

ABSTRACT

Sustainability and stemming the sixth extinction is a global problem. Yet solving it must start at grass roots level. The problem spans numerous scales, both physically and organisationally. Ecological Networks are a spatially sound and dynamic concept, which can help to solve this problem. To bring Ecological networks into fruition requires planning, spatial design and implementation. The planning and implementation are very much dependent on the organisation. It is the design, which can be optimised using GIS.

The proposal was made to create a generic conceptual GIS model for the design of ecological networks. After consultation with an expert knowledge base, it became apparent that it is not possible to exclude species entirely. Species are inextricably linked to the purpose of an ecological network—the protection of species, and ensuring their sustainable existence. Utilising an expert knowledge base and available literature, related criteria were weighted accordingly. These results were used as the bases for the system requirements for the Ecological Network Design Model.

The ENDeM model is split into three sub-models, one for each of the basic components of an ecological network. Optimisation of the network, especially in the Corridor Sub-Model posed an interesting problem, in the model design. The ENDeM model provides a solution to optimising the design of ecological networks, at various scales. Being a fairly simple model, it may be implemented easily within any organisation. Its ultimate aim is to assist in stemming the sixth extinction by providing the web of life, a network of space.