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The built environment as a provider of ecosystem services in urban landscapes

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Abstract:

'Biophilic Design Elements' are natural elements used purposefully as design features within urban landscapes. Recent publications on sustainability and design have enumerated what these design features are. Ecosystem services are benefits people derive from ecosystems. Multiple ecosystem services provided by natural ecosystems in the South East Queensland region (SEQ) have been explicitly stated in an ecosystem service assessment framework initiated in 2005 and now known as the South East Queensland Ecosystems Services Framework (SEQESF). Methods used in the SEQESF can produce place and people specific rankings for natural ecosystems in any part of the world. Previously this PhD research extended SEQESF's methods to include and assess Biophilic Design Elements showing how they compared to natural ecosystems in terms of ecosystem service provision. This produced one instance of a location specific ranking of Biophilic Design Elements. The process can reproduce rankings for other locations.

The objective now is to show how this ranking of Biophilic Design Elements can be used by design professionals within their design process. It is shown how the ranking can be used to justify the choice of Biophilic Design Elements used within a design scheme.

A local case study is used as a design context and digital visualization are created showing the usefulness of the ranking in supporting decisions during the design process. Digital visualization demonstrating each Biophilic Design Element and its associated ecosystem services are produced. It is found that the ranking and digital visualization display the direct relationship that can exist between the built environment and ecosystem services in urban landscapes. Visualizations lend representative support to the claim that the built environment can provide ecosystem services. In conclusion it is shown how the built environment may be a solution rather than a problem contributing to climate change.