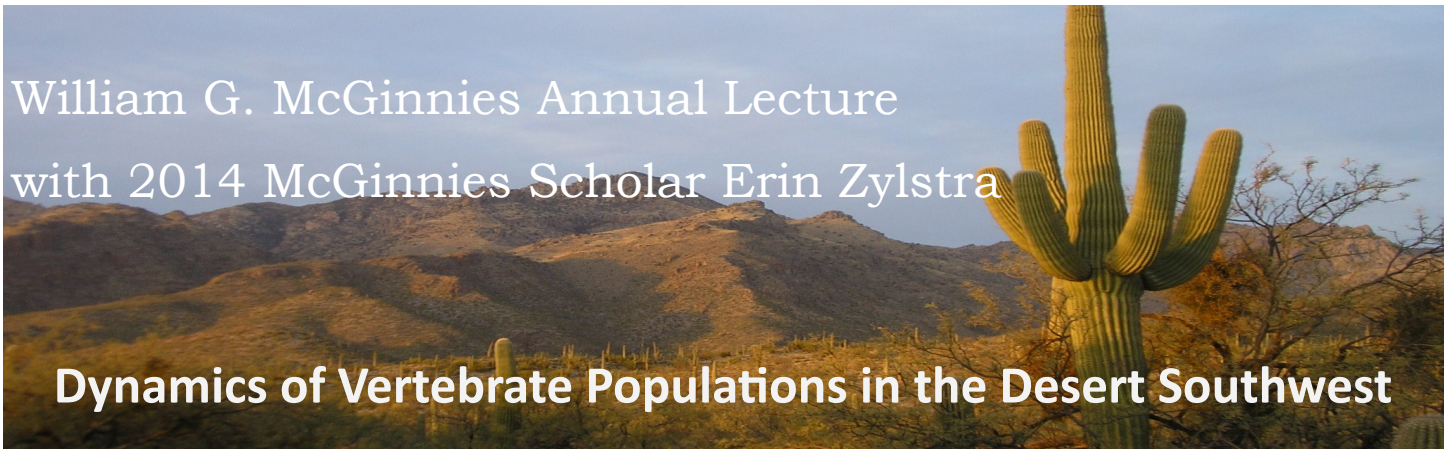

William G. McGinnies Annual Lecture

with 2014 McGinnies Scholar Erin Zylstra

Dynamics of Vertebrate Populations in the Desert Southwest

Date: Wednesday, March 25, 2015

Time: 12:00-1:00 PM

Location: BSE 225

Identifying the key biotic and abiotic factors that govern demographic rates is fundamental to ecology because they explain spatial and temporal patterns in abundance and distribution and are integral to developing reliable conservation strategies for threatened species. In the desert southwest and elsewhere, habitat for many species has been reduced or degraded due to an array of anthropogenic threats, especially changes in land-use and climate. Effects of these threats on vertebrate populations will vary depending on the life history, distribution, and mobility of each species. For a long-lived species such as the desert tortoise, for example, population persistence depends critically on high rates of adult survival. In the Sonoran Desert, spatial and temporal variation in survival of adult tortoises reflects periods of severe drought, which could affect long-term persistence if droughts increase in frequency or severity. In contrast, temporal variation in survival of an expanding population of Cooper's hawks reflects responses to intrinsic factors, specifically increases in nest density as the population approaches carrying capacity. For amphibians in the Sky Islands, variation in distribution and abundance reflects variation in hydrologic conditions, especially changes in surface water availability. Understanding the mechanisms that govern demography of vertebrate populations is essential to maintaining high biodiversity throughout the region, especially for species that depend on aquatic resources.

School of Natural Resources and the Environment | snre.arizona.edu