

## **ABSTRACT**

The second generation of the Landscape Disturbance and Succession model (LANDIS-II) is frequently used to understand ecological succession on the landscape. LANDIS-II is an important simulation tool but it can be difficult to parameterize properly in data-poor regions. By examining the spatial sensitivity of LANDIS-II, the model's users will have an improved understanding of the data required to properly implement the model. Existing studies have tested the ecological sensitivity of LANDIS-II in local geographic settings, but a robust test of the model's spatial sensitivity has not been completed. This research tested the spatial sensitivity of the LANDIS-II spatially stochastic landscape model using a broad set of vegetation communities found within the contiguous United States. Thirty spatially explicit, equal-area, and area-weighted iterations of the spatial parameters of the LANDIS-II model were run for a series of localities in the contiguous United States, where the areas were defined by the spatial composition of vegetation community values. Ecological attributes were derived from the Nature Serve Ecological Systems of the United States dataset. A test of the spatial input parameters of LANDIS-II demonstrated that the model is aspatial under certain conditions. Furthermore, vegetation community interactions may be effectively represented in LANDIS-II by a series of spatially stochastic input rasters; such that assessing a locality's vegetation trend is possible even when spatially explicit land classification information is unavailable, thereby facilitating long-term environmental planning in data-poor environments.