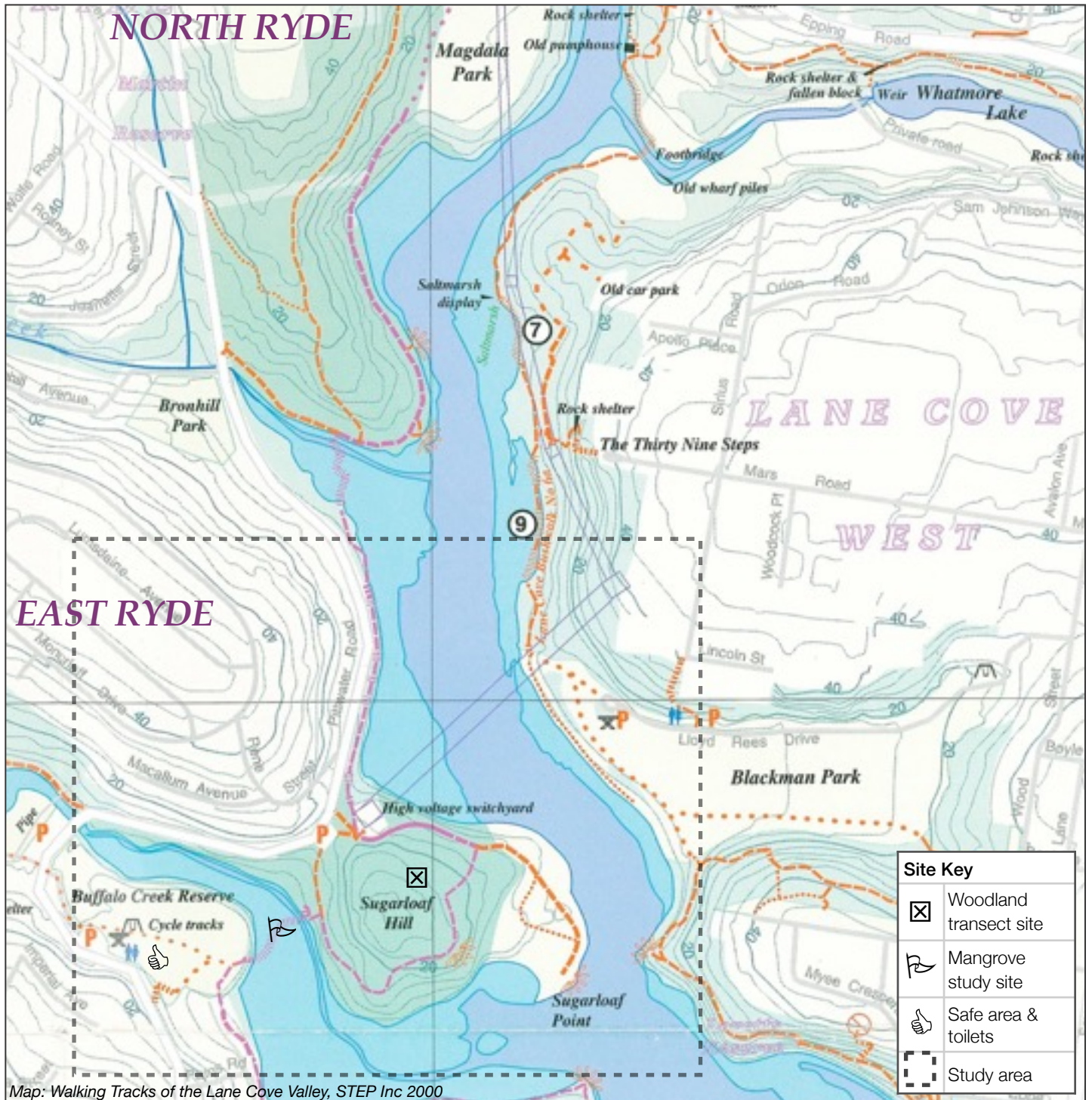


Map of Buffalo Creek Reserve and Sugarloaf Point



Key	Vegetation Types	Features	Signature species

Background information on the study site

Answer these questions before the excursion using the resources available at: <http://fieldofmarseec.nsw.edu.au/resources/secondary/>

You will be studying *remnant bushland*. What does this mean?

What are the effects on the flora and fauna as a result of the reserve being a remnant?

Vegetation corridors between reserves are important for their long-term survival. Why?

List examples of human impact in the reserve. Categorise them into past and recent.

Past (pre 1980)	Recent (1980 - present)

List some of the abiotic factors that affect the ecology of remnant bushland.

Abiotic factor	Instrument	Unit

Measuring distribution at Sugarloaf Hill, Lane Cove National Park on _____

Observation *Make an observation concerning the distribution of plant species on either side of the old track.*

The area uphill of the old track seems to be ..



Purpose *What are you going to do in this investigation?*

To investigate the differences....

Hypothesis *What are you trying to prove? Write a statement that describes the variables that you are investigating.*

There will be.....

Method *What are you going to do to test your hypothesis? Include biotic and abiotic factors to be recorded.*

We will...

To ensure the test is valid we...

To ensure reliable results we have...

Total length of transect: _____

Length of sampling interval: _____

Measurement and recording

Use the Personal Results Table on the next page to record:

- The abiotic measurements for your section of the transect
- The number of different plant species in your section.
- The position of plants along the transect

Transfer the abiotic factors results to the class recording sheet for further processing and analysis at school.





Personal results table

Name _____ Date _____

Vegetation transect at Sugarloaf Hill, Lane Cove National Park Section _____

1. Abiotic measurements *Record these at the midpoint of your transect section. Remember to include units.*

Aspect:	Gradient:	Air temp:
Relative humidity:  %	Light intensity:	Wind speed: 
Soil temp:	Soil texture:	Soil pH:

2. Biotic measurements *Make your way along your transect section. Identify every type of living plant, record its code and take photos for future reference.*

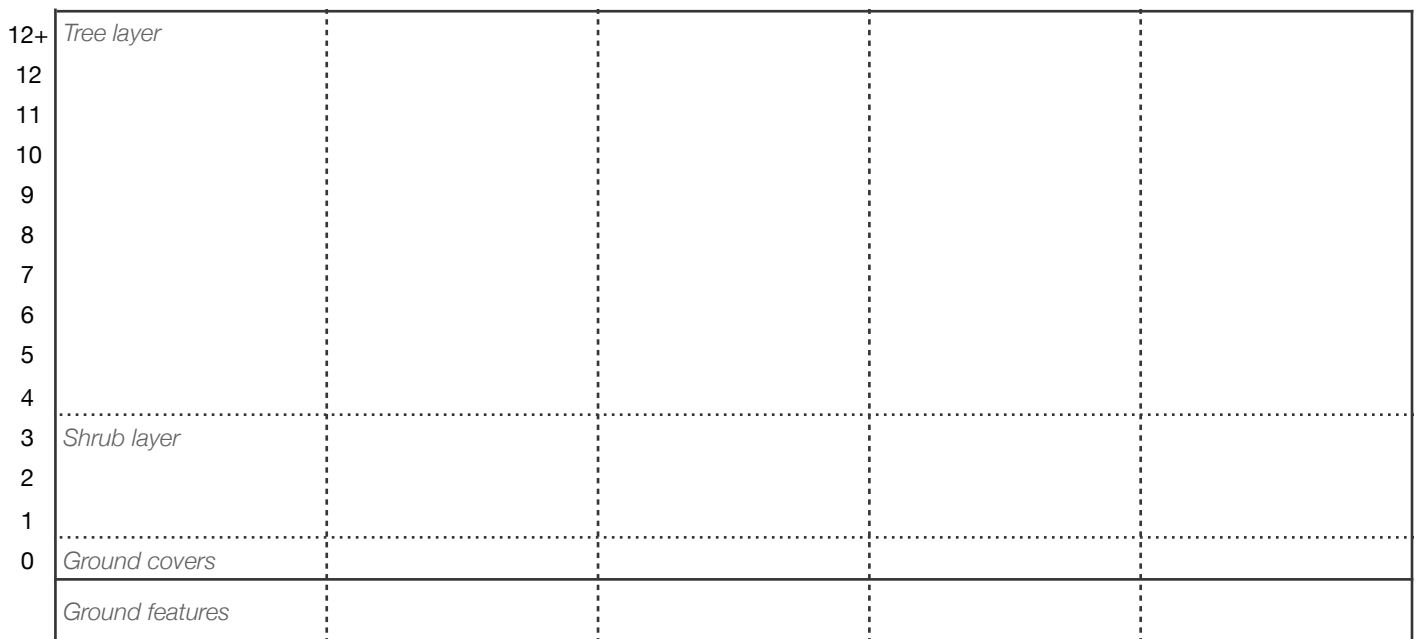
Plant name	Code	Plant name	Code
eg: Mat Rush	H3		

3. Biotic measurements *Describe the features found along your transect section, eg "rocky eroded track with many weeds"*

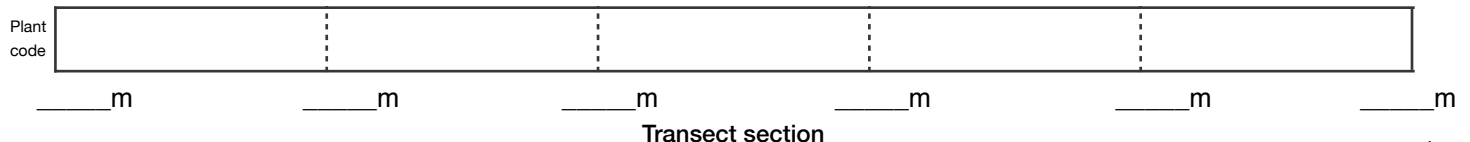
Description of your section: _____

Number of different plant species:

4. Represent results graphically



Below, plot where the plants occur using the plant codes from the ID book. If time, draw in the height of each plant above.



Interactions between species

No organism can exist independent of others. Some of these interactions are beneficial to both organisms whilst others are detrimental to one or both organisms. List fieldwork examples you observe.

Beneficial relationships

Mutualism *Interaction between two organisms from which both benefit. A symbiotic relationship.*

Example:

Commensalism *A relationship that benefits one and does not harm the other and where both could survive without the other.*

Example:

Detrimental relationships

Competition *Occurs when organisms in the same community which both require the same resources.*

Example:

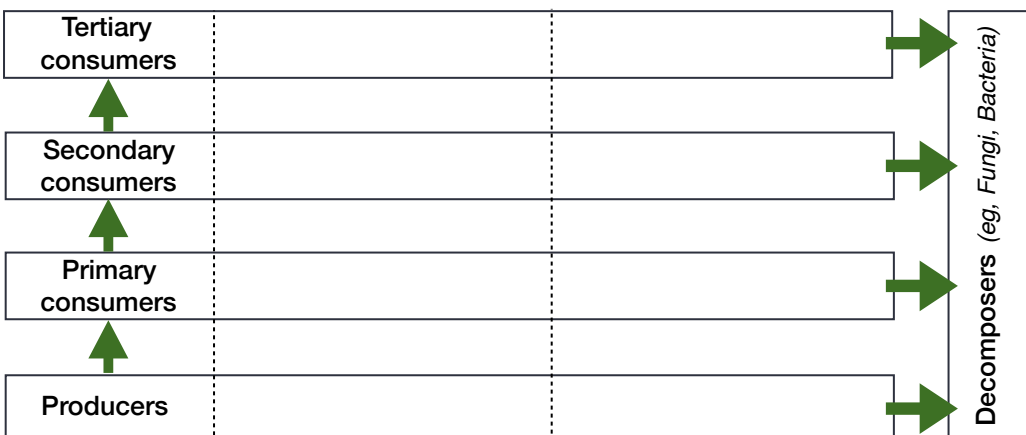
Parasitism *An interaction where one species feeds directly on another, living on or in its host, and often harming the host.*

Example:

Allelopathy *The production of chemicals by a plant that can harm or benefit another plant.*

Example:

Trophic interactions in an ecosystem *(Indicate predator/prey relationships)*



Measuring distribution and abundance of crabs using a belt transect at

Buffalo creek Boardwalk on _____ (date) at _____ (time)

In this investigation you will be using the scientific method to investigate the relationship between crab abundance and position in the high tide end of the intertidal zone adjacent to the Buffalo Creek boardwalk.

Observation *Make an observation concerning the number of crab holes as you walk towards the creek.*

There seems to be a..

Purpose *What are you going to do in this investigation? What are the two variables you are going to investigate?*

To gather data for..

Hypothesis *What are you trying to prove? Write a statement that describes the variables that you are investigating.*

There will be a..

Method *What are you going to do to test your hypothesis? List assumptions you need to make.*

See method notes on page 10.

Equipment _____

Results table

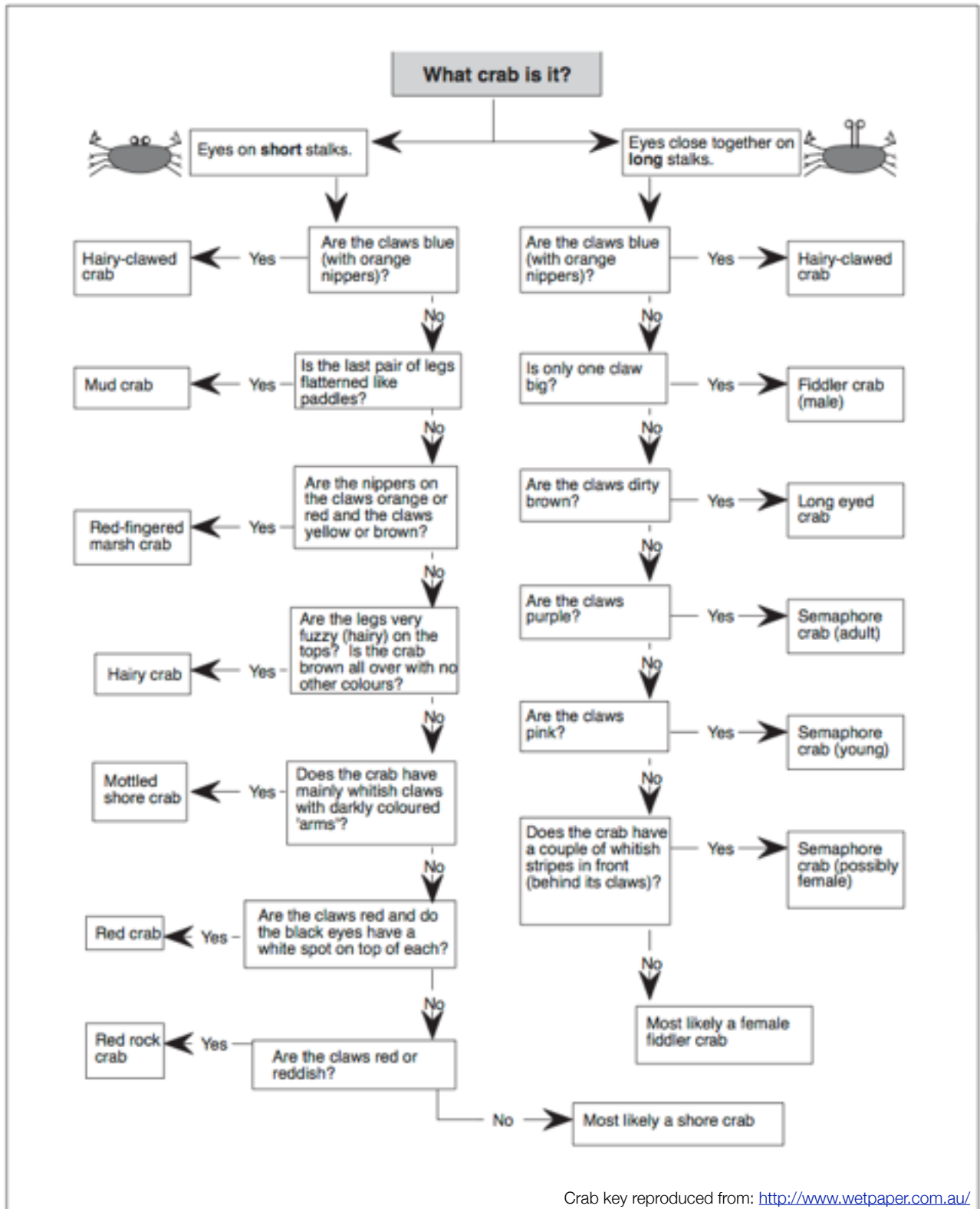
Quadrat	Position	Count	Class Mean	Description
eg Q11	35m	7	6	<i>Many fallen logs on ground</i>
Q1	40m			
Q2	45m			
Q3	50m			
Q4	55m			
Q5	60m			
Q6	65m			
Q7	70m			
Q8	75m			
Q9	80m			
Q10	85m			

Optional: Tide data for the Lane Cove River	
<i>Use the the BOM tide chart for Fort Denison & add 15mins for the time lag. (During Daylight Saving also add 1 hr.)</i>	
Date:	
Time	Height

Conclusions/Discussion *Is distribution consistent along the transect? Can you prove your hypothesis?*

Based on our results..

What crab is it?



Crab key reproduced from: <http://www.wetpaper.com.au/>



Identify the two main species of crab that live near the Buffalo Creek boardwalk



Plant adaptations

Grey Mangrove *Avicennia marina*

Growth habit: *Tree Shrub Grass Other*

Average height: 6 - 10m tall

Leaf colour above: Shiny dark green

Leaf colour below: Silver-grey

Leaf arrangement: *Opposite Alternate*

Habitat description: Found in dense groves in intertidal zone of estuaries around Australian New Guinea, SE Asia and Pacific Islands

Species interactions: The animals and algae which form around the roots are a crucial part of the food supply for many species of young fish. Snails feed on algae. Crabs feed on detritus. Spiders. Skinks.

Human influences: This species is a pioneer coloniser of new mudflat areas created by siltation in estuarine creeks as a result of human development in surrounding urban areas.

Status: *Rare Vulnerable/Threatened Locally significant Common Abundant*

Adaptations relating to:

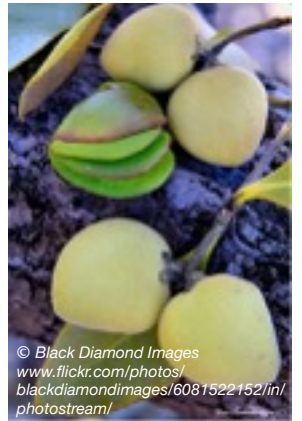
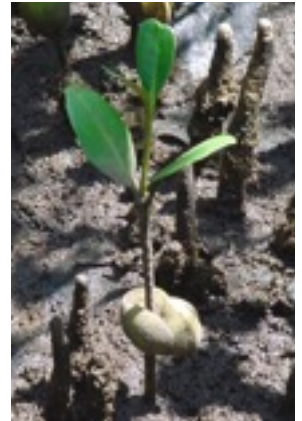
Salt:

Anaerobic soil:

Reproduction:

Wind:

Nutrients:



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Mangrove description and habitat



Mangrove adaptations I



Mangrove adaptations II

Animal adaptations

Common Ringtail Possum *Pseudocheirus peregrinus*

Size: Body 30-35cm, tail 30-35cm

Colour: Grey-brown back with white belly and brown limbs

Diet: Young leaves, flowers, fruit. (It is a folivore.)

Competitors: Birds, eg, lorikeets, brushtail possums

Predators: Powerful owl, owls, snakes, goannas, quolls. Also introduced foxes, cats

Habitat description: Forests, heath, woodlands. Usually builds drey (nest) in dense vegetation eg, thickets of native plants such as Kunzea

Species interactions: Pollination, seed dispersal

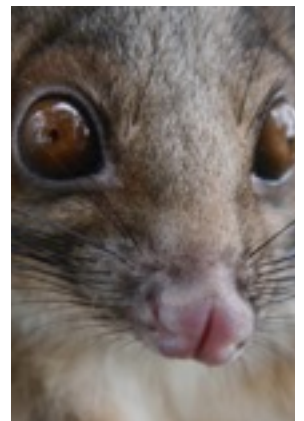
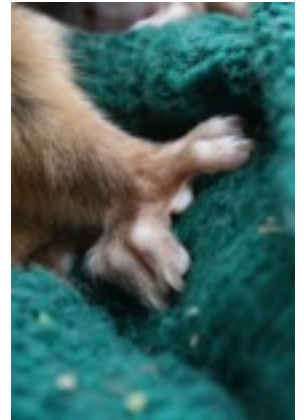
Human influences: Well adapted to living in urban areas. Killed by cars. Hunted by domestic cats. Feeding by humans. Habitat clearing.

Status: *Rare* *Vulnerable/Threatened* *Locally significant* *Common* *Abundant*

Adaptations:

Structural:

Behavioural:



Word bank: folivore, prehensile, syndactyly, opposable, protuberant, drey, Kunzea, faeces, coprophagy, camouflage

Notes

Mangrove investigation notes (see page 6)

How will we ensure our method provides us with data and results that are:

- Valid?

- Reliable?

Does our methodology make any assumptions about some variables? How can we control these or get more information?