. The quantity of remaining surface rock and native grass cover, together with bare ground and some connectivity with similar habitat to the west, suggest that the Fat-tailed Dunnart could occur in the study area.

Of nationally threatened species predicted to occur in the wider search area by the EPBC Act Protected Matters Search Tool only the Golden Sun Moth has potential to occur on the site. Four listed species are identified to potentially occur in the region by the Search Tool: the **Spot-tailed Quoll** (*Dasyurus maculatus*), **Southern Brown Bandicoot** (*Isoodon obesulus*), **Smoky Mouse** (*Pseudomys fumeus*) and **Grey-headed Flying-fox** (*Pteropus poliocephalus*). There are no records in the search region for any of these four species and the habitats of the study area are considered not to be suitable to support them.

3.4.3. Birds

A total of 60 species of birds occurs or is likely to occur within the study area based on AVW records from the wider search area and the suitability of habitats on the site. This total includes nine introduced species. During the field assessment, a total of 16 species was recorded (Appendix 2).

The EPBC Act Protected Matters Search Tool identifies four nationally threatened bird species as potentially occurring in the Truganina region. One is a waterbird, the **Australian Painted Snipe** (*Rostratula australis*). There are no records of this species from the search region. This species requires extensive vegetated wetlands that are lacking in the study area. Consequently, the Painted Snipe would not be expected to occur.

The **Orange-bellied Parrot** (*Neophema chrysogaster*) is identified as having potential to occur in the search region. It is likely that this prediction derives from records of the parrot from saltmarsh in the Altona area, some 10 km to the south-east. This species can occur in paddocks of exotic grasses, however these are normally within 3 km of the coast (Higgins 1999). The study area is almost 10 km from the coast and this, combined with a lack of records from the AVW search region, suggest the Orange-bellied Parrot is unlikely to occur at Truganina.

Two nationally threatened woodland species identified by the EPBC Act Protected Matters Search Tool as potentially occurring in the search region are the **Swift Parrot** (*Lathamus discolor*) and **Regent Honeyeater** (*Xanthomyza phrygia*). Both species are listed as endangered nationally, while the Regent Honeyeater is critically endangered in Victoria (DSE 2003). Neither of these species has been recorded from the AVW search region. Given the lack of Eucalypt trees upon which both these species depend (Higgins 1999; Higgins et al. 2001), it would be very unlikely that either would occur within the study area.

Species threatened at state level and recorded from the search region are discussed below.

The Atlas of Victorian Wildlife one record of a listed threatened waterbird in the search region, the Great Egret. These species is unlikely to occur in the study area because wetlands are not present.

A number of grassland birds threatened at state level could occur in the study area.

The **Spotted Harrier** (*Circus assimilis*) has not been recorded from the AVW search although it has been recorded just beyond it at, about 6 km northwest of the study area at Rockbank in 2005 (Brett Lane & Associates staff, pers. obs.). This species is listed as lower risk, near threatened in Victoria (DSE 2003). This species is more commonly associated with arid and semi arid areas. In Victoria it occurs along the Murray River and occurs sporadically in southern parts of the state (Marchant and Higgins 1993). It prefers open woodlands and natural and exotic grasslands that do not obstruct low flight (Marchant and Higgins 1993). This species may occasionally fly over the site but the lack of nearby records suggests it is unlikely to occur there regularly.

There are two records of **Black Falcon** (*Falco subniger*) from the AVW search region, in 1999 and 2003. This species is considered to be vulnerable in Victoria (DSE 2003). It is more commonly found over the inland plains of northern Victoria and is only occasionally found in southern Victoria (Emison et al. 1987). It is a highly mobile species, moving in response to food availability and seasonal conditions (Marchant and Higgins 1993). This species is an occasional visitor to the Truganina area and may fly over the site, but is considered not likely to occur regularly in the study area.

The EPBC Act Protected Matters Search Tool lists several migratory or marine-overfly species as likely to occur in the region that includes the study area. These are: the **Great Egret, Cattle Egret, White-bellied Sea-Eagle, Latham's Snipe, White-throated Needletail, Fork-tailed Swift, Rainbow Bee-eater, Satin Flycatcher** and **Rufous Fantail**. Most of these species are unlikely to occur in the study area regularly or in significant numbers. There is no wetland habitat for the Great Egret, Cattle Egret or Latham's Snipe. Similarly, the White-bellied Sea-Eagle is unlikely to occur due to the lack of suitable large wetland habitats. The White-throated Needletail and Fork-tailed Swift are likely to occasionally fly over the area, but the swift prefers areas further inland (Higgins 1999) and the needletail would be likely to occur only a few days per year when weather conditions are suitable in late summer and early autumn. The Rainbow Bee-eater prefers habitats in close proximity to sandy or soft soils (such as creek banks) suitable for forming its horizontal nesting burrow (Higgins 1999) and would therefore be unlikely to occur regularly in the study area. The Satin Flycatcher and Rufous Fantail depend upon moist forested or woodland habitats (Higgins et al. 2006) and would not therefore occur in the study area under investigation.

3.4.4. Reptiles

A total of 10 species of reptiles occur or are likely to occur within the study area based on AVW records and habitat assessment. During the field assessment one reptile species was recorded, the Common Blue-tongued Lizard.

The EPBC Act Protected Matters Search Tool identifies two nationally threatened reptiles as potentially occurring on the site. The **Striped Legless Lizard** (*Delma impar*) is listed as vulnerable nationally and endangered in Victoria (DSE 2003) and also as vulnerable under the EPBC Act. There are 17 records of this species from the 5 km radius search region since 1976, including 8 since 1990. Nearby sites from where the species is known include Derrimut Grasslands Reserve to the east and Tarneit to the west. The species requires dense native tussock grassland such as those dominated by Kangaroo Grass (*Themeda triandra*). It also requires sheltering habitat such as surface rock or cracks in the soil, and avoids recently cultivated areas (Coulson 1990; Webster et al. 1994). Although there is evidence of some degradation due to grazing, the habitat elements required by the Striped Legless Lizard are present in the remnant plains grassland of the study area, which covers an extent of some 14 ha. Taking these factors into consideration, the study area is considered to potentially support a population of this species. Further work, involving a tile grid survey targeting this species has been initiated to determine its status in the study area.

The **Grassland Earless Dragon** (*Tympanocryptis pinguicolla*) is listed as endangered nationally. The species is critically endangered in Victoria (DSE 2003) where it is believed to be extinct (Robertson and Cooper 2000). The species requires much the same habitat as the Striped Legless Lizard, however given the lack of confirmed records in Victoria since the 1960's, is considered unlikely to occur in the study area.

The AVW contains records of two threatened species of reptile; these are discussed in more detail below, including a discussion on the likelihood of each species occurring on the site.

3.4.5. Frogs

A total of six species of frogs occurs or is likely to occur within the study area based on AVW records and the habitat assessment. During the field assessment one species of frog, the Spotted Marsh Frog was recorded under basalt rocks. One species of threatened frog is recorded from the AVW search region, the Growling Grass Frog. This species are discussed in more detail below.

The Victorian Fauna Database contains one record of the **Growling Grass Frog** (*Litoria raniformis*) from the search region, in 1990. This species is considered to be endangered in Victoria (DSE 2003) and is listed under the *Fauna and Flora Guarantee Act* 1988. The species is also listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The Growling Grass Frog is predominantly aquatic and associated with fringing vegetation within permanent and semi-permanent

water bodies, such as streams, lagoons, farm dams and old quarry sites (Cogger 2000; Organ 2002). It is usually associated with water bodies supporting large areas of fringing and aquatic vegetation, such as Common Reed (*Phragmites australis*), Bulrush (*Typha spp.*) and Water Ribbon (*Triglochin procera*) (Ashworth 1998 in Organ 2002). The Growling Grass Frog is also a highly mobile species and can move into areas that support suitable habitat.

Due to the lack of permanent, well-vegetated aquatic habitats, the Growling Grass Frog is considered unlikely to regularly occur in the study area.

3.4.6. Other Fauna

The **Golden Sun Moth** (*Synemon plana*) is a day-flying moth listed as nationally critically endangered under the EPBC Act and it is also listed under the state FFG Act. It is predicted to occur in the search region by the EPBC Act Protected Matters Search Tool. The range of the Golden Sun Moth has contracted due to agricultural, urban and industrial development and in Victoria is known form fewer than 10 sites containing remnant temperate grasslands (O'Dwyer *et al.* 2000). Elsewhere it is currently known from the ACT. In Victoria, this species of sun moth emerges as flying adults only from November to January.

An action statement has been prepared (O'Dwyer *et al.* 2000) and a National Recovery Plan is in preparation. The Golden Sun Moth inhabits native tussock grasslands dominated by Wallaby Grass (*Austrodanthonia* spp.), with a 40% cover of Wallaby Grass (O'Dwyer and Attiwill 1999). However, the species has also been recorded from somewhat degraded sites (Brett Lane & Associates staff, pers.obs.) and has recently been recorded in an exotic Chilean Needle-Grass dominated grassland in the ACT (Braby and Dunford 2006). The Golden Sun Moth has not been recorded in the search region of the AVW, although there are recent records from Derrimut and Tarneit grasslands not far to the south and east. The study area did not appear to contain widespread Wallaby Grass (*Austrodanthonia* spp.) upon which this moth depends. Therefore the study area is unlikely to sustain a population of this species.

4. CONSERVATION SIGNIFICANCE

This section considers the conservation significance of the flora and fauna of the study area. It begins with the criteria used to judge conservation significance and then applies these to flora and fauna. Conservation significance as determined under the guidelines of Victoria's Native Vegetation Management Framework is discussed separately to these criteria (Section 5.1.2).

Conservation significance is assessed in the following sections at a range of scales, including global, international, national, state, regional and local. The criteria used for determining the conservation significance of flora and fauna at national to local scales precede each determination.

4.1. Botanical conservation significance

National botanical significance applies to an area when it supports one or more of the following attributes:

- A population of at least one nationally threatened plant species listed on the schedules to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State botanical significance applies to an area when it supports one or more of the following attributes:

- A population of at least one plant species threatened in Victoria, as listed in the unpublished records of the DSE's Flora Information System, or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.
- An ecological or floristic community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional botanical significance applies to an area that supports one or more of the following attributes:

- Supports a population of one or more regionally depleted species defined in a valid regional assessment of biodiversity (eg. Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents).
- An intact Ecological Vegetation Class that is considered depleted in a particular bioregion (based on the Regional Native Vegetation Plan), in which case it is of **Regional** significance.
- An intact Ecological Vegetation Class that is considered endangered, vulnerable or rare in a particular bioregion (based on the Regional Native Vegetation Plan), in which case the area is of **High Regional** significance.

Local botanical significance applies to all other remnant native vegetation that does not meet the above criteria. In much of Victoria, native vegetation

has been so depleted by past clearing and disturbance that all remaining vegetation must be considered to be of at least local conservation significance.

4.1.1. Botanical conservation significance of the study area

The study area contains an intact patch of Western Basalt Plains Grassland (EVC 132_62), which is considered *endangered* in the Victorian Volcanic Plains Bioregion. As this community is also listed on the state *Flora and Fauna Guarantee Act* 1988, this vegetation is considered to be of **State** botanical conservation significance.

4.2. Fauna Conservation Significance

National fauna conservation significance applies to an area that supports one or more of the attributes described below.

- A population of one or more species listed as nationally threatened by Maxwell *et al.* (1996), Lee (1995), Duncan *et al.* (1999), Garnett and Crowley (2000), Cogger *et al.* (1995), Tyler (1997) or Wager and Jackson (1993), or listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

- A nationally threatened ecological community listed on the schedules of the *Environment Protection and Biodiversity Conservation Act 1999*.

State fauna conservation significance applies to an area when it supports one or more of the following attributes.

- A population of at least one fauna species threatened in Victoria, as listed by DSE (2003), or on the schedules to the Victorian *Flora and Fauna Guarantee Act 1988*.
- An ecological community considered threatened in Victoria through its listing on the schedules of the *Flora and Fauna Guarantee Act 1988*.

Regional fauna conservation significance applies to an area that supports one or more of the attributes described below.

- A population of a species considered depleted in a particular bioregion based on an authoritative regional analysis, such as the Regional Native Vegetation Plan, Environment Conservation Council Report or Comprehensive Regional Assessment documents.

Local fauna conservation significance applies to all 'other' native fauna that do not meet the above criteria.

As it is not always possible to confirm the presence of some fauna species, due to seasonal or behavioural difficulties in detection, the foregoing significance levels can be qualified by the word "**potential**" where habitat attributes are considered suitable for a species of a particular level of conservation significance.

4.2.1. Fauna Conservation Significance of the Study Area

The fauna conservation significance of habitats within the study area is tabulated in Table 1 and has been determined based on the field survey and investigation of fauna species habitat preferences and distribution within the Truganina area.

Part of the study area consists of plains grassland largely comprising Kangaroo Grass. Some of the elements of an intact community, such as surface rocks, have been remove, but many still remain. To summarise, the plains grassland habitat is of **potential national significance**, due to the potential to support Striped Legless Lizard. The state-significant Fat-tailed Dunnart is also likely to occur. Exotic pasture is unlikely to regularly support any fauna species of state or national significance and is considered of **local significance** as fauna habitat.

Table 1: Fauna conservation significance, Middle & Robinsons Roads, Truganina

Habitat type	Threatened fauna species likely to occur and status*	Conservation significance determination
Plains grassland	None recorded. Potential to support a population of Striped Legless Lizard (national significance) and Fat-tailed Dunnart (state significance). Potential occasional use by Spotted Harrier (near threatened – DSE 2003), Black Falcon (vulnerable) however the probability of any of these species using the site regularly is low.	Potential national significance.
Exotic pasture	No threatened species found. Unlikely to be regularly used by any threatened species.	Local significance.

*** EPBC Act, FFG Act & DSE 2003**

5. DISCUSSION OF IMPLICATIONS

5.1. Native vegetation retention regulations

Victoria's Native Vegetation Management – a Framework for Action (DNRE 2002), referred to herein as 'the Framework', is the relevant state-wide policy applicable to native vegetation management and applications to remove native vegetation in Victoria. The Framework or 'Net Gain' policy is incorporated into the Victorian Planning Provisions (VPP) of the state planning scheme. The policy is discussed below.

5.1.1. Avoid, minimise and offset

Any proposal to remove native vegetation from the study area in the form of Plains Grassland (EVC 132_62) would require a permit from the responsible authority. Clause 15.09 of the planning scheme states that in assessing such applications, planning and responsible authorities must have regard to the Framework, and in particular the three-step approach of the Net Gain policy.

The three-step approach of Net Gain outlined in the Framework and included in Clause 52.17 is hierarchical and includes the following:

1. Adverse impacts on native vegetation should be ***avoided***, particularly removal of vegetation;
2. Where impacts cannot be avoided, impacts should be ***minimised*** through planning and design considerations with input from relevant experts; and
3. Appropriate ***offsets*** (Net Gain targets) need to be identified to compensate for native vegetation removal.

5.1.1. Habitat Hectare assessment results

The quality of intact native vegetation in the intact patches was assessed according to the Habitat Hectare method outlined in Section 2.2.3 and the results of this assessment are yet to be compiled.

5.1.2. Framework Conservation Significance

As part of ecological investigations, conservation significance of remnant native vegetation is assessed under Victoria's Native Vegetation Management Framework (DNRE 2002). Framework Conservation Significance is not applied to *degraded treeless vegetation*, which constitutes vegetation outside the patch of Plains Grassland in the study area.

The Framework presents a set of criteria for determining the conservation significance of intact patches of native vegetation. This determination is based on the bioregional conservation status of the Ecological Vegetation Class in the patch and the habitat score for this vegetation. The *endangered* status of Plains Grassland (EVC 132_62) may results in the classification of the remnant patch as being of *very high* conservation significance (if habitat score is greater than 0.4) or of *high* conservation significance (if habitat score less than 0.4).

Framework Conservation Significance informs the formal determination process in response to applications for vegetation removal and the guidelines for applying the Net Gain principle and offset obligations in the event of approved removal, discussed in Section 5.2.

5.1.3. Applications for native vegetation removal

The Framework provides a hierarchy of policy approaches to assessing applications for native vegetation removal based on Framework Conservation Significance, as outlined in the previous section. The policy guidelines for removal of intact native vegetation of *very high* and *high* conservation significance according to the Framework are presented in Table 2.

Table 2: Likely response to applications for removal of intact native vegetation

Framework conservation Significance	Likely response to application for removal	Likely offset obligations (Section 5.2)
VERY HIGH	Clearing not permitted unless exceptional circumstances apply	Substantial Net Gain 2.0 X calculated loss in *habitat hectares*
HIGH	Clearing not permitted	Net Gain 1.5 X calculated loss in *habitat hectares*

Applications for vegetation removal are assessed on a case-by-case basis by the Responsible Authorities, including the Department of Sustainability and Environment, if referred (Section 5.1.4).

Any application to remove vegetation of *very high* Framework Conservation Significance will require the approval of the Minister for Environment.

5.1.4. The Referral Authority

Clause 66.02 of the planning scheme provides a set of criteria for determining when applications potentially impacting on native vegetation must be referred to the Department of Sustainability and Environment for consideration. Those criteria are presented in Table 3 and assume the principles of *avoid* and *minimise* have first been considered.

Table 3: Application referral information

Applications will be referred to the Department of Sustainability and Environment under the following circumstances:
Scattered Trees ▪ To remove more than 15 trees of DBH less than 40 centimetres ▪ To remove more than 5 trees of DBH 40 centimetres or greater (DBH = diameter at 1.3 metres above ground)
Remnant Patch Vegetation (may include trees) ▪ To remove more than 0.5 hectares of vegetation in an EVC with Bioregional Conservation Status of Endangered, Vulnerable or Rare. ▪ To remove more than 1 hectare of vegetation in an EVC with Bioregional Conservation Status of Depleted or Least Concern.

Any proposal to remove more than 0.5 hectares of Plains Grassland (EVC 132_62) from the study area would trigger the referral of such a proposal to the DSE.

5.2. Native vegetation removal implications

Any unavoidable and approved removal of native vegetation must be offset according to the Net Gain policy contained in the Framework. Net Gain offsets in *habitat hectares* for intact native vegetation removal will be determined once the habitat scoring is available. As indicated above, the conservation significance of the vegetation will determine the extent of the offset target.

5.3. EPBC Act implications

This section addresses any implications identified for the study area under the commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

No flora or fauna species or vegetation communities listed under the EPBC Act 1999 were detected during this investigation. The study area contains suitable habitat for the *vulnerable* Striped Legless Lizard. Targeted surveys for this species are currently underway.

A referral to the Department of Environment and Water Resources (formerly the Department of Environment and Heritage) to determine the status of any future proposal under the Act with regard to these species would be required should they be detected in the study area.

5.4. FFG Act implications

This section addresses any implications identified for the study area under the state *Flora and Fauna Guarantee Act 1988*. The FFG Act does not have direct bearing on private land however it does operate through local government planning schemes and state policies such as Victoria's Biodiversity Strategy (DNRE 1997). Therefore decision makers involved in development planning on the site, such as councils planners and DSE referral officers, may consider the FFG Act as a decision guideline. The FFG Act also contains Action Statements for certain species, which provide broad guidance on management and conservation.

No flora or fauna species or vegetation communities listed as *threatened* under the FFG Act 1988 were detected in the study area during this investigation. Targeted surveys for the flora species failed to locate any. One fauna species listed under the FFG Act is considered to potentially occur in the study area. A tile grid survey for the Striped Legless Lizard is currently underway.

5.5. DSE Advisory Lists

The following section addresses issues surrounding flora and fauna species listed on the DSE Advisory Lists (DSE 2003; DSE 2005) that occur in the study area or are known to occur in the broader 5-kilometre search region. Referral

officers may use these lists as a guideline when making decisions on land use changes and when considering potential impacts on threatened species.

No flora species listed on the Advisory List (DSE 2005) were identified in the study area in the current investigation.

No DSE listed fauna species were identified on site in the current investigation, however one species, the Striped Legless-lizard, may occur in the study area. A targeted tile grid survey for this species is currently underway.

6. REFERENCES

Braby, M.,F. and Dunford, M. 2006. 'Field observations on the ecology of the Golden Sun Moth, *Synemon plana* Walker (Lepidoptera: Castniidae)', *Australian Entomologist* 33(2): 103-100.

Cogger, H. G. et al. (1995), 'The Action Plan for Australian Reptiles.' Australian Nature Conservation Agency, Canberra.

Cogger, H. (2000). 'Reptiles and Amphibians of Australia.' Reed New Holland, Sydney.

Coulson, G. (1990), 'Conservation Biology of the Striped Legless Lizard (*Delma impar*): An Initial Investigation', Arthur Rylah Institute Technical Report No. 106, Department of Conservation and Environment, East Melbourne.

DEWR 2007. EPBC Act Protected Matters Search Tool. http://www.environment.gov.au. Australian Government, Department of the Environment and Water Resources (formerly Department of the Environment and Heritage), Canberra.

DNRE 1997. 'Victoria's Biodiversity – Our Living Wealth'. State of Victoria, Department of Natural Resources and Environment, Victoria.

DNRE 2002. 'Victoria's Native Vegetation Management - a Framework for Action.' State of Victoria, (then) Department of Natural Resources and Environment, Victoria.

DSE 2003. 'Advisory List of Threatened Vertebrate Fauna'. Department of Sustainability and Environment.' East Melbourne, Victoria.

DSE 2004. 'Vegetational Quality Assessment Manual – Guidelines for applying the habitat hectares scoring method.' Version 1.3, Victorian Government, Department of Sustainability and Environment, Melbourne.

DSE 2005. 'Advisory List of Rare or Threatened Plants in Victoria.' Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2007a. Ecological Vegetation Class (EVC) Benchmarks by Bioregion. http://www.dse.vic.gov.au/. Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2007b. Biodiversity Interactive Maps. http://www.dse.vic.gov.au/. Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2007c. 'Native Vegetation: Guide for assessment of referred planning permit applications.' Department of Sustainability and Environment, East Melbourne, Victoria.

Duncan, A.; Baker, G. B. and Montgomery, N. (1999) 'The Action Plan for Australian Bats.' Environment Australia, Canberra.

Emison, W. B.; Beardsell, C. M.; Norman, F. I.; Loyn, R. H.; and Bennett, S. C. (1987), Atlas of Victorian Birds, Department of Conservation, Forests and Lands & Royal Australasian Ornithologists Union, Melbourne.

Entwistle, T.J. 1996. Thymeleaceae in Walsh, N.G. and Entwisle, T.J. (eds) 'Flora of Victoria: Dicotyledons: Winteraceae to Myrtaceae vol.3'. Inkata Press, Melbourne.

Garnett, S. T. and Crowley, G. M. (2000), 'The Action Plan for Australian Birds.' Environment Australia, Canberra.

Higgins, P.J. (ed) 1999, 'Handbook of Australian, New Zealand and Antarctic Birds, Volume 4: Parrots to Dollarbird', Oxford University Press, Melbourne.

Higgins, P.J., Peter, J.M. and Steele, W.K. (eds) (2001), 'Handbook of Australian, New Zealand and Antarctic Birds, Volume 5: Tyrant-flycatchers to Chats', Oxford University Press, Melbourne.

Higgins, P.J., Peter, J.M. and Cowling, S.J. (eds) (2006), 'Handbook of Australian, New Zealand and Antarctic Birds, Volume 7: Boatbill to Starlings', Oxford University Press, Melbourne.

Jeanes, J.A. 1996. Fabaceae in Walsh, N.G. and Entwisle, T.J. (eds) Flora of Victoria: Dicotyledons: Winteraceae to Myrtaceae, vol. 3. Inkata Press, Melbourne.

Jeanes, J.A. 1999. Asteraceae in Walsh, N.G. and Entwisle, T.J. (eds) Flora of Victoria: Dicotyledons: Cornaceae to Asteraceae, vol. 4. Inkata Press, Melbourne.

Kennedy, S.J. and Tzaros, C.L. (2005), 'Foraging ecology of the swift parrot Lathamus discolor in the box-ironbark forests of Victoria', *Pacific Conservation Biology* 11: 158—173.

Lee, A. K. (1995) 'The Action Plan for Australian Rodents.' Australian Nature Conservation Agency, Endangered Species Program, Project No. 130.

Marchant, S. and Higgins, P.J. (eds) (1993), 'Handbook of Australian, New Zealand and Antarctic Birds, Volume 2: Raptors to Lapwings', Oxford University Press, Melbourne.

Maxwell, S., Burbidge, A. A. and Morris, K. (1996), 'The 1996 Action Plan for Australian Marsupials and Monotremes.' Wildlife Australia, Endangered Species Program, Project Number 500.

Menkhorst, P. (1995), 'Mammals of Victoria', Oxford University Press, Melbourne.

O'Dwyer, C., Hadden, S., and Arnold, A. (2000) Action Statement No 106 Golden Sun Moth *Synemon plana*. Action Statement prepared under section 19 of the *Flora and Fauna Guarantee Act 1988* under delegation from the Secretary, Department of Natural Resources and Environment, July 2000.

O'Dwyer, C. and Attiwill, P. M. (1999). A comparative study of habitats of the Golden Sun Moth *Synemon plana* Walker (Lepidoptera: Castniidae): implications for restoration. *Biological Conservation* **89**: 131-141.

Organ, A. (2002), 'Survey for the Warty Bell Frog Litoria raniformis, at the Western Treatment Plant, Werribee, Victoria', Biosis Research, Port Melbourne.

Parkes, D., Newell, G. and Cheal, D. (2003), 'Assessing the Quality of Native Vegetation: The 'habitat hectare' approach", Ecological Management and Restoration, vol 4 supplement, February 2003.

Roberston, P. and Cooper, P. (2000), 'Recovery Plan for the Grassland Earless Dragon (*Tympanocryptis pinguicolla)*'. Unpublished report to Environment Australia, Canberra.

Tyler, M. (1997), 'The Action Plan for Australian Frogs.' Australian Nature Conservation Agency, Canberra.

Tzaros, C. (2005), Wildlife of the Box Ironbark Country, CSIRO Publishing, Collingwood, Vic.

Wager, R. and Jackson, P. (1993), 'The Action Plan for Australian Freshwater Fishes'. Australian Nature Conservation Agency, Endangered Species Program, Project Number 147.

Walsh, N.G. 1994. 'Poaceae' in Walsh, N.G. and Entwisle, T.J. (eds) 'Flora of Victoria: Ferns and Allied Plants, Conifers and Monocotyledons, vol. 2.' Inkata Press, Melbourne.

Webster, A., Fallu, R. and Preece, K. (1994), 'Flora and Fauna Guarantee Act Action statement No. 17: Striped Legless Lizard Delma impar', Department of Conservation and Environment, East Melbourne.

Wilson, K.L. 1994. 'Cyperaceae' in Walsh, N.G. and Entwisle, T.J. (eds) 'Flora of Victoria: Ferns and Allied Plants, Conifers and Monocotyledons, vol.2.' Inkata Press, Melbourne.

Appendix 1: Fauna species that occur or are likely to occur in the study area - including species recorded during the current assessment on 7th August 2007.

Origin	Common Name	Scientific Name	EPBC	DSE	FFG	Recorded
Birds						
	Stubble Quail	*Coturnix pectoralis*				
	Little Pied Cormorant	*Phalacrocorax melanoleucos*				
	Silver Gull	*Larus novaehollandiae*				
	Masked Lapwing	*Vanellus miles*				
	Banded Lapwing	*Vanellus tricolor*				
	Australian White Ibis	*Threskiornis molucca*				
	Straw-necked Ibis	*Threskiornis spinicollis*				
	White-faced Heron	*Egretta novaehollandiae*				
	White-necked Heron	*Ardea pacifica*				
	Australian Wood Duck	*Chenonetta jubata*				
	Australian Shelduck	*Tadorna tadornoides*				
	Pacific Black Duck	*Anas superciliosa*				
	Grey Teal	*Anas gracilis*				
	Brown Goshawk	*Accipiter fasciatus*				
	Little Eagle	*Hieraaetus morphnoides*				
	Whistling Kite	*Haliastur sphenurus*				
	Black-shouldered Kite	*Elanus axillaris*				
	Australian Hobby	*Falco longipennis*				
	Peregrine Falcon	*Falco peregrinus*				
	Black Falcon	*Falco subniger*		VU		
	Brown Falcon	*Falco berigora*				x
	Nankeen Kestrel	*Falco cenchroides*				x
	Galah	*Cacatua roseicapilla*				x
	Pallid Cuckoo	*Cuculus pallidus*				
	Horsfield's Bronze-Cuckoo	*Chrysococcyx basalis*				
	Welcome Swallow	*Hirundo neoxena*				x
	Willie Wagtail	*Rhipidura leucophrys*				x
	Flame Robin	*Petroica phoenicea*				x
	Magpie-lark	*Grallina cyanoleuca*				
	Black-faced Cuckoo-shrike	*Coracina novaehollandiae*				
	White-fronted Chat	*Epthianura albifrons*				
	Yellow Thornbill	*Acanthiza nana*				
	Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*				
	Brown Songlark	*Cincloramphus cruralis*				
	Golden-headed Cisticola	*Cisticola exilis*				

Origin	Common Name	Scientific Name	EPBC	DSE	FFG	Recorded
	Superb Fairy-wren	*Malurus cyaneus*				x
	Silvereye	*Zosterops lateralis*				
	White-plumed Honeyeater	*Lichenostomus penicillatus*				x
	Red Wattlebird	*Anthochaera carunculata*				
	Richard's Pipit	*Anthus novaeseelandiae*				x
	Australian Magpie	*Gymnorhina tibicen*				x
	Australian Raven	*Corvus coronoides*				
	Little Raven	*Corvus mellori*				x
*	Rock Dove	*Columba livia*				x
	Cattle Egret	*Ardea ibis*				
*	Spotted Turtle-Dove	*Streptopelia chinensis*				
*	Common Blackbird	*Turdus merula*				
*	Skylark	*Alauda arvensis*				x
*	House Sparrow	*Passer domesticus*				x
*	European Goldfinch	*Carduelis carduelis*				x
*	European Greenfinch	*Carduelis chloris*				
*	Common Myna	*Acridotheres tristis*				
*	Common Starling	*Sturnus vulgaris*				x
Mammals						
	Fat-tailed Dunnart	*Sminthopsis crassicaudata*		NT		
	Common Brushtail Possum	*Trichosurus vulpecula*				
	Eastern Grey Kangaroo	*Macropus giganteus*				
*	House Mouse	*Mus musculus*				
*	European Rabbit	*Oryctolagus cuniculus*				
*	Brown Hare	*Lepus capensis*				
*	Red Fox	*Canis vulpes*				
Reptiles						
	Marbled Gecko	*Phyllodactylus marmoratus*				
	Striped Legless Lizard	*Delma impar*	VU	EN	L	
	Large Striped Skink	*Ctenotus robustus*				
	Cunningham's Skink	*Egernia cunninghami*				
	Common Blue-tongued Lizard	*Tiliqua scincoides*				x
	Tiger Snake	*Notechis scutatus*				
	Eastern Three-lined Skink	*Bassiana duperreyi*				
	Eastern Brown Snake	*Pseudonaja textilis*				
	Little Whip Snake	*Suta flagellum*				
	Tussock Skink	*Pseudemoia pagenstecheri*				
Frogs						

Origin	Common Name	Scientific Name	EPBC	DSE	FFG	Recorded
	Southern Bullfrog	*Limnodynastes dumerilii*				
	Spotted Marsh Frog	*Limnodynastes tasmaniensis*				x
	Common Spadefoot Toad	*Neobatrachus sudelli*				
	Common Froglet	*Crinia signifera*				

Notes:

* - introduced
DSE – Status from DSE (2003)
EPBC – Status under EPBC Act
FFG – Listed under FFG Act
CR – Critically endangered
EN – Endangered
VU– Vulnerable
NT – Lower risk near threatened
L – Listed as threatened under FFG Act
T – Listed as threatening process under FFG Act
X – Recorded in the study area