The goal of the present research is to utilize remote sensing tools to reconstruct the extent and impact of fires in a desert-urban environment. Our results indicate that simple band stretches and albedo data successfully discriminated burned versus unburned regions. Variations in reflectance values between burned and unburned regions can be related directly to density of vegetation in these areas.

Field work was conducted in early August 2001. Three field sites were located within fire scars and three additional sites were located outside fire scars. At each of the sites, three 100-meter modified belt-line transects located 25 meters apart were established to characterize the vegetation.

A F-max test of the woody vegetation count data revealed high heteroscedasticity in the vegetation data. A non-parametric analysis (Kruskal-Wallis ANOVA) of the field data revealed a significant difference between the number of woody stems in the burned and unburned areas.

Burned = 176.1 ± 71.2
Unburned = 307.9 ± 47.4
Kruskal-Wallis Test, Chi-Square = 5.08; P = 0.02

Composite spectra were derived from ETM+ band reflectance, visible to near infrared albedo, and calculated SAVI values for the field transect endpoints. Note the clear separation between unburned and burned transects in the visible to near infrared and albedo.