



Climate Change in the Southwest: Santa Clara Pueblo, the Rio Grande and the Imminent Regional Impacts

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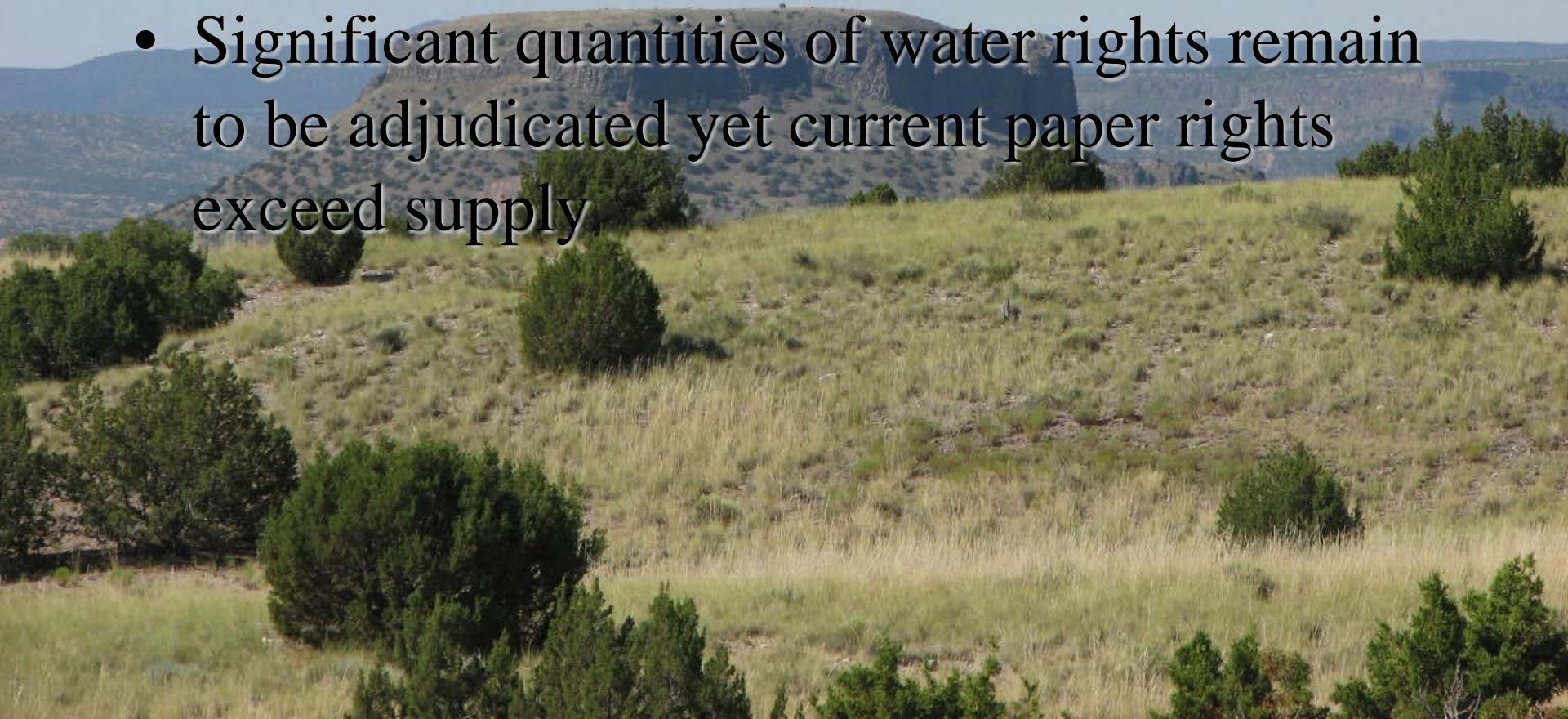
Brief History of Santa Clara Pueblo

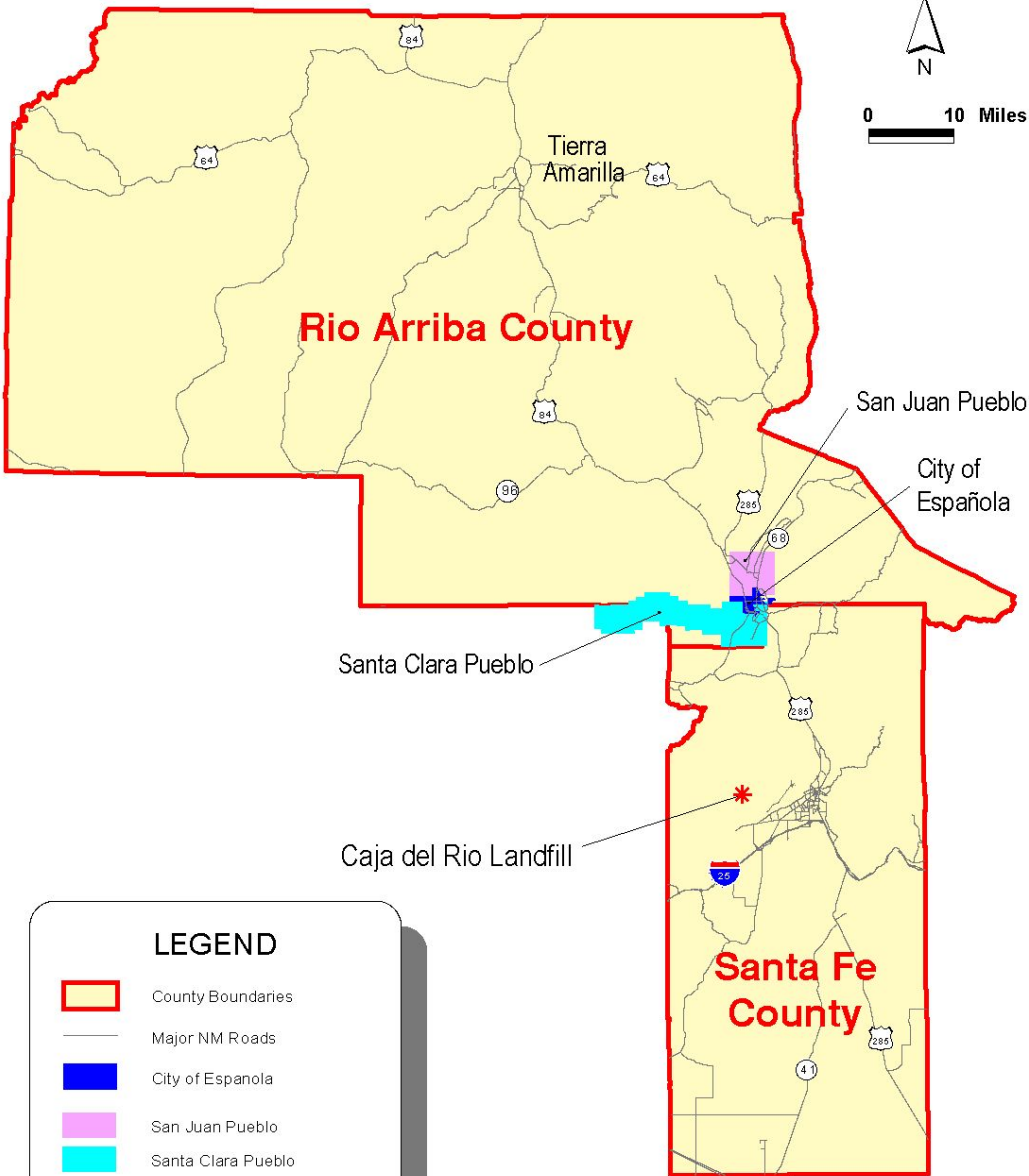
- **Time Immemorial**
- **900-1300 - Puye**
- **1300-1598 - Current Village**
- **1598- European Contact**
- **1680- Pueblo Revolt**
- **1692- Spanish Reconquest**
- **1848- Treaty of Guadalupe/Hildago**



Current Conditions

- 68 degrees (projected high of 72)
- Winds out of the southwest 20 – 30 MPH
- Flow of Rio Grande 5,630 cfs, 13.8 Celsius
- Significant quantities of water rights remain to be adjudicated yet current paper rights exceed supply



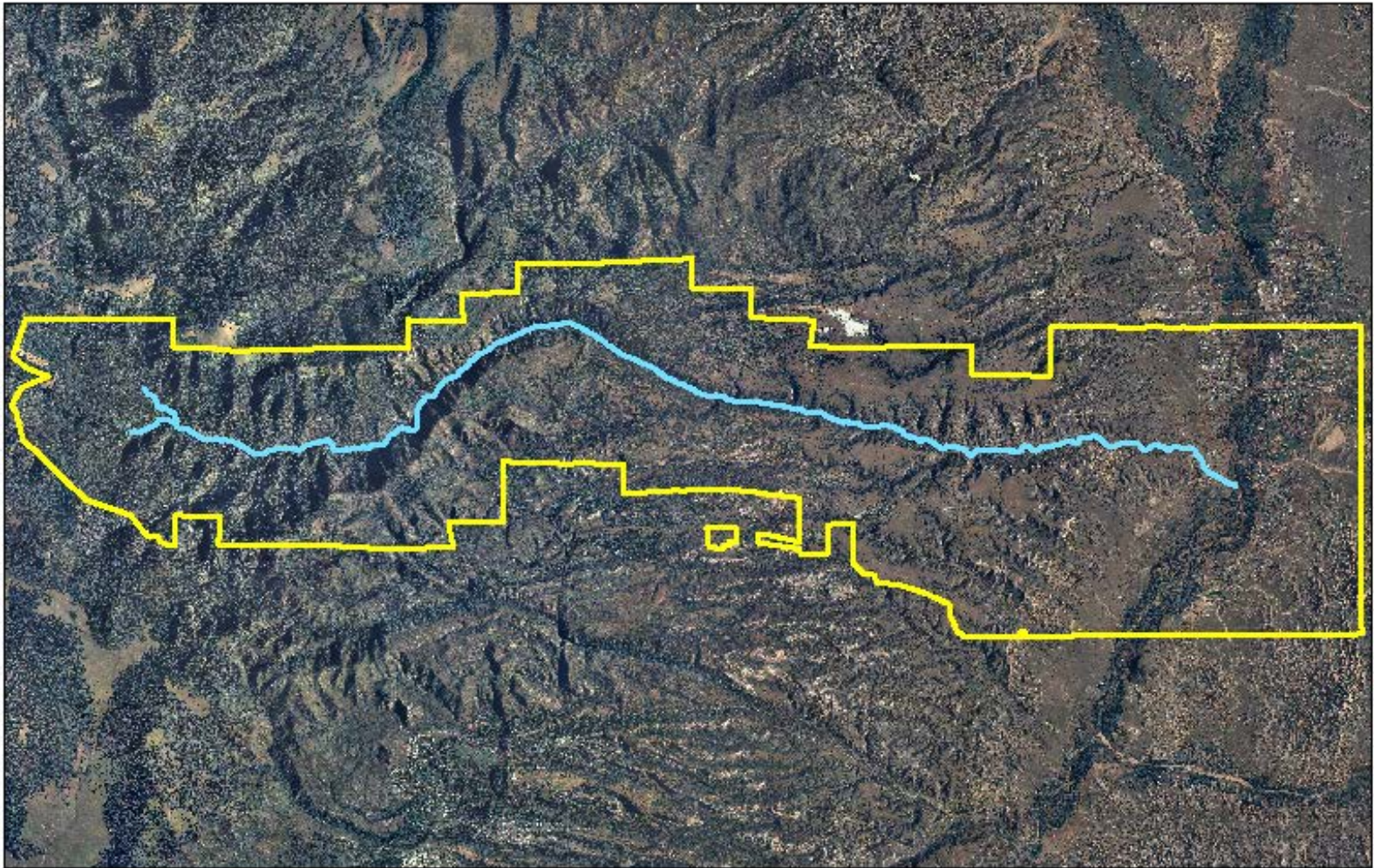


LEGEND



-  County Boundaries
-  Major NM Roads
-  City of Española
-  San Juan Pueblo
-  Santa Clara Pueblo
-  Caja Del Rio Landfill

Figure 1





Legend

-  Santa Clara Creek
-  Santa Clara Reservation Boundary



Santa Clara Pueblo
Office of Environmental Affairs

Expected Impacts in New Mexico

- New Mexico State University/University of New Mexico October 2007 study (Hurd,Coonrad) predicts decrease in Rio Grande Watershed from a “few percent or as much as one - third”
- Result in direct and in-direct losses of \$13 million to \$115 million by 2030, doubling by 2080
- Shifting Precipitation patterns caused by warmer temperatures would lead to less snow and more rain
- Most surface water comes from snow melt
- Decrease in crop size and production

Native Species in Santa Clara Pueblo and Potential Impacts

Rio Grande Cutthroat – at one time sole trout species in Northern Rio Grande. Population greatly diminished due to changes in Rio Grande (BOR, BIA, USGS) habitat, warmer water temperatures and invasive species.



Tiger Salamander – aggressive amphibian,
rarely seen except after late spring snows



New Mexico Pinion Tree

Source of wood, sustenance and medicine. During drought is susceptible to bark beetle infestation, which devastated northern NM in the past decade (up to 80% mortality rate in some places)



More Rain, Different Storms



Steps In Our Realm

- Native Cutthroat Trout Project initiated by
Environmental Director Joseph Chavarria and
Parks and Wildlife Coordinator Dwayne Singer
- Remove invasive fish species from pristine waters of the upper Santa Clara Creek
 - Increase fish habitat through bank stabilization and replanting of willows and trees for shade
 - Increase population through protection measures

Forestry Projects

- Thinning
- Bosque (Riparian Area) Rehabilitation
- Invasive Species Removal
- Rock check dams (proposed)



Everlasting Covenant With An Unknown Future

