

Hamel Wetlands Frog Inventory

Introduction

A snapshot survey of the Hamel Wetland was conducted on Thursday the 17 September 2009 at dusk, on a rainy evening.

Scope of survey

To survey (mainly through chorus mapping) and gauge the frog assemblages associated with the wetland's condition and location

To use historical records of previous surveys as an indicator of species possibly present.

To raise awareness of the value of frogs in our society.

Due to the timing of the survey not all frog species were recorded as each frog species calls at a particular time of the season dependent on environmental events such as rainfall. Five out of the eleven possible frog species were observed through chorus mapping and one species observed visually. Further surveys at the start and middle of the frog breeding season are recommended to quantify and qualify all the frogs of the area. On-ground activities such as Community Frog Monitoring would in turn guide management planning and empower the community to undertake actions to preserve this unique area and its inhabitants.

Wetland Condition and findings

The wetland is flanked by remnant vegetation in good condition. This extends approximately 50 metres around the



Figure 1 (Left). Quacking Frogs *C. georgiana* have been recorded in the area but not heard during the survey.



Figure 2 (Right). One male Ticking Frog *G. leai* was heard. They deposit their eggs up out of the water on the sedges.

wetland perimeter. Abutting this buffer to the west there is a pine plantation and the surrounding land elsewhere is pastoral farming land.

Biologically, the condition of the wetland body is excellent and supports a diversity of aquatic macroinvertebrates with fewer pest aquatic macroinvertebrate species such as mosquitoes and midges. A variety of water birds were observed and this would be a primary roosting and nesting site for many of these birds. Ibis species were observed in high numbers in the adjacent wetland on farming land. This wetland has been modified and has no buffer and is severely degraded.

The number of frog species and individuals present in the area is expected to be good, with a positive forecast for future generations. This was

qualified by the frog chorus heard during the survey.

Chorus mapping of the wetland revealed The Slender Tree Frog (*Litoria adelaidensis*) at a density of 10 male frogs per 20 x 10m² and Banjo Frog (*Limnodynastes dorsalis*) 3 male frogs per 20 x 10m² at the height of their breeding chorus.

Other frogs heard were the Clicking Frogs (*Crinia glauerti*), the Squelching Frog (*Crinia insignifera*) and Ticking Frog (*Geocrinia leai*), all of these frogs were past their calling prime of the season and outlier¹ individual males were heard only.

Of the frogs present at the wetlands, several are capable of sustaining very high population densities (eg. *Crinia*, spp., *L. adelaidensis*). Others are seasonal visitors to the wetlands (*Heleioporus* sp., *L. dorsalis*); typically these frogs form large breeding congregations, but disperse through the surrounding habitat to forage. Breeding activity is spread through the year, with different species laying eggs in Autumn, mid-Winter and Spring-



Figure 3. The larger Motorbike Frog *L. moorei* was at the start of its breeding season. The larger dominant males were heard calling.



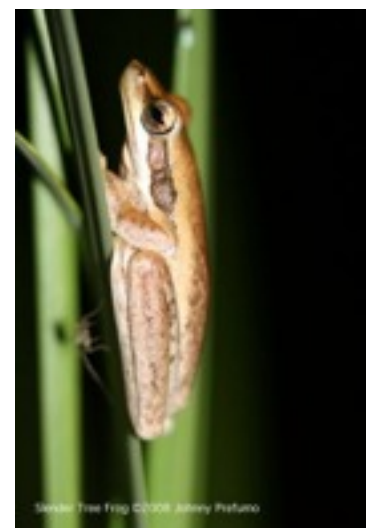
Figure 4. Banjo frogs *L. dorsalis* were heard in good numbers, calling from vegetated areas and beneath logs.



Figure 5-7. Left- Outlier Squelching frogs *C. insignifera* were heard during the survey.

Right- Male Slender Tree frogs *L. adelaidensis* were seen calling from stands of *Baumea articulata*.

Below- The aptly named Crawling frogs *Pseudophryne guentheri* are regularly missed during surveys and/or mistaken for



¹ Subdominant males calling from outside of the main calling congregation

early Summer. Tadpoles are present throughout the year, but at highest densities during Winter and Spring.

Major dispersal events coincide with heavy rainfall events in early autumn and mid- to subdominant living outside of congregation There has been survey of frogs wetlands or any wetlands in the might potentially more additional (Table 1).



males calling and the main calling Summer. no prior systematic in the Hamel area . These sites harbour one or species of frogs



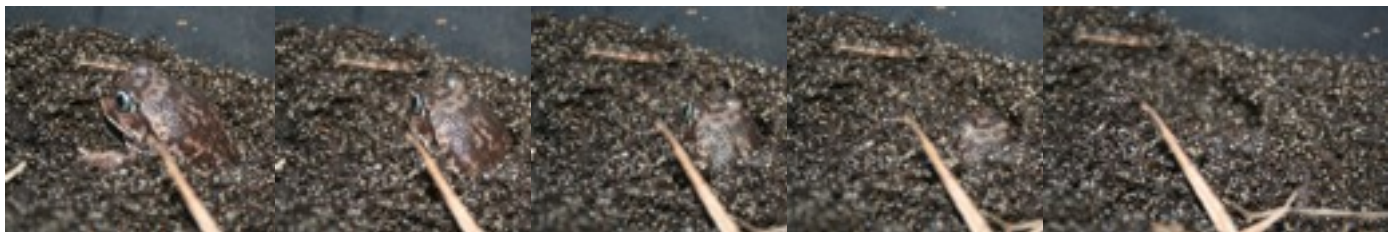
Figure 8-11(Clockwise)

Left-Emergent or metamorph are frogs that emerge from their water life cycle from eggs to tadpoles. This emergent was amongst many individuals that were observed during the survey.

Above- an adult moaning frog is fully adapted to living life independent of water equipped with claws (insert) it lives independently of water and only comes down to the wetland in late Autumn to breed. Believe it or not it is a poor swimmer and will drown in water.

Right- The burrow of a moaning is dug when the wetland is dry and the eggs are laid when the burrow is still dry. Then the tadpoles are flushed into the wetland with the winter rains.

Below- With it's hind legs a Moaning frog disappears in front of your eyes into the soil. They emerge at night when it is safe from hungry eyes and the drying effects of the daytime .



Intrinsic values of the frog fauna

The intrinsic value of the Hamel frog fauna relates to its ecological and social significance.

Ecological significance: Frogs represent a significant part of the total aquatic and littoral biomass. Reproductive wastage is high in all species, with 99% or more of all progeny being consumed either as eggs, tadpoles or metamorphs. Eggs and tadpoles are a major food resource for aquatic invertebrates, turtles and waterbirds, while metamorphs and frogs are consumed by a wider range of birds as well as snakes, lizards and other terrestrial fauna. Tadpoles feed on algae and organic detritus and most likely play a vital role in maintaining aquatic habitat structure and biodiversity.

Social significance: Over the last two decades, frogs have enjoyed a remarkable rise in popularity and social significance. Today, frogs are a powerful symbol of the plight of nature in general, and the health of wetland environments in particular. A loud frog chorus emanating from a nearby wetland is universally regarded as a sign of good environmental management.

Table 1. Recorded and expected frogs at the Hamel Wetlands

No	Genus	Species	Checklist
Ground Frogs			
1	Quacking Frog	<i>Crinia georgiana</i>	R
2	Clicking Froglet	<i>Crinia glauerti</i>	R, O
3	Squelching Froglet	<i>Crinia insignifera</i>	R, O
4	Bleating Froglet	<i>Crinia pseudinsignifera</i>	N
5	Lea's Froglet	<i>Geocrinia leai</i>	R, O
Burrowing Frogs			
6	Moaning Frog	<i>Heleioporus eyrei</i>	R, O
7	Western Spotted Frog	<i>Heleioporus albopunctatus</i>	N
8	Western Marsh Frog	<i>Heleioporus barycragus</i>	N
9	Whooping frog	<i>Heleioporus inornatus</i>	R
10	Sand Frog	<i>Heleioporus psammophilus</i>	R
11	Banjo Frog	<i>Limnodynastes dorsalis</i>	R, O
12	Turtle Frog	<i>Myobatrachus gouldii</i>	N
13	Humming Frog	<i>Neobatrachus pelabtoides</i>	N
14	Gunthers Toadlet	<i>Pseudophryne guentheri</i>	R
Tree Frogs			
15	Slender Treefrog	<i>Litoria adelaidensis</i>	R, O
16	Motorbike Frog	<i>Litoria moorei</i>	R
		Total	16
		Observed	5
		Recorded	11
		Not recorded	5
R-Recorded in previous surveys, O-Observed, N-Not recorded			

Other Recommendations

Development of Management Action Plans based on

- the threats to the fauna of the Hamel Wetlands and other wetlands in the area.
- further Surveys to document the distribution, abundance and reproductive success of the Waroona Wetlands
- Establishment of a Community Monitoring Programme to establish
 - Identify appropriate schedule and location for monitoring activities
 - Develop specific resource kit based on existing Alcoa Frog WATCH materials
 - Provide training for Shire of Waroona staff to supervise monitoring activities
 - Develop interpretative signage for installation at key sites around wetlands
 - Assist with promotion of the programme through local media
 - Provide technical support for interpretation of survey results.