

Evaluation of Riparian Habitat and Headcutting

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ABSTRACT

Cienega Creek, located 20 miles south-east of Tucson AZ, was historically an extensive cienega system defined by springs and marshy areas. Only remnants of the cienegas are present today. Cienega Creek is one of the last remaining perennial streams in southern Arizona and it contains critical habitat for many wildlife and plants species including threatened and endangered species.

In recent years headcuts localized erosion features have developed along Lower Cienega Creek raising concerns that native riparian and fish habitat floodplain functions and wetland conditions could decline. Headcut migration involves massive removal of sediment and vegetation and lowering of the local water table upstream rapidly dewatering the root zone in the wetlands. This may result in favorable hydrologic conditions for non-native species.

The impacts of the large headcut on aquatic habitat are unclear because this type of investigation has not previously been conducted in an arid environment. This project will evaluate whether Cienega Creek's native habitats and hydrologic functions are threatened by headcutting or if this process will reach equilibrium without significant threats to the creek.

Pima Association of Governments is making progress toward the following objectives for a Water Protection Fund grant to be carried out from 2006-2009 with the support of many interest groups and agencies:

- Determine the differences in aquatic habitat characteristics upstream and downstream of the large headcut through habitat classification and geomorphological surveys.
- Identify changes in streamflow and water levels in relation to the large headcut through use of flow meters and the installation of piezometer wells.
- Provide data to evaluate the need for channel stabilization or other restoration efforts in the vicinity of the large headcut.

The knowledge gained through monitoring will inform land managers of strategies to maintain or enhance riparian vegetation along Lower Cienega Creek.