



Landscape Pattern

IMPORTANCE

Landscape characteristics, such as land use, land cover, and patterns of habitat fragmentation, habitat connectivity, patch size, patch distribution, etc. can be critical determinants of ecosystem function. Changes in these characteristics and patterns resulting from urbanization are among the most important anthropogenic stressors to parks within the Mediterranean Coast Network, particularly the Santa Monica Mountains National Recreation Area. There are direct connections between habitat loss and fragmentation and changes in wildlife communities and populations. Habitat patch size and connectivity of habitat patches is a significant factor in many animal species community characteristics. Artificial features such as roads are significant barriers to habitat connectivity and can limit the movement of many animal species. Aside from these direct connections, landscape pattern and land use also has major implications for fire frequency, non-native species distributions, water quality, air quality, and soil erosion.

OBJECTIVES

- Evaluate the connections among habitats within the park
- Demonstrate how changes in habitats and land use within the park affect ecosystem health
- Analyze whether the types and abundance of plants and animals within a habitat vary with the passage of time



Urbanization is among the most important anthropogenic stressors to parks within the Mediterranean Coast Network.



Habitat loss and fragmentation can alter wildlife communities and populations.

MONITORING EFFORTS

Measures to detect landscape change can be obtained relatively easily through remote sensing and automated procedures. Not only will this provide a lot of information efficiently, but it may also enable us to extrapolate results of local monitoring efforts to other areas facing similar issues. Preliminary monitoring efforts include:

- Acquiring, on a periodic schedule, current high resolution aerial imagery and updated GIS layers for roads, land ownership, and land use/land cover.
- Preparing a formal report displaying various land use and habitat structure maps, summary statistics, comparison with historic information and identification of trends, summary discussion on the status of various resource and land use conditions and issues, and projects for area of concern where past changes can provide early warning of impending changes that can affect park resources.
- Using basic landscape descriptors calculate indices of landscape integrity such as N (the number of patches) and p (the proportionate distribution of patches).
- Comparing relative changes in landscape integrity testing the null hypothesis of no change in landscape integrity.

MANAGEMENT IMPLICATIONS

Measurement of changes in land cover and landscape pattern will provide critical correlative information for other monitoring programs, allowing us to examine changes in other indicators relative to changes in landscape pattern.

For more information:

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