

# **Investigation of Evapotranspiration Depletion of Treated and Non-Treated Saltcedar at the Elephant Butte and Caballo Flood Plains, New Mexico**

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## **ABSTRACT**

Rigorous saltcedar infestation of riparian regions along the Rio Grande is a major concern by federal, state and local water management agencies. Saltcedar is known to consume large amounts of water (~ 4.2 acre-ft per acre per year) and its control is very expensive. A joint investigation by the U.S. Bureau of Reclamation (Reclamation), New Mexico Sierra Soil and Water Conservation District (Sierra SWCD) and New Mexico State University (NMSU) to measure evapotranspiration (ET) of saltcedar is being conducted. Saltcedar has been managed by herbicide treatment and by mowing at Elephant Butte and Caballo flood plains, New Mexico.

Two flux towers (40-ft and 30-ft) were installed in July and August 2004 at the treated and non-treated (dense monotypic) saltcedar sites (Elephant Butte delta, Monticello) to measure ET. The flux towers were equipped with one propeller eddy covariance (OPEC) systems and micrometeorological sensors to measure ET; these were later upgraded to a three-dimensional sonic eddy covariance system (3DSEC). A third flux tower was installed in a 120-acre study site in 2005. This site is located in the flood plain of Caballo at Las Palomas, New Mexico. The estimated ET for non-treated saltcedar was 3.3 ft when compared to 1.3 ft, a difference of 61% for 189 days of measurement.