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Memorandum

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Subject	**Targeted Survey for Growling Grass Frog**	**Project Name**	Lilydale Waste to Energy
Attention	Hendry Young	**Project No.**	IS0803L4
From	Laura Parker		
Date	8 March 2018		
Copies to	**Yarra Valley Water**		

This document is an addendum to the Jacobs (2018) Ecological Assessment – Lilydale Waste to Energy (Jacobs document number IS0803L4-EP-RP-0005) and is to be read in conjunction with that document.

Introduction

The purpose of this addendum is to address the ecological findings from targeted surveys undertaken for the Growling Grass Frog (*Litoria raniformis*) on 11 and 12 December 2017. In the preliminary assessment report, it was reported that there was moderate potential for the Growling Grass Frog to occur, with suitable habitat present within the Waste to Energy (WtE) facility development footprint. With the moderate potential for the species to occur, it was advised to undertake targeted surveys to determine the absence/presence of the species. For the purposes of this assessment the Project area covers the northern portion of the Yarra Valley Water owned land, an area totalling approximately 12 ha, as shown in Figure 4.1.

An additional section capturing the following information will be added after Section 3 of the Jacobs (2018) Ecological Assessment – Lilydale Waste to Energy (Jacobs document number IS0803L4-EP-RP-0005), titled ‘Targeted Surveys for the Growling Grass Frog’.

4. Targeted Surveys for the Growling Grass Frog

4.1 Growling Grass Frog species background

The Growling Grass Frog is a Nationally significant fauna species, protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Victoria’s *Flora and Fauna Guarantee Act 1988* (FFG Act) and the Advisory List of Threatened Vertebrate Fauna in Victoria.

The Growling Grass Frog is a large frog, growing to 86mm in length. The colour can vary from dull olive to bright emerald green. They are most active in spring and summer, during both day and night and are highly mobile, moving up to 1 km in 24 hours (Clemann & Gillespie, 2010). The frog becomes largely inactive over winter, hiding under rocks or logs close to wetlands (Heard et. Al. 2010).

The breeding season is between September to January. Females lay up to 4000 eggs. Tadpoles typically metamorphose after only 2 or 3 months and reach sexual maturity within 4 months of metamorphosis (Heard et. Al. 2010).

The frog inhabits permanent and ephemeral wetlands, slow flowing sections of river, streams, lakes swamps and ponds (Clemann & Gillespie, 2010). The forage both on land and in water while floating

among aquatic vegetation, consuming invertebrates and small vertebrates. While being primarily aquatic species, they spend winter in torpor under rocks or logs near water.

Good quality wetland habitat for this species contains deep permanently or consistently available water (up to 1.5m deep is preferable) that is still or slow moving. The vegetation should comprise of emergent, submergent and floating types. High cover of vegetation as well as rock, logs and patches of bare ground surrounding the wetland offers the greatest chance of ongoing occupancy of a site (Clemann & Gillespie, 2010). Where there are multiple large pools, smaller ponds or damp depressions can aid the dispersal of the frogs.

4.2 Habitat within the Project area

The habitat was assessed at the preliminary stage on 24 November, 2017. Where two Ecologists from Jacobs conducted a four-hour habitat assessment of the Project area. Within this assessment four sites were deemed suitable habitat and are discussed below in Table 4.1.

Habitat suitability has been assessed against the *Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)* (DEWHA, 2009).

The key measures the sites were each assessed under were as follows:

- presence of water bodies, including slow flowing streams and rivers, or off-stream wetlands, which contain water at least periodically
- records of growling grass frogs in the local area/catchment, and
- presence of other frog species.

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Table 4.1 : Habitat descriptions of suitable sites for Growling Grass Frog

Site	Description	Photo
1	Present at this site, was fringing vegetation, with species including Typha (*Typha latifolia*), Juncus species, a Club-sedge (*Bolboschoenus sp*) and Knotweed (*Persicaria sp*). Exotic species present include Toowoomba Canary-grass (*Phalaris aquatica*) and Turnip (*Brassica sp*) which can be seen in Photo 1 as quite abundant around the site. The waterbody was permanent and still (Photo 1), with tadpoles present. At the time of the assessment other frog species were calling (Common froglet and Peron's tree frog).	 **Photo 1 – North middle end of the Project area**

Site	Description	Photo
2	Present at this site, was fringing and floating vegetation (Photo 2), with species including Typha (*Typha latifolia*), Common reed (*Phragmites australis*), Juncus species, a Club-sedge (*Bolboschoenus sp*) and Knotweed (*Persicaria sp*). Exotic species present include Toowoomba Canary-grass (*Phalaris aquatica*) and Turnip (*Brassica sp*). The waterbody was permanent and still (Photo 2), with tadpoles present. At the time of the assessment other frog species were calling (Common froglet and Peron's tree frog).	 **Photo 2 – North west corner of the Project area**
3	Present at this site, was fringing and emergent vegetation. Similar to Site 1 and 2 with the addition of exotic species Prickly Lettuce (*Lactuca serriola*), Dock (*Acetosa sagittata*) and weedy geranium. The waterbody was permanent and still (Photo 3), with tadpoles present. At the time of the assessment other frog species were calling (Common froglet, Striped Marsh Frog and Peron's tree frog).	 **Photo 3 – Man made waterbody, within south section of man made drain**

Site	Description	Photo
4	This site was at the southern end, outside of the Project area. There area was assessed and was considered due to the connectivity that the culvert provides to the area. The vegetation present within this site was dense with Typha, with a cover estimate of greater than 50 %. Water was present at the site, however it was episodic from previous rainfall.	 **Photo 4 Culvert at the south east corner of Waste Treatment Plant**

Each of these sites meets the criteria for suitable habitat for Growling Grass Frogs, therefore targeted surveys were deemed necessary and are discussed in Section 4.4 below.

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4.3 Methodology

The methodology used two techniques: call detection, call playback; and visual encounter surveys to detect the Growling Grass Frog.

Call detection and call playback

- Only useful during the breeding period, and only when conditions are conducive to calling
- Requires the observer to learn to identify the species-specific call, or to record any calls heard for subsequent analysis and to use appropriate equipment (microphones) suitable for different circumstances
- Care should be taken when utilising these techniques in areas of strong or fast running water, as calls can go unheard because of noise pollution, and
- Call playbacks should be conducted every 100 m along the edge of the water body.

Visual Encounter Surveys

- Best carried out between 20:30 and 03:00 hours
- A standard period of 10 minutes should be spent listening for frog calls at the beginning of each survey
- Call playback should be conducted in an attempt to stimulate production of advertisement calls by males
- Sites should be systematically searched for active frogs following general procedures outlined by Crump and Scott (1994), and
- Use spotlights to scan all surfaces of the water body while traversing its length, focusing on inspection of aquatic vegetation (Heard et al. 2006).

4.4 Results

On 11 and 12 December, 2017 two Jacobs Ecologists surveyed the four sites with suitable habitat. No Growling Grass Frogs were heard or observed during the surveys. Common frog species were at Site 1, 2 and 3 on both nights. The frogs mainly occurred along the Nelson's Road Drain at the northern end of the Project area. However, no frog species were heard or observed at Site 4. At the time of the survey, Site 4 did not provide suitable Growling Grass Frog habitat. Additional survey effort (duration) was dependent on the size and condition of the water body.

The results of the survey are detailed in Table 4.2.

The weather conditions were appropriate for detecting Growling Grass Frog on both nights (Table 4.3).

Table 4.2 : Results of targeted Growling Grass Frog survey

Site	Date	Survey duration	Frog species observed or heard
1	11 December 2017	30 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*)

Site	Date	Survey duration	Frog species observed or heard
			Peron's Tree Frog (*Litoria peronii)* Spotted Marsh Frog (*Limnodynastes tasmaniensis*) Whistling Tree Frog (*Litoria verreauxii)*
	12 December 2017	30 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*) Spotted Marsh Frog (*Limnodynastes tasmaniensis*) Striped Marsh Frog (*limnodynastes peronii*)
2	11 December 2017	15 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*) Striped Marsh Frog (*limnodynastes peronii*) Whistling Tree Frog (*Litoria verreauxii)*
	12 December 2017	30 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*) Striped Marsh Frog (*limnodynastes peronii*)
3	11 December 2017	30 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*) Spotted Marsh Frog (*Limnodynastes tasmaniensis*) Striped Marsh Frog (*limnodynastes peronii*)
	12 December 2017	30 minutes	Southern Brown Tree Frog (*Litoria ewingii*) Eastern Common Froglet (*Crinia signifera*) Spotted Marsh Frog (*Limnodynastes tasmaniensis*) Striped Marsh Frog (*limnodynastes peronii*) Peron's Tree Frog (*Litoria peronii)*
4	11 December 2017	15 minutes	No frog species observed or heard
	12 December 2017	15 minutes	No frog species observed or heard

Table 4.3 : Weather conditions during targeted Growling Grass Frog Survey

Site	Date	Time weather taken	Weather
1	11 December 2017	21:15	Temperature 16.1 ° Celsius Wind 17km/hr SSW Humidity 73% No rain since 9/12/2017
	12 December 2017	22:05	Temperature 21.2 ° Celsius Wind 7km/hr S Humidity 67% No rain since 9/12/2017
2	11 December 2017	21:45	Temperature 16.1 ° Celsius

Site	Date	Time weather taken	Weather
			Wind 7km/hr SSW Humidity 73% No rain since 9/12/2017
	12 December 2017	21:35	Temperature 21.2 ° Celsius Wind 7km/hr S Humidity 67% No rain since 9/12/2017
3	11 December 2017	22:08	Temperature 15.3 ° Celsius Wind 7km/hr WSW Humidity 76% No rain since 9/12/2017
	12 December 2017	21:07	Temperature 21.9 ° Celsius Wind 9km/hr S Humidity 64% No rain since 9/12/2017
4	11 December 2017	22:40	Temperature 14.2 ° Celsius Wind 4km/hr W Humidity 82% No rain since 9/12/2017
	12 December 2017	22:47	Temperature 16.1 ° Celsius Wind 2km/hr SSE Humidity 86% No rain since 9/12/2017

We believe the works are unlikely to have a significant impact on the Growling Grass Frog species, however works may have the potential to impact the secondary habitat that is available within the Project area. The impacts on this secondary habitat can be seen in Figure 4.1.

Figure 4.1 Growling Grass Frog Habitat Extent

Lilydale Waste to Energy

plant

Site 1

Site 2

Site 3

Site 4

Olinda Creek

Nelson Road Drain

Quarry Rd

Legend

- Growling Grass Frog Secondary Habitat Corridor (200m as per EPBC Act policy statement 3.14)
- Growling Grass Frog Survey Locations
- Ephemeral Pond
- Scattered Tree
- Manmade Waterbody
- Underground Drainage Pipe
- Project Area
- YVW Owned Land
- Minor Road
- Channel / Drain
- Watercourse Stream

N

IS0803L4

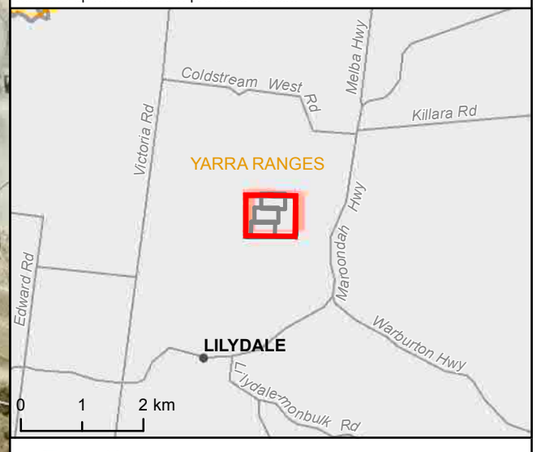
GDA 1994 MGA Zone 55

0 45 90

Metres

DATA SOURCES

© Commonwealth of Australia (Geoscience Australia) 2006 Geodata Topo 250k Series 3; Vicmap Data © State of Victoria 2017; Department of Environment, Land, Water and Planning 23/04/2017



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Date Published: 27 Feb 2018

5. Relevant legislation

An amendment to Table 5.1 nee *Table 4.1 Interpretation of relevant legislation.* The updates are set out below:

Policy/legislation	Description	Project relevance/ actions required
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act has significant implications for natural resource and environmental management in Australia. This Act provides for the listing of threatened species, threatened ecological communities and key threatening processes. It also relates to actions likely to have a significant impact on Matters of National Environmental Significance (MNES). There are nine MNES: • World Heritage Sites • National Heritage Places • Ramsar Wetlands • Nationally threatened species and ecological • communities • Migratory species • Commonwealth marine areas • Nuclear actions • the Great Barrier Reef Marine Park • Water resources from coal seam gas • development or large coal mining development	It is our recommendation that Yarra Valley Water proceed with submitting a referral under the EPBC Act to enable the Federal Government to determine whether the Project would be identified as having or not having a significant impact on the Growling Grass Frog requiring approval under the EPBC Act. The reasoning for this is to take a precautionary approach for the planning and development of the Project. This is a standard approach taken in this circumstance.

6. Conclusion and next steps

The following conclusion is to be read in conjunction with the current conclusion and next steps documented in Jacobs (2018) Ecological Assessment – Lilydale Waste to Energy (Jacobs document number IS0803L4-EP-RP-0005).

Upon further assessment of habitat for the Growling Grass Frog, the habitat was deemed suitable for Growling Grass Frog and surveys were undertaken as specified in the EPBC Act survey guidelines (DEWHA, 2009) to determine the presence of the species. No Growling Grass Frogs were detected during the targeted survey, however there were many other species (not endangered) within the available habitat.

The works are unlikely to have a significant impact on the Growling Grass Frog species, however works may have the potential to impact the secondary habitat that is available within the Project area. The following recommendations are discussed below.

6.2 Recommendation

It is our recommendation that Yarra Valley Water proceed with submitting a referral under the EPBC Act to enable the Federal Government to determine whether the Project would be identified as having or not having a significant impact on the Growling Grass Frog and hence be deemed a Controlled Action, requiring approval under the EPBC Act. The reasoning for this is to take a precautionary approach for the planning and development of the Project.

7. References

Clemann & Gillespie 2010, *National Recovery Plan for the Southern Bell Frog, Litoria raniformis*, Victorian Government Depart of Sustainability and Environment, East Melbourne, Victoria

Heard, G., Scroggie, M. and Clemann, N,. 2010, *Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes*, Arthur Rylah Institute for Environmental Research Technical Report Series No. 208. Department of Sustainability and Environment, Heidelberg, Victoria

DEWHA, 2009, *Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)* – National threatened species and ecological communities EPBC Act policy statement 3.14, Department of Environment, Water, Heritage and Arts, Canberra, ACT