



**Quantifying Land Cover Change on the Catalina Piedmont, Tucson, Arizona, 1984-1998:
Application of remote sensing and GIS analysis techniques**

Kathryn Mauz
 Arid Lands Resource Sciences and Arizona Remote Sensing Center, University of Arizona, Tucson 85719
 email: kmauz@u.arizona.edu

INTRODUCTION

Rapidly expanding urban areas are ranked among the most serious threats to regional biodiversity in the Sonoran Desert. One of the several consequences cited of urbanization is habitat fragmentation - the reduction in size and segregation of areas of suitable habitat as a result of residential and other forms of development. This study investigates land cover change between 1984 and 1998 in the northeast Tucson urban area using satellite remote sensing imagery. Changes in the density of urban land cover and the relationship of urban land cover to washes on the Catalina Piedmont are analyzed.

SUMMARY OF FINDINGS

- The total area of urban land cover in the study area increased from 13% in 1984 to 25% in 1998.
- Density of nonurban land cover decreased in 16% of the study area.
- Density of urban land cover increased in 4% of the study area.
- Area of urban land cover within 15 m, 25 m, and 50 m of mapped washes in the study area increased significantly between 1984 and 1998.
- The proportion of urban land cover within Class I Habitat areas did not increase significantly, however the increase of urban land cover within the Class II Habitat areas was significant.
- The results of this analysis suggest that riparian habitat protection ordinances are often effective where they apply, but that unclassified washes may be vulnerable to habitat loss as development continues.