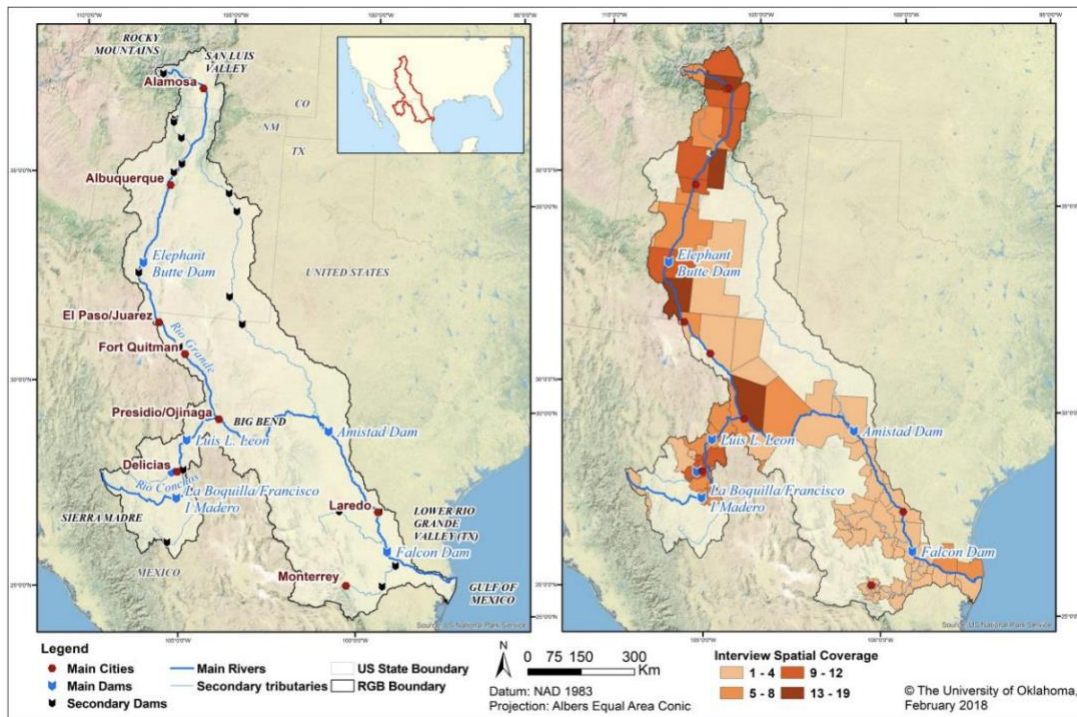


# Conceptual Modeling for Improved Understanding of the Rio Grande/Bravo Socio-Environmental System

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Social processes (such as water policies and whether people follow those policies) are an important component of larger human-environment systems. However, due to the complexity of social interactions, modeling socio-environmental systems across large areas with wide social and environmental diversity is an ambitious undertaking. The Rio Grande/Bravo (RGB) Basin makes for a prime case study to address these challenges because of the complex social and environmental systems across multiple Nations. Even within a highly engineered system with extensive damming and complex governing agreements, this basin still experiences water scarcity and over-allocation of water. This study is a first step towards developing a simulation model for the RGB's social-environmental system, as no such basin-wide model exists. Building on data collected through extensive field work in the RGB, this research used a structured and collaborative approach to document existing knowledge on the RGB social processes and environmental systems. The study discusses different models for understanding human behavior within the RGB, identifies a need to restructure the spatial boundaries of the system, and produces inductively generated knowledge about the relationship between social processes and environmental systems. The presented research serves as the first step in the development of a basin-wide simulation model of the RGB socio-environmental system to help people make best use of the freshwater resources in the basin.