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## Travel to Wageningen University (September 2012)

### My research

In addressing the challenge of climate change and the potential for shifts to species geographical range ecological connectivity proposals are frequently suggested as a means by which to confer greater biodiversity resilience. This principle has been widely suggested as 'a high priority' (Forman 2008, p. 344) in both theory and has been embraced through policy such as the *National Wildlife Corridors Plan* (Commonwealth of Australia 2012). Ecological connectivity designs are ubiquitous globally, occurring at numerous scales and locations (Worboys, Francis & Lockwood 2010) as 'ecological networks', 'green infrastructures' and 'networks'. However the preoccupation of many schemes lies in their modelling and less attention is given to implementation as real spatial plans that balance the complex disparate ecological and cultural demands of Australian landscapes. Despite the inherent debate as to the efficacy of connectivity as a principle in the management of Australia's biota if we are to move from theory to practice and from abstract policy to the specific such designs need to be developed. No longer can planning exist in a theoretical vacuum but must instead be tempered with the reality of existing landscape conditions: existing human land-use, tenure, livelihood and settlement. In this research a flexible design-based approach meant that iterative adjustment and redesign could occur to respond to these challenges. Evaluation and testing of continental-scale designs occurred at the local through an innovative design charrette. In so doing, this research builds upon the theory, the science and the popularity of connectivity conservation to create spatially accurate, measurable and visual design proposals. These indicate the potential for a flexible and adaptive approach to holistic landscape design with Green Infrastructure as the fundamental organising principle.

### Alterra and Wageningen University, Netherlands

Wageningen University is a leader in planning and design for ecological connectivity across human affected lands at (continental) scales similar to my research. Researchers at WUR/Alterra have been instrumental in the development of the National Ecological Network (*Ecologische Hoofdstructuur*) or NEN and contributions towards the *Natura 2000* and *Pan European Ecological Network*. The main objective of this visit was to learn from this group through understanding the methodology that they employ to create such schemes.

### Major findings and outcomes of the collaboration

**Methodology** I had the opportunity to spend time in discussions of ecological modelling techniques, methodologies, origins and the challenges involved in creating and implementing ecological networks. This occurred primarily with Professors Opdam and Jongman and their team. I also had the opportunity to hear of the interesting way that the two disciplines, Landscape Ecology and Landscape Architecture were becoming increasingly interchangeable.

**Multidisciplinary and collaborative** A flexible and collaborative multi-disciplinary approach with stakeholders is undertaken by the team at Wageningen. Unbeknownst to me, my own research followed a similar approach theirs as an adaptive, responsive and iterative approach.

**Site visits** I had the opportunity to visit several current ecological and land restoration projects (*Hoge Veluwe* and *Ostvaardersplaassen*). This was a valuable experience. These two sites are well-known for the way in which they are reshaping our concepts of ecological restoration and novel ecosystems.

**Improvements and feedback upon my research** The opportunity for me to review ideas with staff was a valuable experience. Inputs and feedbacks aided in improving my research and the opportunity to share.

**Significance to adapting and protecting Australia's terrestrial biodiversity** It was clear that the group (and perhaps Europe as a whole) is years ahead in terrestrial connectivity conservation planning practise. In Australia, the dominant *nature:culture* paradigm remains a primary force in considering the landscapes

within which we operate. Holistic landscape planning requires a degree of 'ground-truthing that doesn't currently occur. The University of Wageningen in Netherlands has for the past 20 years been actively researching and been instrumental in engaging with municipalities and community in order to implement the NEN. Australia has a long way to go before we have the same degree of knowledge and respect as a society and country for the nation's natural resources and biodiversity as Netherlands has with its comparably impoverished ecological resources.

**Beyond the binary of nature:culture** European landscape planners appear to possess a grounded understanding of landscape as the sum of its abiotic, biotic and cultural parts. Therefore 'synergistic' and 'multi-functional' possibilities ensue and conservation planning can therefore increasingly take a holistic, 'multi-functional' or 'integrated' planning approach (Van Der Windt & Swart 2008; European Commission 2012, p. 25; Bennett 2003, p. 163). Ultimately working towards something that Hill and Johnston (2002, p. xii) describe as 'ecosystem health, biotic integrity and cultural well-being'.

**Political Support** There is a degree of progress that could be attributed to the obligations as part of being a European member state. This is clear from the level of implementation of the NEN as well as the imperative of Green Infrastructure as a useful approach. For instance, Target 2 of the *Our life insurance, our natural capital: an EU biodiversity strategy to 2020* suggests that '...by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems' (European Commission 2011, p. 12). This and other mandates shape land-use and ecological planning at all scales; from municipality, to continent.

### Future research suggestions

Future research could benefit from investigation into interdisciplinary methods that focus upon real spatial design outcomes. The gap between policy, science and practice must be bridged if we are to successfully safeguard Australia's species, landscapes and ultimately, peoples (Kilbane 2013). Design-led approaches, underpinned by an integrated approach that emphasises *propositional design* in addition to (only) *ecological modelling*, could include significant benefits such as:

- manipulable and flexible designs that can consider ecological and cultural landscape elements
- more holistic landscape planning
- ability to shift scales
- reconciliation and articulation of policy upon the land as spatially accurate, measurable and visual design possibilities

Such direction sits comfortably within the landscape architecture discipline and any landscape planning and spatial ecological planning could benefit from such involvement as collaborations between policy planners, landscape ecologists and Landscape Architects.

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