



# San Pedro Watershed Database

Office of Research and Development

National Exposure Research Laboratory (NERL)

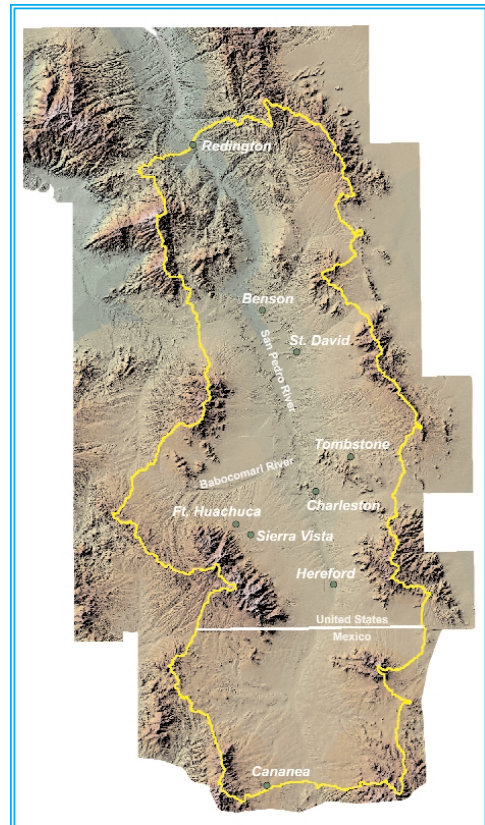
Environmental Sciences Division

Landscape Ecology Branch

EPA/600/C-00/002

The San Pedro Data Browser was developed by the Landscape Ecology Branch of the U.S. Environmental Protection Agency (Las Vegas, NV). The goal of the Landscape Sciences Program is to improve decision-making relative to natural and human resource management through the development of an integrated system of landscape change detection metrics and models. The program has proceeded simultaneously along two lines, 1) a research component to develop and test landscape indicators and assessment protocols, and 2) an implementation component to demonstrate the application of landscape analysis protocols to ecological and hydrological assessments via a number of geographic initiatives.

The San Pedro Data Browser provides spatial data in a user-friendly and accessible on-line format to other researchers, public agencies, resource managers, non-governmental organizations, decision-makers, and user groups. This product provides for long term record keeping (archiving) and easy access to an exceptional assemblage of spatial data for this internationally significant watershed. The development of a watershed database "to unite and organize available data for the public and experts" was strongly recommended within the *Ribbon of Life: An Agenda for Preserving Transboundary Migratory Bird Habitat on the Upper San Pedro River*. The *Ribbon of Life* report was prepared by the Secretariat of the Commission for Environmental Cooperation under the authority of Article 13 of the North American Agreement on Environmental Cooperation and released during its 6th Annual Session held in June 1999 (see Council Resolution 99-04).



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<http://www.epa.gov/nerlesd1/land-sci/san-pedro.htm>

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Acquisition of primary data and database development are an initial feature of any landscape indicator and assessment project. Since 1995, U.S. Environmental Protection Agency (EPA) scientists have been working as part of the multi-agency Semi-Arid Land-Surface-Atmosphere (SALSA) research consortium dedicated to the study of global change within the Upper San Pedro Watershed.

The study location originates in Sonora, Mexico, and flows north into southeastern Arizona. The San Pedro River is an international basin with significantly different cross border legal and land use practices. The watershed embodies a variety of characteristics which make it an exceptional outdoor laboratory for addressing a large number of scientific questions in arid and semi-arid hydrology, ecology, meteorology, and the social and policy sciences. The Upper San Pedro Watershed represents a transition area between the Sonoran and Chihuahuan deserts and topography, climate, and vegetation vary substantially across the watershed. Elevation ranges from 900 to 2,900 m and annual rainfall ranges from 300 to 750 mm. Biome types include desert scrub, grasslands, oak woodland-savannah, mesquite woodland, riparian forest, coniferous forest, and agriculture. The upper watershed encompasses an area of approximately 7,600 km<sup>2</sup> (5,800 km<sup>2</sup> in Arizona and 1,800 km<sup>2</sup> in Sonora, Mexico).

The role of the EPA research has been to develop change detection and accuracy assessment methodologies, landscape indicators, landscape hydrological models, landscape analysis and assessment tools, and watershed assessments. The continuing work in the San Pedro has resulted in the accumulation of a number of spectral image files from a variety of satellite and aircraft-based sensor platforms and a number of spatial data coverages for land, natural resource, and socioeconomic factors. This information has been acquired from a number of sources and includes data generated within the EPA. All coverages have been subset within the project area from its source near Cananea, Sonora, to a pour-point associated with the U.S. Geological Survey gaging station located near Redington, Arizona.

The spatial coverages and the supporting information (metadata) have been organized relative to their geographical availability, i.e., entire upper watershed, Arizona portion only, or Sonora portion only. The coverages are available for download and the metadata include important information relative to acquisition, location, processing level, file size and format, and any relevant comments.

Users are advised that the majority of coverages within the database have been provided by a number of other agencies. Verification of the quality of and use of any data supplied via this product are the responsibility of the user.

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Users are referred to the following URLs to learn more about the EPA research within the Upper San Pedro Watershed and the multi-agency SALSA research consortium:

<http://www.epa.gov/nerlesd1/land-sci/san-pedro.htm>

<http://www.tucson.ars.ag.gov/salsa/salsahome.html>