



Kedron Brook Frog Census 2007 - 2008

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KBCB-WPSQ



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1. Aim: To gain a better understanding of the diversity and distribution of frog species and provide volunteer opportunities to connect community members within the Kedron Brook Catchment.

- 1.1 Increase community awareness of, and enhance their capacity to identify, local frog species.
- 1.2 Record frog calls to identify the species present.
- 1.3 Consolidate previous records of frog populations.
- 1.4 Document the current distribution.
- 1.5 Impart information on the distribution of Kedron Brooks frog species to interested parties.

2. Methods:

- 2.1 An A0 sized poster and an A5 flyer were designed to advertise the frog survey of the Kedron Brook catchment. Several environmental events were attended to promote the survey. A workshop given by Adrian Caneris on frogs was followed by a field survey introducing volunteers to the natural history and identification of many local species. Personal safety and conservation issues were also addressed.
- 2.2 A digital recorder (JNC SSF-1100) and microphone (Roland Edirol CS-15) were bought from a donation from Dept of Emergency Services Green Team at Kedron and a Brisbane City Council Grant. These were used to record night-time sounds. Recordings were analysed using a sound program (Sony Acid) which creates a visual pattern from the sounds recorded. The frog species were identified from the visual patterns, when available.
- 2.3 The Brisbane City Council Fauna Database, Queensland Frog Society and a report by S. Melville (2001) were reviewed for relevant information. Pre-2007 photographs with recorded dates and known locations have also been utilized.
- 2.4 Community Surveys took place between late October 2007 and late March 2008. Sites were visited during suitable weather conditions and observations of frogs and/or recording were made. Field observations from experienced observers were also recorded. Some observations from geographically close locations have been grouped into one site e.g. Site 9 the bikeway area between Brookside and South Pine Road; however, individual locations of the observations have been documented. The datum used for locations in this survey is AGD66.
- 2.5 Results of the 2007-2008 survey were presented at the Kedron Brook Catchment Branch WPSQ AGM on the 17.6.08. They will be made available for posting on the Kedron Brook website. The

raw data was sent to the Brisbane City Council for inclusion in their fauna database, to the Queensland Frog Society and the Wildlife Preservation Society of Queensland. A copy of this report was sent to the above organizations, Marchant Ward Office, Battery World Enoggera and to the survey participants.

3. Results:

- 3.1** Of the fifteen people who attended the October Frog workshop, four have been on further surveys. A further three volunteers joined the team after the workshop bringing the total to seven keen members.
- 3.2** Frog calls were recorded at eight sites- Minnie St., Canvey St. Wetlands, Lansvale St., Grinstead Pk., Melrose Pk., Cressey St. Wetlands, Vernon St., and Nudgee Waterhole. Frogs were quite easy to identify from their visual call patterns using the sound software. However the recorder was not deemed easy to use. Its recording distance was not as good as the ear and battery usage was high.
- 3.3** As the original site numbers are numbered according to the order in which they were visited and the Grid Referencing System of the BCC Fauna database was not known it was decided not to integrate old sites with new sites.

A report to the Wildlife Preservation Society of Queensland by S. Melville (2001) cites some frog species results including a 1994 survey of Grinstead Park by the Queensland Frog Society (Table 2a) and species reported by Habitat Brisbane Bushcare Groups observed in bush-care sites and Melville's observations of fauna during the habitat assessment of Kedron Brook (Table 2b). The information given is not in a suitable format to be included in the BCC Fauna Database.

The Queensland Frog Society records were fragmented, possibly with individuals holding separate survey records therefore no specific records were acquired.

Identification of frogs from photos was included in the Kedron Brook data base (on CD).

Only results from the current survey are presented in Figure 1 of this report.

- 3.4** Frogs were heard or observed at fifteen different locations between January 2007 and March 2008 (Figure 1) with a total of seven native species and one introduced species being identified (Table 1).

Eleven sites were surveyed only once. Grinstead Park was surveyed four times; Canvey Sreet Wetlands, Cressey Street Wetlands and Nudgee Waterhole were surveyed twice.

The most diverse area for native species was Minnie St. at Upper Kedron having the Beeping Froglet, the Ornate Burrowingfrog, the Eastern Sedgefrog and the Striped Marshfrog. Grinstead Park at Alderley also had 4 species: the Tusked Frog, the Striped Marshfrog, the Green Treefrog and the Cane Toad (Table 1).

The most widely distributed of the native species were the Eastern Sedgefrog (*Litoria fallax*) and the Striped Marshfrog (*Limnodynastes peronii*) which were both found at 7 sites. The Cane Toad (*Bufo marinus*) was found at 8 of the 15 sites surveyed.

The Tusked Frog (*Adelotus brevis*), listed as 'Near Threatened' by the IUCN, has been identified from 4 sites in our catchment – at Brook Park, Lansvale Street, Grinstead Park and Cressey Street Wetlands including the border of Benelong Park.

Two species were found at only one site: the Ornate Burrowing-frog (*Opisthodon ornatus*) and the Beeping Froglet (*Crinia parinsignifera*) at Minnie St Upper Kedron.

Frogs that have been previously reported from the Kedron Brook catchment but were absent from this survey include the Green-striped Frog (*Cyclorana alboguttata*), the Spotted Marshfrog (*Limnodynastes tasmaniensis*), the Broad-palmed Rocketfrog (*Litoria latopalmata*), the Stony-creek Frog (*Litoria wilcoxii*), the Striped Rocketfrog (*Litoria nasuta*), the Great Barred-frog (*Mixophyes fasciolatus*) and the Eastern Gungan (*Uperoleia laevigata*).

3.5 See 2.5

4. Discussion:

4.1 There are many people in the community who are passionate about Australian native frogs, many even recognizing some frog calls. However people seem hesitant to collect and forward their observations. Possible reasons for this may include a lack of confidence in their skills, personal safety fears about frogging at night or dislike of the exposure to 'uncomfortable' weather conditions.

Reports were received of many frogs calling on several occasions in the upper and lower catchments after the rain events but often the frogs stop calling shortly after the rain event. Local contacts are important in order to know when and where the frogs are calling especially during such adverse conditions. It was also found that if people could hear frogs from their home/back porch they were more likely to report it.

Due to this past year's combination of rainfall being infrequent, relatively light and interspersed with colder snaps of weather, there were few good opportunities for surveying.

4.2 Many frogs can be identified by listening to the recording. Stewart's (1998) CD 'Australian Frog Call Subtropical East' is an audio and visual tool that can be used to identify frog call. The visual patterns of the sounds that different frogs make are quite distinctive when displayed by the sound program making it easy to identify the presence of different species. A higher density of frogs calling may prove more challenging.

Some volunteers found the digital recorder difficult to use mainly due to its small size. It also used a lot of batteries with the microphone also requiring batteries. Some volunteers may find it easier to use a micro-tape style recording device.

- 4.3** Historical data was valuable in that it gave an indication of where and what to look for. However as the reporting format is not consistent between reports it was of limited value. The records from Melville (2001) was a 'hear say' type of data (Tables 2a & b) and followed a different format to the BCC fauna database, and was not suitable to integrate with it.

These difficulties highlight the need to report in a consistent manner, including the date, location, the observers name and contact details.

The original site numbering system of the BCC Fauna Database was not used as they were numbered chronologically; and for this study a directional site numbering system (i.e. numbering in an easterly direction) was used. Hence new site numbers for this survey are not related in any way to the historic site numbers.

The local Brisbane street directory (eg. UBD 2002) was found to be a convenient tool to define locations, surveyers noted the easting and northing found on the side of the page, hence the use of the AGD 66 datum for this survey.

- 4.4** The chance of a species being found is often a function of the effort put into looking for it. Detection of frog species requires considerable effort as they need specific environmental conditions and often have cryptic habits. For example the Striped Marshfrog was heard on all four surveys of Grinstead Park however the Green Treefrog was only observed on two of these occasions. Therefore the absence of a species in a particular place should not be assumed, unless sufficient effort has been made to find it.

Minnie Street in Upper Kedron was the only site to record Beeping Froglet and the Ornate Burrowingfrog during this survey. This is an area subject to immense pressure from a new housing development and as the land is modified so too will the current populations of frog species. Canvey Street wetlands is in the same vicinity and has been constructed to improve water quality but has recorded different species, the Eastern Sedgefrog and a large population of toads. Minnie Street and Canvey Street wetland were surveyed on the same night therefore it is not known if this wetlands will offer a suitable refuge for the other close by species as their original habitat disappears.

The Striped Marshfrog is Brisbane's most common, widespread native frog sometimes calling in large numbers when conditions are suitable. Compared to other native frogs, they are an opportunistic species and are often the first colonizers of the backyard frog pond. Numbers at

some sites where they had previously been observed seem to be declining though (D. Dolby pers. obs.).

The Eastern Sedgefrog is also considered a common native frog, however it was absent from some of the sites where it had previously been recorded e.g. Grinstead Park. Although both these species were both found at seven sites they were only recorded co-existing at Minnie Street.

The conservation status of the Tusked Frog is Near Threatened (IUCN Red List); they are thought to be disappearing from large areas of their usual habitat (Gillespie G.R. & Hines H.B. 1999) in the upper catchments of waterways. It has also been suggested that these frogs are an indicator of good water quality so its presence at four of the sites may indicate that high levels of biodiversity occur in these aquatic habitats.

The Ornate Burrowing-frog has been noted at Grinstead Park in previous years. Various factors may have contributed to its absence this year including lack of heavy soaking rains and the siltation of some sandy areas in Kedron Brook that normally occur in the vicinity of the park.

The Stony-creek Frog has been observed in the catchment in previous years, one at the Ferny Grove High School (pers.com M. Lowson c. 2000), and another at small tributary entering the Brook near Everton Park's Harvey Norman Complex (pers.com H. Moriarty). These have not been included in the database. A dead Stony-creek Frog was photographed a few weeks after this survey concluded at the Dawson Parade Fish Snapshot site at Arana Hills (pers. com R. Standish-White 2008).

Although the Cane Toad was only recorded from half the survey sites, they have been recorded from the first site at Bellbird Grove to the second lowest site at Nudgee Waterholes – almost the entire catchment. The Cane Toad being salt tolerant is likely to exist in the entire catchment. The number of sites where Cane Toads are present is likely to be higher than this survey suggests because of the nature of some of the data (i.e. casual reports). However some sites may not offer the Cane Toad suitable habitat in which to complete its life cycle, for example Brook Park and Kirralie Walkway.

There are some species of cryptic frogs that may not have been detected in this survey even if present, for example the Copper-backed Brood Frog (*Pseudophryne raveni*) which is known to live in the neighbouring catchment of Downfall Creek. As similar habitat occurs in the Sparkes Hill and the Grange Forest Park areas this frog may be present in the gullies that drain these stony hills.

Post study : Calling *Pseudophryne raveni* have been located at the Lomandra picnic area in Brisbane Forest Park (4 91 510 easting, 69 70 050 northing UBD 2004). Graceful Treefrogs have been note at Grinstead Park and Wahminda Waterhole during early 2009.

4.5 All of the organizations that receive this report have a stake in conserving the local native fauna, some may have ongoing records or studies or may arouse interest in initiating further studies. Hopefully by distributing the data to numerous organizations, more people can utilise the information.

The use of a catchment map would have improved data interpretation by the members at the AGM making it clearer on what was found where, however interest and feed-back was positive. As the initial information about the survey posted on the website resulted in a fair amount of reaction including interest, advice, sightings etc., it is anticipated that there will be substantial feed-back when the results are posted on the web-site.

The responses received from business were also positive as this project has also attracted additional support by way of a donation of torches and batteries to the value of \$ 260.00 from Battery World.

5. Recommendations:

5.1 Designate a coordinator to:

- Maintain contact, momentum and enthusiasm among the existing volunteers.
- Provide the direction required to continue more extensive surveys of Kedron Brook.
- Increase community participation by focusing on the local community (possibly through schools and other community centers).
- Raise the awareness of the calls of local species to produce a much greater knowledge of frog distribution in Kedron Brook.
- Form new contacts close to frog habitats to enable a timely response to breeding events and in targeting active/important areas.
- And to ensure that data is collected in a suitable format to be included into the BCC fauna database.
- Facilitate the collection and interpretation of environmental and habitat data from frog breeding habitats.

5.2 Young people seem to be more comfortable using the recording equipment therefore targeting local school communities and youth organizations (e.g. school fetes, school news letter, PCYC, Scouts etc) may increase the use of recording equipment to facilitate identification of species. Many children are also very interested in frogs. Frogs were integrated into the school curriculum at the Patricks Road State School at Arana Hills following the Yr. 5's entry into the 2008 GOA Billboard 'Year of the Frog' competition.

- 5.3** Considering the effort involved, value gained and integration difficulties of the historical data it would be more beneficial to concentrate resources into further surveys of Kedron Brook and definition of habitat parameters.
- 5.4** Gaining involvement from Bushcare Groups is important in order to gauge the effects of current open space management practices, and other pressures on frog populations, as many of these areas provide breeding sites and refuges for frogs.

Further studies into the environment surrounding important breeding sites and refuges for the populations of frogs that reproduce in the area should be carried out. Gaining a better understanding of the relationship between different habitat parameters and different frog species will lead to good management practices of these areas to help secure the suburban future for our native frogs.

- 5.5** The use of standardized data sheets to allow for consistent reporting into the BCC Fauna Database is essential to build a more accurate picture of the temporal and spatial distribution of Kedron Brook's frogs enabling more informed decisions to be made.

Ensuring that the public and corporate sectors can access the survey results to raise awareness and create interest in providing support for wildlife and their habitats.

Reference.

S. Melville (2001) An Assessment of the Fauna Habitat along Kedron Brook. Report to Wildlife Preservation Society of Queensland Brisbane.

UBD (2002) Brisbane Refidex 46 ed. Universal Press, Brisbane.

D. Stewart (1998) Australian Frog Calls Subtropical East. Nature Sound, Mullumbimby.

G.R. Gillespie and H.B. Hines (1999) Status of temperate riverine frogs in south-eastern Australia. In Declines and Disappearances of Australian Frogs, ed. A. Campbell. Environment Australia, Canberra pp. 109-130.

IUCN Red List. http://en.wikipedia.org/wiki/Adelotus_brevis

Acknowledgements.

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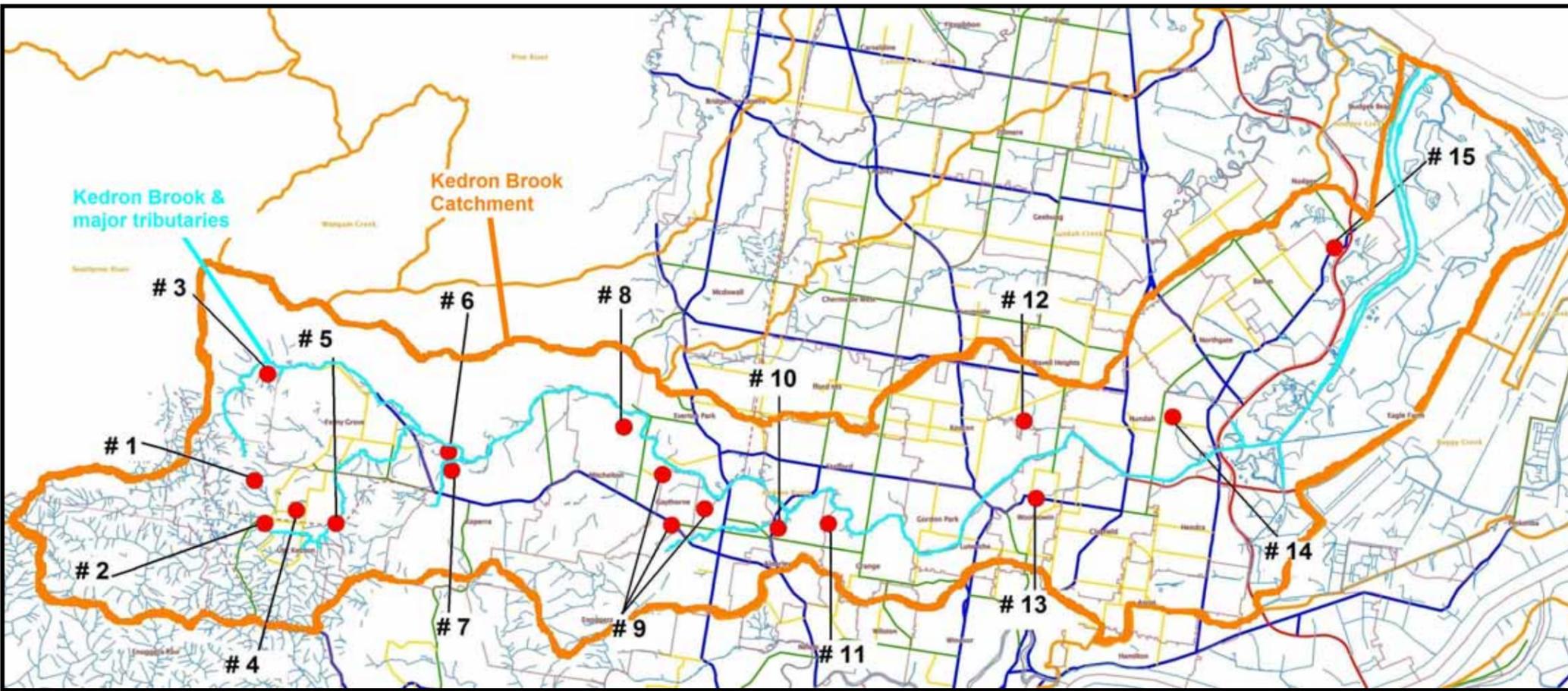


Figure 1: Frog Survey Sites in the Kedron Brook Frog Census (2007/08)

Table 1: Site Locations and Species Recorded at Each Site

Site #	Site Name	Species Recorded
1	Thomas Place, Upper Kedron	[Purple]
2	Minnie St, Upper Kedron.	[Orange], [Cyan], [Blue], [Pink]
3	Wahminda Waterhole, Ferny Grove.	[Cyan]
4	Canvey St Wetlands, Upper Kedron.	[Cyan]
5	Kirralee Cr. Walkway, Upper Kedron.	[Blue]
6	Brook Pk, Ferny Hills	[Purple], [Blue]
7	Fairway Outlook Vegetation Reserve, Arana Hills	[Blue]
8	Lansvale St, Mitchelton	[Purple], [Blue]
9	Brookside, Everton Pk	[Purple], [Cyan], [Yellow]
10	Grinstead Park, Alderley.	[Purple], [Blue], [Yellow]
11	Grange Forest Park Dam, The Grange	[Blue]
12	Cressey St. Wetlands, Kedron.	[Purple], [Cyan]
13	Melrose Place, Woolloowin.	[Purple]
14	Vernon St, Nundah	[Purple], [Cyan], [Yellow]
15	Nudgee Waterhole's Reserve, Nudgee	[Cyan]

Legend

Species	Common Name	Code
<i>Adelotus brevis</i>	Tusked Frog	[Purple]
<i>Crinia parinsignifera</i>	Beeping Froglet	[Orange]
<i>Limnodynastes ornatus</i>	Ornate Burrowingfrog	[Pink]
<i>Limnodynastes peronii</i>	Striped Marshfrog	[Blue]
<i>Litoria caerulea</i>	Green Treefrog	[Yellow]
<i>Litoria fallax</i>	Eastern Sedgefrog	[Cyan]
<i>Litoria gracilentata</i>	Graceful Treefrog	[Purple]
<i>Bufo marinus</i>	Cane Toad	[Black]

Survey Results from Dr. S. Melville 2001 Report

Table 2a. Amphibian Species recorded by Bushcare Groups along Kedron Brook.

* Observed by Melville during Habitat assesment.

Bushcare Group					
Common Name	Wahminda Pk.	Hillbrook	Grinstead Pk.	Colac St.	Melrose Pl.
Common Green Tree-frog	1	1	1		
Eastern Sedge-frog			1		
Graceful Tree-frog			1		
Bleating Tree-frog			1		
Marsh-frogs	1	1*			1
Ornate Burrowing-frog			1		
Scarlet-sided Pobblebonk				1	
Striped Marsh-frog			1		
Tusked Frog			1		1*
Cane Toad	1	1	1	1	1

Table 2b. Frog Species and Densities at Grinstead Park During Summer 1998

(Surveyed by The Queensland Frog Society)

Common Name	Grassy Soak	Drain
Ornate Burrowing-frog	10	100
Common Green Treefrog	10	10
Graceful Tree-frog	15	200
Eastern Sedge-frog		3000
Bleating Tree-frog	5 - 6	40
Striped Marsh-frog	5 - 6	500
Tusked Frog		20
Cane Toad		5 - 6