

**SONORAN DESERT WATERS: IMPROVING OUR ABILITY TO SUPPORT WILDLIFE**

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Water is limited and getting scarcer in many desert systems, putting at least some wildlife populations at risk. Managers have been addressing this declining water availability by constructing water catchments that are managed along with natural sites for desert fauna. There has been controversy over these sites and whether they are necessary, but images from camera traps show a plethora of species across taxa taking advantage of the supplemental water, demonstrating its importance. Because the quality of this water varies by season and by whether the site was constructed or naturally formed, it is essential that we understand the relationships among time, site structure, biogeochemistry, and consequences for biota. I will discuss current work on desert amphibians, proposed work on mammals, and strategies to improve water quality in these managed systems. As water availability declines in these hot desert regions, water supplementation programs are likely to become increasingly important tools for managing desert wildlife. Refining our understanding of these waters and variations in water quality will improve our ability to provide supplemental water and enhance the resiliency of desert wildlife to the impacts of climate change.

**Associated publications:**

- Griffis-Kyle, K.L., A.E. Parker, J. Goetting. 2019. Novel temporary aquatic habitats and desert invertebrate communities. *Texas Journal of Science*. 71: (1) Article 5.  
[https://doi.org/10.32011/txjsci\\_71\\_1\\_Article5](https://doi.org/10.32011/txjsci_71_1_Article5)
- Griffis-Kyle, K.L., K. Mougey, M. Vanlandeghem, S. Swain, J. Drake. 2018. Comparison of climate vulnerability among desert herpetofauna. *Biological Conservation* 255: 164-175. doi: 10.1016/j.biocon.2018.06.009
- Kiesow, A.B., and K.L. Griffis-Kyle. 2017. Desert amphibian selection of arid land breeding habitat undermines reproductive effort. *Oecologia* 185: 619-627. doi: 10.1007/s00442-017-3969-2
- Drake, J., K.L. Griffis-Kyle, N.E. McIntyre. 2017. Graph theory as an invasive species management tool: Case study in the Sonoran Desert. *Landscape Ecology* 32: 1739-1752. doi:10.1007/s10980-017-0539-2
- Drake, J.C., K.L. Griffis-Kyle, N.E. McIntyre. 2017. Using nested connectivity models to resolve management conflicts of isolated water networks in the Sonoran Desert. *Ecosphere* 8(1), e01652. doi: 10.1002/ecs2.1652
- Griffis-Kyle, K.L. 2016. Physiology and ecology to inform climate adaptation strategies for desert amphibians. *Herpetological Conservation and Biology* 11: 563-582.  
[http://www.herpconbio.org/Volume\\_11/Issue\\_3/Griffis-Kyle\\_2016.pdf](http://www.herpconbio.org/Volume_11/Issue_3/Griffis-Kyle_2016.pdf)
- McIntyre, N.E, J.C. Drake, and K.L. Griffis-Kyle. 2016. A connectivity and wildlife management conflict in isolated desert waters. *Journal of Wildlife Management* 80:655-666. doi: 10.1002/jwmg.1059
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- Griffis-Kyle, K.L., J. Kovatch, C. Bradatan. 2014. Water quality: a hidden danger in anthropogenic desert catchments. *Wildlife Society Bulletin* 38:148-151. doi: 10.1002/wsb.358