

## Targeted Growling Grass Frog *Litoria raniformis* surveys at 1221 – 1249 Centre Road, Oakleigh South, Victoria

**Date:** 24<sup>th</sup> December 2014

**Authors:** Marc Freestone (Botanist), Tanya White (Senior Consultant), Clio Gates Foale (Senior Ecologist)

**Our Project Number:** 6477

### 1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Sinclair Brook to conduct a targeted survey for the nationally significant Growling Grass Frog *Litoria raniformis* at 1221 – 1249 Centre Road, Oakleigh South, Victoria.

It is understood that the land parcel ('study area') is being considered for potential subdivision and development. The purpose of this report is to determine the presence or absence of Growling Grass Frog within the study area.

### 2 Study Area

The study area is located at 1221 – 1249 Centre Road, Oakleigh South, Victoria, approximately 21 kilometres southeast of Melbourne's CBD (Figure 1). The site covers 18.79 hectares and is bound by residential housing to the north and east, Centre Road to the south and Huntingdale Road to the west.

According to the Department of Environment and Primary Industries (DEPI) Biodiversity Interactive Map (DEPI 2014a), the study area occurs within the Gippsland Plain bioregion. It is located within the jurisdiction of the Port Phillip and Westernport Catchment Management Authority (CMA) and the Monash City Council municipality.

### 3 Objectives

The objectives of the targeted surveys are:

- Review relevant data on the Victorian Biodiversity Atlas (VBA), the Atlas of Victorian Wildlife (AVW), and other available literature (e.g. previous reports) in relation to the occurrence of Growling Grass Frog and its habitat within the study area and immediate surrounds;
- Conduct targeted surveys by qualified zoologists during the Growling Grass Frog's active period (November to February) (two surveyors undertook nocturnal surveys) within the study area. This included:
  - Two nights of spotlighting surveys, call identification, and active searching for adults and metamorphs; and,
  - Call playback at survey locations where suitable habitat locations have been recorded.
- If Growling Grass Frogs is detected, determine the distribution across the study area;

- Determine key threats to the population and identify any actions required to alleviate these risks;
- Provide recommendations regarding whether a referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required, or any other legislative or policy implications associated with the proposed development;
- Liaise with key stakeholders (e.g. DEPI, local council) where necessary;
- Provide a report summarising the methodology and results of the surveys and;

## 4 Growling Grass Frog *Litoria raniformis*

### 4.1 Distribution

Growling Grass Frog is known to reside across temperate south-eastern Australia, including ACT, NSW, Victoria, South Australia and Tasmania, inhabiting wet, lowland areas.

Locally, this species was recorded in 1999 approximately one kilometre south-west of the study area and is known to inhabit waterbodies in abandoned quarries similar to the study area (Aaron Organ, Ecology and Heritage Partners Pty Ltd, *pers. obs.*). As such, given the availability of potentially suitable habitat, targeted surveys were undertaken to determine the presence or absence of this species.

### 4.2 Conservation Status

The species is listed as a threatened taxon under the Commonwealth EPBC Act and the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act). A draft Flora and Fauna Guarantee Action Statement (Robertson 2003) and a draft National Recovery Plan (Clemann and Gillespie 2010) have been developed for the species. Overall, the species is of national conservation significance.

Although formally widely distributed across south eastern Australia, including Tasmania (Littlejohn 1963, 1982; Hero *et al.* 1991), the species has declined markedly across most of its former range. The decline has been most evident over the past two decades and in many areas, particularly in south and central Victoria, populations have experienced apparent declines and local extinctions (VBA 2011; Mahoney 1999).

### 4.3 Habitat Requirements

This species is largely associated with permanent or semi-permanent still or slow flowing water bodies (i.e. streams, lagoons, farm dams and old quarry sites) (Hero *et al.* 1991; Barker *et al.* 1995; Cogger 1996; Ashworth 1998).

Frogs can also utilise temporarily inundated water bodies for breeding purposes provided they contain water over the breeding season (Organ 2003).

Based on previous investigations there is a strong correlation between the presence of the species and key habitat attributes at a given water body. For example, the species is typically associated with water bodies supporting extensive cover of emergent, submerged and floating vegetation (Robertson *et al.* 2002, Organ 2004, 2005). Emergent vegetation provides basking sites for frogs and protection from predators, whilst floating vegetation provides suitable calling stages for adult males and breeding and oviposition (egg

deposition) sites. Terrestrial vegetation (grasses, sedges), rocks and other ground debris around wetland perimeters also provide foraging, dispersal and over-wintering sites for frogs.

Water bodies supporting the above mentioned habitat characteristics and those that are located within at least 500 metres of each other, are more likely to support a population of Growling Grass Frog, compared to isolated sites lacking important habitat features. Indeed, recent studies have revealed that the spatial orientation of water bodies across the landscape is one of the most important habitat determinants influencing the presence of the species at a given site (Robertson et al. 2002; Heard et al. 2004a, 2004b; Heard and Scroggie 2009).

#### 4.4 Threatening Processes

Causes of the decline of the Growling Grass Frog are not fully understood. However, factors that are likely to have contributed to the decline include habitat loss, fragmentation and degradation of habitat (such as land clearing for agriculture and urban development), altered flooding regimes of natural water bodies, predation on eggs and tadpoles by introduced fish, salinisation, chemical pollution of water bodies by fertilisers and pesticides, and infection by the amphibian chytrid fungus (Hamer *et al.* 2004; White and Pyke 1996).

#### 4.5 Site Conditions

A previous Ecological Assessment and report prepared by Ecology and Heritage Partners on 2 October 2014 identified suitable habitat (moderate likelihood of occurrence) within the study area for the Growling Grass Frog *Litoria raniformis* which is listed under the EPBC Act (Ecology and Heritage Partners Pty Ltd 2014) (Figure 2). The site was considered to contain moderate habitat values and targeted surveys were recommended.

## 5 Methods

### 5.1 Desktop Assessment

Relevant literature, online resources and numerous databases were reviewed to provide an assessment of the habitat requirements and flora and fauna values associated with the study area. The following information sources were reviewed:

- The DEPI Biodiversity Interactive Map (DEPI 2014a) for rare or threatened species, both flora and fauna;
- The VBA (DEPI 2014d) for previously documented flora and fauna records within the project locality;
- The Federal Department of Environment (DoE) (former Department of Sustainability, Environment, Water, Population and Communities) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) protected under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (DoE 2014);
- Aerial photography of the study area; and,
- Previous flora and fauna assessments within the study area.

## 5.2 Habitat Assessment

Habitat variables were recorded within the study area during a diurnal assessment. Habitat quality was based on a number of factors that are known to be favoured by the Growling Grass Frog *Litoria raniformis*:

- The presence of permanent or semi-permanent, still or slow-flowing waterbodies that support extensive cover of emergent, submerged and floating vegetation;
- The access to surrounding terrestrial foraging areas and;
- The presence of terrestrial vegetation (grasses, sedges), rocks and other ground debris around the perimeter of a waterbody provide foraging, dispersal and over-wintering sites.

An area of high habitat quality would typically include all of the above listed features. Sites that lacked some of these attributes would be considered moderate habitat quality while sites that did not contain any of these features or where they were of a degraded nature would be considered low quality habitat. The results of the targeted survey as well as any previous records of the Growling Grass Frog within or near the study area were also considered in determining the habitat value of the site.

## 5.3 Targeted Surveys

Surveys were conducted over a two day period and consisted of:

- Two nights of spotlighting surveys and call identification;
- Call play-back (the call of a male Growling Grass Frog was imitated to elicit a response from any adult males residing in the immediate area) at survey locations where suitable habitat locations have been identified and listening for frogs for defined periods occurred and;
- Active searching for adults and metamorphs and tadpoles, (lifting and/or moving of logs or other debris potentially used as refuge).

Survey dates and weather conditions are detailed below (Table 1).

**Table 1.** Survey dates and weather conditions

Variable	Survey 1	Survey 2
Assessor	Marc Freestone and Clio Gates Foale	Clio Gates Foale and Sylvana Szydzik
Date	December 1 <sup>st</sup> 2014 20:30pm – 21:30pm	December 3 <sup>rd</sup> 2014 20:30pm – 21:30pm
Weather	19 C, cloudless, no rain	16 C 0.2 mm of rain the previous day (Tuesday 2 <sup>nd</sup> )

## 5.4 Limitations

However, other survey methods (i.e. active searching and spotlighting), which are reliably used to detect frogs were undertaken. Given the information obtained regarding recent records of the species, combined with the habitat assessment of the study area, this is considered sufficient to base recommendations provided in this report.

## 6 Results

### 6.1 Previous Records

The VBA contains 16 records of Growling Grass Frog within a 10 kilometre radius of the study area, the nearest of which was recorded in 1999 approximately one kilometre south-west of the study site within the Commonwealth Golf Club (DEPI 2014d) (DoE 2014) (Figure 3).

### 6.2 Fringing Vegetation

Two open waterbodies are present within the old sand mine area (Appendix 1; Plate 3). One semi-permanent water body to the north is also present and contains introduced wetland flora species, particularly Lesser Reed-mace *Typha latifolia* (Appendix 1; Plate 4). The southern bank of the southern two dams predominately consisted of *Phalaris aquatica* and *Juncus* species. The other banks were predominantly exposed earth. The north-west dam was shallow and contained an extensive infestation of *Phalaris*, Water Couch *Paspalum distichum* and some *Juncus* species. However, there were some open patches of still water.

### 6.3 Targeted Surveys

During the two day targeted survey, no Growling Grass Frog adults, metamorphs or tadpoles were observed through playback, spotlighting and general search techniques. However, the Common Froglet, Southern Brown Tree Frog and Striped Marsh Frog were heard calling on both occasions within and around the pools of water.

The three permanent, semi-permanent pools appeared to contain low to moderate habitat value with poor water quality, limited surrounding aquatic vegetation and virtually no submerged or emergent vegetation.

Based on current habitat quality and the results of targeted surveys, the study area is unlikely to provide habitat to Growling Grass Frog.

## 7 Conclusion

The Growling Grass Frog was not recorded during targeted surveys conducted in December 2014. The absence of this species during the targeted surveys suggests that the study area is unlikely to support an 'important population' of this species.

The habitat values throughout the entire subject site are considered low to moderate. The three individual pools contain still water within little or no submerged or floating vegetation suitable for the Growling Grass Frog.

Given the results of recent targeted surveys, combined with a lack of high quality breeding habitat, it is unlikely that future development of this site will lead to a significant impact on the Growling Grass Frog. Based on available information (i.e. data from the local area, habitat assessment and the results of recent targeted survey) an EPBC Act referral to the Commonwealth Environment Minister in relation to this species will not be required for further development of this site.

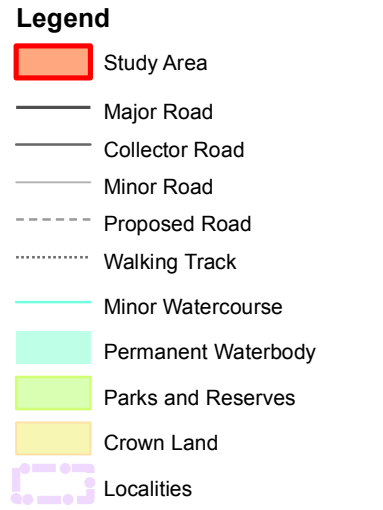
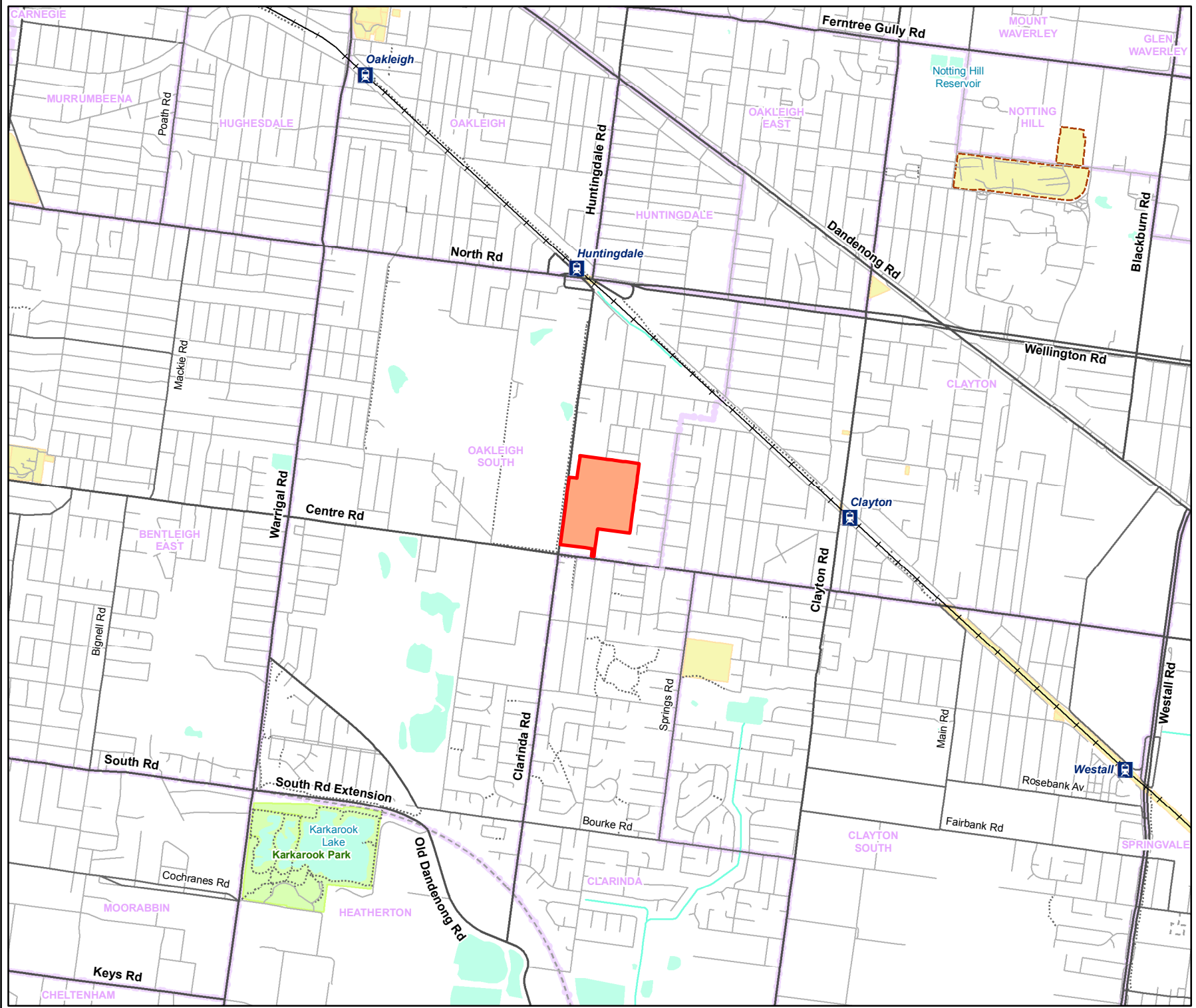
## References

- Barker, J., Grigg, G.C. & Tyler, M.J. 1995. A Field Guide to Australian Frogs. Surrey Beatty & Sons. New South Wales.
- Cogger, H. 1996. Reptiles and Amphibians of Australia. Reed Books, Sydney.
- Department of the Environment, Water, Heritage and the Arts; *Environment Protection and Biodiversity Act 1999* Protected Matters Search Tool <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>
- DEPI 2013. Permitted clearing of native vegetation - Biodiversity assessment guidelines (the Guidelines). Victorian Department of Environment and Primary Industries.
- DEPI 2014a. Biodiversity Interactive Map [WWW Document]. URL <http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim> (accessed 1.4.12). Victorian Department of Environment and Primary Industries.
- DEPI 2014b. Ecological Vegetation Class (EVC) Benchmarks for each Bioregion [WWW Document]. URL <http://www.dse.vic.gov.au/conservation-and-environment/native-vegetation-groups-for-victoria/ecological-vegetation-class-evc-benchmarks-by-bioregion> (accessed 1.4.12). Victorian Department of Environment and Primary Industries.
- DEPI 2014c. Native Vegetation Information Management Tool [WWW Document] URL <http://nvim.depi.vic.gov.au/> Victorian Department of Environment and Primary Industries.
- DEPI 2014d. Victorian Biodiversity Atlas. Sourced from: "VBA\_FLORA25" and "VBA\_FLORA100", August 2011. Victorian Department of Environment and Primary Industries.
- DEWHA 2009. Significant impact guidelines for the vulnerable Growling Grass Frog (*Litoria raniformis*). Federal Department of the Environment, Water, Heritage and the Arts, Canberra.
- DoE 2014. Protected Matters Search Tool: Interactive Map [WWW Document]. URL <http://www.environment.gov.au/arcgis-framework/apps/pmst/pmst.jsf> (accessed 1.4.12). Federal Department of Sustainability, Environment, Water, Population and Communities, Canberra.
- DSE 2004. Vegetation quality assessment manual: Guidelines for applying the habitat hectares scoring method. Version 1.3. Victorian Department of Sustainability and Environment.
- DSE 2005. Advisory List of Rare or Threatened Plants in Victoria. Victorian Department of Sustainability and Environment.
- DSE 2009. Advisory list of Threatened Invertebrate Fauna in Victoria – 2009. Victorian Department of Sustainability and Environment.
- DSE 2010. Native Vegetation Technical information sheet: Degraded treeless vegetation, Best and remaining habitat determinations, Tree protection/retainment requirements. Victorian Department of Sustainability and Environment.
- DSE, 2013. Advisory List of Threatened Vertebrate Fauna in Victoria. Victorian Department of Sustainability and Environment.

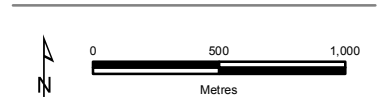
- DSE 2013. Advisory List of Rare or Threatened Fauna in Victoria. Victorian Department of Sustainability and Environment.
- DTPLI 2014. Planning Maps Online [www Document]. URL <http://services.land.vic.gov.au/landchannel/jsp/map/PlanningMapsIntro.jsp> (accessed 1.23.13).
- Ecology and Heritage Partners October 2014 Ecological Assessment at 1221 – 1249 Centre Road, Oakleigh South, Victoria
- Hamer, A.J., Lane, S.J. & Mahony, M.J. 2002. Management of freshwater wetlands for the endangered green and golden bell frog *Litoria aurea*: roles of habitat determinants and space. *Biological Conservation* **106**, 413-424.
- Hamer, A. & Organ, A. 2006. Distribution, Habitat Use, Movement Patterns and Conservation Management of the Growling Grass Frog *Litoria raniformis* throughout the Pakenham Area, Pakenham, Victoria. Unpublished report by Ecology Partners Pty. Ltd. for the Department of Sustainability and Environment.
- Hamer, A.J & Organ, A. 2008. Aspects of the ecology and conservation of the Growling Grass Frog *Litoria raniformis* in an urban-fringe environment, southern Victoria. Proceedings of the Biology and Conservation of Bell Frogs Conference, Australian Zoologist **34**, 414-425.
- Heard, G.W., Robertson, P. and Scroggie, M. 2006. Assessing detection probabilities for the endangered Growling Grass Frog *Litoria raniformis* in southern Victoria. *Wildlife. Research.* 33, 557-564.
- Hero, J.M., Littlejohn, M. & Marantelli, G. 1991. Frogwatch Field Guide to Victorian Frogs. Department of Conservation and Environment, East Melbourne.
- Littlejohn, M.J. 1963. *Frogs of the Melbourne area*. Victorian Naturalist 79: P 296-304.
- Melbourne Water, 2010. *Melbourne Water Frog Census Results* <http://frogs.melbournewater.com.au/>
- Tyler, M.J. 1997. *The Action Plan for Australian Frogs*. Environment Australia, Canberra.

## Figures





**Figure 1**  
**Location of the study area**  
*Ecological Assessment at*  
 1221-1249 Centre Road,  
 Oakleigh South



VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

6372 Fig01 StudyArea 24/09/2014 melslv



**Legend**

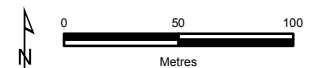
- Study Area
- Coast Tea-tree regrowth
- Planted River Red-gum trees
- Suitable habitat for Growing Grass Frog

**Scattered Trees**

- ♣ Gippsland Manna-gum
- ♣ Stag



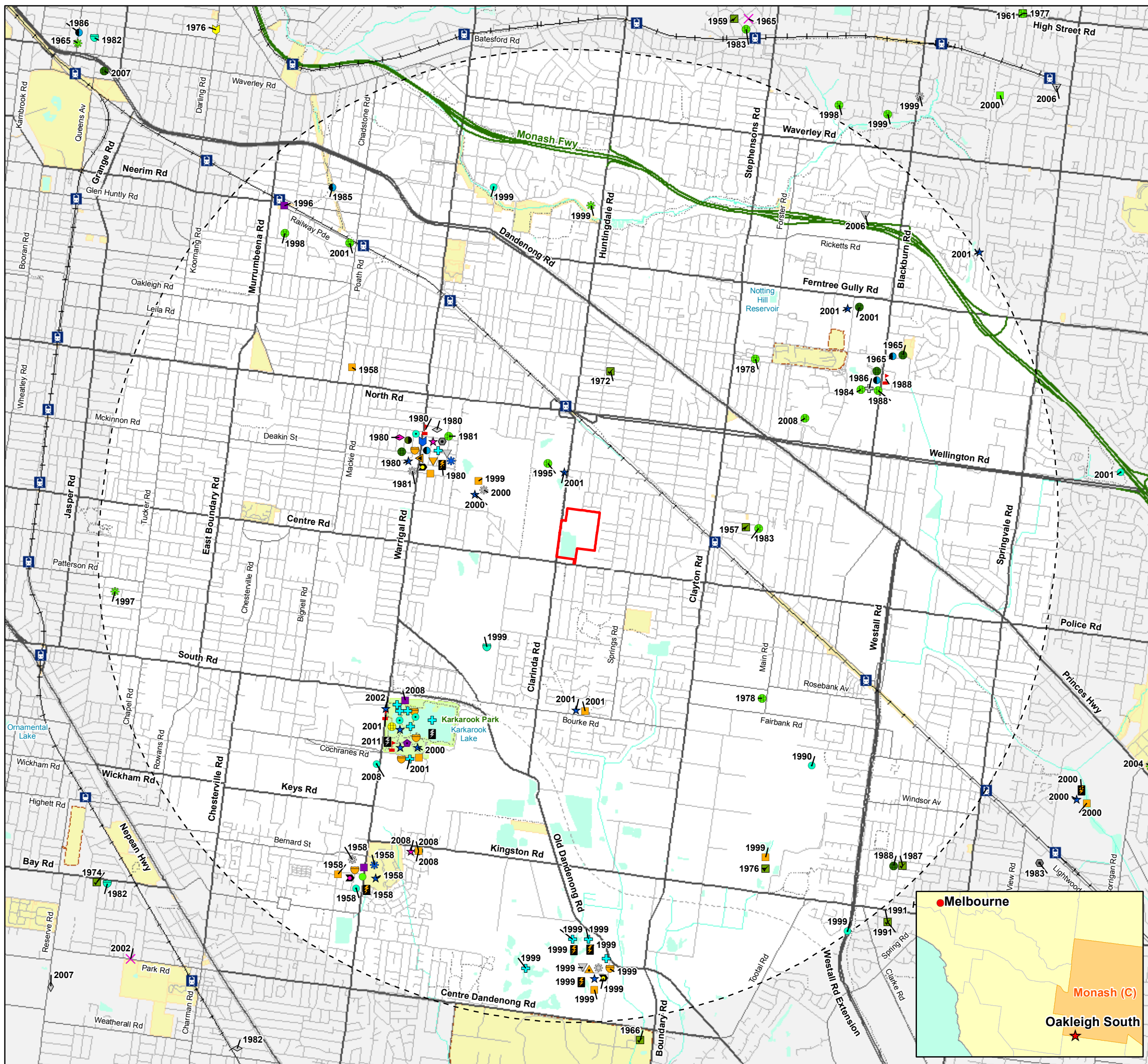
**Figure 2**  
**Ecological features**  
*Ecological Assessment at*  
 1221-1249 Centre Road,  
 Oakleigh South



VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

6372\_Fig02\_EcolFeat 29/09/2014 melsley

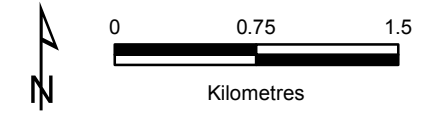
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



**Legend**

- Study Area
- Significant fauna**
- ▶ Australasian Bittern
- ◀ Australasian Shoveler
- ◀ Australian Painted Snipe
- ▶ Baillon's Crake
- ▶ Black Falcon
- ★ Black-faced Cormorant
- + Blue-billed Duck
- ▶ Caspian Tern
- ▶ Common Long-necked Turtle
- Common Sandpiper
- ▶ Diamond Firetail
- ▶ Eastern Great Egret
- ▶ Glossy Ibis
- + Golden Perch
- Grey-crowned Babbler
- ★ Grey-headed Flying-fox
- ◀ Growling Grass Frog
- ★ Hardhead
- ▶ Intermediate Egret
- Latham's Snipe
- ◇ Lewin's Rail
- Little Bittern
- ▽ Little Egret
- ▽ Major Mitchell's Cockatoo
- Murray River Turtle
- ▶ Musk Duck
- Nankeen Night Heron
- Pacific Gull
- ★ Pied Cormorant
- ◆ Royal Spoonbill
- Southern Brown Bandicoot
- ◇ Square-tailed Kite
- Superb Parrot
- Swift Parrot
- ★ Whiskered Tern
- White-throated Needletail
- Wood Sandpiper
- × Yellow-bellied Sheath-tail Bat

**Figure 3**  
 Previously documented significant fauna within 5km of the study area  
*Ecological Assessment at 1221-1249 Centre Road, Oakleigh South*



VBA 2014. Victorian Biodiversity Atlas. Sourced from: 'VBA\_FLORA25' and 'VBA\_FLORA100', March 2014 © The State of Victoria, Department of Environment and Primary Industries. Records prior to 1949 not shown.  
 VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

## Appendix – Site Photos



**Plate 1.** Looking southwest over the permanent water body.



**Plate 2.** Looking south over the permanent water body.



**Plate 3.** Northwest bank of the permanent water body.



**Plate 4.** Southern bank of the permanent water body.



**Plate 5.** Northern (shallowest) semi-permanent water body in the southeast.



**Plate 6.** Northern (shallowest) semi-permanent water body in the southeast.