Frog Calls for the Adelaide Plains
or
Frogs 101 for Beginners and Advanced

By Peter Matejcic

S. A. Herpetology Group

9th June 2015

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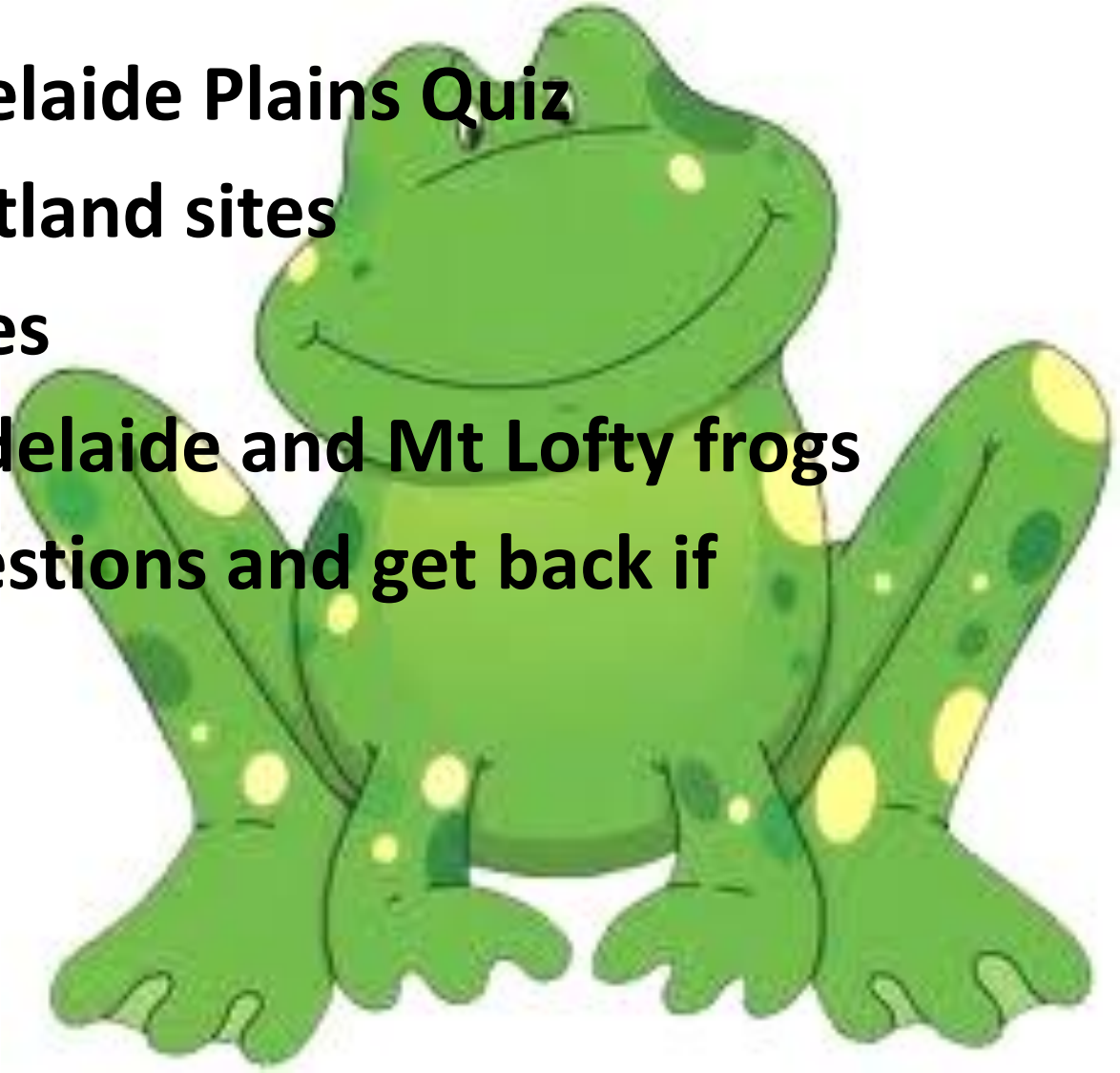
- Background
- Story telling
- Frogs of the Adelaide Plains Quiz
- Listening at wetland sites
- Field Experiences
- Frog Calls for Adelaide and Mt Lofty frogs
- Answer any questions and get back if necessary



Australian Government

Department of the Environment, Water, Heritage and the Arts

Survey guidelines for Australia's threatened frogs

Guidelines for detecting frogs listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*

Approved NSW Threat Abatement Plan

Predation by *Gambusia holbrooki*

- The Plague Minnow

Keelback snakes can not only eat native frogs (like this one), but also cane toads (Internet photo by Greg Brown).

Predation of two common native frog species (*Litoria ewingi* and *Crinia signifera*) by freshwater invertebrates

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Abstract

The primary aim of this study was to identify aquatic invertebrate predators of amphibian eggs and tadpoles in an area of South Australia. The presence and abundance of aquatic invertebrates was monitored at four field sites for a period of 5–6 months; this revealed notonectids, freshwater crayfish and odonates to be amongst the most common invertebrate predator types. The ability of these predators to consume eggs and tadpoles of the native Australian frogs *Litoria ewingi* and *Crinia signifera* was then investigated. Freshwater crayfish (*Cherax destructor*) were the most prolific consumers of frog eggs and tadpoles. The notonectid *Enithares woodwardi* significantly impacted tadpole survivorship for both species while *Anisops* sp. was less successful at capturing and consuming these tadpoles. Caddisfly nymphs (*Lectrides varians* and *Leptorussa darlingtoni*) reduced egg survivorship but not to the same extent as *C. destructor*. Unlike some predators, which prey upon particular life stages, freshwater crayfish are large, polytrophic omnivores that can act as important predators of both anuran eggs and tadpoles. Given that predation is a key source of mortality in juveniles, identification of likely common predators is useful for understanding the regulation of amphibian populations.

Potential Impacts of Introduced Fish and Fish Translocations on Australian Amphibians

Graeme Gillespie[1] and Jean-Marc Hero[2]

ABSTRACT

This review examines the potential impact of introduced fish on amphibians, with particular emphasis on Australian freshwater systems. Firstly, the ecological relationships between fish predators and their amphibian prey are examined, and how they can be altered when non-native fish are introduced into aquatic systems. The current knowledge and research on the impacts of introduced fish on amphibians both overseas and within Australia is then reviewed. Evidence in the literature strongly suggests that introduction of exotic fish or translocation of native species could have enormous impacts on the amphibian assemblages of Australian freshwater systems.

Introduced fish have been implicated in the decline of several anuran species, though few cases have been subject to thorough research. Many Australian amphibian assemblages, including several threatened species, are potentially threatened by a variety of introduced fish species. Future research priorities and guidelines for examining the impact of introduced fish on Australian amphibians are outlined. Key management objectives for conservation agencies are identified.

INTRODUCTION

The reported declines of many amphibian populations both in Australia and around the world are now recognised as a very real phenomenon. These declines pose a serious threat to global amphibian diversity and may result from recent global environmental change associated with human activities. The cause(s) of many species declines, particularly in apparently pristine tropical forests of Central America and Australia, remain obscure (but see Lips 1998). However, in many cases one or other anthropogenic impacts, commonly identified as key threatening processes in the decline or extinction of other vertebrates (Moffe and Carroll 1994;

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Background

- SAHG had a FATS group in the early 1990's
- Frog weekends and after sunset gatherings.
- Frog Census publications & CD of SA
- While frogs have been in the background, but we can learn more.
- Field Experiences (Black Hill CP in Jan.2011)
- Enquiries regarding photos, locations & calls.
- Misunderstandings about frogs.

Some General Information

- Frogs are classified as amphibians.
- Amphibians are ectothermic ('cold-blooded') animals that typically lay soft eggs in water or require high humidity.
- All frogs found in the Adelaide area are carnivores.

- but in general they will eat anything living that fits in their mouth. Smaller species live on small insects like flies and other invertebrates, while larger species eat large insects, small lizards and other frogs.

Frogs of the Adelaide Plains (SA=28)

- **MYOBATRACHIDAE – SOUTHERN FROGS** **(**ground frogs**)**

5 /18 SA species

- Common Froglet (***Crinia signifera***)
- Eastern Banjo Frog (***Limnodynastes dumerilii***)
- Spotted Grass Frog (***Limnodynastes tasmaniensis***)
- Brown Toadlet (***Pseudophryne bibronii*****)**
- Painted or Burrowing Frog (***Neobatrachus pictus***)

HYLIDAE – TREE FROGS

3 /9 SA species within Adelaide Mt Lofty Region

- Brown Tree Frog (*Litoria ewingii*) **SA: R**
- Peron's Tree Frog (*Litoria peronii*)
- Southern Bell Frog (*Litoria raniformis*) **AU:VU SA:V**

HYLIDAE – TREE FROGS

6 /9 SA species outside of Adelaide Mt Lofty region

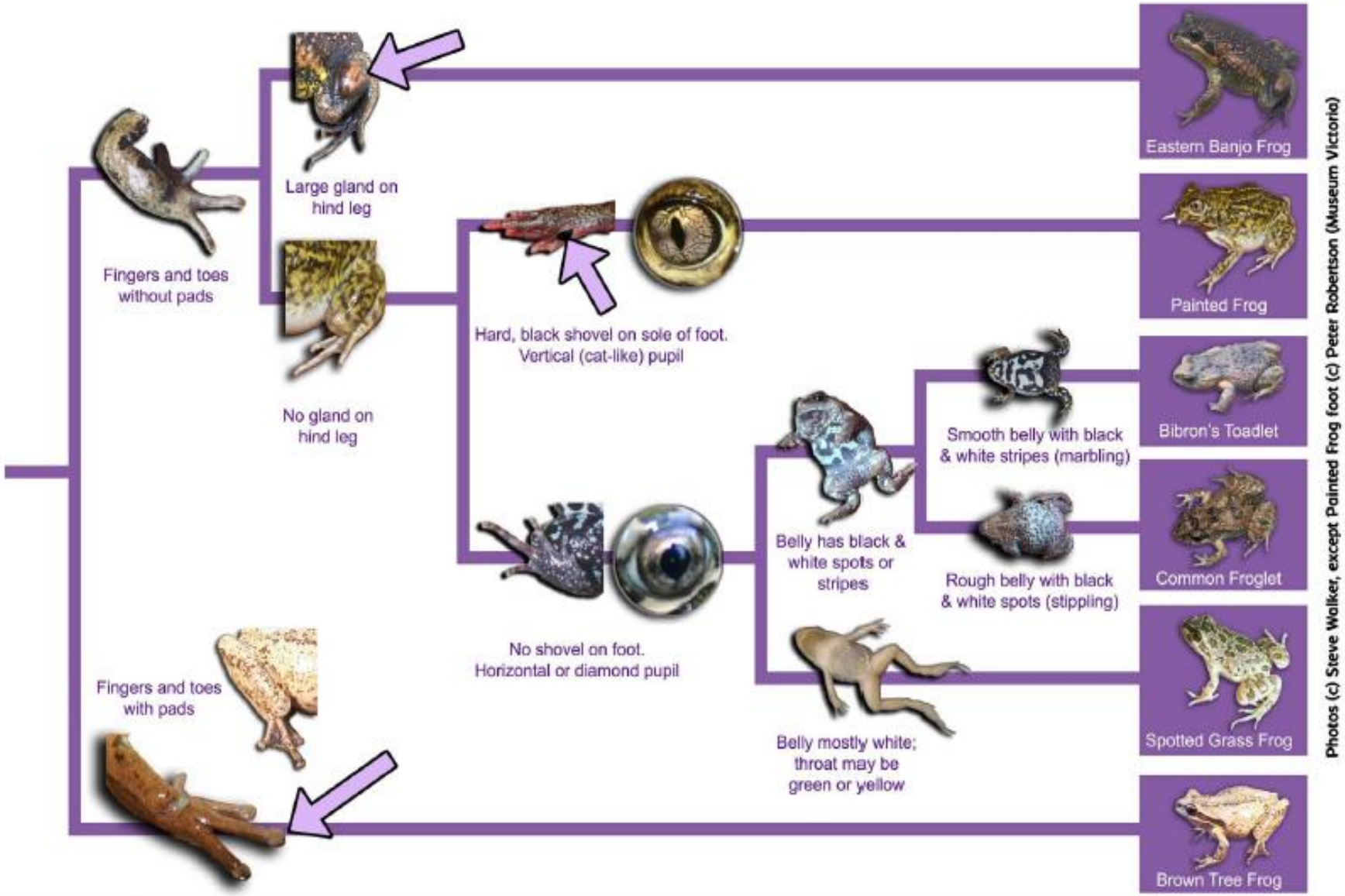
- Knife-footed Frog (*Cyclorana cultripes*)
- Main's Frog (*Cyclorana maini*)
- Water-holding Frog (*Cyclorana platycephala*)
- Green Tree Frog (*Litoria caerulea*)
- Broad-palmed Frog (*Litoria latopalmata*)
- Desert Tree Frog (*Litoria rubella*)

MYOBATRACHIDAE – SOUTHERN FROGS (ground frogs)
12 /18 SA species outside of Adelaide Mt Lofty Region

- Desert Froglet (*Crinia deserticola*)
- **north of Port Augusta** (*Crinia flinderensis*)
- Murray Valley Froglet (*Crinia parinsignifera*)
- Flinders Ranges Froglet (*Crinia riparia*)
- Smooth Frog (*Geocrinia laevis*) SA: R
- Long-thumbed Frog (*Limnodynastes fletcheri*)
- Striped Marsh Frog (*Limnodynastes peronii*)
- Sudell's Frog (*Neobatrachus sudelli*)
- Shoemaker Frog (*Neobatrachus sutor*) SA: V
- Spencer's Burrowing Frog (*Platyplectrum spenceri*)
- Everard Ranges Toadlet (*Pseudophryne cf. occidentalis*) SA: V
- Marbled Toadlet (*Pseudophryne semimarmorata*) SA: V
- Small-headed Toadlet (*Uperoleia capitulata*) SA: R

Frog ID Key

NRM Education
climate change biodiversity water food air waste transport purchasing



Photos (c) Steve Wolker, except Painted Frog foot (c) Peter Robertson (Museum Victoria)


©Peter Matejcic June2015

Bullfrog or Eastern Banjo Frog
(*Limnodynastes dumerili*)
Nangkita December 2003
Photos by Peter Matejcic

Spotted Grass Frog (*Limnodynastes tasmaniensis*)
Left above: Adult male with dark throat coloration.
Middle above: Female without dark throat coloration and have large flanges or flaps of skin on first two fingers to create foam nest to deposit eggs. At Sugar Shack Lagoon, Swan Reach, September 2004.
Right: Banrock Station reserve February 2002.
Photos by Peter Matejcic.

Brown Tree Frog(*Litoria ewingii*)

Deep Creek October 2006 photos by Peter Matejcic

• Painted Frog (*Neobatrachus pictus*)

•from Nangkita December 2003 Photos by Peter Matejcic

Brown Toadlet, Bibron's Toadlet
(*Pseudophryne bibroni*)
from Deep Creek 1st October 2006
Photos by Peter Matejcic

Census of South Australian vertebrates

The Census of South Australian Vertebrates provides an official listing of taxonomy for all vertebrates known to occur in South Australia.

The third edition, published as "A list of the Vertebrates of South Australia" in 2000, was the first to include distribution maps for all species based on records from the South Australian Museum and the Biological Database of South Australia (BDBSA).It is considered the official reference for these taxon groups.

In January 2009, the fourth edition was published online to allow individual chapters to be updated as necessary. New sections will be added as they are finalised. If the section you require is not available, please use the 3rd edition.

For more information or to report any data errors, please contact DEWNRBioDataSupport@sa.gov.au.

4th edition - last additions April 2014

Download the complete Census of South Australian Vertebrates (59mb pdf)

You can also download individual sections:
Section 1 - Introduction & Methods
Section 2 - Mammal Taxonomy

- Maps 1-65
- Maps 66-125
- Maps 126-190

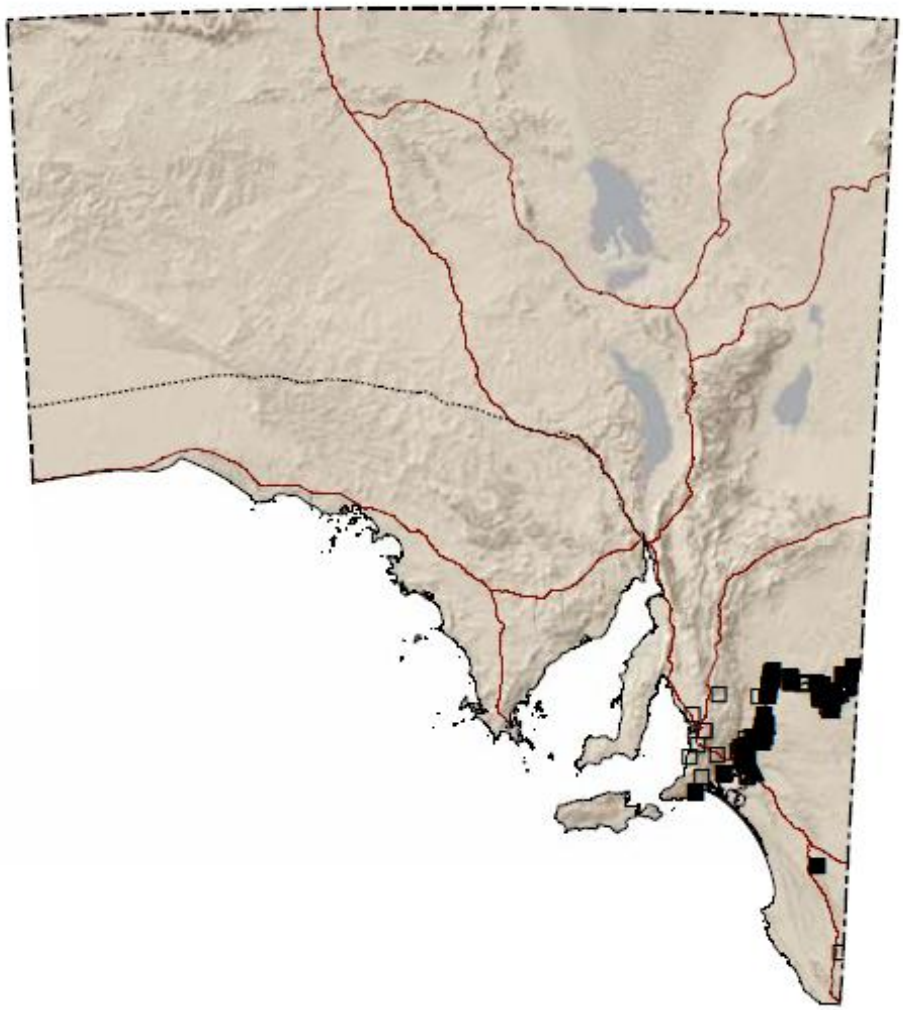
Section 3 - Bird Taxonomy

- Maps (in prep)

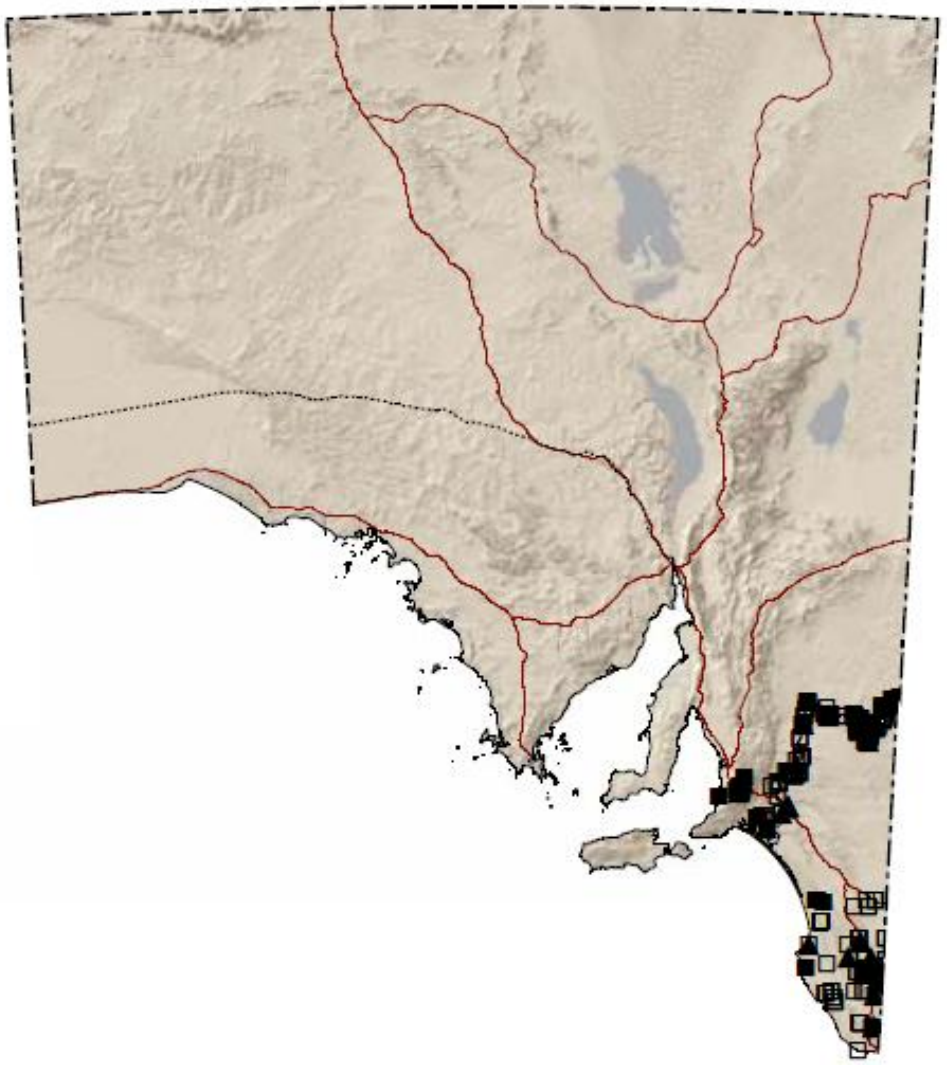
Section 4 - Reptile Taxonomy

- Maps 1-54
- Maps 55-108
- Maps 109-168
- Maps 169-241

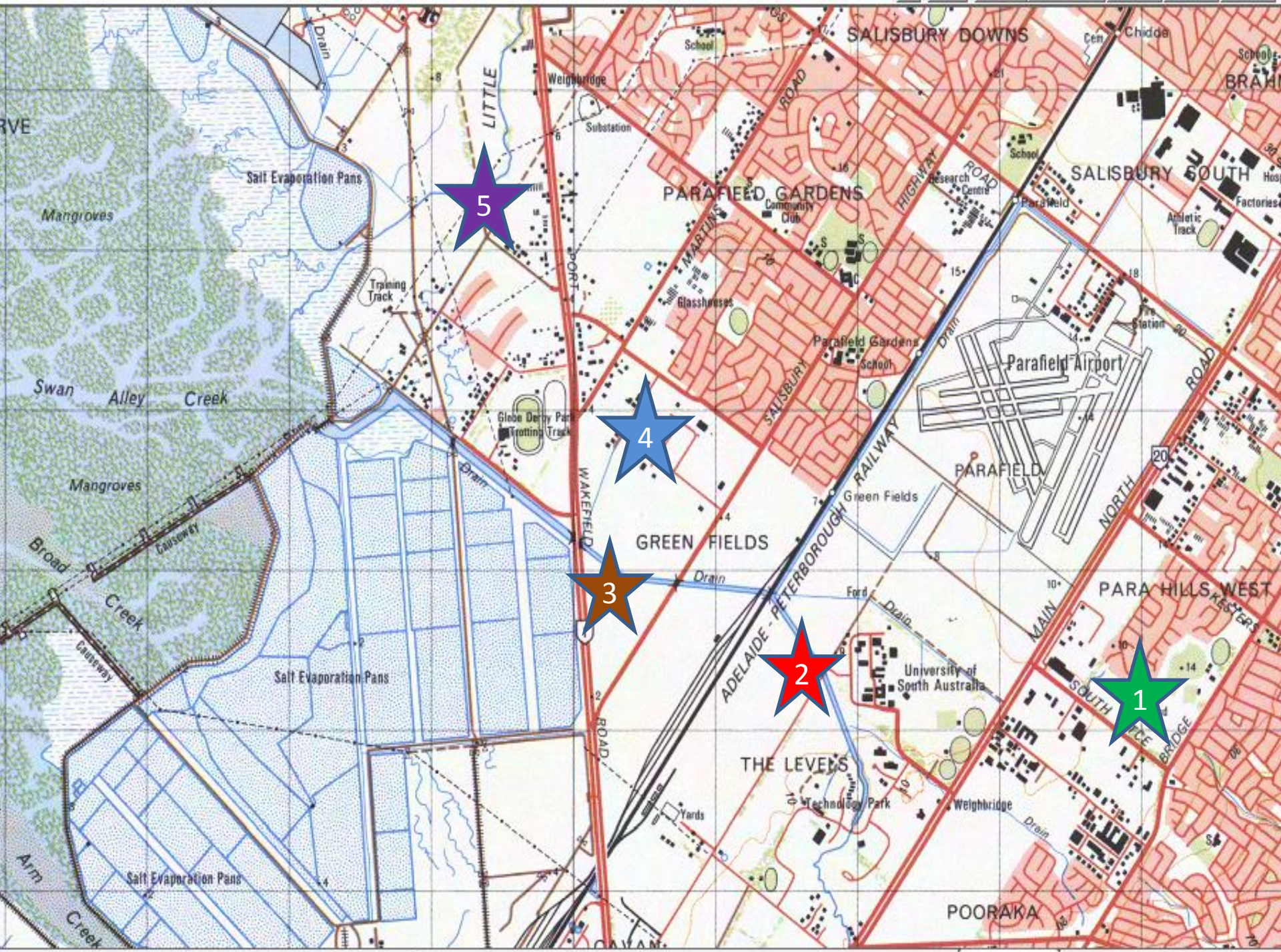
7. Peron's Tree Frog
Litoria peronii

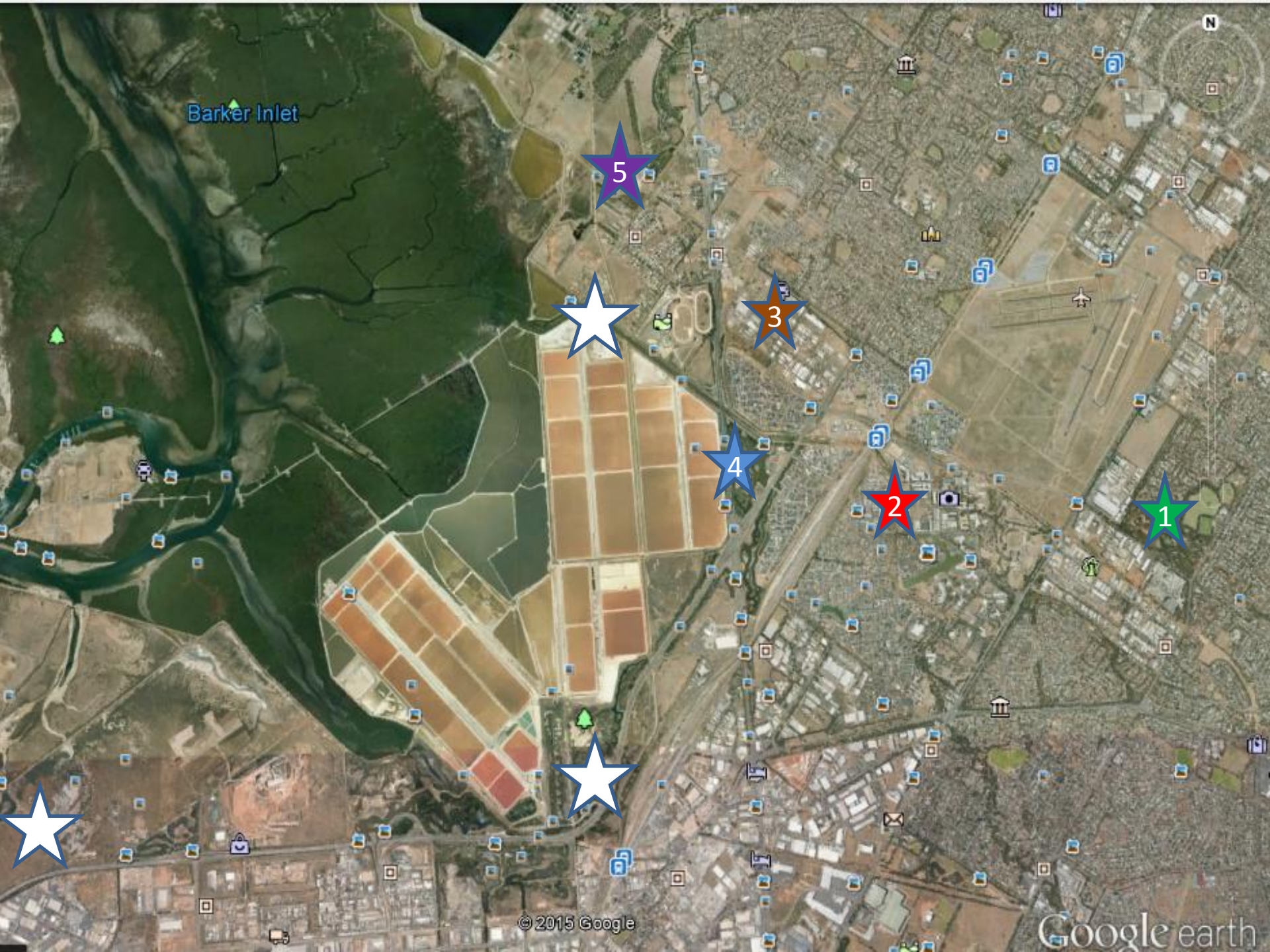


8. Southern Bell Frog AU: VU SA: V
Litoria raniformis



■ = Specimen - post 1970 ▲ = Specimen - pre 1970 □ = Sighting - post 1970 △ = Sighting - pre 1970


1
2
3
4
5
SALISBURY DOWNS
PARAFIELD GARDENS
SALISBURY SOUTH
Parafield Airport
PARAFIELD
GREEN FIELDS
PARA HILLS WEST
THE LEVELS
POORAKA
Salt Evaporation Pans
Mangroves
Swan Alley Creek
Broad Creek
ADELAIDE - PETERBOROUGH RAILWAY
WAKEFIELD ROAD
LITTLE PORT
MAIN NORTH ROAD
SOUTH ROAD
MARTINS ROAD
SALISBURY HIGHWAY
Drain
Causeway
University of South Australia
Technology Park
Weighbridge
Substation
Glasshouses
Training Track
Globe Derby Park Trotting Track
Parafield Gardens School
Green Fields
Ford
Yards


Barker Inlet
5
3
4
2
1
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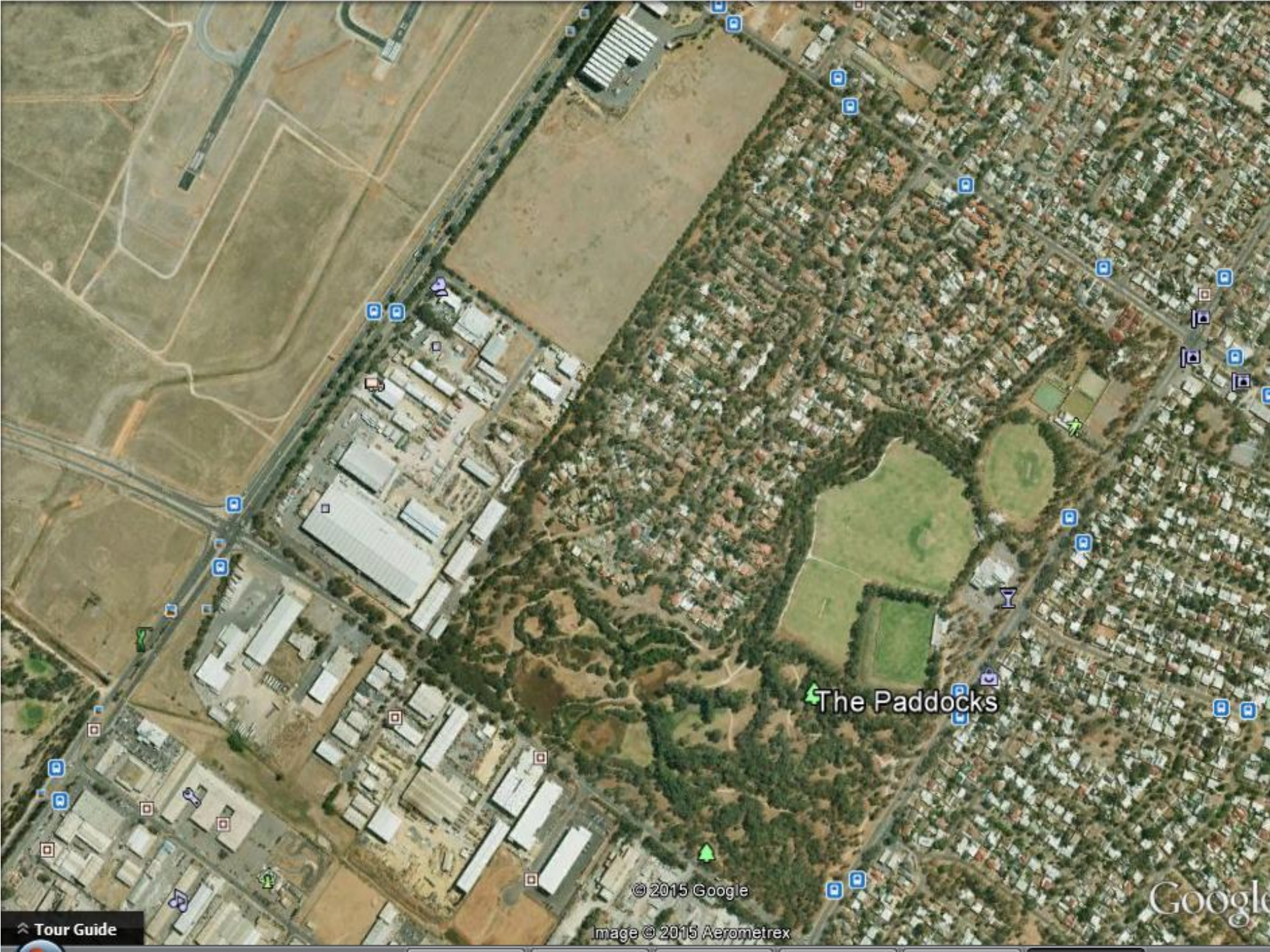
Google earth


The Paddocks
© 2015 Google
Image © 2015 Aerometrex
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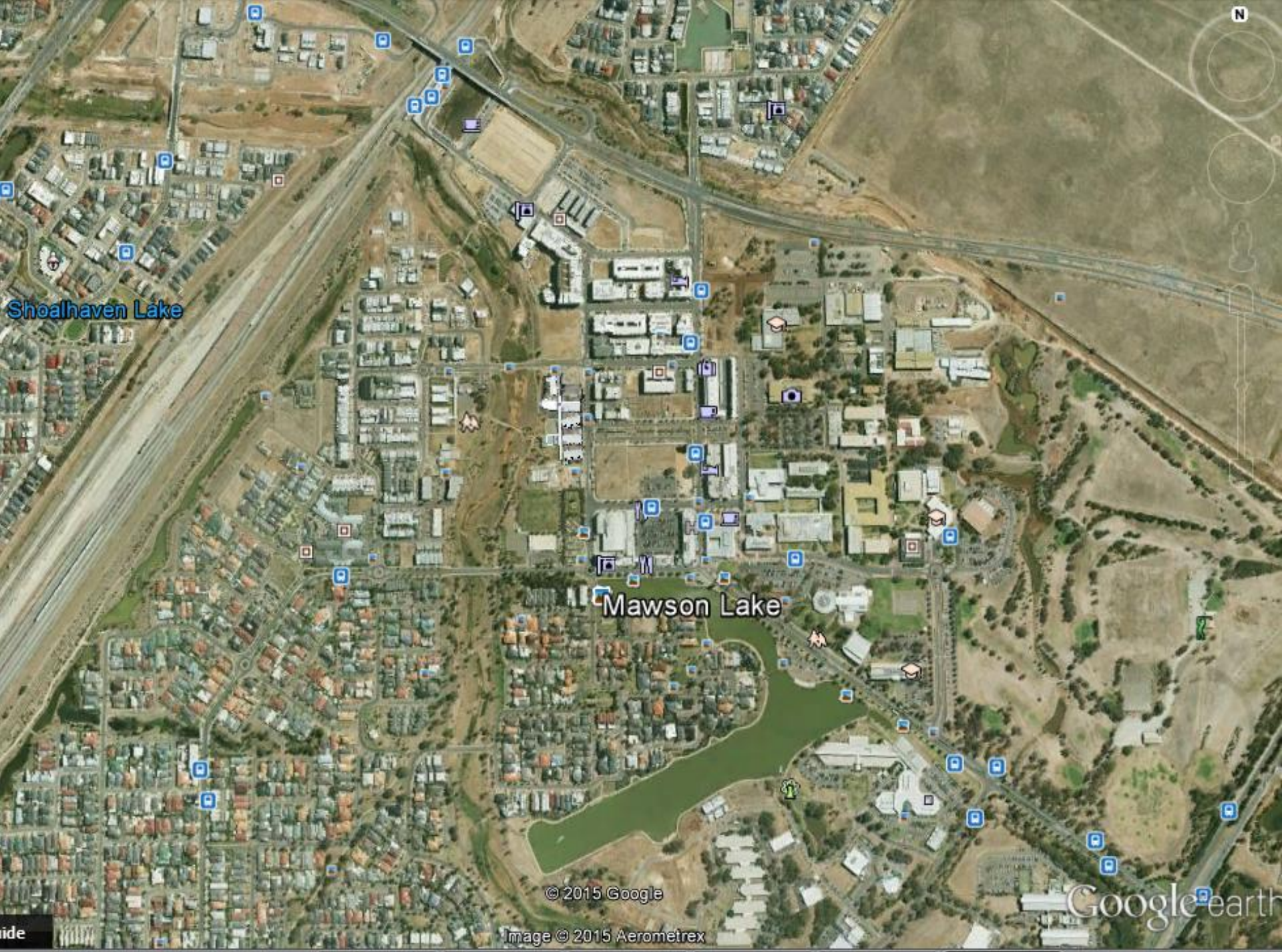
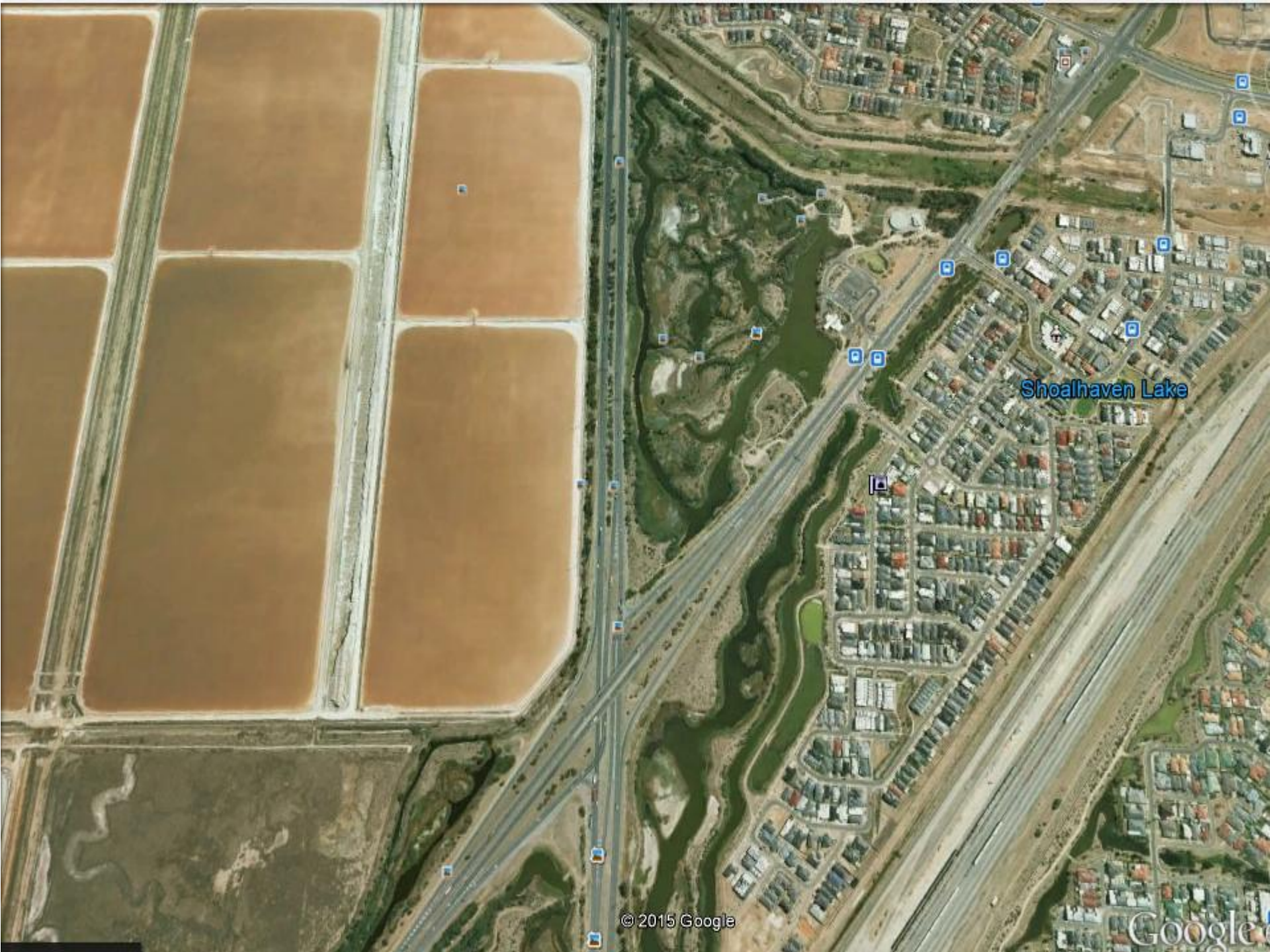
Tour Guide

Salisbury Paddocks with flood controls creating winter and spring wetlands.
Photo by P Matejcic April 2011.


Shoalhaven Lake
Mawson Lake
© 2015 Google
Image © 2015 Aerometrex
Google earth

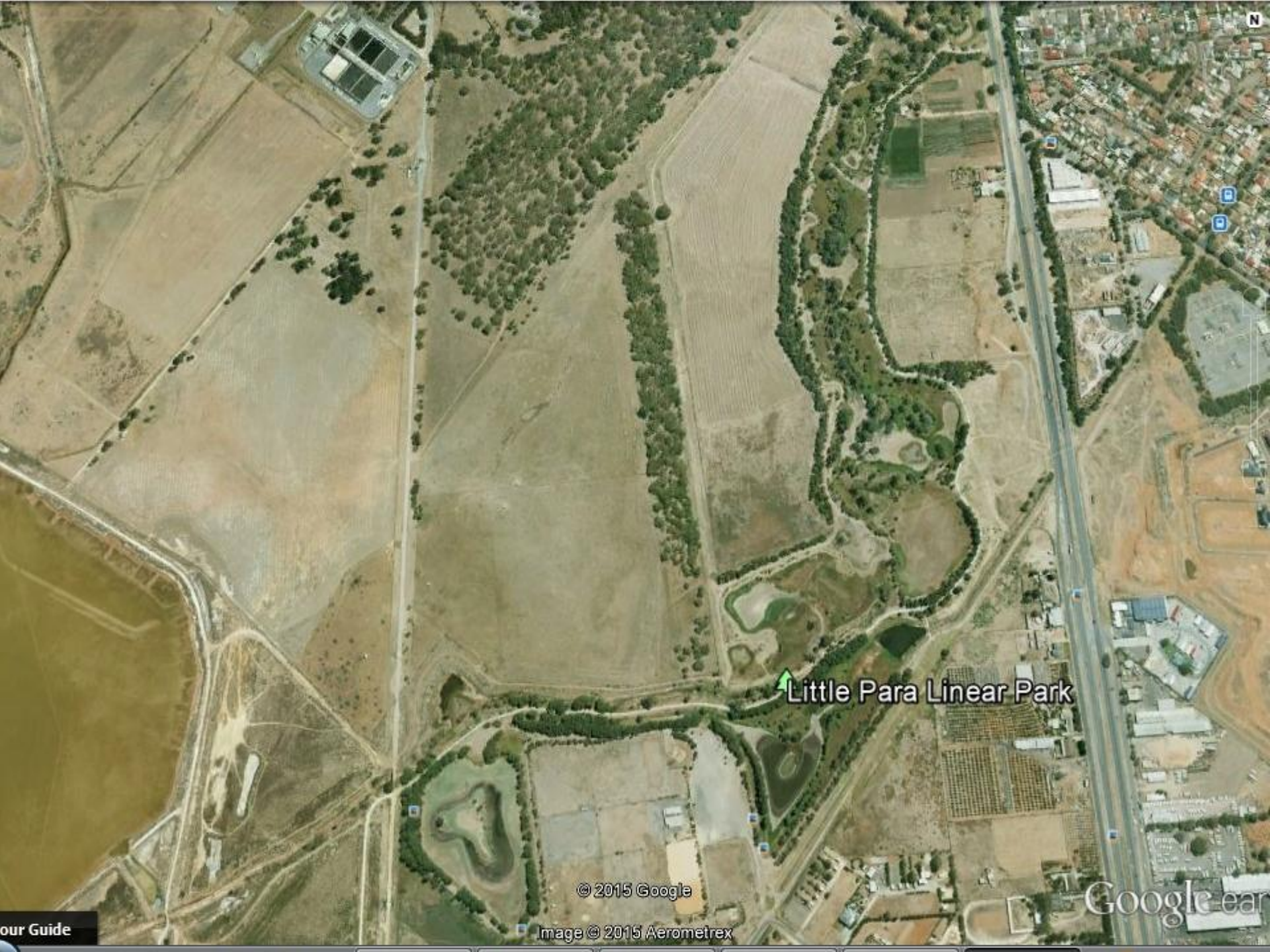
Commonly known as **Rakali**, Rabe or Water Rat (***Hydromys chrysogaster***) is an Australian native rodent. The species lives in burrows on the banks of rivers, lakes and estuaries and feeds on aquatic insects, fish, crustacean, mussels, snails, frogs, birds' eggs and water birds.


Shoalhaven Lake
© 2015 Google
Google


Greenfield's Water Flows
GLOBE DERBY PARK
5110
DRY CREEK
5094


N
DRY CREEK
MAWSON LAKES RECYCLED WATER SUPPLY
You are here
PORT WAKEFIELD ROAD
SALISBURY HIGHWAY
Wetlands Nature Trail
Return journey 30 minutes
(no disabled access)
Trails with disabled access
The Watershed Cafe
Bird-viewing location
Disabled access
Rest area
Toilets
Gate
Roads
Salisbury
trails


Globe Derby Park
© 2015 Google


Little Para Linear Park
© 2015 Google
Image © 2015 Aerometrex
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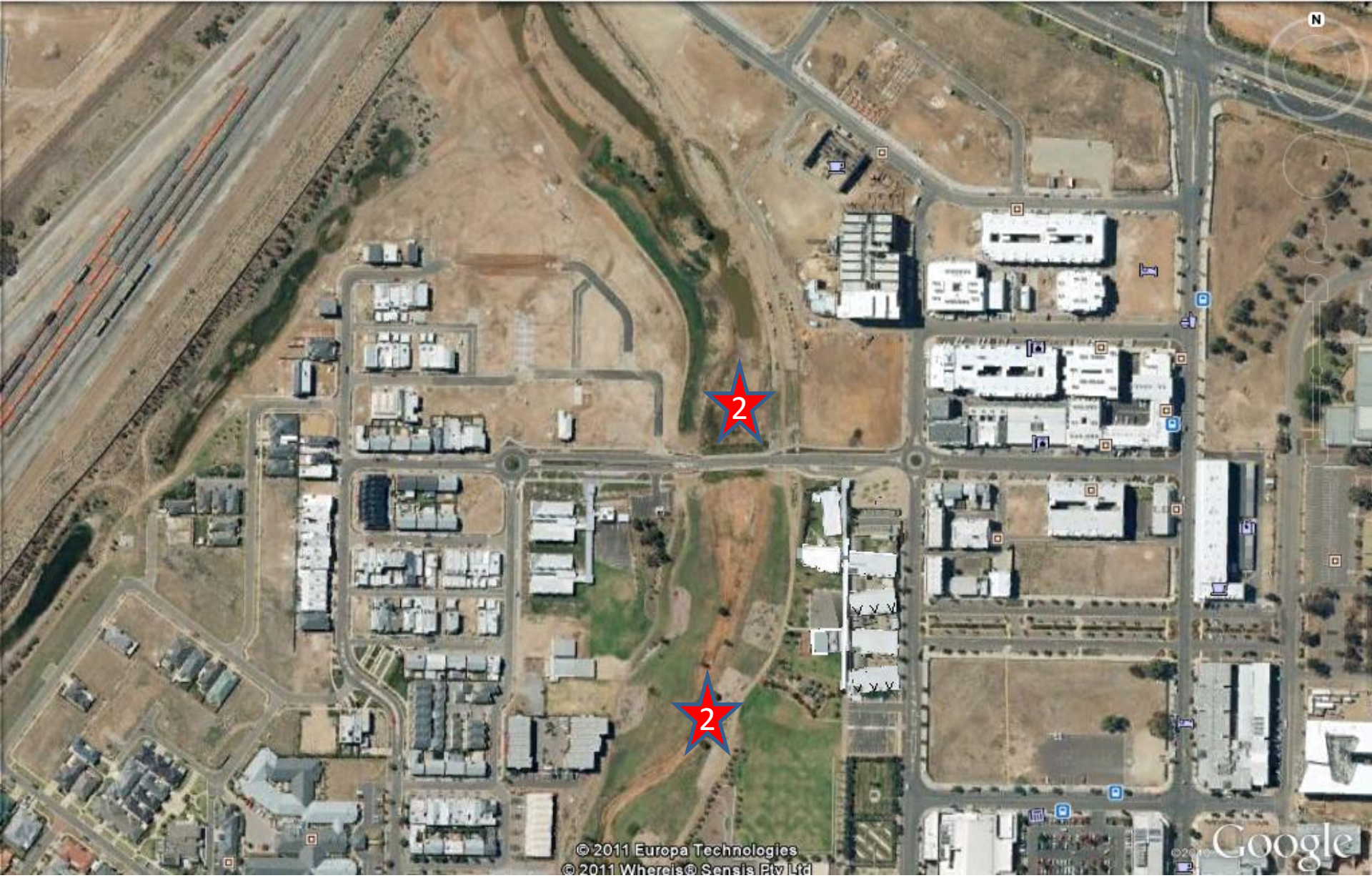
our Guide



Diverted Dry Creek at Mawson Lakes School

2 Dry Creek wetlands at Mawson Lakes, now diverted with the Mawson Lakes redevelopment. Photos by P Matejcic April 2011.

Open drain between Levels Golf range and Parafield Airport to the north, and unsure where the significant volume of water comes from underground.

3

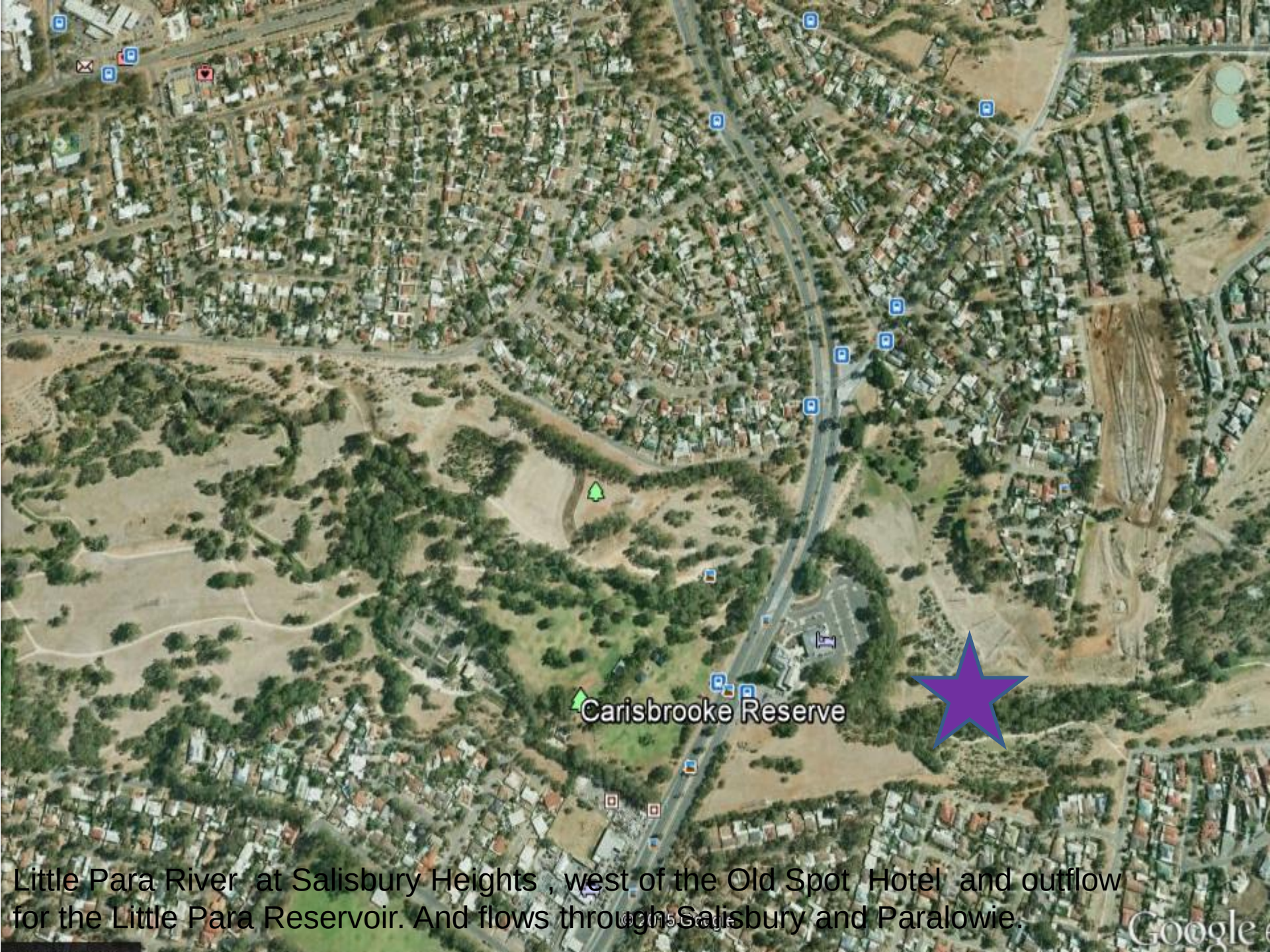
Site 3 along the drain west of Main North Road and south of Parafield Airport.
Photos by
P Matejcic 2011.

Salisbury Paddocks Wetlands and recreational reserve., above when dry.

Salisbury Paddocks western corner along Maxwell Road with factories to the west along Main North Road Pooraka. Photo by P Matejcic April 2011.

Salisbury Paddocks western corner along Maxwell Road with large wetlands which dry out in summer. Photo by P Matejcic 2011.

Salisbury Paddocks with flood controls creating winter and spring wetlands.
Photo by P Matejcic April 2011.



Little Para River at Salisbury Heights , west of the Old Spot Hotel and outflow for the Little Para Reservoir. And flows through Salisbury and Paralowie.

- Dogs
- Crickets
- Bats
- Running water
- Birds esp. ducks

- Fogs often stop calling at your approach or silence when you stand still.

Current internet websites:

- www.waterwatchadelaide.net.au
- http://frogs.org.au/frogs/
- www.**frog**atlas.com.au/
- [DOC] National Recovery Plan for the Southern Bell *Frog* Litoria raniformis

  www.environment.gov.au/.../draft-for-comment-litoria-raniformis.doc
- [PDF] Froggy Futures Teacher Resource Package

  File Format: PDF/Adobe Acrobat
  pollution it will either die or show visual *deformities* such as missing legs or **...** Dramatic population declines in some *South Australian frog* species *www.senrm.sa.gov.au/*

DSC_9128Matej2009Aug30GawlerBullfrog
Eastern Banjo Frog (***Limnodynastes dumerilii***)

Transactions of the Royal Society of S. Aust., ***(1990), 114(4), 213-217.***

THE NATURE AND INCIDENCE OF POST-AXIAL, SKELETAL ABNORMALITIES IN THE FROG *NEOBATRACHUS CENTRALIS PARKER* AT OLYMPIC DAM, SOUTH AUSTRALIA

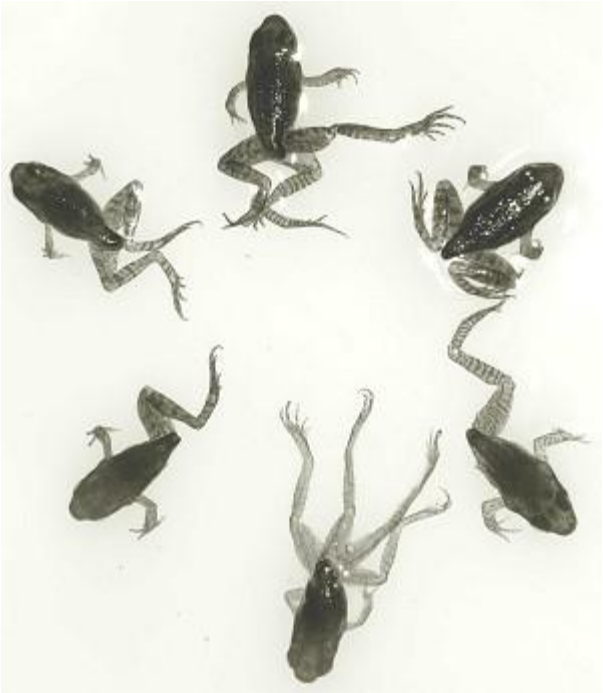
Summary

READ,J . L. & TYLERM, . J. (1990) The nature and incidence of post-axial, skeletal abnormalities in the frog Neobatrachus centralis (***N. sudelli***) Parker at Olympic Dam, South Australia. Trans. R. Soc. S. Aust. 114(4), 213-217. 30 November, 1990.

Samples of 315 specimens of the frog Neobatrachus centralis from four sites at Olympic Dam, South Australia, included 12 specimens exhibiting skeletal abnormalities of the limbs. Examination revealed a predominance amongst the abnormal specimens of partial or complete ectrodactyly, most commonly involving terminal components of the fourth toe. The overall incidence of abnormalities is comparable to those occurring at undisturbed sites in other countries.

Radionuclide levels in tadpoles from the sampled sites were very low or not detectable, and were not associated with the incidence or nature of the abnormalities there.

KEY WORDS: skeleton, abnormalities, Neobatrachus centralis, radionuclides.



DSC_9128Matej2009Aug30GawlerBullfrog

- **Abnormal Frogs**
- An investigation of natural levels of abnormalities in South Australian frogs from locations in and around the Mt Lofty Ranges showed that abnormal frogs were more common in areas where chemical use is high. Agricultural fertilizers, pesticides and household and industrial chemicals all increase the rate of abnormality in frogs.

  Abnormalities may include major deformities such as missing or extra legs, but even very minor deformities like a reduction in the length of the toes can have a huge impact on the survival of a frog.

CONCLUSION:

- **Get to know local creeks and wetlands adopt at least 5 sites to visit 8 times per year.**
- **Record data either as Microsoft Word or in Excel**
- **Join me on two Frog evenings**

  Sunday July 5th 2015 Mawson Lakes & Salisbury Paddocks & Greenfields Wetlands 6:00pm