Peri-urban Growth, Water Conflicts, and Vulnerability in the Verde Watershed

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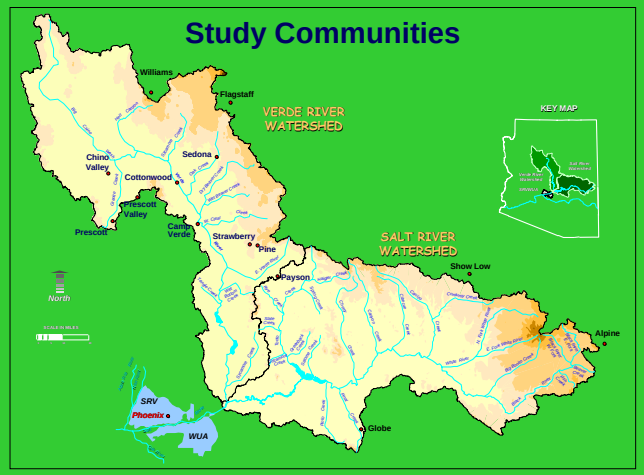
Overview

This research examines near/long-term and local/regional water resource issues through analysis of seven rapidly growing Verde Watershed communities and adjacent rural areas. We focus on groundwater management in the context of rapid peri-urban growth, increasing resource demands, and climatic uncertainty. The study area is a patchwork of water management regimes, municipal centers, rural growth nodes, and variable groundwater resources. Water conflicts exist among different user groups, and place-specific factors shape community and household vulnerability to water scarcity. Through in-depth interviews we are examining water management strategies and environmental perceptions of a variety of local interest groups and political actors in reference to specific water issues. We are also analyzing the vulnerability of particular people and places to water scarcity.

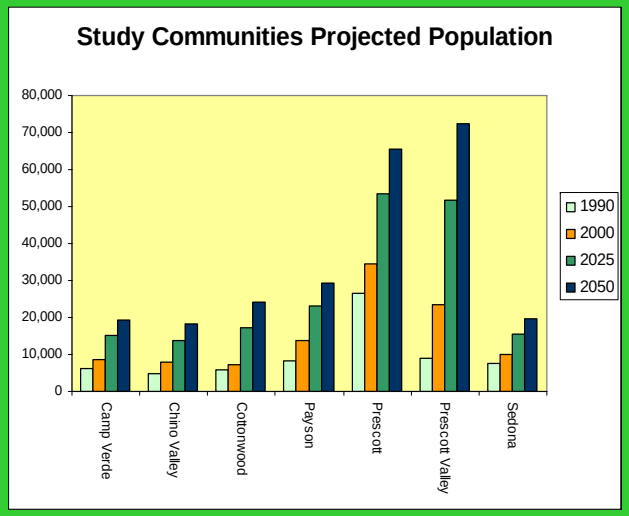


Specific Water Issues

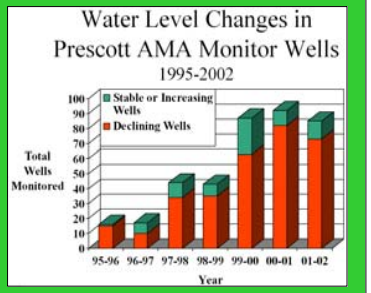
- Groundwater drawdown from a variety of municipal and private wells due to growing demand
- Transfers from the Big Chino aquifer into the Prescott Active Management Area
- Potential impacts of Prescott Area groundwater overdraft and importation on Verde River flow, riparian habitat, and endangered species
- Effects of exempt well pumping in the Verde Valley on Salt River Project water rights
- Groundwater conflicts between rural areas and municipalities in northern Gila County
- Potential impacts on Phoenix water supply

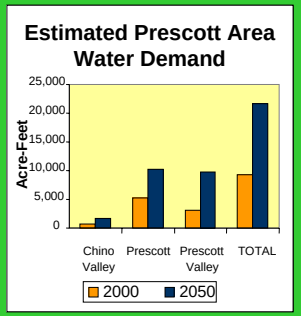
The Urbanization of the Phoenix Watershed

The study communities have experienced rapid residential development in recent years, and population growth is projected to continue into the future.



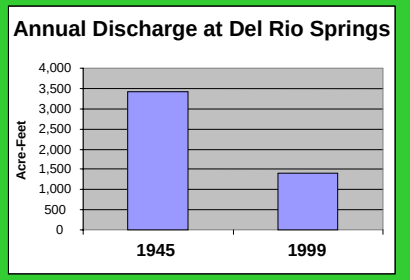
Unlike communities of Metropolitan Phoenix, the study communities lack access to surface water resources and rely on groundwater to serve increasing demands.

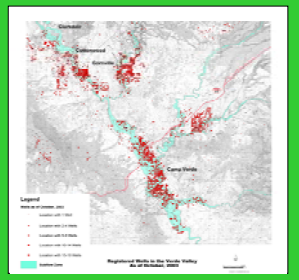




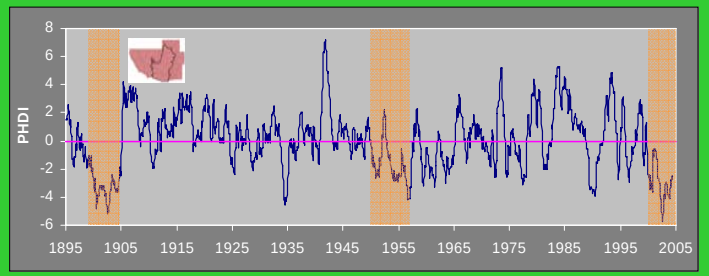
The Cascading Effects of Groundwater Depletion

Increasing resource demands associated with population growth have led to groundwater drawdown, fueling Prescott Area efforts to import water from the adjacent Big Chino groundwater basin. Concerns over the downstream effects of groundwater overdraft and importation on surface water supplies and riparian ecosystems have heightened.





Climatic Uncertainty and Amplified Risk



Dimensions of Vulnerability

- Economic dependence on urban growth: continuing growth is viewed by municipalities as both *cause* and *solution* to water resource issues
- Inadequate regulatory structures: disjunction in surface and ground water law, disjunction in land use and water planning, weak or non-existent regional or watershed level planning and regulation
- Variable socioeconomic and hydrologic conditions coupled with uneven entitlements to water resources influence differential community and household vulnerability to water scarcity

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