FROGWATCH
ACT AND REGION

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NSW GOVERNMENT | Local Land Services South East

Project report

Findings of frog surveys along Mulloon Creek

Spring 2017

This report was written by

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Project scope

Baseline data is an important tool to measure key conditions (indicators) and is commonly gathered before a project begins, to be used to monitor and evaluate a project's progress. Baseline data provides a historical point of reference to: 1) inform program planning, such as target setting, and 2) monitor and evaluate changes for program implementation and impact assessment.

Frog surveys along Mulloon Creek were undertaken in spring 2017 to establish baseline data on the occurrence and abundance of frog species for the area. High diversity in frog species may indicate the availability of high quality habitat suitable for the particular requirements of each species. Identifying sites with these significant environmental values as well as discovering areas with low frog diversity can assist with future decision-making, priority setting, planning and management of the area.

Material and Methods:

During spring 2017 transects along Mulloon Creek and adjacent areas were monitored for frog occurrence and abundance. Surveys were undertaken Surveys were undertaken by Luke Peel (TMI research Coordinator) and various landholders at 17 established transects. Each transect contained four survey sites, which amounted to 68 survey sites). A full list of transects and locations is attached to this report. Each site was visited once (=68 surveys). During a survey the observer collected the air and water temperature, noted the sky and wind observations and took a recording of the calling frog species. In addition, the observer also created a record of all species heard calling at the site. All survey data was collated in a spread sheet and each recording was verified for species occurrence and abundance by the ACT and Region Frogwatch Coordinator. These procedures follow the ACT Frogwatch's protocol which is described in more detail at our website (http://www.ginninderralandcare.org.au/frogwatch/frogwatch-resources).

Due to a technical issue no audio recording was obtained at Transect 17 (Duralla4) and at one site of transect 14 (Durella1- 14-4). Therefore, the observer's result could not be verified and, as a result, were not included in the analysis. This left 63 surveys fit for further investigation. In addition, any frog call that could not be confidently verified was excluded from the analysis.

Observations on abundance numbers may vary strongly depending on time of survey, air and water temperatures and other factors. As each site was only visited once the collected data on frog abundance was not included in the analysis.

A training event for volunteers was held at the Mulloon Institute and was well attended. Volunteers received a complete Frogwatch Census Kit, including field data sheets, thermometer and Frog Call CD for training.

Findings

Species detected during spring 2018

A total of 7 species were detected during the surveys in November 2018 (Table 1 shows the detection frequency for each species):

- *Crinia signifera,* Common Eastern Froglet
- *Crinia parinsignifera,* Plains Froglet
- *Limnodynastis tasmaniensis,* Spotted Grasfrog
- *Lim. dumerelli,* Eastern Banjofrog
- *Litoria peronii,* Peron's Treefrog
- *Litoria verreauxii,* Whistling Treefrog and
- *Uperoleia laevigata,* Smooth Toadlet.

Table 1: Frog species detected during spring surveys at 63 sites and the number of survey sites each species was detected at.

Species Name	Common Name	Detection Frequency (# of sites)	% of sites detected at
Litoria verreauxii	Whistling Treefrog	63	100
Crinia signifera	Common Eastern Froglet	58	94
Crinia parinsignifera	Plains Froglet	38	62
Litoria peroni	Peron's Treefrog	31	50
Limnodynastes dumerilii	Eastern Banjofrog or Pobblebonk	26	42
Limnodynasties tasmaniensis	Spotted Grassfrog	10	16
Uperoleia laevigata	Smooth Toadlet	7	11
Limnodynasties peronii	Striped Marshfrog	0	0

Litoria verauxii was THE most common species during the surveys and detected at every single site. This species is currently recovering from strong population declines due to the amphibian chytrid fungus disease Chytridiomycosis (Ben Scheele, ANU personal communication). The disease is caused by the chytrid fungus *Batrachochytrium dendrobatidis* and can have catastrophic effects on frog populations as observed globally over the past 30 years.

Limnodynastis dumerelii was detected at a much higher rate than during any FrogCensus activity in the ACT since 2002. Anecdotal evidence suggests that this species has been declining over the past decade in the Capital Region (Murray Evans, ACT Government personal communication).

The strong presence of both these species could indicate the presence of high value habitat suitable for their species-specific habitat preferences. However, additional investigations are recommended to further identify these preferences.

Limnodynastis peronii, which is a generally uncommon but often locally abundant species in the ACT, was not detected at Mulloon Creek. This species is very common in coastal regions of NSW and its presence has previously been identified as positively associated by riparian reeds and large, thick patches of emergent macrophytes around wetland habitats, where it calls, and where it's tadpoles live (Hoefer and Starrs, 2016 and references within). Surveys of frog populations in the wider regions and the identification of wildlife corridors for this species would increase the understanding on its local distribution.

Species detection per site versus per transect

Figure 1 shows the species detection rate for each site, and Figure 2 shows the same results combined for each transect.

The comparison of the two figures shows that while a species might not have been recorded at each of the survey sites, it was detected at one of the other sites within a transect, as in the case for *C.signifera*. A similar result is shown for *Crinia parinsignifera*. This species was found at only 62% of sites but at 94% of transects. As expected, all species had a higher prevalence on the transect level: *Litoria peroni*: 63%, *Limnodynastis dumerelii*: 56%, *Limnodynastis tasmaniensis*: and *Uperoleia laevigata*: 31%.

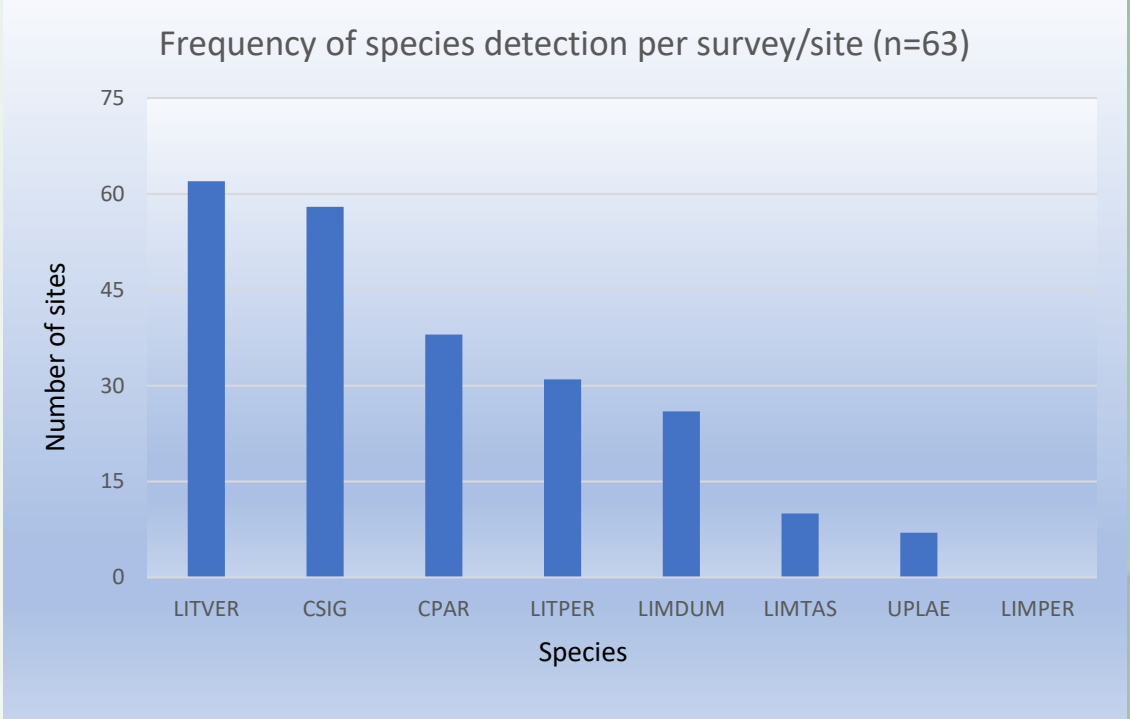

Figure 1: Frog species detected at survey sites in order of detection frequency.

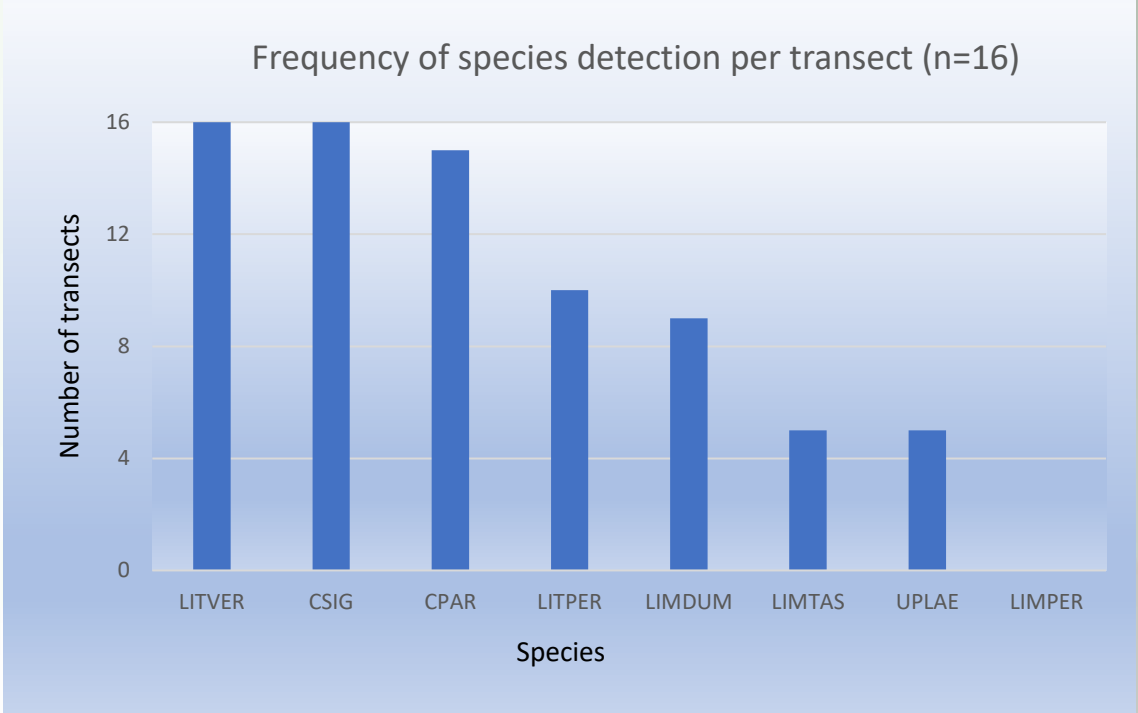

Figure 2: Frog species detected per transect in order of detection frequency.

Species richness at sites (n=63)

The species richness per site describes the total number of species detected at a single site (Figure 3). The average number of species per site/survey was 3.68. The greatest number of species found at any one site during the surveys was 6 and was found at 8 out of the 63 sites:

- 9CA2 Landtasia floodplain paddocks
- 10PA1 Palerang southern boundary fence
- 10PA2 Palerang southern boundary fence
- 10PA3 Palerang southern boundary fence
- 10PA4 Palerang southern boundary fence
- 12PA1 Palerang, S-bend of creek known as Honeymoon bend
- 13PA2 Palerang, upstream of 2nd main creek crossing
- 13PA3 Palerang, upstream of 2nd main creek crossing.

There was no site without frogs and also no site that had all 7 species detected in the area.

Species richness at transects (n=16)

The species richness at transects describes the total number of species detected at each transect. For this, species found at the four sites of a transect were combined for a transect result (Figure 4). As expected, the combined species richness of a transect was equal or greater than the species richness of any single site of a transect. The average number of species per transect was 5.

Only at transect #10PA (Palerang) all 7 species were detected.

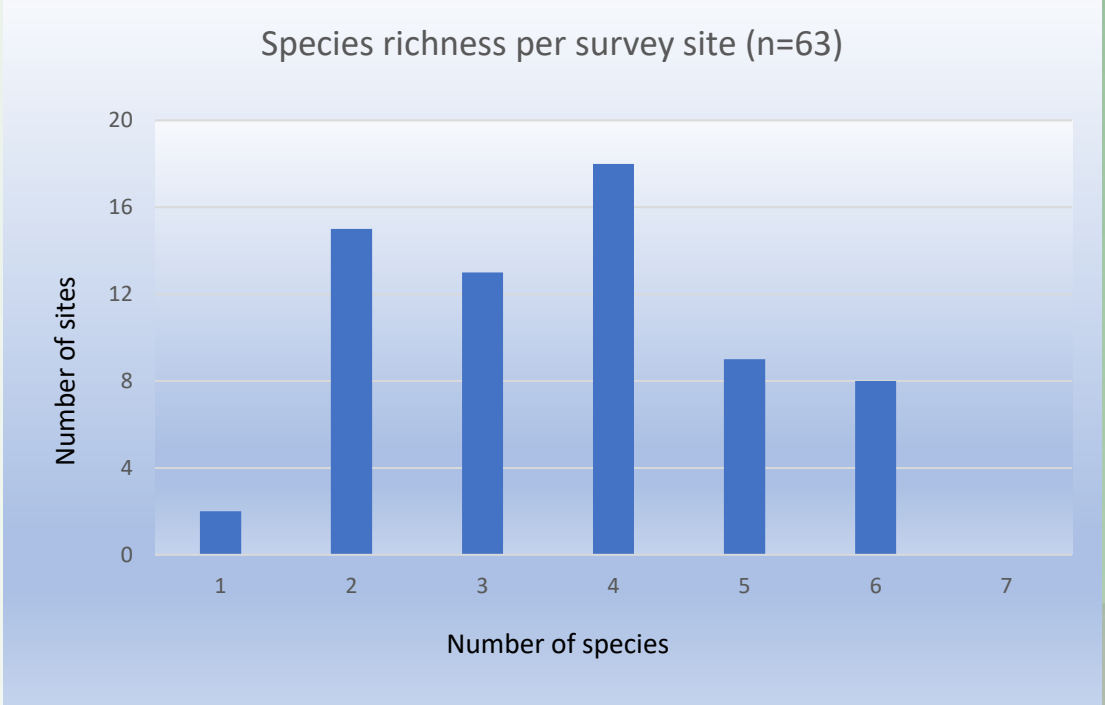

Figure 3: Species richness distribution at sites.

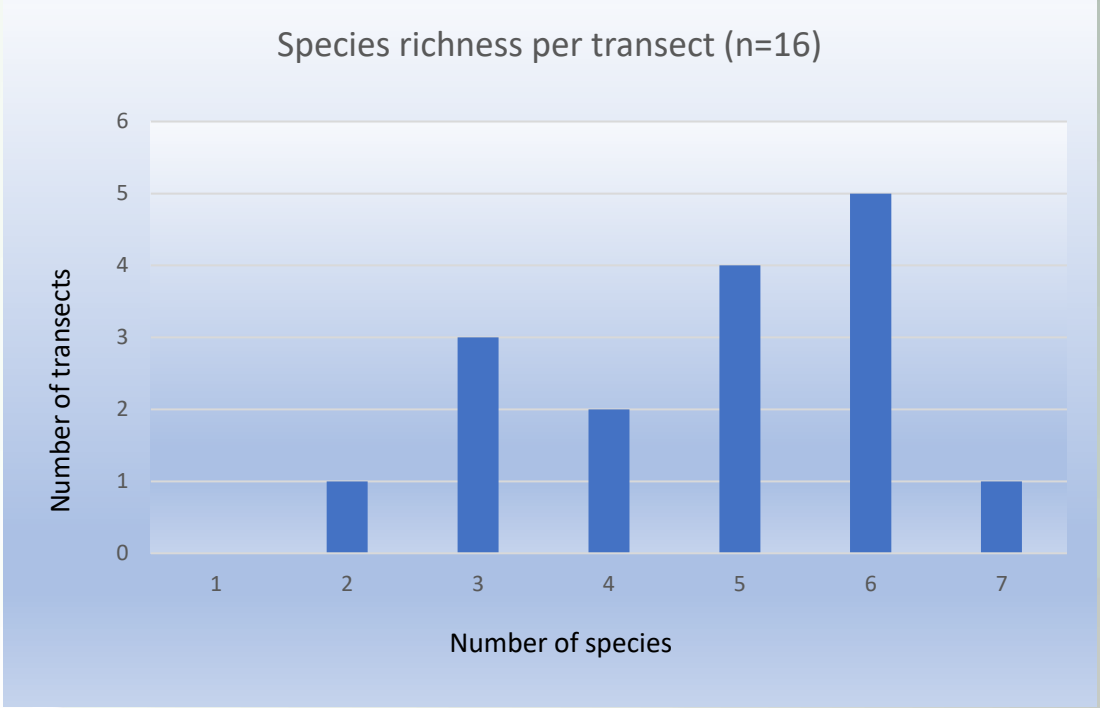

Figure 4: Species richness distribution at transects.