

Erosion and sedimentation in the Cañon Largo watershed, southern Jicarilla Nation, New Mexico



Rio Puerco—a large, sandy arroyo with many geologic similarities to Cañon Largo

Problems

1) Sandy arroyo channels erode and deposit sediment in response to short-term events such as intense storms during monsoon season

- These events damage infrastructure, including well pads and roads**

2) Large Cañon Largo watershed contributes a significant but unquantified amount of sediment to the San Juan River

- This alters the course of the river and degrades habitat for aquatic species**

May 2011

June 2016



5.2 miles to
casino/Hwy 550

74 ft I

500 ft

**Cañon Largo erosion
near Apache Nugget Casino**

*NAIP images courtesy
of USGS*



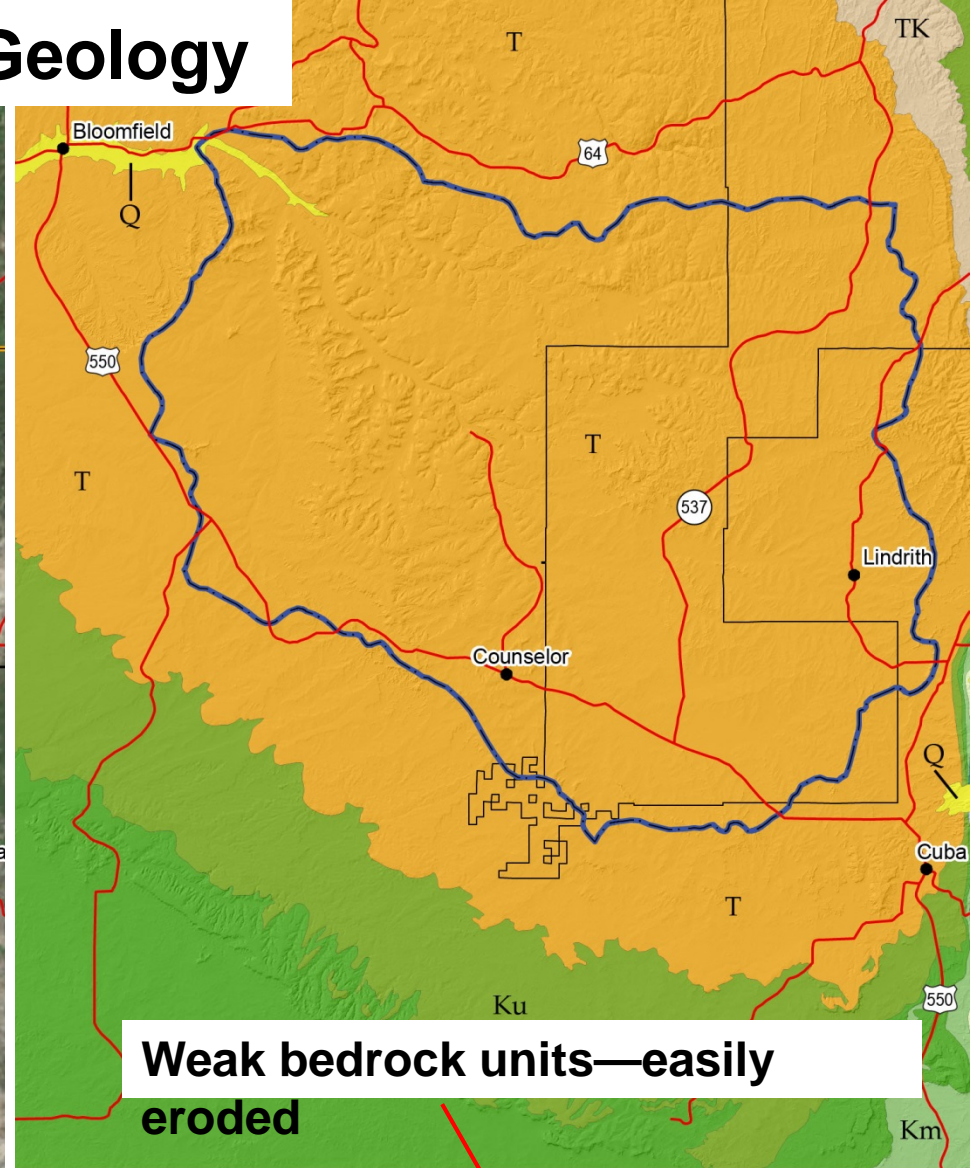
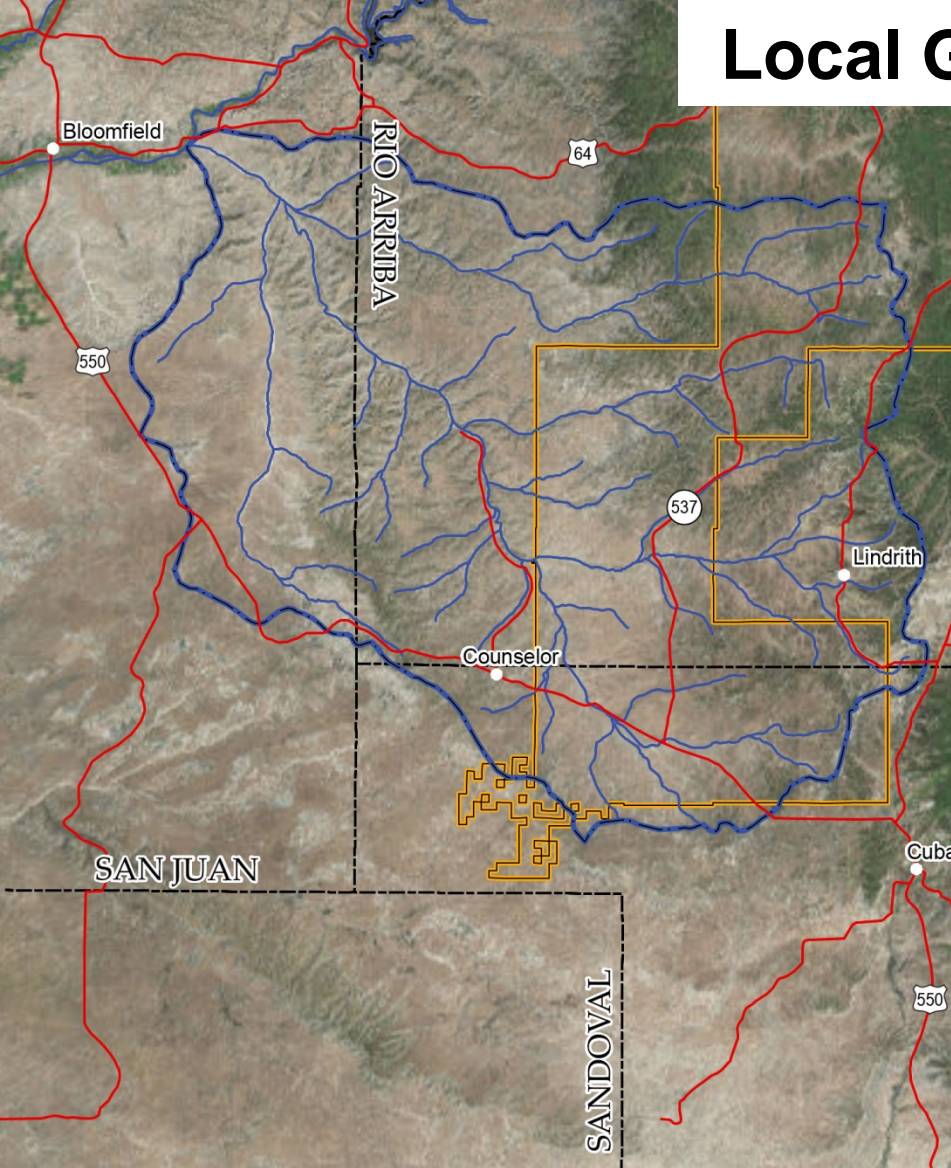
0.5 miles



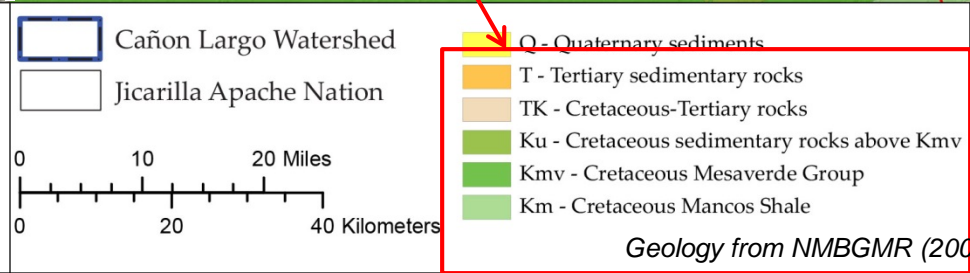
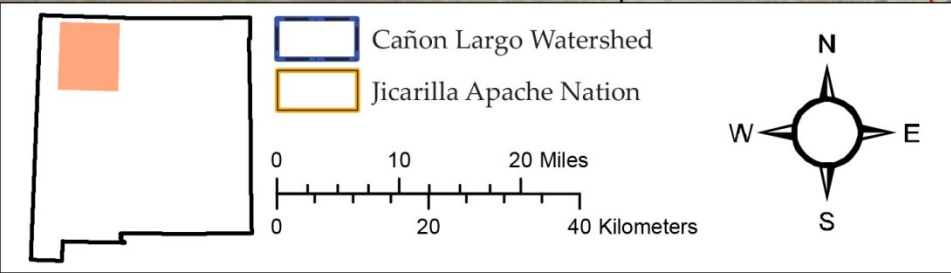
Cañon Largo sedimentation and erosion at San Juan River, Blanco, NM

NAIP images courtesy of USGS

Local Geology



Weak bedrock units—easily eroded



Proposed Project Goals

- 1) Map surficial valley floor geology in detail (1:12,000 scale)**
- 2) Identify sediment contributions from bedrock areas**
- 3) Quantify local sediment transport and water discharge following large runoff events**
- 4) Use data from these tasks to produce:**
 - (a) Geologic map**
 - (b) Slope map \pm other terrain metrics**
 - (c) Hazard map, e.g. low to extreme hazard**
 - (d) Report**