



**ENNOVATE**  
CONSULTING

# Environmental Offsets

*Linking into local biodiversity initiatives*



# Environmental Offsets:

- *What makes a good offset?*
- *What makes a really good offset?*

## Hume Highway duplication project failed to protect threatened species, ANU study finds

ABC Riverina, by Benjamin Shults  
Updated 22nd 9:16am



The study found no evidence that the boxes had been used by the superb parrot and on only seven occasions where utilised by the other target animals, across 3,000 checks.

About 8 per cent of boxes had fallen from their tree.

## Critically endangered western ringtail possums could be wiped out in 20 years

By Gian De Poleri  
Updated 1 May 2017, 1:10pm



However, motion-activated sensor cameras on the bridge only recorded two crossings in 270 nights.

# In 2012, Canberra released its EPBC Act *Environmental Offsets Policy*...

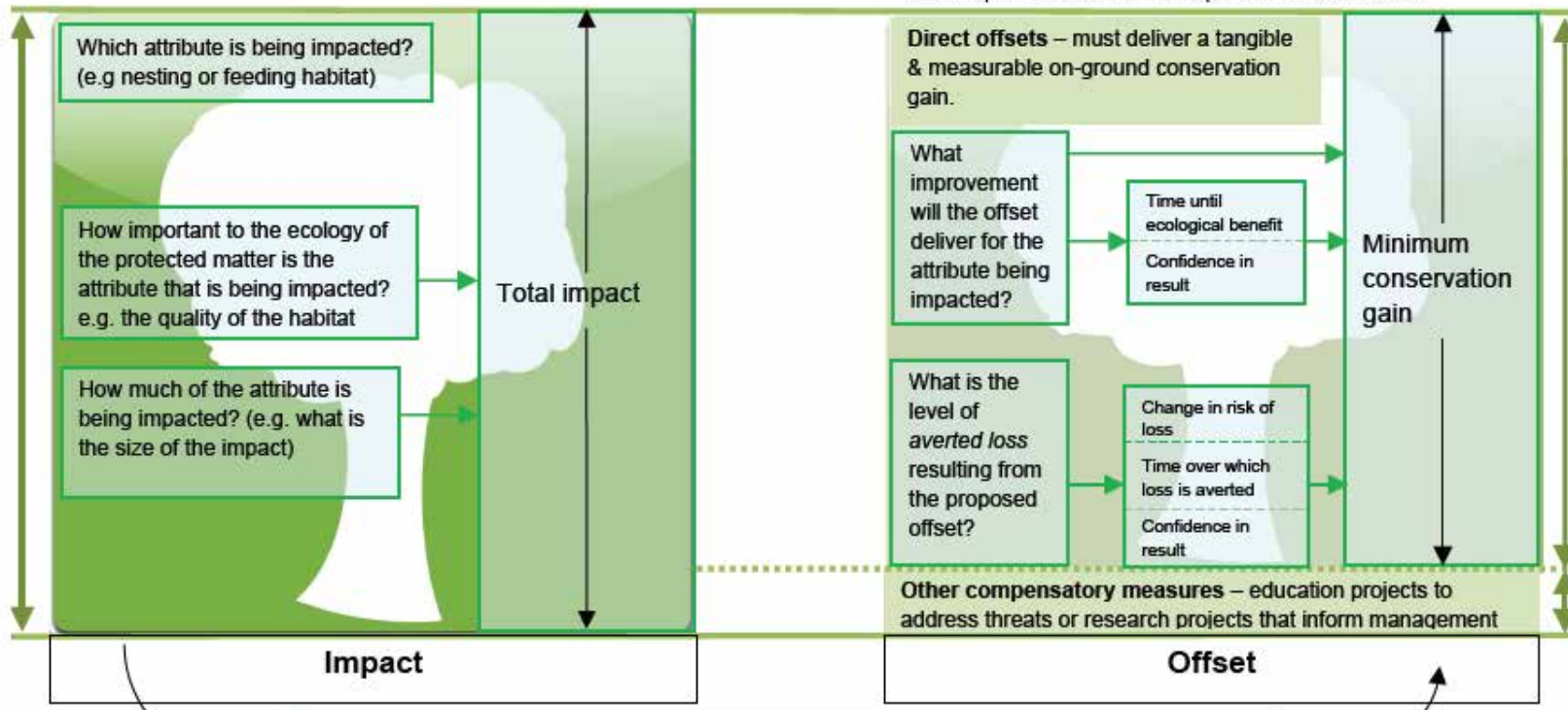
$$\left( \left( \frac{\text{net present value of adjusted gain in quality}}{10} \right) \times \text{future area without offset} \right) + \left( \left( \frac{\text{future quality with offset}}{10} \right) \times \text{net present value of adjusted gain in averted loss} \right)$$

## Residual impact:

The level of impact to a protected matter that remains following all actions to avoid and mitigate this impact.

## Offset package:

Minimum of 90% direct offsets, maximum of 10% other compensatory measures. Both components should correlate to the specific nature of the impact and its timeframe.



Offset calculator

Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement	Cost (\$ total)	Information source
						Start area (hectares)	Start quality (scale of 0-10)	Risk of loss (%) without offset	Future area without offset (adjusted hectares)	Risk of loss (%) with offset	Future area with offset (adjusted hectares)								
								Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)										
<i>Ecological Communities</i>																			
Area of community	No				Risk-related time horizon (max. 20 years)	Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0								
					Time until ecological benefit			Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)										
<i>Threatened species habitat</i>																			
Area of habitat	No				Time over which loss is averted (max. 20 years)	Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0								
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Number of features e.g. Nest hollows, habitat trees	No																		
Conditions of habitat Change in habitat condition, but no change in extent	No																		

Offset calculator



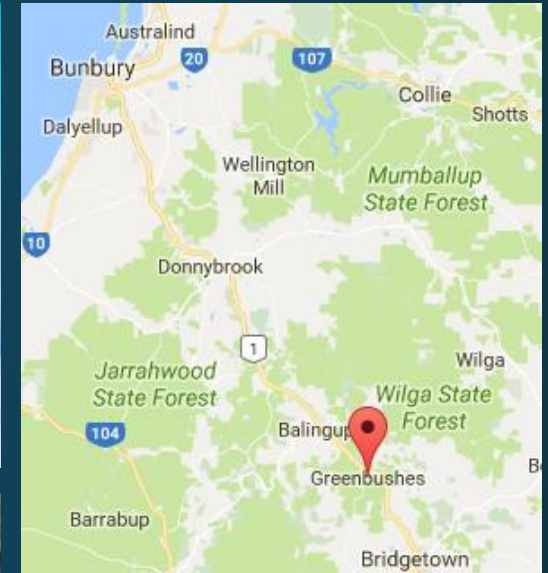
The EPBC Offsets Policy relies very heavily on the concept and quantification of **"Habitat Quality"**



...across both impact and offset sites

In 2013  
Talison Lithium  
submitted a referral for  
the clearing of 75 ha of  
Black Cockatoo habitat  
near Greenbushes, to  
allow for the  
continuation of its  
mining operations...

...and the search for offsets  
began







25

S-Western-Hwy

Tgetown-Boyup-Brook-Rd



# BC Habitat Quality

## Rapid Assessment Tool:

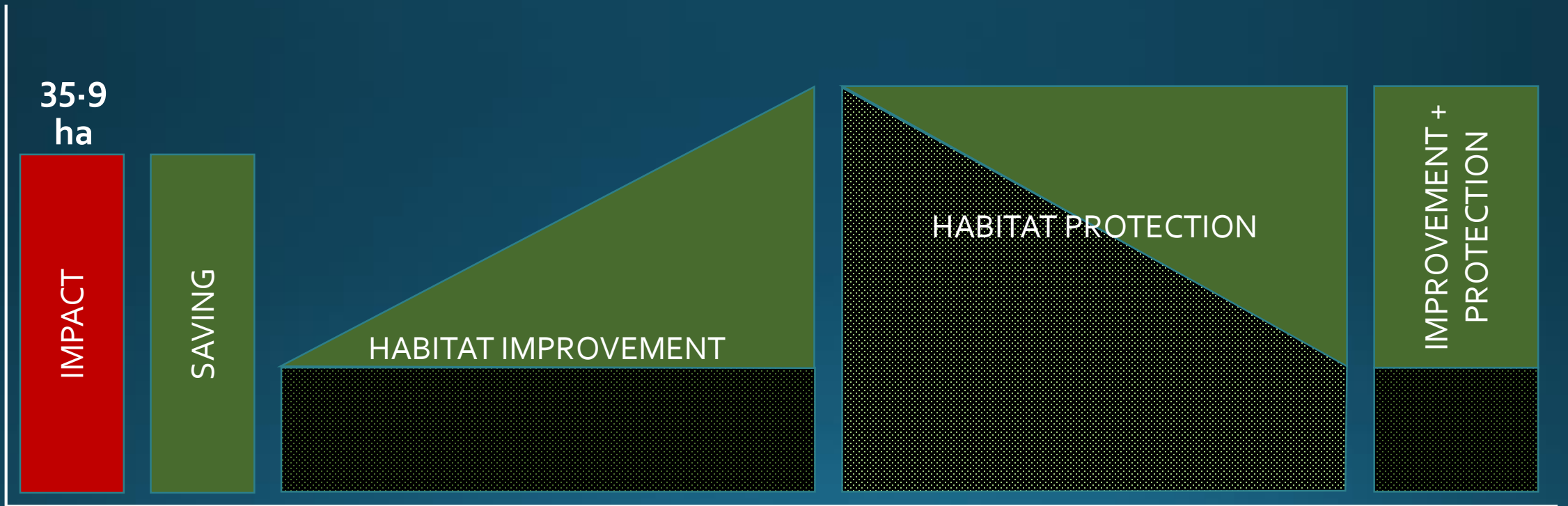
- Developed using scientifically-relevant habitat attributes;
- Semi-quantitative;
- Used to screen offset options as a prelude to expert study.

Attribute	Description	Value			
		NIL	LO	AV	HI
Diversity and abundance of foraging species (including non-native)	Areas with high abundance of marri, many heavy with fruit. Occasional jarrah, she-oak, banksia, hakea. Multiple remnants dominated by non-forage species such as flooded gum and acacia. Some areas poor condition	NIL	LO	AV	HI
Evidence of foraging	Multiple evidence (feeding residues from marri nuts at various states of decay).	NIL	LO	AV	HI
Suitable roosting sites	Remnants included significant marri trees considered suitable for roosting. Historical logging has removed most large trees.	NIL	LO	AV	HI
Evidence of roosting	None observed	NIL	LO	AV	HI
Suitable nesting sites	Remnants included significant marri trees considered suitable for nesting. No hollows observed. Historical logging has removed most large trees.	NIL	LO	AV	HI
Evidence of nesting	No evidence of nesting observed	NIL	LO	AV	HI
Proximity to water	Open water (mine drains, dams and lakes) present in surrounding area (1-3 km). No open water in expansion area.	NIL	LO	AV	HI
Condition & resilience	Condition varies; evidence of feral pigs; good representation of younger age-class marri (mostly seeded by the mining company in the 1990's) but relatively few older trees due to logging; isolated nature of stands offers some protection from fire.	NIL	LO	AV	HI
Presence of competitors	No competing bird species (eg galahs) observed (general low abundance of birds). Potential for bees to be present but no hives observed (probably too cold to see activity)	NIL	LO	AV	HI





# What makes a good offset?





# What else?

01

A real  
threat  
exists.

02

Good  
chance of  
success.

03

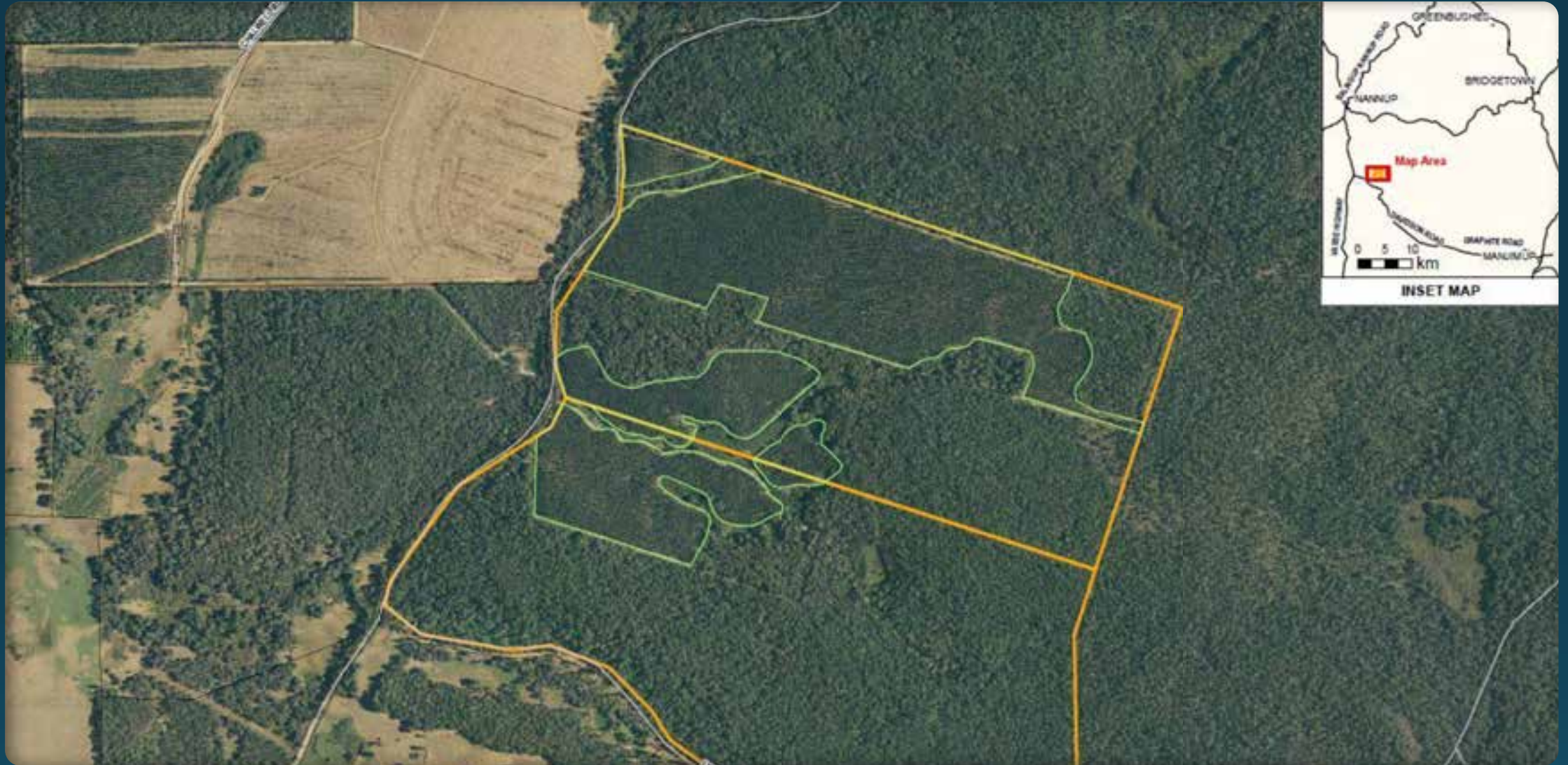
Equipped  
for the  
long-  
term.

04

Measur-  
able  
progress.

Offset options  
that we looked at





☺ Conserve & Enhance – 200 ha adjacent to State Forest





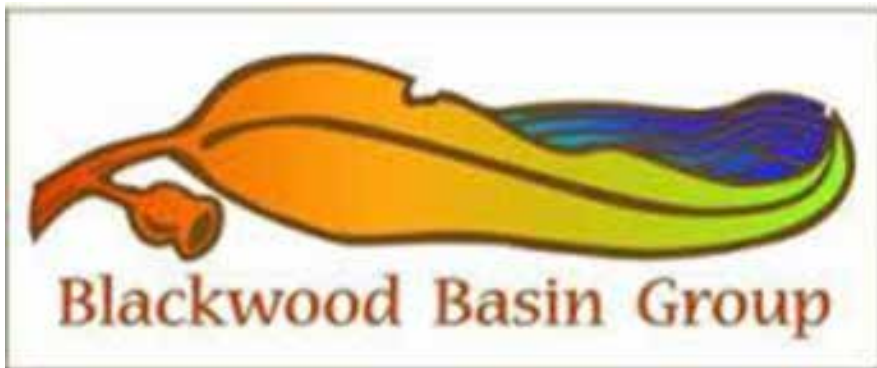
☺ Replant and protect – 45 ha farmland adjacent to State Forest





☹ Enhance and protect – 105 ha farmland with DRF & wetland areas

# Enter the Blackwood Basin Group







## **Waterbird Open Day & Boardwalk Launch**

Saturday, 10th June 9am—1pm

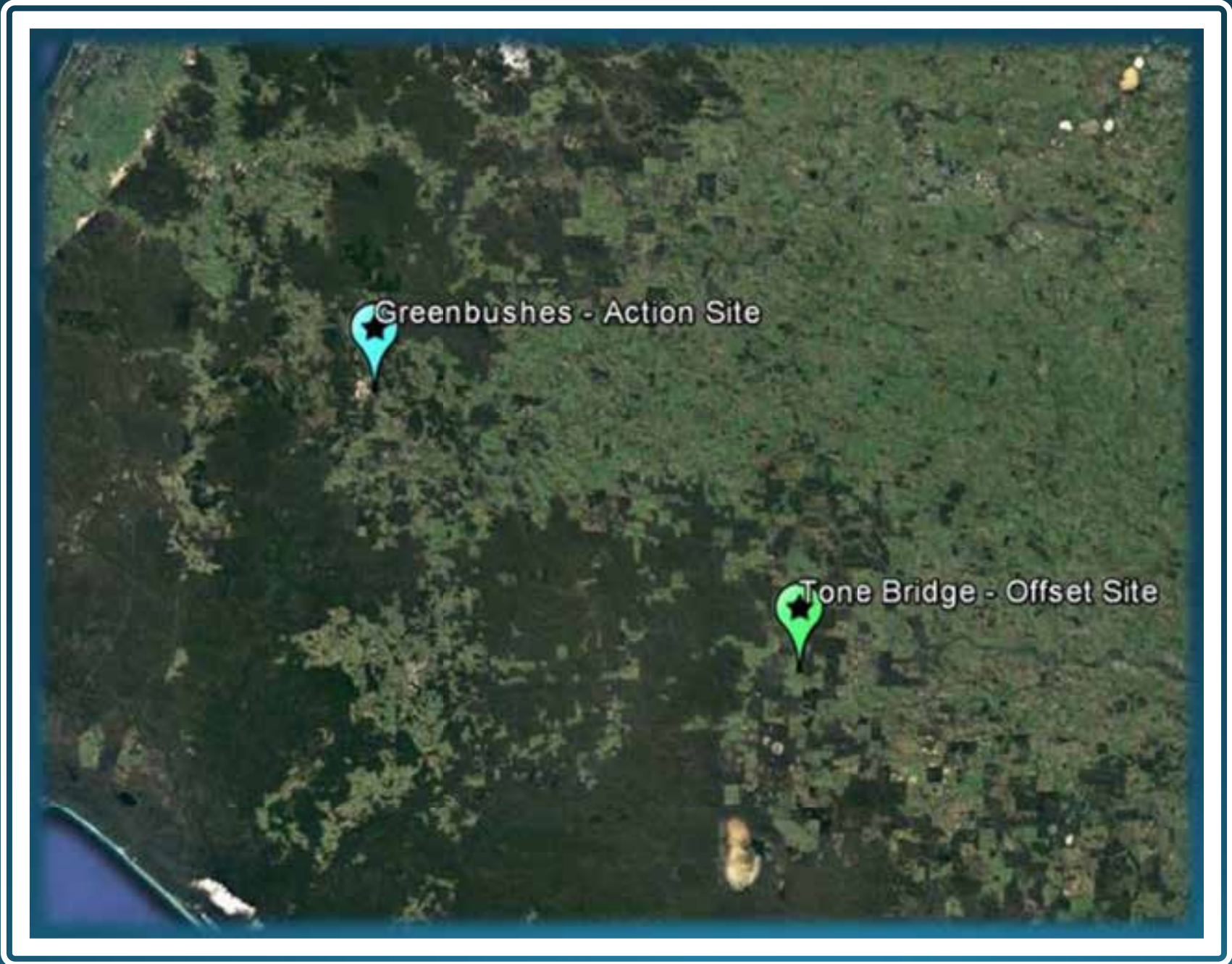
Schwenke's Dam, Greenbushes



You are invited to join the Blackwood Basin Group for an informative and fun packed wrap-up of the BBG's flagship WaterBird Project and the official launch of the new nature viewing boardwalk.



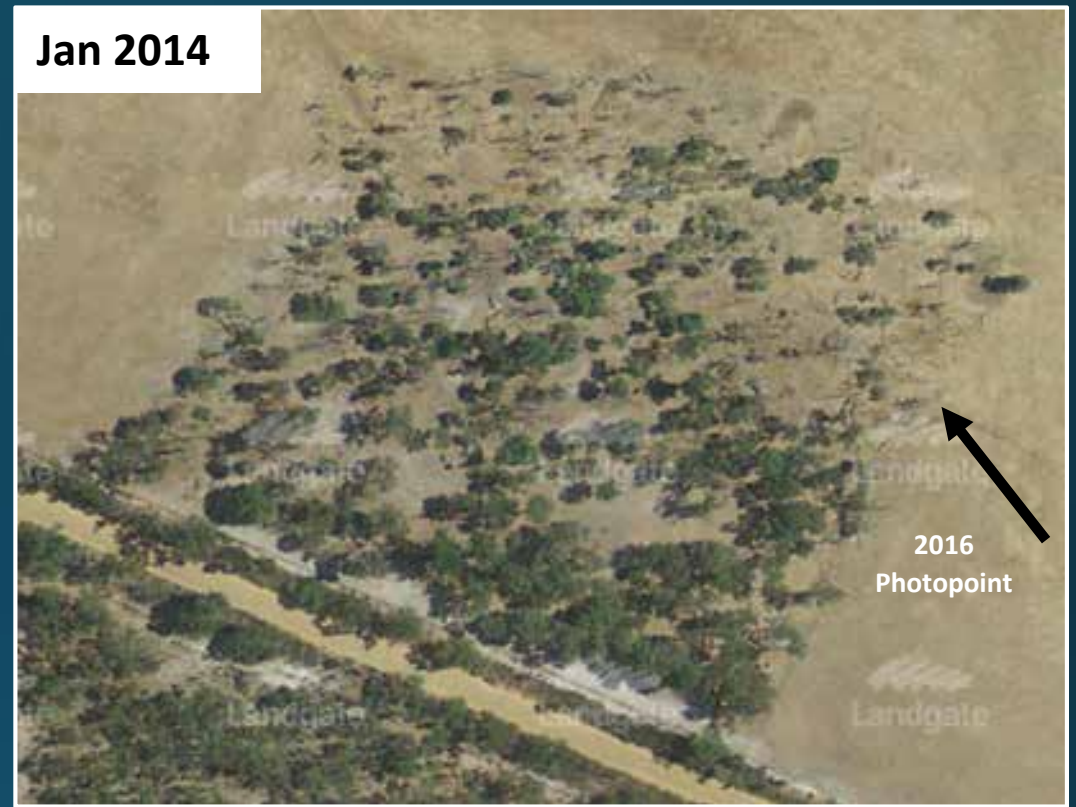




Greenbushes - Action Site

Tone Bridge - Offset Site

# BBG issue: large areas of Jarrah-Marri open woodland – under pressure from increasing cattle grazing...





# Offset site

- 123 ha of jarrah/marri of mixed age class
- Two large unfenced remnants on farmland used for cattle grazing
- Known utilisation by BC
- Contiguous with larger remnant.









# Mechanism

1. Landowner, with assistance from BBG, constructs fence to specified standard, removes stock and enters into a 20-year maintenance agreement.
2. Offset program will be managed 'on the ground' by BBG, with annual inspections & reports provided to Talison.
3. Program entirely funded by Talison Lithium, with appropriate governance measures including legal agreements, external audits and regular meetings.



# Offset assessment

01

A real  
threat  
exists.

Cattle  
causing  
physical  
damage to  
trees and  
soil

No  
recruitment

Good  
research

02

Good  
chance of  
success.

Simple and  
proven  
method  
(fencing +  
planting)

15-yr old  
recoveries  
next door

Good  
research

03

Equipped  
for the  
long-term.

Perpetual  
covenant

Farmer  
retains land

BBG has 25  
yrs plus of  
experience

Talison  
retains  
obligations

04

Measurable  
progress.

Real  
indicators

Annual  
audits and  
condition  
reports

Baseline  
and  
periodic BC  
utilisation  
surveys

**Equates to 107.7% of proposed impact.**



Offset calculator

Offset calculator	Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement	Cost (\$ total)	Information source	
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# Outcomes

- ☺ **Measurable benefit for the environment – active measures applied to susceptible areas.**
- ☺ **Benefits to the company: lower capital outlay; reduced business risk; less demand on staff resources.**
- ☺ **Benefits to local NRM: capacity building, stable funding source, and a transferable framework for similar projects.**
- ☺ **Benefits to the landowner: 'cost neutral' landscape and ecosystem protection & enhancement, ownership retained.**





Work together to maximize the benefits of your offsets



**With special thanks to:**  
Talisson Lithium Limited  
And  
Blackwood Basin Group



Further details available – search for *EPBC Assessment 2013/6904*  
Offset Management Plan available at [www.talisonlithium.com](http://www.talisonlithium.com)