Name of Method: Cellular Automata

Summary of Method: The method is used for a variety of different purposes, however the basis of the model is consistent. The model is essentially composed of a collection of cells arranged on a regular grid system in a specified shape. Each cell has a finite number of states assigned to it, with the model evolving through a number of discrete time steps, based on the rules associated with the state of the neighbouring cells. Every cell in the grid is subject to the same rules for updating, based on the values in its neighbours. Rules applied to cells can include parameters such as population information, together with associated habitat parameters. Such a model could then enable information to be exchanged between neighbouring cells, such as migration, habitat suitability.

Cellular automata can be used to assess the impact of spatial and temporal scales

Advantages of Method: Provides an opportunity to predict biological response to impact, together with the potential for impact beyond the impact footprint. The method can be used to assess the impact of spatial and temporal scales. It can be used to provide clearer information on recovery.

Limitations of Method: The main limitations of the method relate to the cost, technical level required to set up and run such models, the limits of the programming and the availability of the required data.

References: ABPmer, 2006. MEPF 04/-4: Coupling Physical and Ecological Models: A New Approach to Predicting the Impacts of Aggregate Extraction on Biological Recoverability.
Seppelt, R, Undated. Avenues of Spatially Explicit Population Dynamics Modeling — A *par excellence* Example for Mathematical Heterogeneity in Ecological Models?