Chapter 7
Wildlife Habitat Evaluation

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ABSTRACT

Before an individual can evaluate wildlife habitat and make management recommendations, some basic concepts about habitat and its relationships to different wildlife species should be understood. In this chapter, some of the basic concepts will be described; mainly analyzing of habitat alterations, landscape analysis, networking and creation of corridor between protected areas, wildlife habitat suitability analysis using Remote Sensing & GIS. Since most of the contest will be based on these concepts. Like other natural resource fields, wildlife management is both an art and science that deals with complex interactions in the environment. This means that management includes art or judgment based on experience as well as sound factual information based on scientific studies.

INTRODUCTION

The worldwide destruction of natural environment is reducing the number of species and the amount of genetic variation within the individual species. There are two principal approaches for protecting and managing nature:

1. To ensure survival of population of a given species abundantly.
2. Conservation of natural community in their original habitats.

During early seventies the 'Protected Area' concept obtained wider acceptability to check the process of depleting biodiversity. In India, this diversity is reflected in the fact that as many as 10 biogeographical regions representing three basic biomes and two natural realms are met (Champion et al., 1968). Major threats to biodiversity include habitat alteration, overharvesting, pollution, climatic change, introduced species and population increase. Of these, habitat alterations due to deforestation, habitat loss, fragmentation and degradation are primarily responsible (McNeely et al., 1990).

DOI: 10.4018/978-1-5225-7033-2.ch007

ANALYSING HABITAT ALTERATIONS

Tropical forests are facing disturbance of varying magnitudes in the different regions. The disturbances are leading to the following changes in the habitats:

- Loss of particular species and change in cover characteristic.
- Degradation due to reduction in canopy density.
- Changes in understory vegetation and invasion of exotic species.
- Fragmentation of forest areas leading to the loss of corridors, depletion of minimum habitat areas and reduction of home range.
- Habitats are often very susceptible to degradation viz., fire, overgrazing and cultivation. These factors make it difficult for original vegetation to reestablish (Gupta, 1991).

Above situation justifies the need of well- structured information system, which can allow access to the stored data and monitoring at very short time space. The continuous monitoring and habitat inventory should permit detection of changes related to the both, the habitat components and the immediate population for the analysis of their interrelationship and cause of change.

LANDSCAPE ANALYSIS

Evaluation of landscapes has emerged as an important branch to study structure and function and changes in the landscapes. Remote sensing provides information with respect to the homogeneous spatial units. The interrelationships of these units can be best evaluated through landscape analysis. Each landscape is formed of several landscape elements, which appear as patches and vary markedly in size, shape, type, and heterogeneity and boundary characteristics. Analysis of these parameters brings out the disturbance gradient in various habitats (Gupta et al., 2014). The remote sensing derived vegetation maps provide perspective horizontal view and helps in delineating different landscape elements and their spatial characteristics. (Gupta 2014) used satellite derived vegetation map for analyzing landscape elements of TehriGarhwal region. The analysis brings out structural and quantitative landscape perspective in the three management zones of the national park. The patch characteristics of vegetation units viz., size, shape, porosity and patch density has been studied. Medium patch size and porosity have been found to be the most important parameter to discriminate differences in the ecological status of three different zone of the park. The patchiness and shape of different vegetation types also provide valuable information and characteristics of the native, seral and retrogressive vegetation forms (MadhvanUnni, et al., 1990).

NETWORKING AND CREATION OF CORRIDOR BETWEEN PROTECTED AREAS

Forest area managed for wildlife should have a network of patches of old growth forest joined by dispersed corridors of similar structures and composition. Such corridors are multipurpose: