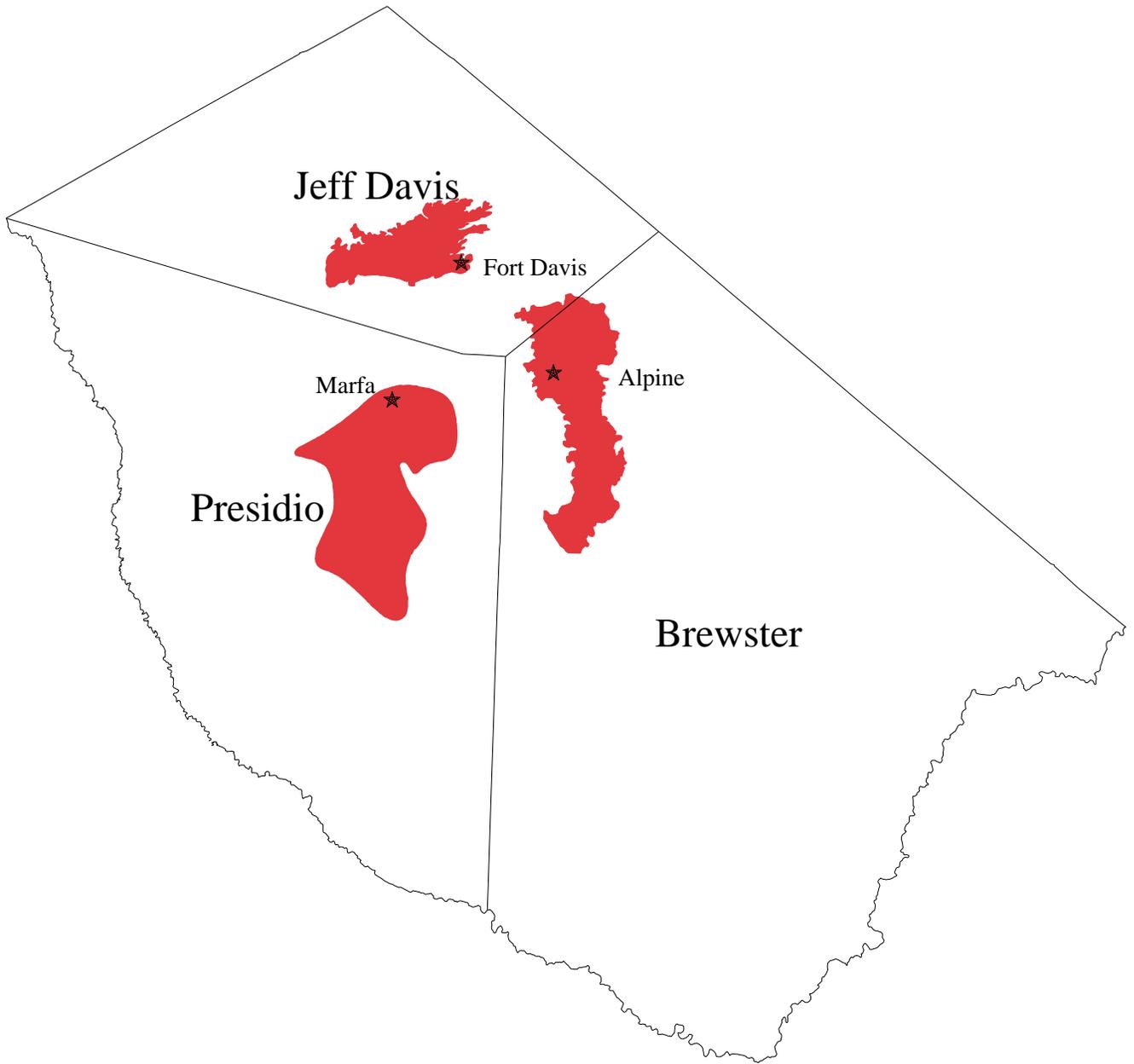


# Igneous



## **Igneous Aquifer**

The Igneous aquifer occurs in three separate areas in the arid Trans-Pecos region of West Texas within Brewster, Presidio, and Jeff Davis counties. Ground water occurs in fissures and fractures of lava flows, tuffs, and related intrusive and extrusive igneous rocks of Tertiary age. These rocks reach an average thickness of 900 feet to 1,000 feet. The cities of Alpine, Fort Davis, and Marfa use water for municipal supply from the aquifer.

The aquifer in the Alpine area includes the Cottonwood Springs Basalt, Sheep Canyon Basalt, Crossen Trachyte, and associated alluvium; of these, the principal water-bearing unit of the aquifer is the Crossen Trachyte. The aquifer in the Marfa area includes parts of the Petan Basalt and the Tascotal Formation. The Davis Mountains aquifer includes the Barrel Springs Formation and associated alluvium.

Well yields are moderate to large in the Marfa area, and small to moderate in the Alpine and Fort Davis areas. Yields of wells in the Igneous aquifer vary widely because the basalts have a wide range in permeability; lower permeabilities generally occur in the lower sections, and moderately high permeabilities occur in the faulted and fractured upper layers. Water quality is good for municipal and domestic uses. Elevated levels of silica and fluoride have been found in water from some wells, reflecting the igneous origin of the rock.

### **References**

- Davis, M.E., 1961, Ground-water reconnaissance of the Marfa area, Presidio County, Texas: TBWE Bull. 6110, 23 p.  
Littleton, R.T., and Audsley, G.L., 1957, Ground-water geology of the Alpine area, Brewster, Jeff Davis, and Presidio counties, Texas: TBWE Bull. 5712, 37 p.