
Desert amphibian selection of arid land breeding habitat may undermine reproductive effort

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Abstract

Tinajas and anthropogenic catchments are critical ephemeral breeding sites for Sonoran Desert anurans. Tadpoles have been documented in both water types even though anthropogenic catchments can contain very high concentrations of ammonia. We currently do not know how amphibians are selecting breeding habitat. We tested three hypotheses of habitat selection based on resource quality (ideal free), resource quality and territoriality (ideal despotic), and proximity of water site to other water sites (proximal). Male *A. punctatus* called from all sites regardless of habitat or male quality; however, they were found more often at sites within 2 km of other sites. This suggests that male desert anurans are selecting close breeding habitat regardless of quality for breeding, indicating these sites are likely either population sinks or ecological traps. Consequently, adding anthropogenic water sites, without managing to reduce ammonia, will provide low quality habitat, that could set up desert anuran populations for long-term declines.

Keywords: Ephemeral wetlands, desert anurans, breeding strategy, Sonoran Desert, ammonia, ecological trap, *Anaxyrus punctatus*, ideal free habitat selection, ideal despotic habitat selection, proximal habitat selection

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