

# Exploring the Unexpected

The benefits of understanding non-target species use  
of fauna passages

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# Preaching to the Crowd

Ecological research is...

- Important
- Exciting
- Rewarding

It's also inherently ...

- Inconsistent
- Unpredictable
- Uncontrollable
- Unexpected



# Fauna Crossings in Road Ecology

Typically developed to:

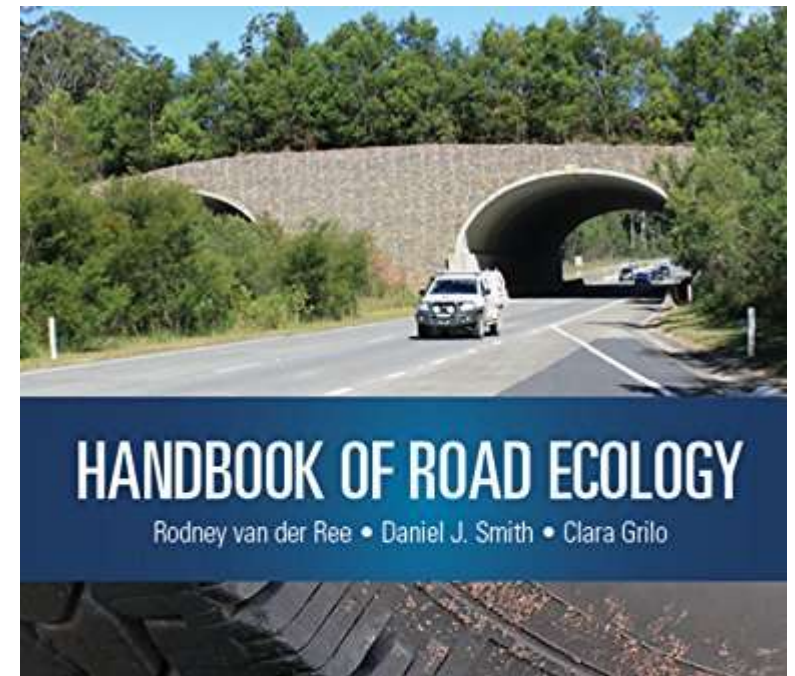
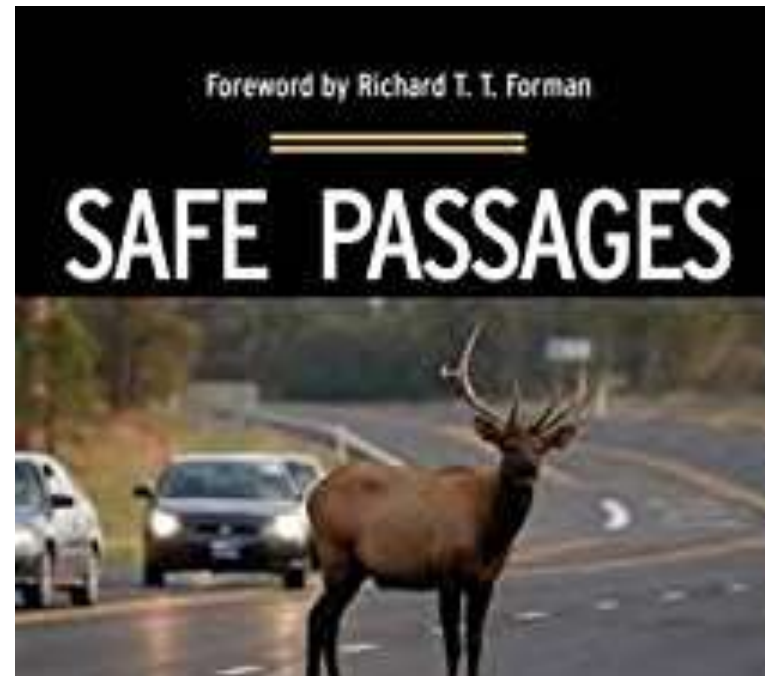
- Enhance connectivity
- Reintroduce habitat
- Assist a particular target taxa
- Focus on (large) mammals
- Avoids avian/volant species
- Non-target species benefits?



# Evaluating Fauna Passages

- Literature now discusses success as defined by 'effectiveness'
- As opposed to 'use' studies

*Can effectiveness be defined without consideration for  
diverse/non-target fauna?*



# Non-target Taxa

- Non-target species are becoming more recognised
  - (eg. Road Ecology handbook)
- Many passage benefits may be critically important for underrepresented or understudied species

*Complexity, microhabitat requirements, 'landscape approach'*



# Case Study: Compton Road



# Compton Road Results 2012 - 2016

## Overpass

- 74% herpetofauna species
- 70% of mammal species
- 100% of bat species

*81% of 90 species detected used the overpass*

## Underpass

- 13% of herpetofauna
- 45% of mammals
- Bats not surveyed

*Lacks habitat continuity, complexity and natural elements*



# Surprising Outcomes

- Extension of natural habitat and provision of microhabitats
  - E.g. Fallen trees, leaf litter – natural habitat characteristics
- Overpass mimics natural habitat
  - Structure
  - Temperature
- Species colonisation over time (potential for natural succession)





# Secrets to Success

None!

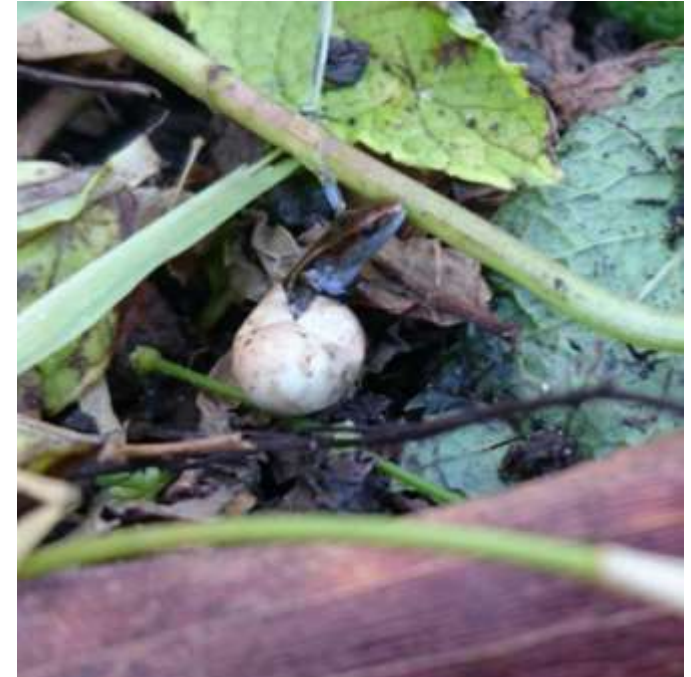
- Typically common sense
- Provide natural elements and complexity
- Consider biotic and abiotic factors
- Consider varying levels of ecology (micro, macro)

*Establish an ecosystem, not just a crossing*



# Build It and They Will Come

- **\*well**
- Vegetation
  - Local native
  - Variation
  - Structure
- Siting and structure materials
- Soils and encouragement of detritus and leaf litter
  - Facilitates temperature and moisture control



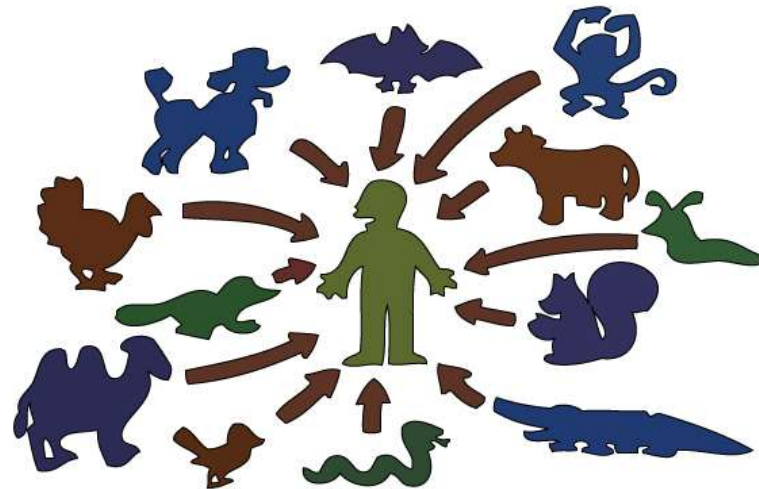
*Aiming to provide useable habitat will be the ultimate factor*

# Considering the System

- Landscapes function as systems, as do fauna communities
- Encouraging natural functions of a system at multiple levels

*Consideration of abiotic factors will support a functioning trophic system/community*

## The Food Chain



# Understanding and Improving

- Encouraging research of non-target species will:
  - Improve construction methods
  - Highlight areas requiring improvement
  - Outline how passage development can support sensitive species
  - Develop long term studies to understand succession and acclimation

*Encouraging best practice implementation, ongoing research and monitoring*



# Constraints

- Dependent on available resources, funding, time.

*The importance of establishing fauna passages for non-target species is in developing a self sufficient 'living' system*

- Reduces the need for ongoing maintenance/funding/resources



*"O.K., let's slowly lower in the grant money."*

# Positive Focus

- Research based outcome
- Best practice = maximum benefit
- Macro and micro focus
- Open, positive mind





Thanks for listening!