Selected Bibliography for Phreatophyte Management as a Water Savings Strategy
Prepared for the Long Term Water Augmentation Committee
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Note: This is not an exhaustive survey of the scientific literature about phreatophytes in the arid southwest. The list includes articles referenced by the experts we interviewed, recommended readings, the author's selections, and includes the references listed in the Committees' *Long-Term Water Augmentation Options for Arizona* report (2019).

Barz, D., Watson, R.P., Kanney, J.F., et al. (2009) Cost/benefit considerations for recent saltcedar control, Middle Pecos River, New Mexico. Environmental Management **43**, 282-298. https://doi.org/10.1007/s00267-008-9156-9

Brown, T., O'Connell, P., & Hibbert, A. (1974) Chaparral conversion potential in Arizona Part II: An economic analysis. USDA Forest Service Research paper RM-127.

Bureau of Reclamation (2011) Evapotranspiration water use analysis of saltcedar and other vegetation in the Mojave River floodplain, 2007 and 2010, Mohave Water Agency Water Supply Management Study Phase 1 Report. https://www.mojavewater.org/files/mwawatersupplymngmntstudyetrepfinal.pdf

Doody, T., et al. (2011) Potential for water salvage by removal of non-native woody vegetation from dryland river systems. Hydrological Processes, **25**, 4117-4131.

Fleishman, E., McDonal, N., MacNally, R., et al. (2003) Effects of floristics, physiognomy and non-native vegetation on riparian bird communities in a Mojave Desert watershed. Journal of Animal Ecology, **72**, 489-490.

Fletcher, H., and Harold, E. (1955) Phreatophytes—a serious problem in the West. US Dept. Agriculture Yearbook 1955 423-429. https://naldc.nal.usda.gov/download/IND43894595/PDF

Gottfried, G., Neary, D. (2015) The Sierra Ancha Experimental Forest, Arizona: A brief history. Hydrology and Water Resources in Arizona and the Southwest, Volume 44.

Graf, W., Patten, D. & Turner, B. (1984) Issues concerning phreatophyte clearing, revegetation, and water savings along the Gila River, Arizona. Arizona State University, Arizona 85287. A report submitted in partial fulfillment of U.S. Army Corps of Engineers Contract DACW09-83-M-2623.

Hibbert, A., Davis, E., & Scholl, D. (1974) Chaparral conversion potential in Arizona: Part I: Water yield response and effects on other resources. USDA Forest Service Research Paper RM-126.

Hibbert, A., Davis, E., & Knipe, O. (1981) Water yield changes resulting from treatment of Arizona chaparral. Paper presented at the Symposium on Dynamics and Management of Mediterranean-type Ecosystems, June 22-26, 1981, San Diego, California.

Leenhouts, J., Stromberg, J., & Scott, R., eds., (2006) Hydrologic requirement of and consumptive ground-water use by riparian vegetation along the San Pedro River, Arizona. U.S. Geological Survey Scientific Investigations Report 2005-5163, 154p.2014.

Merritt, D., and Bateman, H. (2012) Linking stream flow and groundwater to avian habitat in a desert riparian system. Ecological Applications, **22**(7), 1973-1988.

Nagler, P., Glenn, E., Didan, K. Osterberg, J., Jordan, F., Cunningham, J. (2008) Wide-area estimates of stand structure and water use of *Tamarix* spp. On the Lower Colorado River: Implications for restoration and water management projects. Journal of Restoration Ecology, **16**(1), 136-145. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1526-100X.2008.00356.x

Nagler,P., Shafroth, P., LaBaugh, J., et al. (2009) The potential for water savings through the control of Saltcedar and Russian Olive. From Saltcedar and Russian Olive control demonstration act science assessment, Shafroth, P. et al. eds., U.S. Department of the Interior, U.S. Geological Survey, Scientific Investigations Report 2009-5247.

Robles, M., Marshall, M., O'Donnell, F., Smith, E., Haney, J., Gori, D. (2014) Effects of climate variability and accelerated forest thinning on watershed-scale runoff in southwestern USA ponderosa pine forests. PLos ONE, **9**(10): e111092. doi:10.1371/journal.pone.0111092.

Robles, M., Turner, D. & Haney, J. (2017) A century of changing flows: Forest management changed flow magnitudes and warming advanced the timing of flow in a southwestern US river. PLoS ONE, **12**(11): e0187875. https://doi.org/10.1371/journal.pone.0187875

Shafroth, P., Cleverly, J., Dudley, T. et al. (2005) Control of *Tamarix* in the Western United States: Implications for water salvage, wildlife use and riparian restoration. Environmental Management, **35**, 231-246.

Wilcox, B., LeMaitre, D., Jobbagy, E., et al. (2017) Ecohydrology: Processes and implications for rangelands. From Rangeland Systems: Processes, Management and Challenges, Briske, D. ed.

From the Long Term Water Augmentation Options for Arizona report (2019), Section 6 https://new.azwater.gov/sites/default/files/Long-Term%20Water%20Augmentation%20Options%20final.pdf

1. [This article reviewed different studies associated with recharge estimation methods, mechanisms by which woody plants impact groundwater recharge, effects of woody plant on recharge across different soil and geology, hydrological repercussions of woody plant removal.] https://www.researchgate.net/publication/328335937_Woody_Plant_Encroachment_Impacts_on_Groundwater_Recharge_A_Review

2. [This article provides a framework for conceptualizing how woody plant encroachment is likely to affect components of the water cycle within these ecosystems.] https://esajournals.onlinelibrary.wiley.com/doi/10.1890/03-0583

3. [This post discusses the reasons why mesquite trees are replacing grasslands by providing findings from relevant research.] https://uanews.arizona.edu/story/mesquite-trees-displacing-southwestern-grasslands

4. [In this assessment, the parties of Memorandum of Understanding (MOU) investigates potential water augmentation alternatives that might provide future water supplies within the Colorado River Basin.] https://riversedgewest.org/sites/default/files/files/TRO_Assessment_FINAL%2012-09.pdf