

Patterns and Institutions of Land Use on Indian Communities

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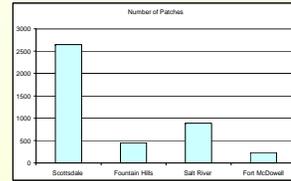
Introduction

Land use and development in Indian communities is regulated by a set of unique policies which differ not only from municipalities, but also from each other. The Phoenix metropolitan region contains several Indian communities including the Fort McDowell Yavapai and Salt River Pima-Maricopa Indian communities that are surrounded by the Central Arizona-Phoenix (CAP) Long-term Ecological Research Study Site. A better understanding of land use dynamics within these communities is a valuable step in our assessment of social-ecological dynamics integral to CAP research efforts.

In this study, measurements of landscape fragmentation on Indian communities are compared to two adjacent valley cities illustrating variation in patterns of land development. In addition, a preliminary investigation of institutions influencing these patterns are discussed.

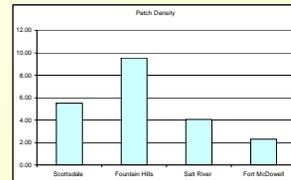
Spatial Data

The following indices* show different levels of fragmentation in land cover between the Ft. McDowell and Salt River Pima Maricopa Indian Communities, Scottsdale and Fountain Hills.



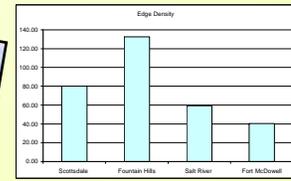
Number of Patches – Total number of patches in each municipality, reflecting size and type of development.

Patches are classified by differences in land cover, so a higher number of patches shows a much greater diversity in land use in Scottsdale than the other municipalities.



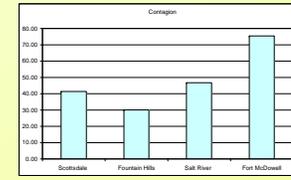
Patch Density – Number of patches divided by the total landscape area. Shows density of development relative to the size of the municipality.

The lower patch density of the Indian communities may reflect more agriculture and industrial land use which produces fewer, larger patches than commercial and residential land uses.



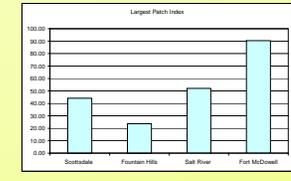
Edge Density – Sum of all edge segments divided by the total landscape area.

High density index reflects a higher level of fragmentation for Fountain Hills and Scottsdale based on higher numbers of patches and points of contact between patches with dissimilar land covers.



Contagion – Measures likelihood of same-class patches to be neighboring. A low contagion index is produced by landscapes with smaller patches and higher fragmentation.

Contiguity of like-classes is a significant factor in efficient service provision (water, electricity, etc.) as well as the conservation of ecosystems.



Largest Patch Index - The percentage of the landscape comprised by the largest patch.

As a relative measurement of patch size, higher LPI on Indian communities indicates more unified land cover.

* Indices produced with FRAGSTATS using data from the 2001 National Land Cover Database,

Institutional Analysis

Through the Dawes Act (1887), reservation land was parceled and allotted to individuals. As an attempt to assimilate the Native population into the greater economy, the act was deemed a failure. Since then, the Indian Reorganization Act (1934) and subsequent policies have attempted to reestablish self-governance on Indian communities through limited sovereignty at the tribal level. These policies have created unique institutions which may explain variation in land cover and land use patterns between Indian and non-Indian municipalities. Further research will better define the roles these institutions play in driving and restricting urban growth in Phoenix.

Tribal Governance

Established through Tribal constitutions, the Tribal Council, a body of community-elected officials are responsible for land use decisions including zoning, tribal business ventures and lease to non-community parties. The centralized structure of Tribal governance may produce more cohesive development than other municipal governments. Both Indian communities share this political structure, although the council of the Salt River Pima-Maricopa represents two districts and two distinct tribal groups, while the Ft. McDowell Yavapai community is comprised of one tribe and voting district.

Property

Land ownership on Indian communities is restricted to community members with proven tribal affiliation. As a result, land-lease partnerships are required for outside development on properties within Indian communities. The Ft. McDowell Yavapai and Salt River Pima-Maricopa both actively engage in such partnerships. The Ft. McDowell Yavapai own and co-manage a Radisson Resort located on tribal property and the Salt River Pima-Maricopa created the Salt River Development Company to facilitate cooperation between Community members and development projects.



External Regulation

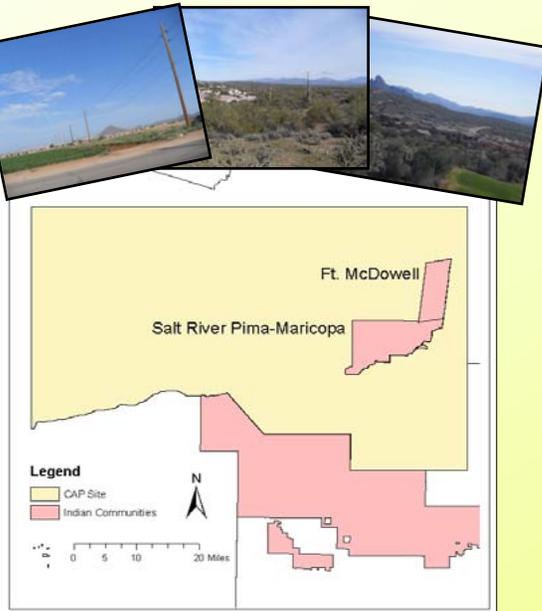
Perhaps one of the most influential policies affecting land use within the Indian communities is Indian Gaming law. Agreements between Indian communities and State and Federal governments are not uniform. As a result, communities have different economic opportunities.

The Fort McDowell were among the first Arizona tribes to secure a gaming compact and have operated a casino, their largest source of revenue, since 1988. In contrast, the Salt River Pima-Maricopa were among the last to gain gaming rights, relying on a more diversified portfolio of tribal ventures including a landfill, rock quarry, shooting range, and office park construction.

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Preliminary Findings

Indian communities have less overall development and less fragmented land cover than neighboring valley cities. This could be related to policy mechanisms which slow and regulate different types of growth.