

# Land Change Modeler Software Extension for ArcGIS



Clark Labs (MA, USA) has released a Land Change Modeler software extension for ESRI's ArcGIS software. Released in 2006 within the IDRISI Andes software, the Land Change Modeler was subsequently developed as a separate product for those individuals utilising the ArcGIS environment.

The Land Change Modeler offers an extensive suite of tools to assess and predict land cover change and determine the implications of change for ecological sustainability. The software interface is sequentially organised around major task areas: analysing past land cover change, modelling the potential for land transitions, predicting the course of change into the future, assessing the implications of change for biodiversity, and evaluating planning interventions for maintaining ecological sustainability.

Users can perform a variety of change analyses with two land cover maps of different dates. Along with graphs of gains and losses, net changes and contributions experienced by any category, a user can immediately generate rapid maps of change, persistence, specific transitions and exchanges. A change abstraction tool, based on trend surface analysis, is also provided which allows the user to uncover the underlying trends of complex change.

For change prediction, Land Change Modeler utilises the two landcover maps of different dates, along with environmental variable maps that the user believes drives or explains the change, to predict what the landcover will be in the future. For example, if we want to determine the potential of new development, we may consider the slope of the terrain, distance to water sources, distance to roads, and distance to previously developed land. Land Change Modeler will then predict, for the specified future date, the allocation of landcover change. In its simplest form, the model will determine how the variables influence future change, how much change took place between time 1 and time 2, and then calculate a relative amount of transition for time 3.

Land Change Modeler also allows for the incorporation of planning interventions as well as the dates they become effective, important parameters that may alter the course of development in the change prediction process.

To assess the effect of landcover change on habitat and biodiversity, Land Change Modeler provides a wide range of analytical features and utilities. Tools are included for habitat assessment, habitat change analysis, gap analysis, landscape pattern analysis, and biodiversity assessment.