

**GIS and Population/Environment**

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**Introduction**

In recent years the application of GIS and spatial analysis in population and environmental sciences has grown dramatically. This Resource Document is intended to provide short descriptions of a small selection of papers that use GIS in the population and environment fields. The application of GIS in the field of population and environmental science ranges from a basic understanding of environmental and population problems to mapping pollutants to understanding population and environment interactions to environmental management to impact assessments. Those interested in the application of GIS in population science may find Weeks (2004) a useful starting point as it provides a general framework for spatial analysis in demographic research and as well as discussion of data requirements for the spatial analysis.

**Random Examples (in chronological order)**

Yool, et al., (1985) use GIS technology to combine digital landscape data describing fire history, rainfall, and topography data and describe and produce the density map to help manage the bushfire problems in Southern California.

Bowen, et al., (1995) make use of GIS technology in studying the spatial distribution of the impact of environmental hazards such as toxic industrial pollution on poor and minority communities in Ohio.

Axinn, et al., (1997) utilize GIS techniques to link together the multiple sources of environmental contextual data to neighborhood history data, which provides avenues for looking at how changes in environmental context shape demographic dynamics.

Gunnar and Parks (2001) combine geo-referenced data with household and vegetation data and use GIS to model the potential decrease in collection of firewood natural forest.

Nelson, and Geoghegan (2002) present an overview of how remotely-sensed data are collected and processed as well as how GIS techniques and econometric techniques can be combined to model land use determinants.

Bateman, et al. (2003) describe how GIS can be used to enhance environmental economic cost-benefit analyses. This book illustrates how GIS is used to assess location specific cost benefit analysis of land use changes from agriculture to woodlands.

Hunter, et al., ( 2003) use GIS technology to pull together remotely sensed imagery and demographic, economic, and biophysical data to examine the impact of various demographic scenarios on species diversity in the California Mojave ecosystem. They mention that their

model could be a potentially useful tool for policymakers, allowing for estimation and visualization of the land use implications of policy decisions.

Termansen, et al., (2004) combine GIS with a discrete choice modeling approach to model recreational behavior. They investigate how landscape characteristics determine the forest recreational choices in Denmark.

Kaminska (2004) state that, GIS analysis offers valuable tools in environmental and public health studies, yielding important results that may ultimately help prevent excessive exposure to xenobiotics and pesticides.

### **Citations**

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