Arbuscular mycorrhizal (AM) fungi are obligate symbionts of most desert plants and many urban landscape plants. Mycorrhizal relationships can be beneficial to plants and may be important factors in plant growth, nutrient status and response to biotic and abiotic stress. Prior to the onset of the Central Arizona Phoenix LTER, little was known about the diversity and functioning of these fungi in urban ecosystems. This poster will present research results from CAP1 on AM fungal diversity and functioning and indicate possible future directions for CAP2.

**METHODS**

**Diversity**

Samples were collected at sites in the Phoenix metropolitan area as part of the Central Arizona Phoenix (CAP) LTER Survey 2000. At each site, soil samples were collected from three trees nearest the plot-center. Soil samples were also collected along a chronosequence (ranging in time since development) from Fraxinus trees in Tempe AZ. Trap cultures were started from soil samples in the greenhouse to stimulate spore production. Spores were extracted by wet sieving and sucrose density gradient centrifugation, mounted on slides and identified using morphological characteristics.

**Functioning**

Pruning

Leucophyllum frutescens and Nerium oleander were planted in an experimental landscaped area located at Desert Botanical Garden in Phoenix and one-half of the shrubs were sheared (actively growing foliage clipped in a geometrical round shape) every 6 wk. Soils samples were collected in February and May, roots collected, stained and % AM fungal colonization assessed.

Greenhouse Experiment

Three common landscape trees (Acacia smallii, Fraxinus uhdei & Parkinsonia microphylla) were inoculated with AM fungal cultures collected in South Mountain Reserve or a residential landscape and grown for 5 months in a greenhouse.

**REFERENCES**

Bils, RJ and J.C Stutz 2005 Arbuscular mycorrhizal fungal species richness is lower in the Phoenix metropolitan area in comparison to the surrounding desert. CAP-LTER Symposium

