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 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
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
• 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!