

# Field Testing of Road-crossing Structures



Ross Goldingay & Brendan Taylor  
School of Environment, Science & Engineering  
Southern Cross University, Lismore, NSW 2480

# Loss of Habitat Connectivity May Be Reduced by Installing Wildlife Road Crossing Structures



Two badgers using badger culvert British Columbia. Photo credit: S. Towers



Highly Intuitive BUT

Structures Often Installed in a Data Vacuum



Pacific Hwy, Bonville, NSW.  
Primarily for the koala.

# Design of Structures often guided by intuition

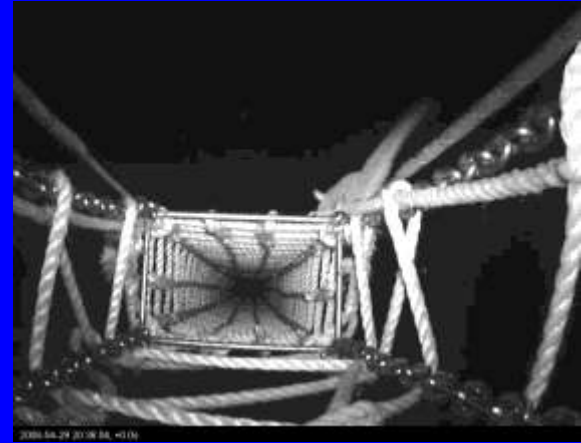


Rope tunnel for arboreal mammals:

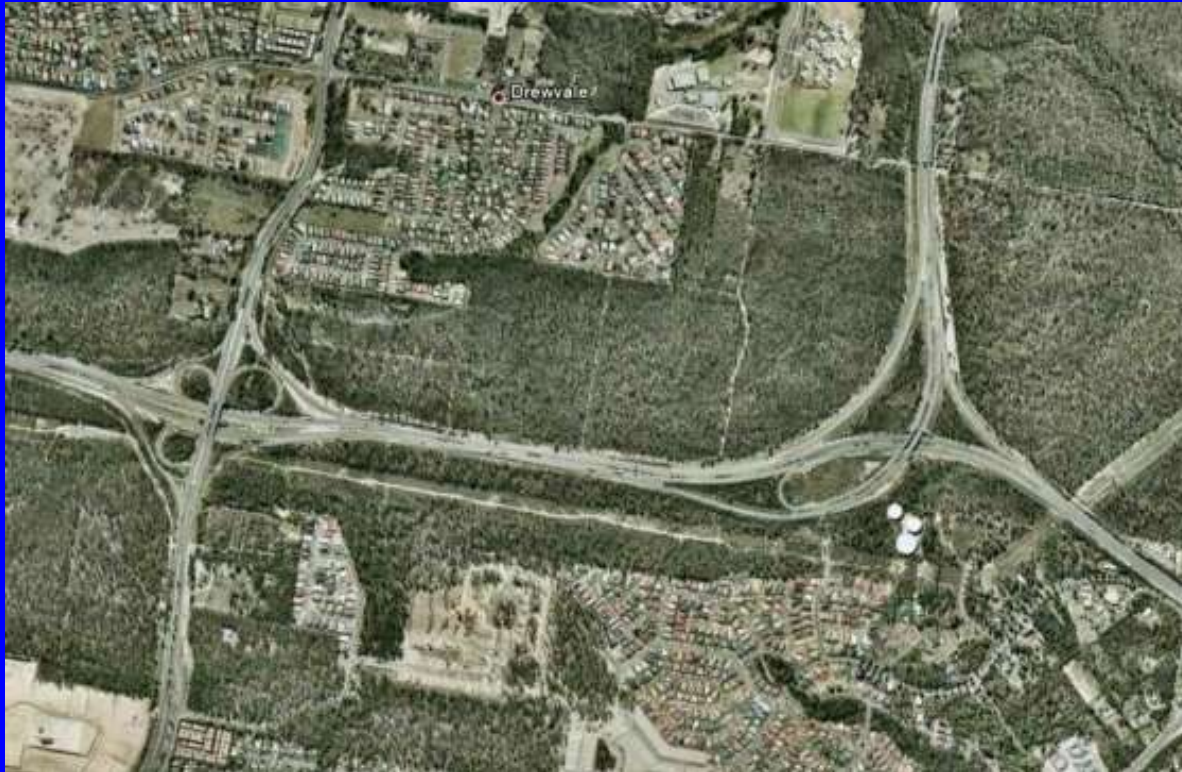
– protection from owls?



# Animals often travel across the top



# Arboreal Mammals – highly sensitive to roads



# Due to road-kill



**Photo: Karawatha Preservation Society**

or behavioural aversion





# Recent Development of Road Crossing Structures for Arboreal Mammals



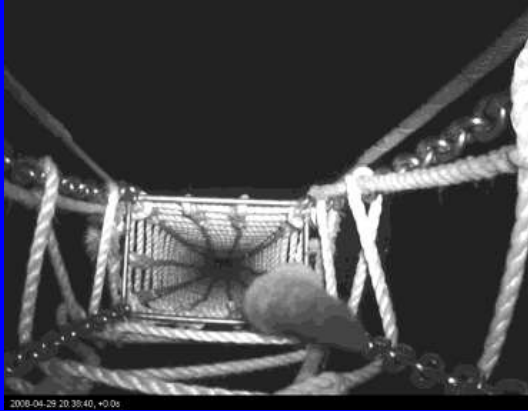
Rope  
canopy-bridges



Glide poles



# Varied designs to these structures



Rope tunnels and  
flat rope-bridge



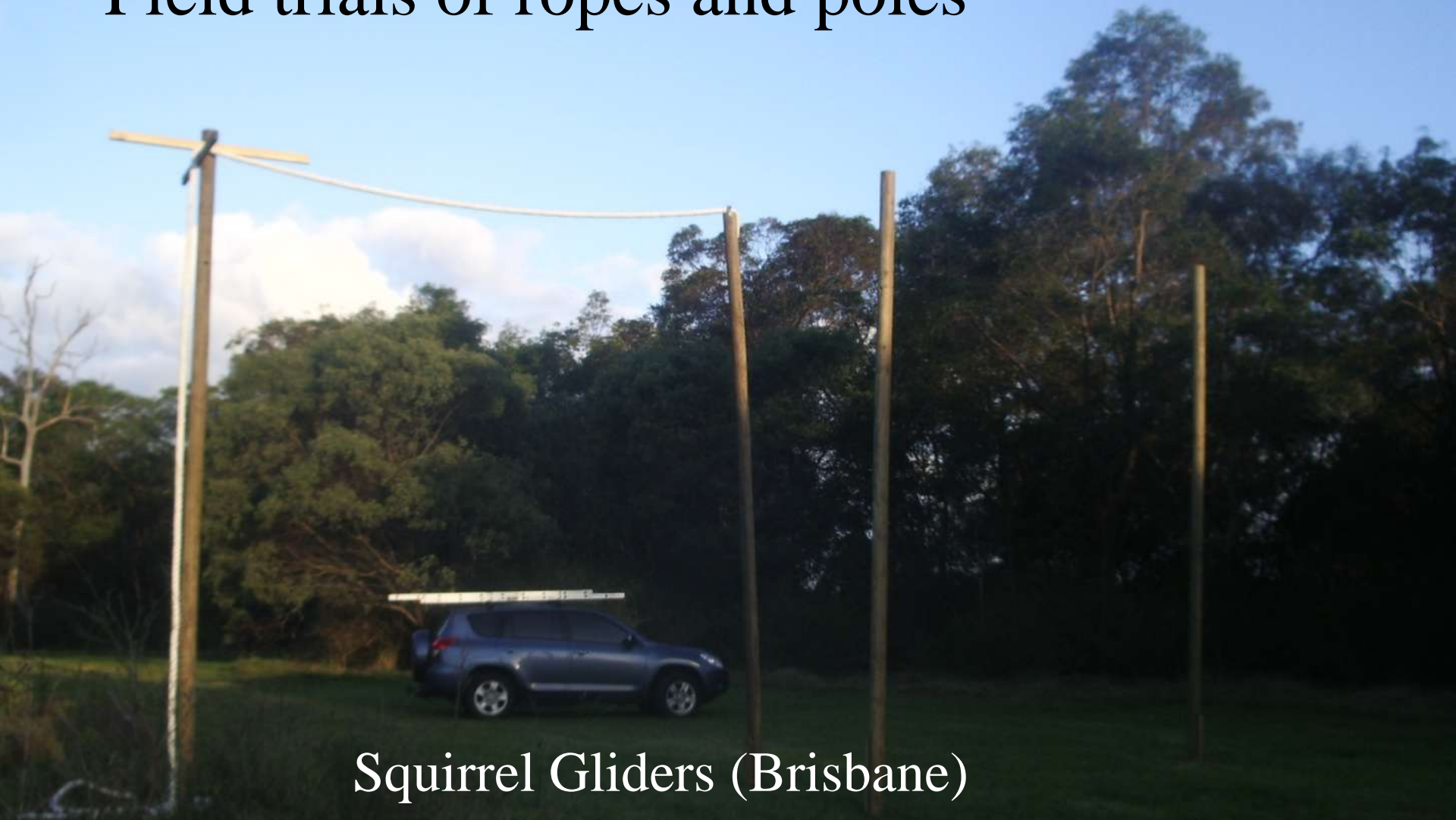
# Varied designs to these structures



Glide pole launch beams –  
side-ways or forward  
pointing?



# Field trials of ropes and poles



Squirrel Gliders (Brisbane)

Sugar Gliders (Brunswick Heads)

# Placing our poles wearing appropriate PPE



Brendan



Ross

# Placing our poles



# Field trials of ropes and poles



4-5 m

Squirrel Glider – 7 m  
Sugar Glider – 5 m

Poles placed in  
90 cm holes



Pole  
array  
close to  
trees

# Field trials of ropes and poles

Side-ways or  
forward pointing  
beams?





# Field trials of ropes and poles

Launch beams  
or ropes?



# Field trials of ropes and poles

Rope mesh or  
rope ladder?  
Rope strands  
8-cm or 1-cm.



# Field trials of ropes and poles

Single rope or  
rope mesh?



# Launch beam: side-ways or forward



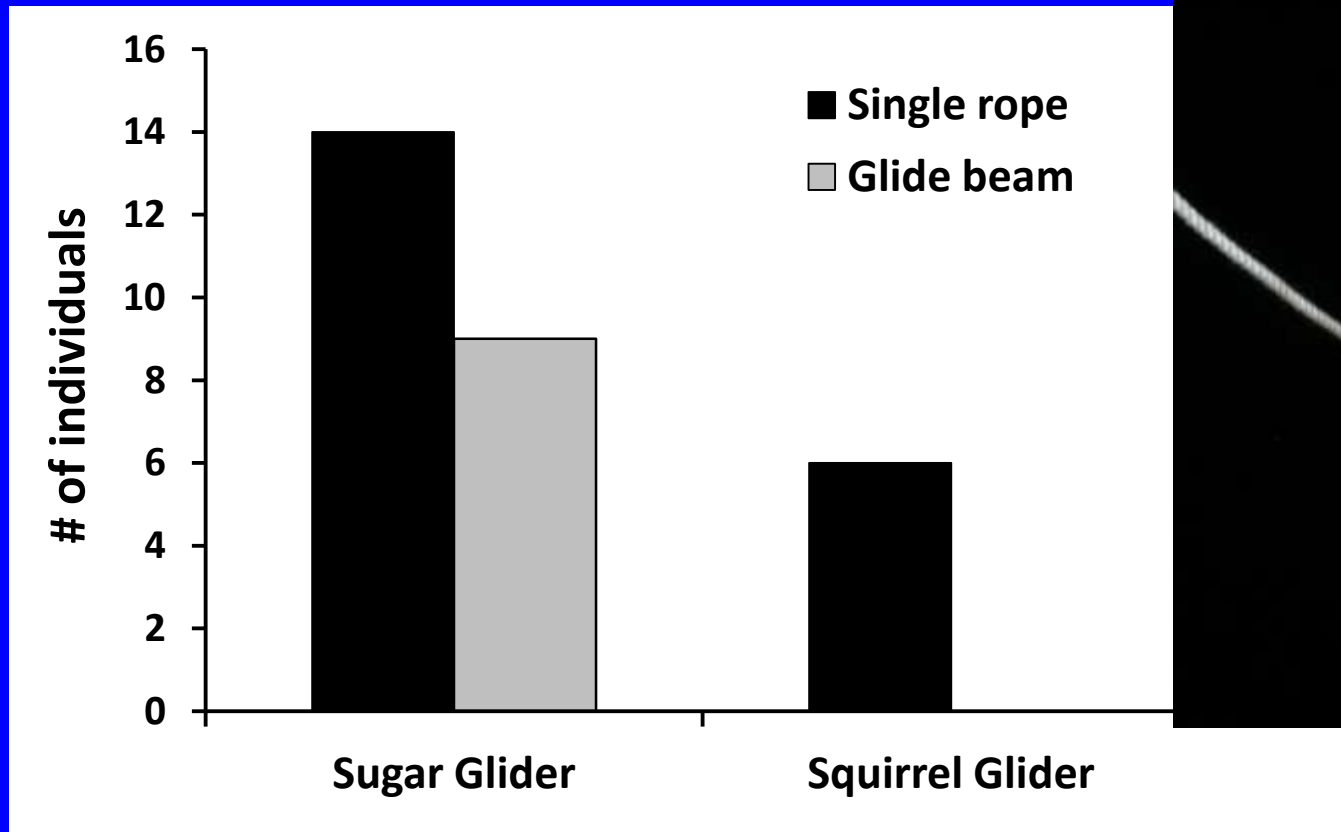
Launch beam: side-ways or forward



# Forward vs Side-ways Launch Beam

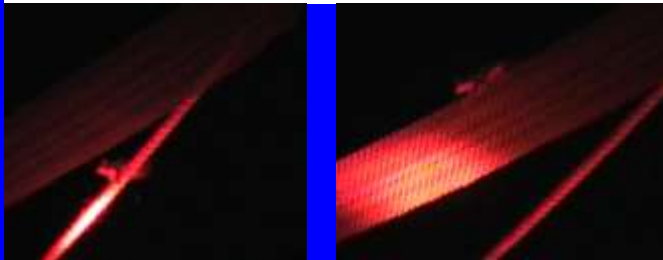


# Single rope vs Launch Beam



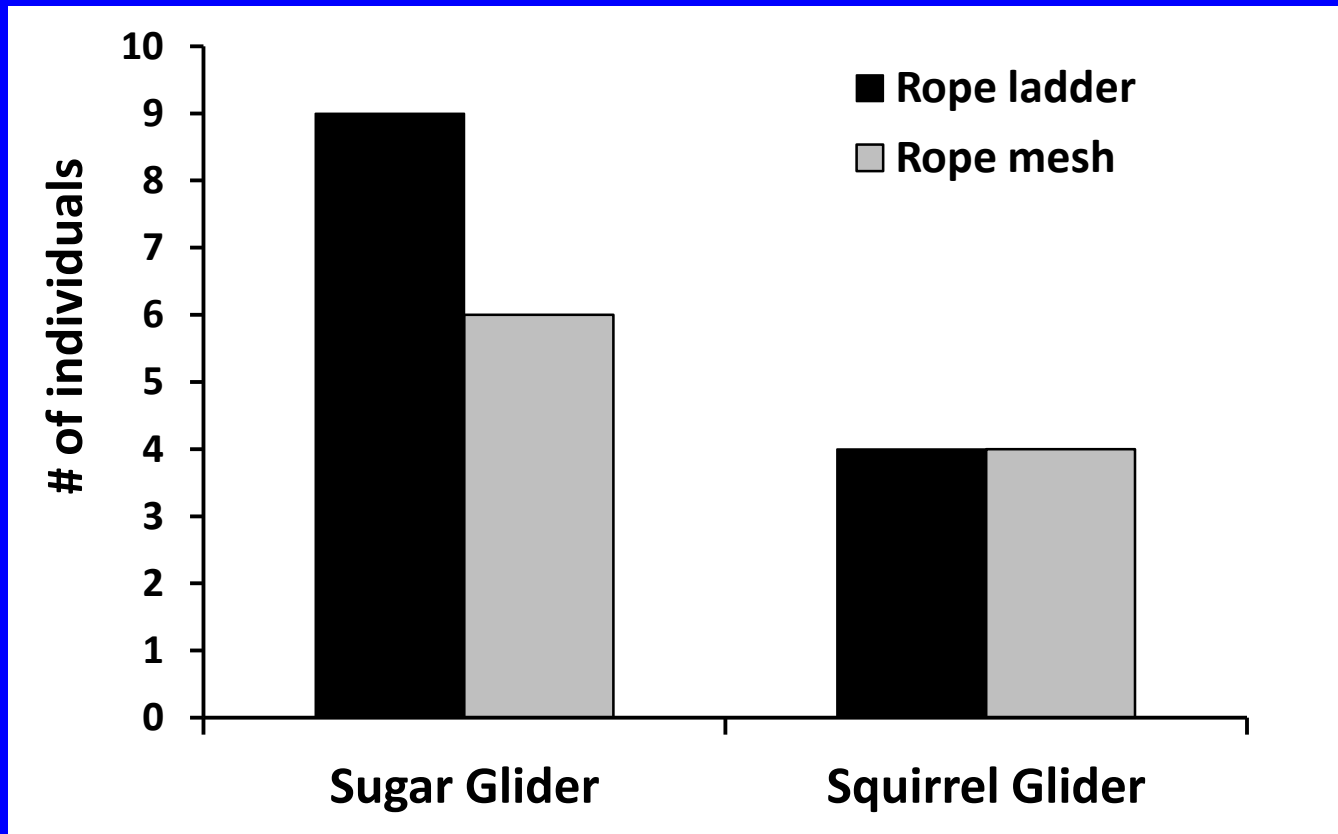
Position of structure is randomised each night.

# Single rope vs rope mesh





# Rope ladder vs rope mesh



# Hamilton Road Rope-bridge



# Hamilton Road Single-rope Detections



squirrel glider

1-2 crossing  
/wk.



squirrel glider



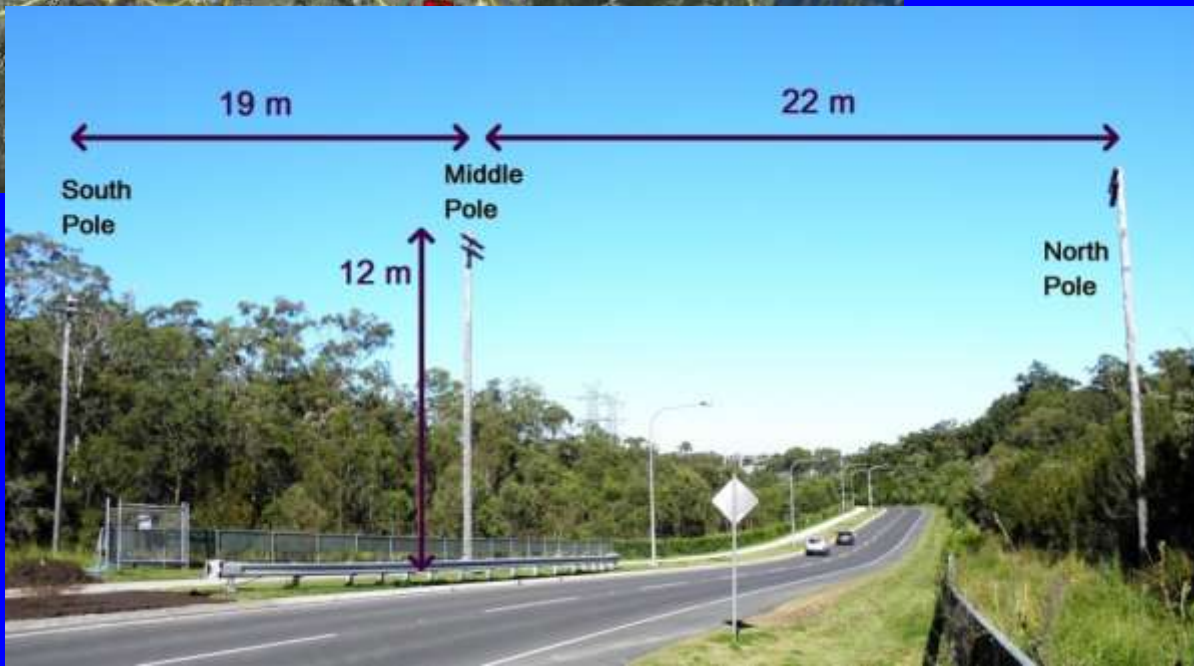
ringtail possum

1 crossing  
/2-wks.

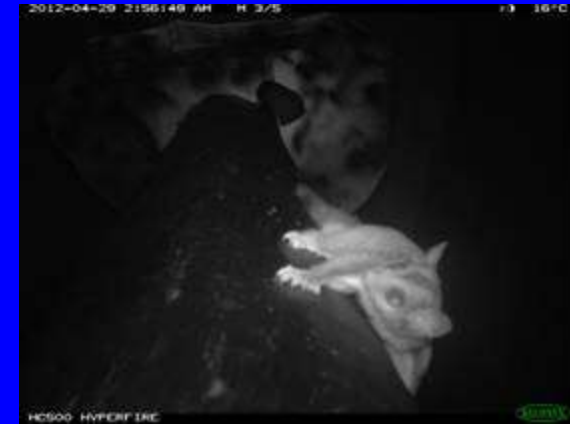
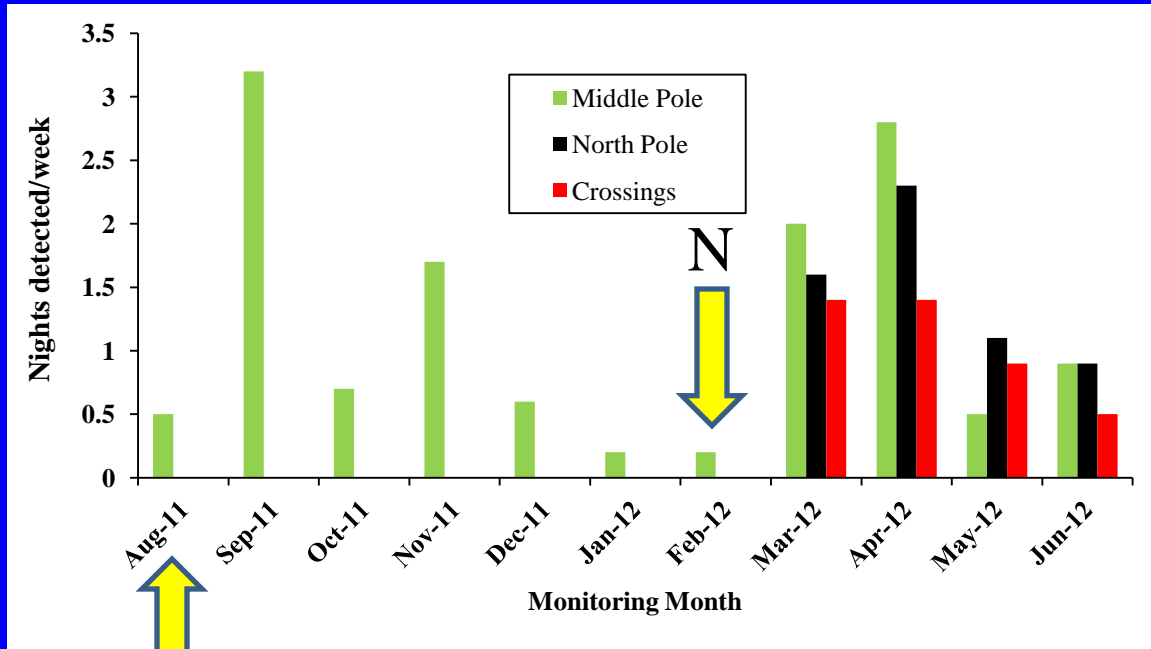


brush-tail possum

# Scrub Road



# Scrub Road – detections



Camera records suggest 1 crossing per week

How do you get koalas safely  
across a road?



How do you get koalas safely  
across a road?



Underpasses?

# How do you get koalas safely across a road?



Underpasses  
with furniture?



How do you get koalas safely  
across a road?



Land-bridge?

How do you get koalas safely  
across a road?



Why not a rope-bridge?

# Field Testing of Koala Rope-bridges at SCU, Lismore



Ladder



Rope-bridges produced &  
installed by Dave Sullivan & team  
at [Faunacrossings.com.au](http://Faunacrossings.com.au)

# Field Testing of Koala Rope-bridges at SCU, Lismore



Mesh

# Field Testing of Koala Rope-bridges at SCU, Lismore



3-sided

# Field Testing of Koala Rope-bridges at SCU, Lismore



Sausage



# Field Testing of Koala Rope-bridges



Monitored activity  
on 2 nearby trees



# Field Testing of Koala Rope-bridges

	Days active	Images/ videos	Records		
Rope-bridges			koala	Brushtail	Ringtail
3-sided	501	10826			
Ladder	501	10646			
Mesh	501	18684			
Sausage	501	5461			
Trees					
1	546	1653			
2	481	1505			
total		48775			



# Field Testing of Koala Rope-bridges

	Days active	Images/ videos	Records		
			koala	Brushtail	Ringtail
<b>Rope-bridges</b>					
<b>3-sided</b>	<b>501</b>	<b>10826</b>		<b>3</b>	<b>1</b>
<b>Ladder</b>	<b>501</b>	<b>10646</b>			
<b>Mesh</b>	<b>501</b>	<b>18684</b>		<b>1</b>	
<b>Sausage</b>	<b>501</b>	<b>5461</b>		<b>3</b>	<b>1</b>
<b>Trees</b>					
<b>1</b>	<b>546</b>	<b>1653</b>	<b>9</b>		
<b>2</b>	<b>481</b>	<b>1505</b>	<b>17</b>		
<b>total</b>		<b>48775</b>			



# Conclusions

Behaviour studies can provide fundamental insights.

Small-scale field testing can improve design of structures.

