ABSTRACT

TITLE:	Relative Impacts of Drought and Regulated Streamflow on the Riparian Ecosystem of Dolores River
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ABSTRACT: A 540m vegetation line transect from the Lone Dome study site in SW Colorado, located on the Dolores River six miles below McPhee Dam, was used to determine total percent cover of woody riparian vegetation. The assessment of a riparian ecosystem's health can be based on the health of its vegetation which is closely tied to availability of water. While streamflow regulation has been shown to negatively impact riparian ecosystems, drought decreases the amount of water available to any ecosystem within the region, potentially having negative effects on the woody vegetation of the riparian ecosystem. To determine the significance of regulation, peak streamflow values were obtained from above [(USGS 09166500 Dolores River at Dolores) McPhee reservoir stream gage] and below [(Dolores River below McPhee Reservoir) Bureau of Reclamation], the McPhee Reservoir. To determine the significance of drought, values from the Palmer Drought Severity Index and Palmer Hydrological Drought Index for the SW region were used (NCDC/NOAA). All riparian ecosystems are closely linked to an annual hydrological cycle. Both drought and streamflow regulation interrupt natural hydrological cycles which affects maintenance and establishment of riparian vegetation indicating the importance a specific hydrological pattern being disrupted. Each variable was found to be significantly correlated with total percent cover values of woody riparian vegetation. However, drought was found to be more highly correlated to percent cover values than streamflow regulation. While both variables seem to effect woody vegetation in the Lone Dome study site, because of their relatedness it is possible that regulation of streamflow has reduced magnitude and duration of inundation making vegetation more sensitive to drought.