



A Reminder of the Challenge Ahead

Extreme road-mediated habitat fragmentation.
Logan Motorway, south-west Karawatha Forest, se Qld



In this landscape – 7 spp. arboreal marsupials

Are all arboreal marsupials the same?



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Brushtail possums

I'm not incl. semi-arboreal.



Phascogales



Tree-kangaroos



Pygmy-possums



Ringtail possums



Gliding possums



Koala

Do roads comprise a barrier to these species?



Brushtail possums

Can we answer without detailed data?



Phascogales



Tree-kangaroos



Pygmy-possums



Ringtail possums



Gliding possums



Koala

Do they move along the ground in normal activity?



Often Sometimes* Often Often Sometimes Often Never Yes

Do they move along the ground in normal activity?



Often Sometimes* Often Often Sometimes Often Never Yes

Basically 2 groups – ground-using & ground-avoiding

This is also reflected in road-kill data

What is the frequency of People-kill?



Frequent Frequent* Frequent Sometimes-----Sometimes Rare



What is the frequency of road-kill?

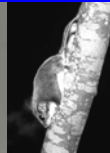


Frequent Frequent* Frequent Sometimes-----Sometimes Rare

If the road-tree-gap is too wide to glide or jump across the road is a barrier to the gliders.

Road mitigation is needed for all groups.

Does this allow prediction of the crossing structures needed?



What options do we have for arboreal mammals?



Underpass



Land-bridge



Land-bridge with glider poles



Canopy-bridge

What options do we have for arboreal mammals?



Bridge underpass

And of course ...
Glider poles without the Land-bridge



What do monitoring data reveal about use of these structures by arboreal mammals?

Using review of van der Ree *et al.* (2007) & some unpubl. work



Brushtails (+++),
Ringtails (+),
Koala (+),
Pygmy-possum (+)



Ringtails (++),
Brushtails (++),
Gliders (++), P-P



Brushtails (+++),
Ringtails



Brushtails (++),
Ringtails (+),
Koala (+),
Gliders (+)



Brushtails (+),
Gliders (++)



No data
but ...

What do monitoring data reveal about use of these structures by arboreal mammals?



Ball, T. & Goldingay, R. (2008).
Can wooden poles be used to
reconnect habitat for a gliding
mammal? *Landscape and Urban
Planning* 87: 140-146.



No data
but ...

Use vs Effectiveness?

Behavioural data not ecological



Brushtails (+++),
Ringtails (+),
Koala (+),
Pygmy-possum (+)



Ringtails (++),
Brushtails (++),
Gliders (++), P-P



Brushtails (+++),
Ringtails



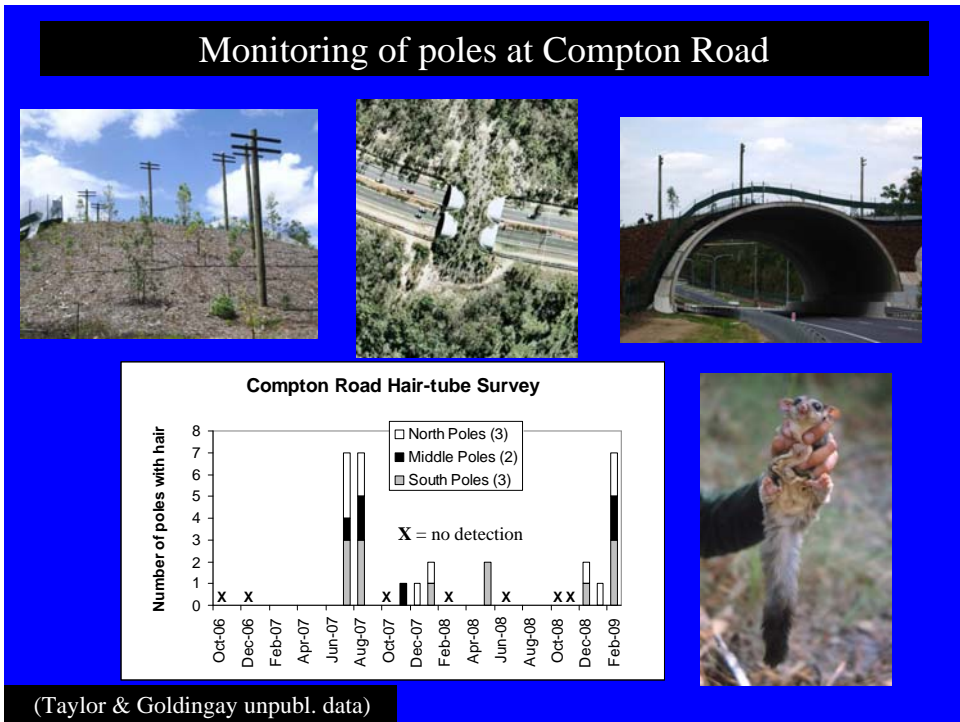
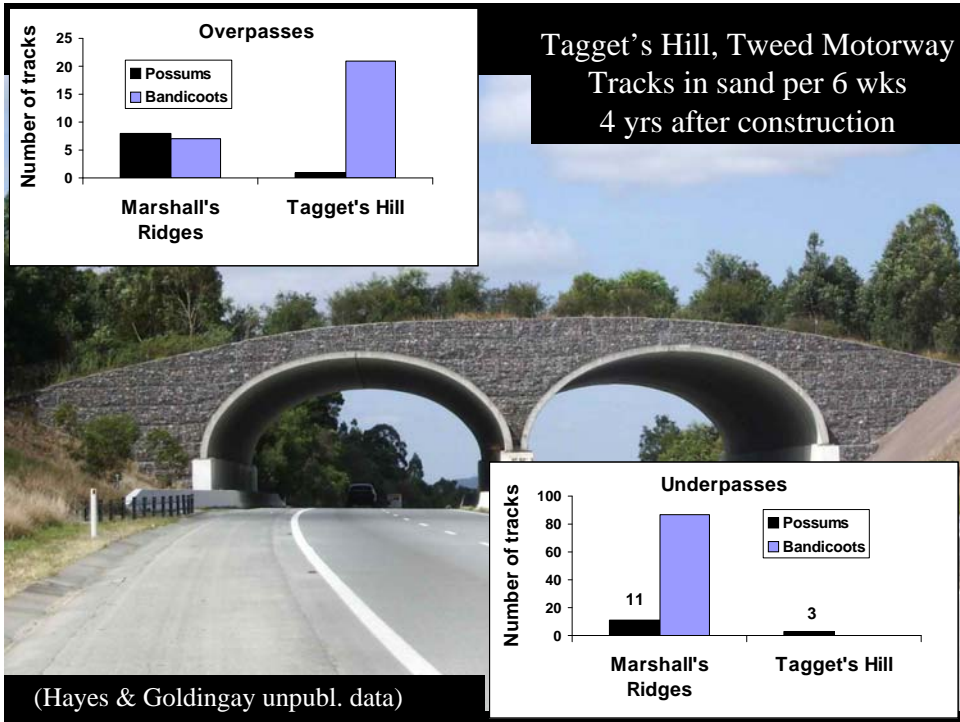
Brushtails (++),
Ringtails (+),
Koala (+),
Gliders (+)



Brushtails (+),
Gliders (++)



Squirrel
Gliders (++)



Basic Summary

Implications for ground-using (GU) & ground-avoiding (GA) species

GU



GA



??

Estimated cost of structures (2003-5)

Using review of van der Ree *et al.* (2007)

\$350k



\$1+mill



\$30k



\$3mill



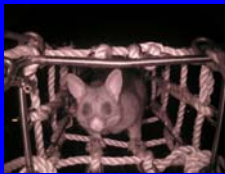
\$5k



Specialised Structures for Arboreal Mammals - Ropes vs Poles



Ropes



Source: Bax 2006



Source: Goosem, Weston, Bushnell 2005



Poles



Poles



1. One species only so far.
2. Several glider species or their populations listed as threatened.
3. Further field trials needed.

Specialised Structures for Arboreal Mammals Ropes & Poles



Installations indicate the potential of these structures.
Field experiments now required to investigate effectiveness.

Relevance to Other Linear Barriers



Size of canopy gaps & gliding
ability important

Bomaderry Ck, Nowra, NSW south coast.

Conclusions

1. Some arboreal species require specific structures.
2. Recognise the value of behavioural trials.
3. Further monitoring required.
4. Further research required.

