Central Arizona-Phoenix (North Desert Village Suburban Expt)

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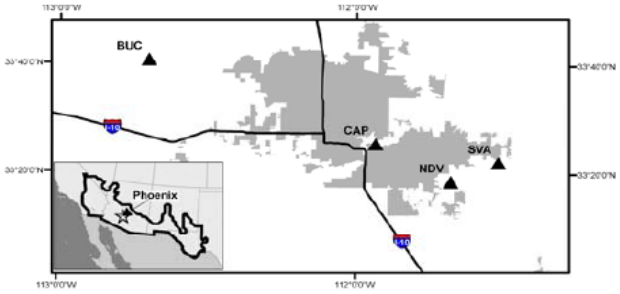
Web Page: http://caplter.asu.edu/)
Location (Lat-Long): 33.427, -111.933



*(Figure legend; (**CAP** = Urban Area; **NDV** = Neighborhood-scale experiment); **BUC**= (Urban Fringe; planned for future development); **SVA**= Urban Fringe; planned for future development).*

History: Long-term research site established in 1997, one of only two urban Long Term Ecological Research sites in the United States.

Key Characteristics: The 6400-km2 CAP LTER study area is located in the central Arizona and metropolitan Phoenix region, embedded in the Sonoran Desert, and situated in a broad, alluvial basin where two major desert tributaries of the Colorado, the Salt and Gila Rivers, converge. The basin, dotted with eroded volcanic outcrops and rimmed by mountains, once supported a vast expanse of low-land desert and riparian systems and now houses the fifth-largest city in the USA. Annual precipitation (~18 cm) falls in two distinct seasons, resulting in high biodiversity in desert areas. Undeveloped desert in the valley floor is dominated by widely spaced, low shrubs, primarily creosote, bursage, and brittle bush, while a rich and denser saguaro-palo verde forest covers the foothills. Urbanization has replaced native desert vegetation with mostly irrigated non-native plant species, with ramifications for higher trophic levels.

Existing infrastructure and long-term monitoring: Collaborations with numerous governmental agencies, as well as private and public research and education institutions provide a wealth of data resources, including but not limited to a network of > 50 weather stations; a vast network of stream and river gauging stations and water quality information; air quality monitoring stations; and historic series of landuse and landcover data. Long-term monitoring includes: atmospheric nitrogen deposition, plant productivity (ANPP), and soil biogeochemical processes at 15 Sonoran desert sites located upwind, within, and downwind of metropolitan Phoenix; avian, arthropod, and tree abundance and biodiversity at > 40 locations; a survey of a suite of ecological variables at over 200 locations encompassing the whole of the CAP LTER study area with a social survey corresponding to 40 of these sites; water quality of major streams and rivers; stormflow monitoring in a major urban drainage (to be added February 2007); micro-climate, plant and animal diversity, and social dimensions at a long-term, neighborhood-scale landscaping experiment; and an outreach program that has worked with teachers from > 75 schools in > 20 school districts throughout metropolitan Phoenix.

Existing facilities: CAP LTER has access to several laboratories, facilities, and equipment at Arizona State University (ASU). Laboratory resources consist of state-of-theart analytical (Goldwater Environmental Laboratory) and stable isotope (Keck Laboratory) facilities. Information technology laboratories and resources are comprised of the Global Institute of Sustainability Informatics Lab, the ASU Information Technology GIS Lab, and the Geological Remote Sensing Lab. Other facilities include three 10-m weather towers instrumented to monitor wind speed/direction, temperature, relative humidity, insolation, and precipitation at locations upwind, within, and downwind of metropolitan Phoenix; the ASU plant and lichen herbariums; and current and historic remotely sensed data incorporating a variety of sensor technologies.