

Soil mapping based on landscape classification in the semiarid Chaco, Argentina

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The semiarid Chaco shared with Argentina, Paraguay, Bolivia, and Brazil, is an ecosystem where the change of land use from forest to commercial agriculture and social conflicts have been intense since the beginning of the 21st century. These changes and the lack of reliable soil information at appropriate scales threaten the sustainable development of the region. In Santiago del Estero province, Argentina, a soil survey was conducted in order to reduce the knowledge gap.

Due to the large area, geomorphological diversity, limited funding, and high information demand, a geopedological survey using remote sensing and GIS was considered an suitable approach. The cartographic units were determined based on the integration of geoforms and soils, knowledge of landscape and soil forming factors, field observations, and laboratory determinations.

Three main landscape units were recognized: 1) the Chaco fluvio-eolian plain, including a megafan with Haplustolls and Torripsamments, 2) the Rio Dulce valley with Torripsamments, and 3) the migratory alluvial plain of Río Salado with Torripsamments, Ustifluents, and Natraqualfs. The approach used helped accelerate the collection of soil information at an appropriate scale for land use planning.

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