ROBINSONS AND MIDDLE ROADS, RAVENHALL

TARGETED STRIPED LEGLESS LIZARD ASSESSMENT

Marksx Property Group Pty Ltd

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1. EXECUTIVE SUMMARY

Brett Lane and Associates Pty Ltd were engaged by Marksx Property Group Pty Ltd to conduct a targeted Striped Legless Lizard (*Delmar impar*) survey at a property at Robinsons and Middle Roads, Ravenhall in Melbourne's outer west.

This assessment has been undertaken to document the extent and quality of habitat and to identify any potential impacts of the proposed development on the nationally threatened Striped Legless Lizard.

The Striped Legless Lizard is listed as *vulnerable* under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, and is listed under the Victorian *Flora and Fauna Guarantee Act 1988*. The Striped Legless Lizard is considered to be *endangered* in Victoria (DSE 2007). Overall this species is considered to be of national conservation significance.

To determine the likelihood that the Striped Legless Lizard occurs in the study area, a targeted survey was undertaken. Tile grid surveys were deemed to be the most appropriate method for detecting the lizard in the study area having previously been used successfully to survey the Striped Legless Lizards. Five tile grids were set up at the study area, located within potential habitat including areas of native grassland and rocky outcrops. The tile grids were laid out on 10th and 14th August, 2007 and monitored at approximately fortnightly intervals. The first monitoring took place on 11th September and the final tile check on the 20th December, 2007. Most grids were checked eight times resulting in 1800 tile checks.

Majority of the study area was dominated by introduced grass species and was not suitable as habitat for the Striped Legless Lizard. An 11 hectare area in the western part of the study area contained high densities of native grassland species. This native grassland area was considered to be *moderate* habitat quality for Striped Legless Lizard.

No Striped Legless Lizard was recorded within the study area during this current targeted survey. Given the total survey effort of 1800 tile checks it is considered unlikely that the Striped Legless Lizard occurs in the study area.

As a result, the proposed development is unlikely to have a significant impact on the Striped Legless Lizard. Therefore, no further implications— other than those previously documented (Brett Lane & Associates Pty Ltd 2007)—are identified under relevant legislation and policies such as the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Victorian *Flora and Fauna Guarantee Act 1988*.

For this reason, a referral to the Federal Minister under the *Environment Protection and Biodiversity Conservation Act 1999* would not be required in this instance.

2. INTRODUCTION

Brett Lane and Associates Pty Ltd were engaged by Marksx Property Group Pty Ltd to conduct a targeted Striped Legless Lizard (*Delmar impar*) survey at a property at Robinsons and Middle Roads, Ravenhall in Melbourne's outer west.

This assessment has been undertaken to document the extent and quality of habitat and to identify any potential impacts of the proposed development on the nationally threatened Striped Legless Lizard. This report will also address implications under relevant legislation and policies such as the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Victorian *Flora and Fauna Guarantee Act 1988*.

Specifically, the scope of this investigation included:

- A review of existing information on the Striped Legless Lizard at the site and the surrounding region (e.g. DSE's Atlas of Victorian Wildlife);
- A site survey involving:
- Targeted survey for Striped Legless Lizard
- Preparation of this report including:
    - A statement of the methods used and sources of information for the investigation, including any limitations, where applicable;
    - The results of the targeted survey, documenting the presence or otherwise of threatened fauna in the study area;
    - Maps representing threatened fauna records, where they occur;
    - Discussion of the implications of the findings for the proposed use of the land, specifically addressing relevant legislative and policy requirements; and

This report presents the findings of the assessment and discusses the implications of the findings. It is divided into the sections described below:

Section 3 presents the methodology and sources of information;

Section 4 presents the results of the targeted Striped Legless Lizard survey;

Section 5 provides a discussion on the implications of the findings under relevant Commonwealth, State and local legislation and policies.

This investigation was undertaken by a team comprising Peter Lansley (Zoologist), Teisha Sloan (Zoologist), Curtis Doughty (Ecologist), and Brett Lane (Principal Consultant).

3. METHODOLOGY AND SOURCES OF INFORMATION

This section of the report describes the assessment methodology and the sources of information used for the current targeted survey.

3.1. Sources of Information

Existing information on the status of the Striped Legless Lizard was obtained from the Viridians Victorian Fauna Database—also known as the Atlas of Victorian Wildlife (AVW)— a public database held by the Department of Sustainability and Environment. The search region for the species was within a radius of 5 km with centre point of the following co-ordinates: latitude 37° 47' 50" S and longitude 144° 44' 36" E.

Further information on the location of Striped Legless Lizard records in the area and the region was obtained from BioMaps (Melbourne 1,100:000) showing EVC and threatened species layers.

3.1.1. Background Information

The Striped Legless Lizard is listed as *vulnerable* under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, and is listed under the Victorian *Flora and Fauna Guarantee Act 1988*. The Striped Legless Lizard is considered to be *endangered* in Victoria (DSE 2007). Overall this species is considered to be of **national** conservation significance.

The Striped Legless Lizard inhabits dense native grasslands, often with rocky rises, that were once extensive on the volcanic plains west of Melbourne (Webster *et al.* 1992). It utilises rocks, soil cracks, burrows and grass tussocks for sheltering (Smith and Robertson 1999). Research on the species has found that it can also occur in grasslands dominated by exotic species, in secondary grasslands (Dorrough and Ash 1999, Koehler 2004, O'Shea 2004) and in habitats where rocks are absent but deep cracking clay soil is present (Coulson 1990).

Several other factors have been found to be important in determining the likelihood of this species occurring in a particular area (Koehler 2004, Dorrough and Ash 1999, Coulson 1990) including land use history and distance from primary grassland areas (Dorrough and Ash 1999, Coulson 1990). Continuity of suitable habitat is also likely to be important (Dorrough and Ash 1999).

Cultivation and intensive ploughing disturbs the soil, alters soil structure and may directly result in the death of individual Striped Legless Lizards (Coulson 1990). Intensive ploughing and extensive loss of habitat may result in local extinction of populations (Coulson 1990), although the species may in some cases occur in such areas. For example, in western Victoria the species has been found during ploughing of paddocks that had not been cultivated or ploughed for 20-25 years (Coulson 1990). It is not known whether the species had persisted in these areas, or recolonised from elsewhere. Similarly, Dorrough and Ash (1999) found that recent ploughing was more predictive of Striped Legless Lizard absence than past ploughing, and suggested that population recovery since ploughing may depend on dispersal from surrounding suitable habitat areas.

The AVW and Biomaps contained 216 previous records of the Striped Legless Lizard from the search region, dated from 1988 to 2003. Majority of these records (167) were from the Cairnlea Estate (former Albion explosives factory) in Deer Park. The Cairnlea Estate is located approximately 4.5 kilometres to the north-east of the study area on the northern side of the Western Hwy. Other nearby sites with multiple records for Striped Legless Lizard include the Derrimut Grasslands 3.5 km to the east and Victoria University of Technology, St. Albans campus, approximately 5 kilometres to the north-east. There is a 1994 record of this species from the

junction of Robinsons Rd and Boundary Rd which is approximately 1 kilometre south of the study area. There is no connectivity with the study area and the sites at Cairnlea Estate and Victoria University due to the presence of residential development and major roads. There is some connectivity to Derrimut Grasslands. This connectivity is limited as the lizard would have to traverse across unsuitable introduced grassland habitat.

3.2. Field Methodology

To determine the likelihood that the Striped Legless Lizard occurs in the study area, a targeted survey was undertaken. Tile grids were laid to determine the presence of this threatened lizard.

Tile grid surveys were deemed to be the most appropriate method for detecting the lizard in the study area. This method has been previously used successfully to survey the Striped Legless Lizards in western Victoria (Koehler 2004) and in the basalt plains grasslands near Melbourne (O'Shea 2004).

Five tile grids were set up at the study area, located within potential habitat including areas of native grassland and rocky outcrops. Figure 1 shows the locations of the tile grids at the study area.

Each tile grid consisted of 50 grooved terracotta roof tiles in a 20 x 45 metre grid configuration, with tiles spaced 5 metres apart. The north-west corner of the grid was recorded using a GPS and the tiles were individually numbered with a permanent marker. This method follows the standard Victorian survey technique used for monitoring this species by the Victorian Striped Legless Lizard Working Group.

The tile grids were laid out on 10th and 14th August, 2007 and monitored at approximately fortnightly intervals. The first monitoring took place on 11th September and the final tile check on the 20th December, 2007. Most grids were checked eight times resulting in 1800 tile checks.

The grids were checked between 8am and 1pm. The time of checking the grids was randomised, so that the effect of time and temperature during monitoring days was not biased for a particular time. The weather conditions during the monitoring ranged from mild to hot and varied from overcast to clear skies. These conditions were considered to be suitable for detecting the Striped Legless Lizard using the tile grid method.

During the targeted survey, notes were taken on habitat quality and the criteria for assessing the habitat is described below.

Habitat definitions

Striped Legless Lizard typically occurs on basalt plains with deep cracking clay soils and scattered surface rock. Cracking soil and rocks are important characteristic of habitat as they provide protection from fire and predators and also provide a place to lay eggs.

Three main habitat quality categories were used and are described below.

High: Habitat components listed below are usually all present.

- High-density native tussock grassland (eg. Kangaroo Grass - *Themeda triandra,* Wallaby Grass - *Austrodanthonia* spp. and Tussock Grass – *Poa* spp.) present
- Large, extensive and continuous areas of native tussock grassland
- High proportions of surface and embedded rocks, and cracking soil
- Connectivity with other areas of suitable habitat.

Moderate: Some fauna habitat components are often missing although linkages with other remnant habitats in the landscape are usually intact.

- Some native tussock grassland present
- Large, extensive and continuous areas of mixed native and exotic grassland
- Some surface and embedded rocks, and cracking soil
- Some connectivity.

Low: Many habitat elements have been lost. Grassland habitats that are:

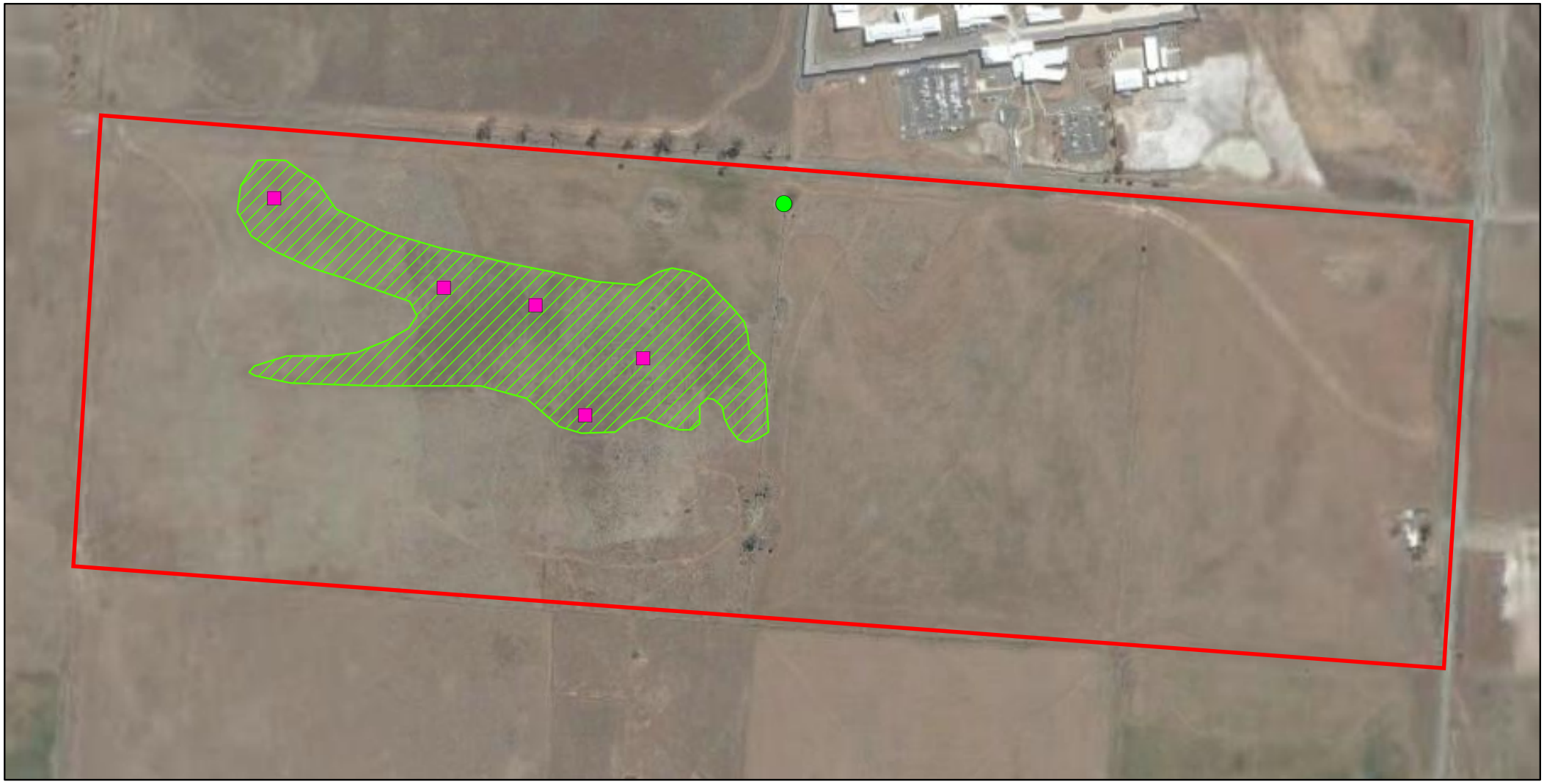
- Low density and small areas of native tussock grassland present
- Native tussock grassland species may be absent
- Surface and embedded rocks are often absent
- Isolated and little to no connectivity
- Showing signs of disturbance (such as soil erosion and compaction and/or grazing pressures).

3.2.1. Limitations

The timing of the Striped Legless Lizard survey, its duration and the weather conditions under which surveying was undertaken, were considered suitable for detecting the species. The tiles, which were used as the main method for detecting this species in the study area, do not trap the animals. Hence, it is important to time the monitoring to maximise the chances of detecting this species while the animals are utilising the tiles. Every effort was made during the current survey to ensure that monitoring took place under suitable conditions to detect the Striped Legless Lizard.

Due to the size of the study area and the length of time it took to check all grids during a monitoring round, it cannot be completely ruled out that while checking a grid in one part of the site, animals may have been utilising tile grids in other parts of the site. However, the overall survey effort (1800 tiles checked) was considered sufficient to detect significant populations of Striped Legless Lizard in the study area.

Striped Legless Lizard Survey



Legend

- Striped Legless Lizard Tile Grids
- Sugar Gum
- Remnant Plains Grassland
- Study Area

0 50 100 200 300 400 500 Metres

Robinsons and Middle Roads, Truganina		
Figure 1: Striped Legless Lizard Targetted Survey		
Client: Marksx Property Group Pty Ltd		
Project No.: 7136	Date: 16/11/2007	Created by: I. Mau / C. Doughty

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4. RESULTS

Majority of the study area was dominated by introduced grass species. There was a large area in the western part of the study area that contained high densities of native grassland species. A substantial cover of weed species has invaded the study area.

Connectivity to other native grasslands in the area is possible although the lizard would have to traverse across areas of unsuitable introduced grassland habitat which is not ideal for this species. A prison, a waste facility and agricultural land surround the study area.

The native grassland area indicated in Figure 1 was dominated by Kangaroo Grass, and, while it had been grazed by sheep until recently, it retained good tussock structure in places and there were high numbers of rocks throughout. Some weeds and introduced grasses had invaded this section, particularly Spanish Artichoke and Serrated Tussock. Large areas of the native grassland had been previously sprayed with herbicide before the commencement of the targeted survey resulting in large areas of decomposing plant material. The native grassland area is considered to be *moderate* habitat quality for Striped Legless Lizard.

The remainder, and majority, of the study area had been cultivated and is now dominated by exotic species. Rocks have been removed from these areas resulting in conditions that are unsuitable for the Striped Legless Lizard.

Tile grid locations were chosen for their suitable habitat characteristics. Native grassland and rocky areas were targeted for this survey as this is the preferred habitat of the Striped Legless Lizard.

The tile grids were laid on the 10th and 14th August 2007 and the tiles were checked at approximately fortnightly intervals. Weather conditions ranged from 16°C in early September to 32°C in early December. Cloud cover ranged from overcast to clear skies and the wind was generally of gentle strength.

No Striped Legless Lizard was recorded within the study area during this current targeted survey. Three vertebrae species were recorded using the tiles which included: the Common Blue-tongue Lizard (*Tiliqua scincoides*); Spotted Marsh Frog (*Limnodynastes tasmaniensis*); and the introduced House Mouse (*mus musculus*). The results of the tile grid survey are presented in Table 1.

Table 1: Results of the Tile Grid Survey

Date	Vertebrate species recorded
11/09/2007	
19/09/2007	House Mouse
16/10/2007	Common Blue-tongue Lizard
22/10/2007	
10/11/2007	Common Blue-tongue Lizard
23/11/2007	Spotted Marsh Frog
5/12/2007	
20/12/2007	

Most of the tile grids were checked eight times resulting in a total survey effort of 1800 tile checks.

5. IMPACTS AND REGULATORY IMPLICATIONS OF PROJECT

This section provides an outline of the regulatory issues related to the Striped Legless Lizard within the study area. The implications under various local, state and federal policies and legislation are discussed and recommendations and actions regarding these issues are provided.

5.1. Striped Legless Lizard

The Striped Legless Lizard is listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Victorian *Flora and Fauna Guarantee Act 1988* and is considered to be *vulnerable* at a national level.

The current targeted survey failed to confirm the presence of the Striped Legless Lizard. Given the total survey effort of 1800 tile checks it is considered unlikely that the Striped Legless Lizard occurs in the study area.

As a result, the proposed development is unlikely to have a significant impact on the Striped Legless Lizard. Therefore, no further implications— other than those previously documented (Brett Lane & Associates Pty Ltd 2007)—are identified under relevant legislation and policies such as the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the Victorian *Flora and Fauna Guarantee Act 1988*.

For this reason, a referral to the Federal Minister under the *Environment Protection and Biodiversity Conservation Act 1999* would not be required in this instance.

6. REFERENCES

Brett Lane and Associates Pty Ltd 2007. Robinsons and Middle Roads, Truganina: Flora and Vegetation Assessment, Report for Marksx Property Group Pty Ltd, December 2007.

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