



Meaning and design of nature for the urban built environment

24 – 26 August, 2005

Lincoln University

Cities as complex landscapes - Part 2: Design directions, landscape configurations and biodiversity opportunities

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Fundamentally, the same ecological and landscape processes operate in urban and cultural landscapes as in natural environments. Some of the stresses and disturbances are more extreme than would normally be found in natural ecosystems. There are patterns that are distinctively different. Patch scale is often finer in cultural landscapes because of the localised intensity of human disturbance. Patch configuration and boundaries are typically the result of human activity and institutions rather than natural environmental gradients. One consequence of this cultural transformation of ecological process and pattern is that urban ecology becomes 'de-naturalised' and is more difficult to decipher. This distancing of urban populations from underlying ecological processes means that people are increasingly influenced by surface appearance of 'nature', and cut off from a deeper understanding of natural heritage.

Despite this inevitable de-naturalisation, mature cities, especially in continents where the native biota is predominant even in cultural landscapes, have often achieved some accommodation with nature. There are many habitats in cities that mimic, albeit extreme, natural lowland habitats – riverbeds, sand dunes, salt marshes, crags and gorges - and an increasing range of indigenous species are becoming 'urbanised'.

We begin with the proposition outlined in earlier conference papers, that while access to all types of nature has positive effects on human wellbeing, indigenous nature in particular is an

important element in identity and sense of place (nationally or regionally). We then analyse typical New Zealand urban form as types of ecological opportunity. These frequently represent potentials that have already been approached (if not achieved) in old cities surrounded by native species. In young (colonial cities) these potentials are typically less recognized or realized.

We look intuitively at urban biotopes and select some examples of species from similar wild habitats that could be promoted in the urban context. These lead to the identification of design opportunities for urban substrates and gardens – largely involving various new combinations of native and exotic species. We also apply our knowledge of landscape dynamics to the design of patch configurations in urban environments that provide both ecological sustainability (at a metapopulation scale) and sustainability of the human experience of nature. There are three types of locality in cities where such experience can be usefully promoted: first, in the ‘deep’ structure of natural features, hydrological corridors, extensive parks and reserves; second, in the frequently unseen (but crucial) matrix of private land, ranging from gardens to industrial wasteland; third, in the highly visible public realm of streets, access points, edges and nodes, that plays a large part in defining the way in which cities see and present themselves. Increasing the utilization, visibility and acceptance of indigenous species in urban design, will require an improving knowledge of local flora and associated fauna and their ecology, propagation, and sustainable maintenance to be matched with design opportunities.