



SWES Colloquium Series 2014-2015

Department of Soil, Water and Environmental Science

Complex ecological effects of urbanization in arid ecosystems

Abstract: Urban landscapes cover less than 5% of Earth's land surface but are home to more than half of humanity and affect airsheds that extend tens to hundreds of kilometers past their borders. Combined with manipulative experiments, gradients within and across cities can be used as living laboratories to explore complex, sometimes bidirectional interactions between people and the ecosystems that support us. As a part of the Central Arizona–Phoenix Long-Term Ecological Research project (CAP LTER), my research group investigates both the direct and indirect effects of urbanization on plants, soils, and people. Our interdisciplinary studies have yielded numerous ecological surprises: Deserts appear to be 'nitrogen saturated' during most years; atypical microbial domains contribute to nitrogen cycling processes; and rates of nitrogen deposition are lower than expected in Phoenix (home to 4 million people and their cars) with a large contribution from NH₃. Our work in managed ecosystems have also yielded unexpected findings: Protected open space parks and desert yards within the city act as domesticated landscapes, exhibiting characteristics similar to both native desert and residential grassy lawns; and emerging water-wise landscapes converted from former turfgrass cause changes in human behavior that appear to contribute to large, hidden pools of nitrate beneath the soil surface.

Brief Bio

Sharon J. Hall is an Associate Professor in the School of Life Sciences and a Senior Scientist at the Global Institute of Sustainability at Arizona State University. She received a B.S. in Biology at Stanford University, a masters in Education (Ed.M.) at Harvard University, and a Ph.D. in Soil Science from UC Berkeley. As ecosystem ecologist, her work explores interactions between the atmosphere, biosphere, and social systems within the anthroposphere.



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Marley 230

Refreshments at 2:45



School of Earth and Environmental Sciences



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