

3 The LUIM Tool

In 2004 Drs David Pullar and Carl Smith, at the University of Queensland, were commissioned through the Our Rural Landscape project (ORL 1.1) to build an integrated LUIM tool with a GIS interface that incorporated the revised risk assessment framework and BBN functionality.

Key achievements

- Development of the LUIM software directly accessed as an extension in ArcGIS 9.1.
- Incorporation of the BBN software Netica V1.05 into the LUIM.
- Development of a user interface for creating rule sets and linking spatial data.

The LUIM operates as an extension within ESRI software ArcGIS 9.1, accessed via a toolbar. The LUIM GIS toolbar links to Bayesian belief network (BBN) software, Netica V1.05 (Norsys, 1997) and to the spatial data (land use and land attributes). Natural resource data and relationships are stored in a BBN constructed around the risk assessment framework. The BBN interfaces with the GIS data to allocate ratings to map units (Figure 6).

In the earlier applications of the LUIM spatial data had to be imported and the results exported and linked back to the spatial data. This process was time consuming and the potential for data handling errors to occur was quite high. Linking the LUIM to the BBN in a GIS has removed the necessity for importing and exporting the data, and has streamlined the formatting of the results as map products. The new version of the LUIM has a user friendly interface that does not require the user to be a high level GIS user.

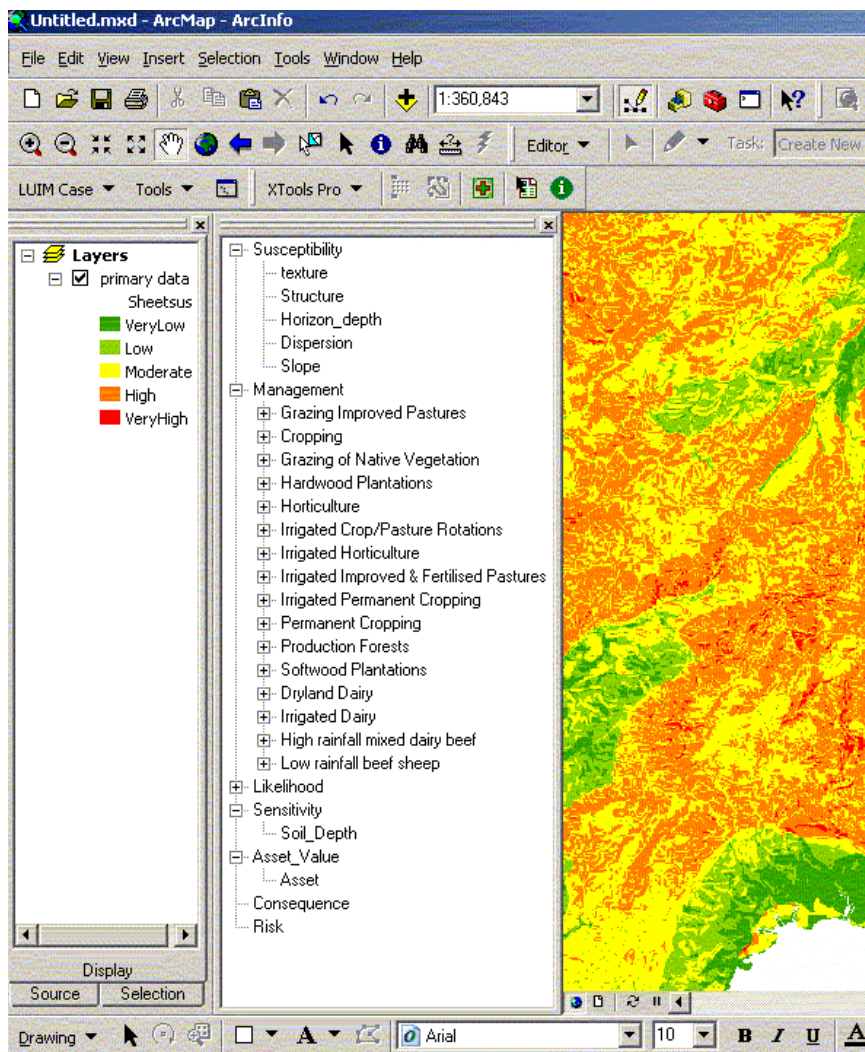


Figure 6 Example of user interface window for the LUIM within ArcGIS 9.1