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## Education

Ph.D. School of Renewable Natural Resources, with a Ph.D. minor in Hydrology, University of Arizona, Tucson, AZ, 2004

Dissertation title: Water uptake by *Prosopis velutina*: the role of soil hydraulic limits and root function

M.S. School of Renewable Natural Resources, University of Arizona, Tucson, AZ, 2001 Thesis title: Reverse flow in tap- and main lateral roots of semi-arid riparian tree species: evidence for hydraulic redistribution

B.S. School of Forestry, University of Idaho, Moscow, ID, 1997 Thesis title: A comparison of three methods for determining the stomatal density of pine needles

## Academic experience

Research Ecologist/Plant Physiologist, Desert Botanical Garden, Phoenix, July 2011 - Present

Adjunct Professor, Arizona State University, School of Life Sciences, July 2011 - Present

Adjunct Professor, Northern Arizona University, School of Earth Sciences and Environmental Sustainability, June 2011 - Present

Visiting Faculty, Northern Arizona University, School of Earth Sciences and Environmental Sustainability, August 2010 to May 2011

Staff Scientist, University of Utah, Entrada Field Station, October 2008 to June 2010

Assistant Research Professor. University of Utah, Department of Biology Stable Isotope Ratio Facility for Environmental Research, January 2007 to August 2010

Research Associate. University of Utah, Department of Biology Stable Isotope Ratio Facility for Environmental Research, March 2004 to January 2007

Graduate advisor: David G. Williams (University of Arizona)

Postdoctoral advisor: James R. Ehleringer (University of Utah)

## **Publications**

- 38. Nagler PL, Pearlstein S, Glenn EP, Brown T, Bateman H, Bean D, and **Hultine KR**. (2013). Rapid dispersal of saltcedar (*Tamarix* spp.) biocontrol beetles (*Diorhabda carinulata*) on a desert river detected by phenocams, MODIS imagery and ground observations. *Remote Sensing of Environment* DOI 10.1016/j.rse.2013.08.017
- 37. **Hultine KR**, Burtch KG, and Ehleringer JR. (2013) Gender specific patterns of carbon uptake and water use in a dominant riparian tree species exposed to a warming climate. *Global Change Biology* **19**: 3390-3405
- 36. Glenn EP, Nagler PL, Morino K and **Hultine KR**. (2013) Phreatophytes under stress: transpiration and stomatal conductance of saltcedar (*Tamarix* spp.) in a high salinity environment. Plant and Soil **371**: 655-672
- 35. **Hultine KR**. Dudley TL. And Leavitt SW. (2013) Herbivory-induced mortality increases with radial growth in an invasive riparian phreatophyte. *Annals of Botany* 111: 1197-1206
- 34. Houdeshel CD, Pomeroy CA, and **Hultine KR**. (2012) Bioretention design for xeric climates based on ecological principles. *Journal of the American Water Resources Association* **48**: 1178-1190
- 33. Meng R, Dennison PE, Jamison LR, van Riper C III, Nagler P, **Hultine K**, Bean DW, and Dudley T. (2012). Detection of tamarisk defoliation by the northern tamarisk leaf beetle on multitemporal Landsat 5 Thematic Mapper imagery. *GI Science and Remote Sensing* **49**: 510-537
- 32. Glenn EP, Nelson SG, Ambrose B., Martinez R, Soliz D, and **Hultine K**. (2012) Comparison of salinity tolerance of three Atriplex spp. In well-watered and drying soils. *Environmental and Experimental Botany* **83**: 62-72
- 31. Nagler PL, Brown T, **Hultine KR**, van Riper III C, Bean DW, Murray RS, Pearlstein S, and Glenn EP. (2012) Regional-scale impacts of the *Tamarix* leaf beetle (*Diorhabda carinulata*) on the leaf phenology and water use of *Tamarix* spp. *Remote Sensing of Environment* **118**: 227-240
- 30. Glenn EP, Morino K, Nagler PL, Murray RS, Pearlstein S, and **Hultine KR.** (2012) Role of saltcedar and capillary rise in salinizing a non-flooding terrace on a flow-regulated desert river. *Journal of Arid Environments* **79:** 56-65
- 29. Doody T, Glenn E, Nagler P, Moore GW, Morino K, **Hultine KR**, and Benyon R. (2011) Potential for water salvage by removal of non-native species from dryland river systems. *Hydrological Processes* **25:** 4117-4131

- 28. **Hultine KR**, and Bush SE. (2011) Ecohydrological consequences of non-native riparian vegetation in the southwestern U.S.: a review from an ecophysiological perspective. *Water Resources Research* DOI:10.1029/2010WR010317
- 27. Bateman HL, Dudley TL, Bean DW, Ostoja SM, **Hultine KR**, and Kuehn MJ. (2010) A river system to watch: documenting the effects of saltcedar (*Tamarix* spp.) biocontrol in the Virgin River Valley. *Ecological Restoration* **28**: 405-410
- 26. **Hultine KR**, Nagler PL, Morino K. Bush SE, Burtch, KG, Dennison PE, Glenn EP, and Ehleringer JR. (2010) Sap flux-scaled transpiration by tamarisk (*Tamarix* spp.) before, during and after episodic defoliation by the saltcedar leaf beetle (*Diorhabda carinulata*). *Agricultural and Forest Meteorology* **150**: 1467-1475
- 25. Bush SE, **Hultine KR**, Sperry JS, Ehleringer JR, and Phillips N. (2010) Calibration of heat dissipation sap-flux probes on ring- and diffuse-porous trees. *Tree Physiology* **30**: 1545-1554
- 24. **Hultine KR**, Belnap J, Dennison PE, Ehleringer JR, Lee ME, Nagler PL, Snyder KA, Uselman SM, van Riper III C, and West JB. (2010). Tamarisk biocontrol in the western United States: ecological and societal implications. *Frontiers in Ecology and the Environment* **8**: 467-474
- 23. **Hultine, KR**, Bush, SE, and Ehleringer JR. (2010). Ecophysiology of riparian cottonwood and willow before, during and after two years of groundwater removal. *Ecological Applications* **20**: 347-361
- 22. Nagler PL, Morino K, Didan, K, Erker J, Osterberg J, **Hultine K**, Glenn EP (2009). Wide area estimates of saltcedar (Tamarisk spp.) evapotranspiration on the lower Colorado River measured by heat balance and remote sensing methods. *Ecohydrology* 2: 18-33
- 21. Dennison PE, Nagler PL, **Hultine KR**, Glenn EP, and Ehleringer JR. (2009). Remote monitoring of tamarisk defoliation and evapotranspiration following saltcedar leaf beetle attack. *Remote Sensing of Environment* 113: 1462-1472
- 20. **Hultine KR**, Jackson TL, Burtch KG, Schaeffer SM, and Ehleringer JR (2008). Elevated stream inorganic nitrogen impacts on a dominant riparian tree species: results from an experimental riparian stream system. *JGR Biogeosciences* 113, G04025, DOI:10.1029/2008JG000809
- 19. Glenn EP, Morino K, Didan K, Jordan F, Carrol K, Nagler P, **Hultine K**, Waugh J (2008). Vegetation density and evapotranspiration in a heavily grazed phreatophytic shrub community in a nitrate-contaminated desert watershed: implications for local water balance. *Ecohydrology* 1: 316-329

- 18. **Hultine KR**, Bush SE, West AG, Burtch KG, Pataki DE and Ehleringer JR (2008). Gender specific patterns in above ground allocation and water use in a dominant riparian tree species: box elder (*Acer negundo*). *Tree Physiology* 28, 1383-1394
- 17. West AG, **Hultine KR**, Sperry JS, Bush SE and Ehleringer JR. (2008). Interannual and seasonal variation in transpiration in a piñon-juniper woodland. *Ecological Applications* 18, 911-927
- 16. Bush SE, Pataki DE, **Hultine KR**, West AG, Sperry JS and Ehleringer JR (2007) Wood anatomy constrains stomatal responses to atmospheric vapor pressure deficit in irrigated, urban trees. *Oecologia* **156**, 13-20
- 15. Scott RL, Cable WL, **Hultine KR** (2007) Ecohydrologic significance of hydraulic redistribution in a semiarid savanna. *Water Resources Research* 44, W02440, DOI 10.1029/2007WR006149
- 14. **Hultine KR**, Bush SE, West AG and Ehleringer JR (2007) Population structure, physiology and ecohydrological impacts of dioecious riparian tree species of western North America. *Oecologia* **154**, 85-93
- 13. West AG, **Hultine KR**, Jackson TL and Ehleringer JR (2007) Contrasting hydraulic strategies explain differential summer moisture use of *Pinus edulis* and *Juniperus osteosperma*. *Tree Physiology* **27**, 1711-1720)
- 12. West AG, **Hultine KR**, Burtch KG, and Ehleringer JR (2007) Seasonal variation in moisture use in a pinon-juniper woodland. *Oecologia* 153, 787-798
- 11. **Hultine KR**, Bush SE, West AG and Ehleringer JR (2007) The effect of gender on sap flux-scaled transpiration in a dominant riparian tree species: box elder (*Acer negundo*). *JGR Biogeosciences* **112**, G03S06, DOI 10.1029/2006JG000232
- 10. **Hultine KR**, Koepke DF, Pockman WT, Fravolini A, Sperry JS, and Williams DG (2006) Influence of soil texture on hydraulic properties and water relations of a dominant warm-desert phreatophyte. *Tree Physiology* **26**, 313-323
- 9. Fravolini A, **Hultine KR**, Brugnoli E, Gazal R, English N, and Williams DG (2005) Precipitation pulse use by an invasive woody legume: the role of soil texture and pulse size. *Oecologia* **144**, 618-627
- 8. Huxman TE, Wilcox BP, Scott RL, Snyder KA, Breshears D, Small EE, **Hultine KR**, Pockman WT and Jackson RB (2005) Woody plant encroachment and the water cycle: an ecohydrological framework. *Ecology* **86**, 308-319
- 7. Williams DG, Cable W, **Hultine K**, Hoedjes JCB, Yepez EA, Simonneaux V, Er-Raki S, Boulet G, de Bruin HAR, Chebouni A and Timoul F (2004) Components of

- evapotranspiration in an olive orchard determined by eddy covariance, sap flow, and stable isotope techniques. *Agricultural and Forest Meterology* **125**, 241-258
- 6. **Hultine KR**, Scott RL, Cable WL and Williams DG (2004) Hydraulic redistribution by a dominant, warm-desert phreatophyte: seasonal patterns and response to precipitation pulses. *Functional Ecology* **18**, 530-538
- 5. **Hultine KR**, Williams DW, Burgess SSO and Keefer TO (2003) Contrasting Patterns of hydraulic redistribution by three desert phreatophytes. *Oecologia* **135**, 167-175
- 4. **Hultine KR**, Cable WL, Burgess SSO and Williams DG (2003) Hydraulic redistribution by deep roots of a Chihuahuan Desert phreatophyte. *Tree Physiology* **23**, 353-360
- 3. **Hultine KR** and Marshall JD (2001) A comparison of three methods for determining the stomatal density of pine needles. *Journal of Experimental Botany* **52**, 359-363
- 2. **Hultine KR** and Marshall JD (2000) Altitude trends in conifer leaf morphology and stable carbon isotope composition. *Oecologia* **123**, 32-40
- 1. McDowell SCL, McDowell NG, Marshall JD and **Hultine KR** (2000) Carbon and nitrogen allocation to male and female reproduction in Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*, Pinaceae). *American Journal of Botany* **87**, 539-546

## Book chapters

- 3. Bean D, Dudley TL, and **Hultine KR**. (2013) Bring on the beetles! The biology of tamarisk biocontrol. In. *Tamarix*: A case study of ecological change in the American West, eds. A. Sher, M. Quigley. Oxford University Press
- 2. **Hultine KR**, and Dudley, TL. (2013) The biology of *Tamarix* from organism to landscape. In. *Tamarix*: A case study of ecological change in the American West, eds. A. Sher, M. Quigley. Oxford University Press
- 1. Goodrich DC, Williams D, Unkrich CL, Scott RL, **Hultine KR**, Pool D, Coes AL, Hogan JF and Miller S. (2004) Ephemeral channel recharge and evapotranspiration from near-channel vegetation. In, Groundwater Recharge in a Desert Environment: the Southwestern United States, eds. FM Phillips, JF Hogan and B Scanlon, Water Science and Application series, Washington DC, American Geophysical Union