The San Pedro River Spatial Data Archive: A Database Browser for Community-Based Environmental Protection

William G. Kepner, Darius J. Semmens, Daniel T. Heggem, Edward J. Evanson, Curtis M. Edmonds, Soren N. Scott

Abstract

It is currently possible to measure landscape change over large areas and determine trends in ecological and hydrological condition using advanced space-based technologies accompanied by geospatial data. Specifically, this process is being tested in a community-based watershed in southeast Arizona and northeast Sonora, Mexico using a system of landscape pattern measurements derived from satellite remote sensing, spatial statistics, process modeling, and geographic information systems technology. These technologies provide the basis for developing landscape composition and pattern indicators as sensitive measures of large-scale environmental change and thus may provide an effective and economical method for evaluating watershed condition related to disturbance from human and natural stresses. This project utilizes spatial data from a number of sources. The information has been modified to fit the community project area and assembled into a database browser with search functionality. We have produced all spatial data into a one-stop, easy-access product that will be useful to all others who utilize geographic information systems and could benefit from the information in regard to research, natural resource management, human-use planning, and policy development. The San Pedro Data Browser is currently available on-line via the EPA server (http://www.epa.gov/nerlesd1/land-sci/san-pedro.htm) and distributed as CD-ROMs. The purpose of the database is to disseminate available data that could be used by the stakeholder community to address environmental issues and improve environmental decision-making.

Kepner, Heggem, and Edmonds are with the U.S. Environmental Protection Agency, Las Vegas, NV 89134. E-mail: kepner.william@epa.gov. Semmens and Scott are with the USDA-ARS, Southwest Watershed Research Center, Tucson, AZ 85719. Evanson is with Lockheed Martin Environmental Services, Las Vegas, NV 89119.

Keywords: San Pedro River, geographic information systems, remote sensing, geospatial data, community assessment