Comparing Avian Diversity between Perennial and Ephemeral Water Sources Located within the Northern Chihuahuan Desert

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Water availability in the Chihuahuan Desert is highly variable and dependent on various physical factors. Indio Mountains Research Station (IMRS), located in southeastern Hudspeth County, Texas, contains one perennial water source, Squaw Spring, and at least sixteen man-made ephemeral “tanks” previously used for watering livestock. It was hypothesized that bird diversity would be greater near Squaw Spring, due to continuous water availability, rather than ephemeral tanks where water availability is inconsistent.

The experimental design included a multi-seasonal bird survey by means of visual sightings of different species, backed by photographic evidence to assure accurate identification. Surveys were completed near Squaw Spring and four tanks over a period of nine months. Although we expected species richness of birds would be higher at Squaw Spring, ephemeral tanks had greater diversity of species after the onset of summer monsoon rains. While the number of species near the tanks increased dramatically during the rainy season, the number of species near Squaw Spring remained relatively constant. These results indicate that ephemeral water bodies can be important biodiversity hotspots in the desert. This study will be used to initiate additional investigations into the causes of a disparity in diversity between permanent and ephemeral wetlands on IMRS.