Introduction

The concept of historical variability has emerged as a paradigm in ecosystem management, specifically forest management, restoration, and landscape restoration. This approach is based on the premise that ecosystems are characterized by inherent variability, resulting from both natural and anthropogenic causes. Understanding this variability of landscape management is essential because it presents a framework for designing management strategies that are context-dependent and region-specific. The goal is to balance the range of landscape types for management strategies that can promote or maintain the desired ecological function. Numerous studies of historical variability are needed to provide frameworks for comparing ecosystem structure, function, and condition across the range of possible historical conditions. This model describes an electronic circuit for simulating historical variability in landscape patterns of the Oregon Coast Range.

Methods

The spatial extent considered for the 3000-year (3000 YBP) model was the Oregon Coast Range program. The modeling strategy is to analyze the frequency and intensity of fire occurrence from a historical perspective. The model was parameterized for the 3000-year period, following the historical landscape of the Oregon Coast Range. The model was developed using a set of spatial and temporal data from a number of sources: historical, bioclimatic, and ecological studies. The model was designed to simulate the historical landscape as a function of climate, topography, and land use. The model was calibrated to historical fire severity classes, fire return intervals, and landscape patterns. The model was tested with historical data from the Oregon Coast Range program.

Results

1. Period of intensive burning had persistent effects on the vegetation and landscape structure. Celts classified as structure classes were in arid inland regions, and TPRF (time since last fire) was assumed to be a measure of the area burned. The model was developed using a set of spatial and temporal data from a number of sources: historical, bioclimatic, and ecological studies. The model was calibrated to historical fire severity classes, fire return intervals, and landscape patterns. The model was tested with historical data from the Oregon Coast Range program.

Discussion

1. Modeling disturbance responses requires specialized knowledge of landscape structure, the presence of spatial networks, and understanding the effects of different types of disturbances. Simulated biological responses of various types of vegetation and landscape structure classes were compared with results from a 3000-year model run. The simulated biological responses of various types of vegetation and landscape structure classes were compared with results from a 3000-year model run.