

## ABSTRACT

**Title:** Assessing the Potential Impacts of Invasive Species Water use on the Lower Colorado River

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**This abstract is for an oral presentation**

**Description of the presentation:** In coordination with the Secretary of the Interior and as part of a process to address system-wide drought, the seven Colorado River Basin States (Basin States) have identified tamarisk management as an option to potentially augment the flow of the Colorado River.

In 2008, the Basin States executed a Memorandum of Understanding to coordinate tamarisk (salt cedar) management activities in the Basin. In 2009, the States then completed the *Colorado River Basin Tamarisk and Russian Olive Assessment*. This is a comprehensive assessment of tamarisk including: distribution, the state-of-the-science, ET, information on impacts, control and management techniques, restoration, and knowledge gaps for future research. A panel of scientists estimated the amount of water being consumed by tamarisk ET, and how much could potentially be saved by treatment and revegetation by native species. This presentation discusses the *Assessment* as background for a new management approach for potential water savings.

Another method to manage tamarisk is through biological control. Biocontrol is the introduction of an insect or other “natural enemy” that predate the invasive plant of concern. The insect selected for the control of tamarisk, the tamarisk leaf beetle (*Diorhabda* spp.), was tested by the U.S. Department of Agriculture for over 10 years. It was first released in 2001, expands its range each year, and can now be found throughout the Colorado Plateau and Texas. *Diorhabda* controls tamarisk by defoliating the plant multiple times over successive years.

1) What we were trying do: Since 2006, the U.S. Bureau of Reclamation has been collecting baseline data on evapotranspiration (ET) and groundwater levels at a mature tamarisk forest in the Cibola National Wildlife Refuge located adjacent to the Colorado River south of Blythe, California. This data gathering was in anticipation of *Diorhabda* migration to the site, and the presumed subsequent defoliation of the tamarisk and associated changes to groundwater level. The project funding was ending and in 2010, the Basin States decided to continue funding the data collection until the arrival of *Diorhabda*.

2) What happened: Contracting issues delayed implementation, and in 2011, a fire in the project area removed approximately 2,000 acres of the instrumented tamarisk forest. This extreme event provided an opportunity to test the water savings approach identified in the *Assessment*. In 2012, the Basin States retained Utah State University to reinstrument the site and undertake a study to measure fluxes in ET and groundwater levels at the now bare ground site, which was as if *Diorhabda* had already migrated through and defoliated it.

3) What was learned: The ET of the regrowing tamarisk forest and the groundwater levels of the site at the Cibola National Wildlife Refuge will be compared to the pre-fire baseline.