



A little about me

- Bachelor of Animal Science (Honours) CSU Wagga Wagga
- PhD Environmental Science CSU Albury Wodonga
- Research Assistant with CSU
- Lachlan and Murrumbidgee rivers



How do you survey frogs?

- Observation-Spotlighting at night
- Call surveys
- Sweeps during the day-Tadpoles
- Vegetation surveys
- Water quality
- Hydrology

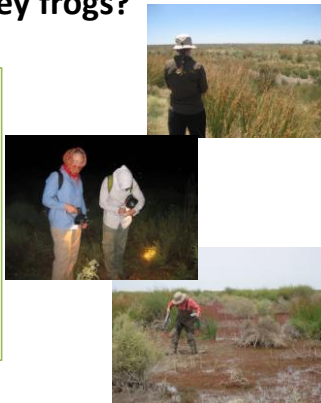
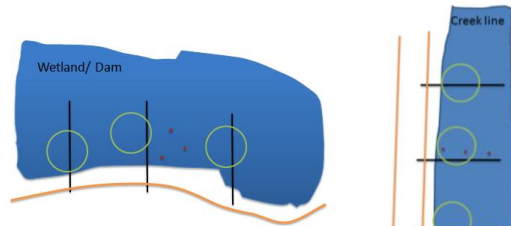


Diagram of surveys



Black Lines = Vegetation Transects
 Orange line = Prospective Spotlight transect
 Red Dots = Water Quality Measurements
 Green Line = Tadpole sweep area

Frogs in the Lachlan

Perons tree frog



Desert tree frog



Green tree frog



Tree frogs

Southern bell frog



Photo credit: Jo Ocock

Booroolong frog



Frogs in the Lachlan

Terrestrial frogs & froglets

Spotted marsh frog



Barking marsh frog



Eastern sign-bearing froglet



Eastern common froglet



Sloanes froglet



Frogs in the Lachlan

Burrowing frogs

Giant banjo frog



Eastern banjo frog



Photo credit: Adrian Clements



Photo credit: Jo Ocock

Crucifix toad



Sudells frog

Booroolong frog



Booroolong frog
Photo by Pavel German

- Listed as endangered under NSW Threatened Species Conservation Act 1999
- Listed as endangered under the Environment Protections and Biodiversity Conservation Act 1999 (EPBC) (National)

- Medium size tree frog
- 40mm Males
- 55mm Females
- Historically recorded in Central Tablelands, but now rare

Breeding

- Seasonal breeders- Spring early summer
- Eggs laid in submerged rock crevices
- Tadpoles develop in slow flowing connected or isolated pools

Department of Sustainability, Environment, Water, Population and Communities (2013). *Litoria booroolongensis* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: <http://www.environment.gov.au/epbc/> Accessed Tue, 5 Mar 2013 14:05:08 +1100.

Southern Bell Frog



Photo credit: Jo Ocock

-Listed as endangered in NSW Threatened Species Conservation act 1999
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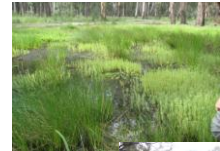
-Largest frog species in Australia
 -55-65mm Males
 -60-104mm Females
 -Historically seen as high as Bathurst

Breeding
 -Females believed to start reproducing 2-3 years
 -Between November and March
 -Usually follows local flooding/ rise in water levels
 -Vegetation important
 -Tadpoles can take up to 12 months to complete metamorphosis

Department of Sustainability, Environment, Water, Population and Communities (2013). *Litoria raniformis* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: <http://www.environment.gov.au/epbc>. Accessed Tue, 5 Mar 2013 14:06:06+1100

Environmental factors

- **Vegetation**
 - Aquatic
 - Semi-terrestrial
 - Fringing
 - Riparian
- **Provides**
 - Shelter
 - Food



High percentage aquatic vegetation



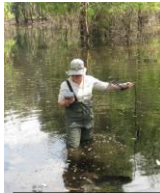
Inundated terrestrial



Low aquatic and fringing vegetation

Environmental factors

- **Water quality**
 - Good dissolved oxygen is the key!
 - Anything below 4mg/L considered a low DO event
 - Extremes of water quality measurements (salinity, turbidity...etc) are bad



Taking water quality



Limnodynastes Tadpole



Dead Carp

Environmental factors

- **Other aquatic organisms**
 - Predators
 - Gambusia holbrooki (Plague minnow)
 - Carp



Limnodynastes tadpole

Having no fish provides the most ideal frog breeding habitat

How to promote frogs in your dam

- If possible fence off from livestock
- Consider environmental factors
 - Vegetation
 - Water Quality
 - Predators
- Terrestrial shelter- woody debris, rocks, surrounding vegetation



Perons Tree Frog metamorph



How to promote frogs in your creek

- Natural flow
- Shelter- Rocks and vegetation
- Exotic Willow species can use large amounts of water
 - If possible it is good to replant with native species (Eg. River Red Gums)

<http://www.csiro.au/Portals/Multimedia/CSIROpod/Saving-the-water-from-the-willow.aspx>



Booberoi Creek



Lachlan River - Geramy

Frog benefits

- Important food chain link
- Tadpoles natural nutrient filter and can help control algae
- Eat insects
- **Enjoyment- Frogs are cool!**



Photo credit: Vanessa Cain



Perons tree frog in my families dam

Frog Facts!

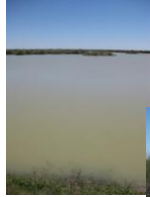
- Frogs can live from a few years to up to 30 years in captivity
- Some frogs will use burrows in the ground to amplify their call
- **Australia's striped rocket frog** can jump 55 times its body length
- **Darwin's frogs** breed their offspring in their vocal pouch (similar but different to the extinct gastric brooding frog)



Eastern banjo frog

Importance of agriculture in freshwater ecology

- Part of the water body mosaic
- Provide refuge during drought
- Southern Bell Frogs use rice farms and irrigation canals



Cuba dam and downstream Merrowie Creek- Lower Lachlan



Questions



Spotted marsh frog



Broad-palmed frog



Perons Tree frog



Giant Banjo frog

Thank you