

**DINGLEY CORRIDOR – WARRIGAL ROAD TO
WESTALL ROAD**

**SOUTHERN TOADLET
TARGETED SURVEY**

VicRoads Eastern Projects



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1. EXECUTIVE SUMMARY

VicRoads Eastern Projects engaged Brett Lane and Associates Pty. Ltd. (BL&A) to conduct a targeted Southern Toadlet survey in swampy woodland habitat situated along a six kilometre proposed road corridor from Warrigal Road to Westall Road Extension, Dingley, southeast of Melbourne.

This investigation was commissioned to provide information on the extent and condition of Southern Toadlet habitat and identified any existing populations in the study area.

The survey was undertaken in March and early April 2011 in areas of suitable swampy habitat within the study area. Best-practice methodology was used, which incorporated call-playback and spotlighting (DSE 2010). This method and the survey effort involved were consistent with the Victorian Department of Sustainability and Environment (DSE) survey guidelines.

Southern Toadlet was not recorded during the current field survey despite concentrated search efforts in suitable habitats within the study area. Due to the absence of Southern Toadlet in the development footprint, no legal implications pertain to the project in respect to this species.

Consideration should be given to including the mitigation measures described in a construction and operational environmental management plan for the project. This would ensure that all frog species would be protected during the construction and operation of the proposed development.

2. INTRODUCTION

VicRoads Eastern Projects engaged Brett Lane and Associates Pty. Ltd. (BL&A) to conduct a targeted Southern Toadlet survey in swampy woodland habitat situated along a six kilometre proposed road corridor from Warrigal Road to Westall Road Extension, Dingley, southeast of Melbourne.

This investigation was commissioned to provide information on the extent and condition of Southern Toadlet habitat and identified any existing populations in the study area. This report outlines any implications under various national, state and local legislations.

Specifically, the scope of the investigation included:

- A site survey involving a search of suitable habitat over two nights during ideal conditions.
- Identification and GPS mapping of any threatened fauna recorded.
- A report presenting the results of the survey.

This report is divided into the following sections:

Section 3 presents the sources of information and species biology.

Section 4 presents the methods of the survey.

Section 5 presents the results of the assessment.

Section 6 presents the regulatory implications.

Section 7 presents the conclusions and recommendations.

This investigation was undertaken by a team from Brett Lane & Associates Pty. Ltd. comprising Teisha Sloane (Zoologist), James Iaconese (Zoologist), Khalid Al-Dabbagh (Zoologist), Peter Lansley (Zoologist) and Alan Brennan (Project Manager).

3. SOUTHERN TOADLET BIOLOGY

3.1. Description

The Southern Toadlet (*Pseudophryne semimarmorata*) is a small, toad-like burrowing species with a warty and dark brown to olive-green upper surface; its underbelly is marbled brown or black and bluish-white. Its throat, lower belly and hind limbs are yellowish to bright orange (Littlejohn 2003). Generally, this species prefers walking rather than hopping.

3.2. Habitat

The Southern Toadlet is generally found at lower elevations in damp areas. It usually shelters under leaf litter, logs or rocks in moist soaks and depressions (Cogger 2000). The species frequents dry forests, woodlands, heaths and grasslands. Whilst it requires water for breeding, it is not essential for it to be adjacent to permanent waterbodies and has been found to breed in seasonal puddles. The breeding season extends from late summer to early winter. Males dig shallow burrows or depressions in low lying areas from which they call during the breeding season. Females lay their eggs in these burrows when mating. Burrows are flooded after heavy rain and tadpoles released into pools. Tadpoles are aquatic in ponds, flooded grassland and roadside ditches (Cogger 2000).

3.3. Distribution

The Southern Toadlet is predominantly found in southern Victoria, eastern Tasmania and eastern South Australia (Walker 2003). In Victoria, the species' strong-hold is north, east and south-east of Melbourne (Figure 1).

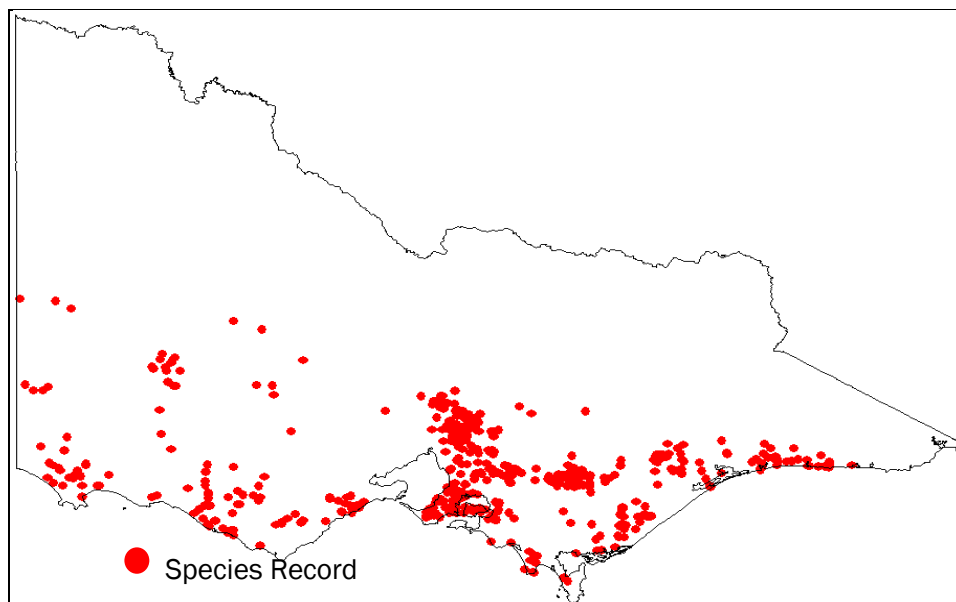


Figure 1: Distribution of Southern Toadlet in Victoria (Source: AVW database 2009)

3.4. Threats

The main threat to this species appears to be associated with loss of suitable habitat associated with clearing of bushland, scrub and grasslands (Graeme *et al.*

2004). Other factors such as rising salinity, agricultural pesticide spraying and disease could be playing a part but their impact is unknown at this time.

Legislative protection

The Southern Toadlet is listed as *vulnerable* in Victoria under the DSE threatened species advisory list (DSE 2007).

4. METHODS

4.1. Existing information

Existing information on the status of the Southern Toadlet was obtained from the Atlas of Victorian Wildlife (AVW), a database administered by DSE (Viridans Biological Databases 2009). This search listed all records of Toadlet found within a ten kilometre search region from the approximate centre point of the study area (coordinates: latitude 37° 59' 43" S and longitude 145° 09' 34" E).

The Department of Sustainability and Environment (DSE) issued new survey standards outlined in the "Biodiversity Precinct Planning Kit" in early 2010. The current targeted survey was therefore undertaken on the basis of these new survey guidelines and to ensure the entire study area is assessed.

4.2. Habitat assessment

Habitat suitability was assessed during the initial flora and fauna assessment. The targeted survey was then undertaken in areas identified as being potentially suitable to support Southern Toadlet (Brett Lane & Associates 2010).

4.3. Targeted Survey

The Southern Toadlet survey was undertaken using methods consistent with the DSE Biodiversity Precinct Planning Kit, including call playback and spotlighting.

To determine the distribution and relative abundance of the Southern Toadlet in the study area, a targeted survey was undertaken on March 17th, 24th and April 4th 2011. Prior to commencing surveying, habitat in the study area was examined to identify suitable survey locations. Two sites were selected based on their suitability for supporting Southern Toadlet. Survey locations are provided in Figure 2.

The survey was conducted at night during cool and moist weather conditions. The Southern Toadlet is more likely to be active and calling under these conditions, making detection more likely. Table 1 provides details of weather conditions.

Table 1: Weather conditions during survey period

Date	Site #	Time - start	Time - finish	Temperature	Humidity	Wind
17/03/2011	1	20:00	20:45	16.2	56	Light south-easterly
	2	20:55	21:40	14.2	66	
24/03/2011	1	20:00	20:45	20.0	HH	South-westerly
	2	21:00	21:45	15.7	HH	
4/04/2011	1	19:30	20:15	15.8	70	Light Southerly
	2	20:25	21:10	14.2	70	

(HH = High Humidity, over 90%)

Field surveys took place between 19:00 (after sunset, almost dark) and 22:00, Australian Eastern Daylight time (AEDT). On first arrival at a site, five minutes was spent listening for frog calls and all frog species heard calling were noted. Following this, the call of the Southern Toadlet was played through a megaphone for ten minutes in an effort to elicit the vocal response of this species.

Following call playback and listening time, each site was systematically searched for frogs by two observers using a spotlight. This involved visual inspection of the swampy areas and associated wet depressions, call recognition and active searching (including turning surface debris and parting grass). The number of frogs seen or heard during the search time was recorded.

4.4. Limitations of field assessment

Where feasible, all efforts are made to schedule Southern Toadlet field surveys in optimal weather conditions and times of year. Nevertheless, 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.

The Southern Toadlet is most active from March to July (DSE 2009). Therefore the survey conditions were deemed suitable to identify the presence of a population at the site.

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 suitable habitat. The implications under legislation and policy are considered accordingly.



Legend

- Study Area
- Survey Location

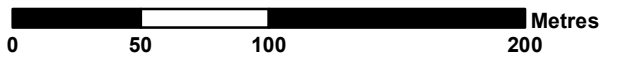


Figure 2: Targeted Southern Toadlet Survey		
Project: Dingley Corridor - Warrigal Rd to Westall Rd		
Client: VicRoads Eastern Projects		
Project No.: 8094.9	Date: 12/04/2011	Created By: K.Aldabbagh/ J.Wen
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5. RESULTS

5.1. Existing information

The AVW holds historical records of Southern Toadlet within ten kilometres of the study area. This species was last recorded in 1990 from Braeside Park, approximately 2.5 kilometres to the south of the study area (Figure 3).

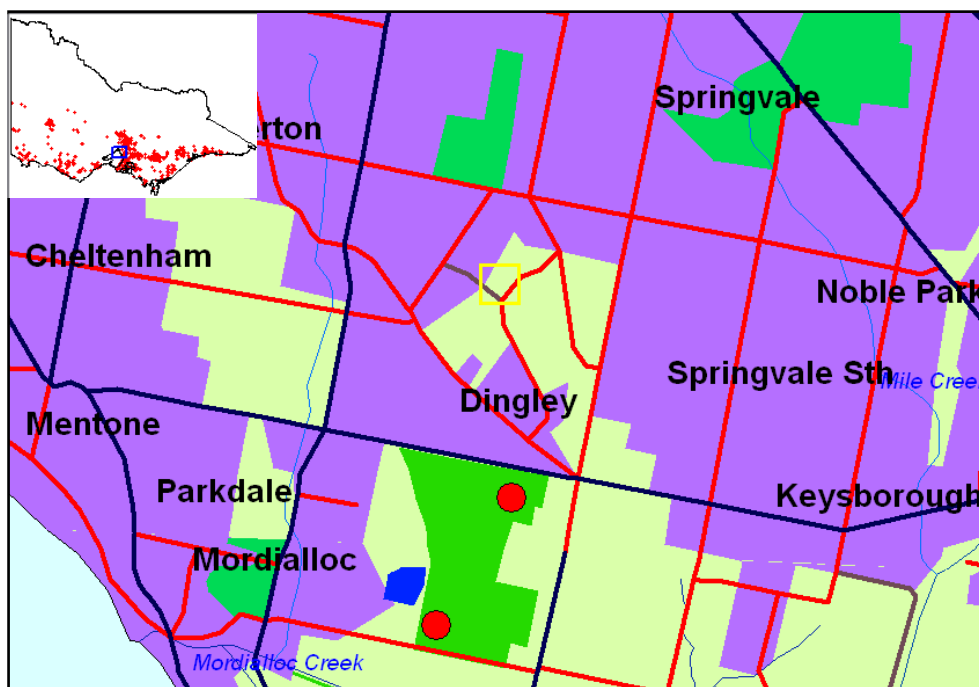


Figure 3: Historical records of Southern Toadlet in close proximity to the study area; the yellow box shows the approximate survey location; the red dots present the location of the Southern Toadlet records \pm 10 kilometres (Viridians Database 2009).

5.2. Habitat Assessment

The habitats located in the study area supported low to moderate Southern Toadlet habitat. The swamp was inundated with water during time of survey. Below is a description of each survey site and its suitability as Southern Toadlet habitat (refer to Figure 2).

Site 1: A shallow freshwater swamp located south-west of the woodland adjacent to Westall Road. This comprised both native and introduced grass species and sedges. The swamp was inundated with water during time of assessment. Small wet depressions and grass clumps provided suitable micro-habitat for Southern Toadlet (Figure 4). Habitat at Site 1 was assessed as being moderate to high quality for Southern Toadlet.



Figure 4: Site 1

Site 2: A small stream (drain) runs through the southern part of the woodland (Figure 5). The edges of the drain were lined with grasses and leaf litter and some of the woodland trees. The majority of the woodland floor comprised of sedges and grasses with a thick layer of leaf litter and debris. During wet conditions, grass and leaf litter inundated with water creates a shallow marsh habitat. These wet depressions provide breeding and foraging opportunities for the species. Habitat at Site 2 was assessed as being moderate for Southern Toadlet.



Figure 5: Site 2

5.3. Survey results

Southern Toadlet was not recorded during the current field survey despite concentrated search efforts in suitable habitats within the study area. Two other frog species were heard during the survey (Table 2). These were all common frogs and are not threatened species.

Table 2: Frog species recorded during survey

Site	Date	Species	
		Common Froglet	Spotted Marsh Frog
1 (Swamp)	17/03/2011	9	1
	24/03/2011	>100	10
	04/04/2011	20	2
2 (Woodland)	17/03/2011	–	–
	24/03/2011	–	–
	04/04/2011	–	–

The Common Froglet was the most common species recorded followed by Spotted Marsh Frog. The most abundance and diversity of frog species was recorded at Site 1, swamp habitat. No frogs were recorded in the woodland habitat along the drain of beneath leaf litter.

Based on previous and current results, it is considered that, if present, the Southern Toadlet would only occur in the study area in small numbers and most likely reside in the swamp habitat. Furthermore, any present population would be more likely to inhabit Braeside Park, south of the study area, where they have been previously recorded (Viridians Database 2009).

6. IMPACTS AND REGULATORY IMPLICATIONS

6.1. EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* contains a list of threatened species and ecological communities that are considered to be of national conservation significance. Any impacts on these species considered significant requires the approval of the Australian Minister for the Environment. If there is a possibility of a significant impact on nationally threatened species or communities or listed migratory species, a Referral under the EPBC Act should be considered. The Minister will decide after 20 business days whether the project will be a 'controlled action' under the EPBC Act, in which case it cannot be undertaken without the approval of the Minister. This approval depends on a further assessment and approval process (lasting between three and nine months, depending on the level of assessment).

No fauna species listed as threatened under the EPBC Act were observed during the current assessment.

6.2. FFG Act

The Victorian *Flora and Fauna Guarantee Act 1988* lists threatened flora and fauna species to provide for their protection and management. The FFG Act has limited direct application to private land. However, Clause 15.09 of the Planning Scheme makes reference to this Act. The local planning authority is likely to consider impacts on FFG Act-listed species and communities when deciding on planning permit applications.

No fauna species listed as threatened under the FFG Act were observed during the current assessment.

6.3. EE Act

Under the *Environment Effects Act 1978*, proponents are required to prepare a Referral to the state minister for Planning, which will determine if an Environment Effects Statement (EES) is required for the project. Criteria related to flora and fauna are:

- Potential clearing of ten hectares or more of native vegetation from an area with endangered EVC, or vegetation that is or is likely to be, of very high conservation significance according to Victoria's Native Vegetation Management Framework, except where authorised under an approved Forest Management Plan or Fire Protection Plan;
- Potential long-term loss of a significant proportion (1 to 5% depending upon conservation status of species concerned) of known remaining habitat or population of a threatened species in Victoria;
- Potential long-term change to a wetland's ecological character, where that wetland is Ramsar listed, or listed in 'A Directory of Important Wetlands in Australia';
- Potential major effects upon the biodiversity of aquatic ecosystems over the long term;
- Potential significant effects on matters listed under the *Flora and Fauna Guarantee Act 1988*.

One or a combination of these criteria may trigger a requirement for a Referral to the Victorian Minister for Planning who will determine if an EES is required.

No Southern Toadlet was observed during the current survey and potential habitats present are recommended to be retained. Therefore, if Southern Toadlet potential habitat is retained, a Referral to the state Minister for Planning is unlikely to be required under the EE Act.

6.4. DSE advisory lists

Rare and threatened species advisory lists administered by the Department of Sustainability and Environment include flora and fauna species known to be rare or threatened throughout the state. Although the advisory list has no statutory status, the Responsible Authority will consider impacts on any species on the list when assessing a planning application.

The Southern Toadlet is listed on the *Advisory List of Threatened Vertebrate Fauna in Victoria* (DSE 2007), but none were recorded in the current survey. No other listed species were recorded during the current targeted survey and none are considered likely to exist in the study area in significant numbers.

A salvage protocol has also been prepared as a precaution to further mitigate any potential minor impacts to the species' populations in the broader area during construction.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

A targeted Southern Toadlet survey was undertaken using best-practice methods to determine whether the species or its habitat was present in areas potentially impacted upon by the proposed development at Warrigal to Westall Road. No Southern Toadlet was detected during the survey. Due to the absence of Southern Toadlet in the development footprint, no legal implications pertain to the project.

A salvage protocol has also been prepared as a precaution to further mitigate any potential minor impacts to the species' populations in the broader area.

7.2. Mitigation recommendations

Consideration should be given to adopting the mitigation measures described below for Southern Toadlet;

- During construction:
 - All construction machinery must be cleaned before entering the site to avoid spreading weeds and diseases that are detrimental to frogs;
 - To avoid impact on frog species, the ideal time for construction to occur is during late winter to early summer (August to February) when the species is inactive”
 - If feasible (i.e. if weather permits), construction should be carried out when soils are dryer and not during rain;
 - During construction, erect protective fencing around all construction areas and ensure these are not breached;
 - Where the proposed development intersects suitable frog habitat, crossings must be constructed to minimise impacts to frog populations during and post- construction;
 - Sediment and contaminant traps in addition to erosion control barriers must be erected to protect the wetlands and watercourses during construction; and
 - Any works within the proposed development area (e.g. revegetation and weed control) are to be carried out in a manner that is sensitive to Southern Toadlet. That is, adhering to the above points.
- Where feasible, areas of suitable frog habitat should be enhanced by:
 - Improving terrestrial habitat through addition of logs, rocks and riparian vegetation; and
 - Using water-sensitive urban design for stormwater management, including wetland and creek protection.

Below is a summary of the threats and mitigation measures for this site.

Potential Threat	Mitigation Measures
Habitat modification	<ul style="list-style-type: none"> • Improve habitat through appropriate revegetation after construction is completed. • Improve frog habitat by controlling weeds within, and directly adjacent to areas of suitable habitat.
Habitat fragmentation	<ul style="list-style-type: none"> • Ensure that habitat linkages to Braeside Park are maintained during and following construction.
Changes in hydrology	<ul style="list-style-type: none"> • Ensure that the design and construction of the proposed roads and structures ensures that natural flood patterns and creek flows are maintained. • Avoid run-off into swamp habitats south of the woodland.
Human access	<ul style="list-style-type: none"> • Control access during construction using temporary fencing around woodland and swamp areas.

8. SALVAGE AND RELOCATION OF FROGS DURING CONSTRUCTION

The directions listed below are to be followed within the study area during the construction of the proposed Dingley road corridor. The salvage protocol below has been adapted from Organ (2005).

- Any Southern Toadlet identified during construction within the construction disturbance area is to be immediately salvaged and relocated. This involves locating and capturing frogs and transporting them to appropriate habitat sites nearby such as Braeside Park where they have been previously recorded.
- Salvage and relocation must only be undertaken by an appropriately qualified zoologist.
- Appropriate wildlife permits are to be obtained from DSE prior to construction to capture, collect and relocate frogs.
- Active searching for frogs for one day during winter is required pre-construction. This is to include searching under litter and debris.
- If qualified frog handlers are absent during construction, nominated construction personnel must be trained by a zoologist to identify Southern Toadlet.
- Latex surgical gloves are to be worn when handling frogs.
- Footwear is to be disinfected with bleach to prevent the spread of disease.
- Frogs are to be transported in suitable capture bags (preferably plastic) and placed in separate bags to minimise disease transmission.
- The local DSE or Parks Office is to be contacted if Southern Toadlet are captured.
- Release sites for Southern Toadlet must be located in swampy woodland habitat at Braeside Park.
- Captured frogs are to be relocated into suitable micro-habitats such as under debris or dense vegetation.

9. REFERENCES

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